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Implementation of the K–12 Education Reform in Qatar’s Schools

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Prepared for the Supreme Education Council



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Preface

The leadership of the Arabian Gulf nation of Qatar sees education as the key to Qatar's economic and social progress. Long concerned that the country's education system was not producing high-quality outcomes and was rigid, outdated, and resistant to reform, the Qatari leadership approached the RAND Corporation in 2001, asking RAND to examine kindergarten through grade 12 (K–12) education in Qatar and to recommend options for building a world-class system consistent with other Qatari initiatives for social and political change. RAND proposed several reform options; after selecting one that involved system-wide structural change, the leadership asked RAND to further develop the option and support its implementation. This work, which was carried out over a four-year period, provided RAND with the unique and exciting opportunity not only to observe a major reform effort from the ground level, but also to participate in its implementation. The first phase of the K–12 school reform effort is documented in a RAND monograph by Dominic Brewer et al.: *Education for a New Era: Design and Implementation of K–12 Education Reform in Qatar*, 2007.

This current monograph describes follow-on work that RAND conducted to assess the reform's implementation in Qatar's schools. Researchers and policymakers concerned about the design and implementation of education reform may find value in what is relayed here. An earlier version of this document, one that included an examination of the reform system, was provided to the sponsor as an aid in evaluating the reform and establishing its future course.

More detailed information about the reform can be found at Qatar’s Supreme Education Council Web site: <http://www.education.gov.qa> (Arabic version, with a link to the English version). Further information about the RAND project supporting the reform initiative can be found at <http://www.rand.org/education/>.

This project was conducted under the auspices of RAND-Qatar Policy Institute (RQPI) and RAND’s Education unit. RQPI is a partnership of the RAND Corporation and the Qatar Foundation for Education, Science, and Community Development. The aim of RQPI is to offer the RAND style of rigorous and objective analysis to clients in the greater Middle East. In serving clients in the Middle East, RQPI draws on the full professional resources of the RAND Corporation. RAND Education analyzes education policy and practice and supports implementation of improvements at all levels of the education system.

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Summary

Background

In 2001, the Qatari leadership asked the RAND Corporation to undertake a broad-based examination of the nation's kindergarten through grade 12 (K–12) education system and propose a strategy for reform. This request was motivated by concerns that, in general, students were leaving Ministry of Education schools without the academic proficiency needed to pursue post-secondary education in Qatar or abroad and without the skills needed for many high-demand, high-skill jobs in the expanding economy. Building the capacity of each citizen would enable Qatari nationals to take charge of the country's rapid growth and replace the foreigners who fill many managerial and professional jobs because of the dearth of qualified Qataris.

Designing and Implementing the Reform

After reviewing options presented by RAND, the Qatari leadership selected a system-wide structural reform plan that encouraged qualified persons with innovative ideas (including non-educators) to apply to run new government-funded schools, called Independent schools, under contracts with the government. The reform plan was based on four principles: autonomy, accountability, variety, and choice, as follows:

Autonomy. The Independent schools would operate autonomously, subject to conditions specified in a time-limited contract.

Accountability. The Independent schools would be held accountable to the government through two mechanisms. First, potential

operators would apply to open an Independent school and enter into a contractual arrangement. Second, each Independent school would be regularly evaluated through a number of measures, including standardized student assessments. Evaluation data would be made available to all stakeholders; these evaluations would inform parent school choice. Because funding was tied to enrollment, schools would be accountable to parents and students.

Variety. Each Independent school would be free to develop its own educational philosophy and operational plan, thereby promoting variety. The contracting authority could also provide incentives to ensure diversity.

Choice. Parents could use assessment data and other school information to choose the school that best fit their children’s needs. Competition for students would force all government-funded schools—traditional and Independent—to be more responsive to parents’ demands.

Embedded within the reform plan were the elements needed to support these principles:

- Publicly funded but independently operated new, innovative, and high-quality schools
- Systematic, objective monitoring and evaluation of school and student performance through standardized assessments in four subjects—Arabic, English, mathematics, and science
- Instruction and assessments built on internationally benchmarked curriculum standards
- A range of professional development opportunities for teachers and administrators.

Qatari leadership asked RAND to further develop this option and support the implementation of the reform, which became known as *Education for a New Era*. The institutions that would drive this structural reform were founded: the Supreme Education Council (SEC), which had general oversight responsibility; the Education Institute, which was charged with developing curriculum standards, chartering and overseeing the new Independent schools, and supporting school improvement; and the Evaluation Institute, whose mandate was to

develop assessments, collect data, and use those data to motivate the central reform goal of improved student performance.

The first generation of Independent schools, 12 in number, opened in 2004. By Fall 2006, 46 Independent schools were in operation alongside the Ministry of Education schools and private Arabic schools. New curriculum standards benchmarked to those of high-performing nations were guiding curriculum and pedagogy in the Independent schools, and the core components of the accountability system underlying the reform—national tests in four subjects aligned to the curriculum standards, national surveys of system stakeholders, and school report cards—were in place. Independent school teachers and administrators were taking advantage of new professional development opportunities available in their Independent schools and through the Education Institute.

Evaluating the Progress of the Reform

In 2005, the SEC, in its role as overseer of the reform, asked RAND to monitor, evaluate, and report on the development and quality of the Independent schools. To examine the progress of these schools, the RAND team conducted observations in both Independent and Ministry school classrooms from Fall 2005 to Spring 2007. During these observations, we looked for evidence of student-centered classroom instruction; emphasis on student acquisition of analytic and critical thinking skills; implementation of curriculum standards in Arabic, mathematics, and science; use of English in mathematics and science classes; and support for teachers' professional development. We also examined employment patterns in Independent schools, parent support for and involvement in Independent schools, and the effects of policy changes that had occurred since the reform's inception.

Study Design, Methods, and Data Collection

The study design featured two complementary approaches: a case study analysis of classroom- and school-level data from 16 schools (four Ministry schools, and 12 Independent schools representing different levels

of Independent school experience) to provide detailed process information, and an analysis of national survey and student performance data to evaluate system-wide trends and a key interim reform output—the academic performance of Independent school students relative to that of their Ministry school peers.

Members of the RAND study team made 104 visits to the schools in the sample, conducting 180 interviews with principals and administrators and 114 focus groups with teachers, students, and parents from November 2005 through May 2007. The study team also observed 204 classes to assess the degree to which Independent school classroom practices were student centered and consistent with reform goals. Curriculum experts in Arabic, mathematics, and science examined the implementation of the new curriculum standards and the use of English in mathematics and science classrooms.

In addition to visiting the schools, we analyzed teacher behavior and the attitudes of teachers, parents, students, and administrators using 2004–2006 national survey data from the Qatar National Education Data System (QNEDS) to compare school characteristics, teacher characteristics, and instructional practices in Independent and Ministry schools. We also analyzed Independent and Ministry school student performance data from the 2005–2006 Qatar Comprehensive Educational Assessment (QCEA), controlling for students’ academic achievement scores from the previous year’s exam (2004–2005).

The data on which our study findings were based were collected between 2004 and 2007. Since the RAND study team conducted no follow-up work after that time, this monograph covers only those early years of the reform’s implementation.

Key Findings

Our findings indicate that the reform was working in its early years and that more progress was needed. We found, first, that the Independent schools were quite different from the Ministry schools in many ways and that, for the most part, principals, teachers, parents, and students recognized and appreciated those differences. Second,

there had been few changes in the Ministry schools during the reform's first years. Third, while reform institutions and components were in place, policy changes during the early years resulted in uncertainty and concern among stakeholders, potentially limiting the reform's future power. Finally, Independent school students outperformed their Ministry peers during the period studied.

Independent Schools Differed Markedly from Ministry Schools in Teacher Recruitment and Professional Development

Independent schools were to be allowed more autonomy to direct teacher recruitment, hiring, and retention than were Ministry schools, where principals and teachers were assigned to their positions by the Ministry of Education. However, during the period studied, teaching-staff decisions in the Independent schools were increasingly constrained by the introduction of hiring targets calling for a minimum percentage of teachers to be Qataris. Moreover, teacher hiring and retention proved challenging for Independent schools because of how Qatari teachers perceived the working conditions in these schools relative to those in the Ministry schools—e.g., longer working hours, more-demanding work, and no job security.

Independent school teachers were more likely than their Ministry counterparts to report having engaged in professional development activities consistent with the reform's expectations: instructional methods, approaches to assessment, use of technology, strategies for teaching students with different abilities, curriculum planning, and the new Qatar curriculum standards.

The Move to a Standards-Based Curriculum Led to Both Difficulties and Rewards for Independent Schools

A key component of Qatar's K–12 school reform was its stringent curriculum standards in four core subjects—Arabic, English, mathematics, and science—and expectations that Independent schools would develop standards-based curricula and instructional materials. The transition from the Ministry's entirely predetermined course of study to one that was to be selected or developed by principals and teachers was not easy. Teachers in the Independent schools raised concerns

about the extra workload required for curriculum development, particularly in the first year of a school’s operation; and some principals, teachers, and parents expressed a lack of confidence in the ability of teachers to perform this function. Nevertheless, Independent school teachers reported that they “often” used material developed *with* others in their school. The collaborative nature of curriculum development in Independent schools suggested that teachers were more-active participants in the learning process of their students. QNEDS data also indicated that Independent school teachers were much more satisfied with the physical environment and resources available in their schools than were Ministry teachers.

To mitigate the concerns of parents and others about the initial elimination of prescribed textbooks in Independent schools and the resulting reliance on teacher-developed curriculum and materials, the Education Institute provided Independent schools with a list of recommended textbooks that could form the basis for the curriculum. The new policy provided guidance but still encouraged Independent school teachers to seek variety and relevance in the instructional materials they used in their classrooms.

Independent Schools Were More Student Centered Than Were Ministry Schools

In 2005–2006, classroom practices in Independent schools were more student centered than were those typical of Ministry schools, and Independent school teachers were more actively trying to engage students than were Ministry teachers. Our analysis indicated that Independent school teachers were also demanding more of their students in terms of thinking skills, a crucial goal of the reform.

Independent school teachers reported using new student-centered pedagogical approaches more often than did Ministry teachers, which was not surprising given that Independent school teachers were receiving more professional development than were their Ministry counterparts. Independent school teachers were clearly working hard to implement the new curriculum standards. However, while the content was being conveyed, demands for higher-order thinking were still relatively limited. Materials that teachers were selecting and developing were

sometimes inadequate and were not always completely aligned with the curriculum standards. Use of English in mathematics and science classes was uneven because of the lack of English proficiency among teachers and students.

Students and Parents Demonstrated a Higher Level of Satisfaction with Independent Schools Than with Ministry Schools

During these early years of the reform, Independent school students were happier with, more interested in, and more satisfied with their school than were Ministry students. Independent school teachers reported that their students were more motivated to learn, and attributed this to better facilities (particularly the availability of computers), more-active learning, and the fact that Independent school teachers had more autonomy and exerted more effort to engage their students. Compared with Ministry school students, Independent school students reported that they were proud of their school more often and were more satisfied with what it offered. Finally, Independent school parents were more involved in and were generally more satisfied with their children's school than were Ministry parents.

There Was Little Evidence of Change in Ministry Schools

Ministry schools were not expected to make significant changes in the short term because they had few incentives to alter long-established patterns. For example, an important incentive for system change—parents' ability to exercise school choice—could not come into play until more Independent schools were established. In addition, the Ministry system's highly centralized nature made change of any sort at the classroom level difficult to achieve. Further, the motivation to initiate immediate changes was reduced when the SEC directed that all Ministry schools would participate in a phased conversion to Independent school status.

While some Ministry teachers were taking advantage of professional development options in the reform and were familiar with the new standards, most reported that they rarely implemented what they had learned in their classrooms. Classroom practice data from the Min-

istry schools in the sample indicated little to no movement from the teacher-centered, traditional practices that typified Ministry schools.

Frequent Policy Changes Negatively Affected the Reform Effort

In response to concerns that arose as implementation of the reform began, the SEC revised many policies during the reform’s first years. The large number of changes over a short period fostered a sense of instability among some Independent school administrators, who grew increasingly reluctant to attempt innovations, especially those that involved an element of risk. Moreover, some of the changes, such as a Qatarization policy that set quotas for the percentage of Qataris employed in specific sectors, including Independent schools, imposed constraints on Independent school operators. One new requirement, that all Independent school operators be Qatari, be qualified principals, and serve as principal in their school, threatened to reduce school variety. Another decision, this one to limit the involvement of school support organizations (SSOs)—cadres of international experts who worked daily to build capacity in a single Independent school—to one year of support, left some Independent schools inadequately prepared to carry out the many tasks that the reform demanded.

Independent School Students Generally Outperformed Ministry School Students, But Overall Achievement Was Low

Standardized testing of students and publicly reported school-level results were key elements of the reform design. Because of data limitations, RAND’s detailed analyses of student achievement included only students in grades 4, 5, and 6. Our results indicated that students in Independent schools outperformed students in Ministry and private Arabic schools in both Arabic and English. Independent school students assessed in Arabic also outperformed Ministry school students in mathematics and science, although Independent school students assessed in English tended to receive lower mathematics and science scores than did their Ministry peers. However, better Independent school student performance must be viewed against what were generally low levels of academic achievement among all students.

Key Recommendations

Overall, the *Education for a New Era* reform achieved important successes in its early years. The Independent schools showed clear progress in applying new student-centered curricula and teaching methods. Early test score data indicated better student outcomes for Independent schools compared with Ministry schools. To build on these successes, the Qatari leadership needs to address concerns identified in this study.

Limit Policy Changes

For such a young reform, the number of policy changes that directly affected the Independent schools was substantial. While many of these changes responded to issues that arose during implementation of the reform, they nonetheless contributed to a climate of uncertainty that sometimes deleteriously affected both motivation and innovation. RAND therefore recommends that policy changes be limited as much as possible. When new rules, regulations, and other policy changes are necessary, we advise that careful consideration be given—in advance of their implementation—to how they are likely to affect current practice and system performance. Although conflicts between and among goals cannot always be eliminated, the articulation of inherent tensions can be helpful.

Increase Support for Schools and Teachers

Independent schools need help in identifying materials that support standards as well as ideas for encouraging more-innovative use of surplus funds. Teachers need help in translating standards into practice. One way to do this is to retain SSOs in new Independent schools beyond one year. Another way might be to develop and institute incentives to keep highly competent and experienced teachers in Independent school classrooms rather than rewarding them with administrative positions, which is a Ministry school policy that many teachers have come to expect. Developing programs to help teachers improve their English-language proficiency would be highly beneficial. And as part of the larger picture, attention should be devoted to raising the overall

status of teaching. Such innovative measures as flexible schedules and job sharing might make the profession more attractive, particularly to teachers with families.

Review Student-Assessment Policies, Particularly Those Related to the Use of English as the Language of Instruction and Testing

Even though Independent school students were achieving at higher levels than their Ministry school counterparts, there are issues with the QCEA system that deserve attention. The language of assessment proved to be a major contributor to student performance: Independent school students whose mathematics and science skills were assessed in English tended to perform worse than Ministry school students whose skills were tested in Arabic. While the Independent school students were allegedly being instructed in the English language, they may not have been sufficiently proficient in English to understand the classroom instruction or the assessment questions or to express themselves well in English. The findings from our analysis suggest that policies on language of assessment that link language of assessment to language of instruction need review. We also recommend that all students continue to undergo QCEA assessments. Finally, as a way to increase performance motivation, we recommend that the QCEA be revised so that performance has consequences for individual students.

Adopt Approaches That Encourage Parents to Support High-Quality Education for Their Children

Part of Qatar’s school-reform initiative focuses on helping parents make informed choices about which schools will best serve their children’s needs. Developing a composite index that ranks schools according to student performance and other valued outcomes would inform parent decisionmaking and inspire healthy competition among Independent schools. Also, rewards could be developed for Independent schools that promote the parent engagement strategies outlined in each school’s operating agreement. Finally, workshops for parents could introduce new curricula, present strategies for helping their children succeed academically, and aid them in understanding school report cards.

Qatar's reform has shown significant early success, and its huge potential for offering Qatar's children a world-class education has not abated. But to realize that potential, policymakers would do well to address the challenges identified in our study and to work to improve the functioning of the nation's teachers and schools. The areas highlighted in this monograph are intended to more firmly establish the reform on a positive course for future growth and development.

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Introduction

In Summer 2001, the ruler of the state of Qatar, His Highness Sheikh Hamad bin Khalifa Al Thani, asked the RAND Corporation to examine, and ultimately to help improve, the country's kindergarten through grade 12 (K–12) school system, which at that time consisted of 220 schools employing 9,218 teachers and administrators and serving 72,325 students (Ministry of Education, 2001, p. 353). Qatar's leadership had at that time, and continues to have, ambitious plans for the country, plans that depend on a well-educated citizenry and strong future leaders. The nation's leaders were well aware that students who left the nation's Ministry of Education schools were, in general, not prepared to take on the responsibilities of leadership or to participate effectively in Qatar's expanding economy. Few had the academic proficiency or fluency in English or other foreign languages to pursue post-secondary education abroad or in Qatar's new Education City, which houses branch campuses of prestigious foreign universities. Most lacked the skills required for future managers, professionals, and leaders in industry and government.

Because of its small population, Qatar must build each citizen's capacity as much as possible if Qatari nationals are to drive and manage the country's growth. This requires a cohort of leaders that can be trusted to run the major industries, oversee the banking sector, and support the nation's rapid growth, replacing the expatriates who currently fill many of these jobs in the absence of qualified Qataris. Indeed, over the past several decades, the government has initiated several "Qatarization" programs to increase the number of Qataris in the

workforce.¹ However, there is now widespread recognition that guaranteed government employment (with its generous benefits), cultural traditions, and a poor education system are jointly contributing to limited work motivation and aspirations among Qataris, making the goal of Qatarization challenging.

Past Efforts to Reform Education in Qatar

During the 1990s, several efforts were undertaken to improve the education system, including the introduction of educational technology into classrooms and computers into central education administration, the development of school libraries, and the diversification of secondary education through new courses for students. In 1999, three new schools were opened: one vocational school and two scientific secondary schools, one for boys and one for girls. They were followed in successive years by two scientific elementary schools and two scientific preparatory schools. Collectively, the scientific schools are known as the scientific complex, and much of the instruction is done in English.

Although introduction of the scientific complex schools represented a clear move toward reform, most schools operated by Qatar’s Ministry of Education remained unchanged, and the system continued to be plagued with problems. Many students sought private tutoring, and many were held back each year. On average, those who did graduate were not prepared for either post-secondary education or the workplace. For example, the secondary school exit examination requires

¹ According to a 1962 Qatari labor law, a vacant position in the workforce must be offered to a Qatari before it is offered to anyone else. If no Qatari takes the position, it can be offered to a non-Qatari Arab and then to a non-Arab foreigner. In the early 1970s, a decision was made to Qatarize administrative posts in the government sector. By the 1990s, 96 percent of the top school-administrative positions were held by Qataris. In May 1997, the Emir decreed that private-sector businesses must ensure that at least 20 percent of their employees are Qataris. Employers now compete for Qataris who have developed specific skills in high-demand fields, such as engineering and finance. However, a recent analysis indicates that Qatarization policies are not working, partly because of the education system’s limited ability to produce Qataris trained for jobs that require high skill levels (Stasz, Eide, and Martorell, 2007).

students to get only 50 percent of items correct to achieve a passing score. Yet according to Ministry of Education data, about 20 percent of students failed the examination in 2001. Furthermore, a significant proportion of the students who passed that examination did not perform well on the Qatar University (QU) entrance examinations. In 2001, only 47 percent of those taking the exam achieved high enough scores to be accepted into at least one of QU's colleges (Ministry of Education, 2001).

RAND's Analysis of Qatar's K–12 System

As a first step in helping Qatar's leadership design a new K–12 education system, RAND carried out an analysis of the existing system.² This analysis revealed that the system was fraught with problems, most of which were widely recognized. A key problem was the rigidity of the Ministry of Education, whose insular, bureaucratic structure strongly discouraged innovation and limited communication both within the Ministry and with stakeholders. Students and parents received no feedback apart from students' scores on examinations administered at mid-term and the end of the semester.

At the school level, administrators had virtually no authority over any aspect of their students' education. The Ministry assigned teachers and other staff to schools without consulting with the principals. Teachers with poor performance reviews were often "demoted" to lower grades while better performers were promoted to higher grades, and teachers were often assigned to teach subjects for which they had little or no training. Principals were able to evaluate teachers but only in conjunction with Ministry inspections. Once assigned to schools, Qatari teachers had few options for professional development, and expatriate teachers were ineligible for them. Although Ministry inspectors regularly visited classrooms, their job was to ensure compliance with the

² The results of RAND's analysis are fully documented in Brewer et al., 2007, and are also available in two shorter forms—an executive summary and a research brief—all of which are available at www.rand.org.

mandated curriculum rather than to support or mentor teachers. The Ministry provided texts linked to a single, nationally mandated curriculum that was revised at the rate of one grade level per year, virtually ensuring that much material was out of date. Moreover, both curriculum and instruction emphasized rote memorization and adhered to a rigid schedule that permitted no attention to student differences or student progress. At the system level, no one was held accountable for student performance. The Ministry did not conduct evaluations at either the school or the system level. Substantial education resources stayed in the Ministry to support a large central Ministry staff. Meanwhile, school buildings were old, and classrooms were overcrowded and lacked modern equipment and supplies. Teachers’ salaries were low compared with those of other nations. Because Qatari men found classroom teaching unappealing, most male teachers were expatriates. As such, these teachers were subject to annual contract renewals, causing many of them to worry about losing their position if they actively disciplined their students or displeased Ministry inspectors in some other way.

RAND’s analysis also revealed some positive forces for change. Many teachers and students appeared to be highly motivated and enthusiastic about having a more active role in the learning process. School leaders wanted more autonomy and more authority over their schools, and some had ideas for developing special programs to increase student motivation and participation. Additionally, parents appeared open to the idea of new schooling options.

Design of the Reform

RAND’s initial assessment of the Qatari school system indicated that a system-changing reform was needed because existing institutional arrangements were not producing desired results. In 2002, RAND proposed three models for achieving the reform.³ The Emir chose the Independent School Model, which called for leaders with innovative

³ The three models are described in Brewer et al., 2007, pp. 52–56.

ideas (including persons who might not be educators) to apply to run schools under contracts with the government. The goal for the new system was to improve education in Qatar by generating a variety of schooling alternatives—with different missions, curricula, pedagogy, and resource allocation models—and then to hold schools accountable for student performance through the provision of information about schools, through parent choice, and through minimal government oversight.

The *Education for a New Era* reform was designed around four principles, some that would be implemented immediately and some that would become operational over time:⁴

- *Autonomy.* The new, Independent schools operate autonomously, subject to the conditions specified in a time-limited contract granted by the state of Qatar.
- *Accountability.* Independent schools are held accountable to the government through regular audits and reporting mechanisms, as well as through national student assessments, parent feedback, and other measures.
- *Variety.* Interested parties may apply to operate schools, and diverse schooling options are to be offered. Each Independent school is free to specify its educational philosophy and operational plan. Additionally, existing public and private schools, including the scientific complex schools, may apply to convert to independent status.
- *Choice.* Parents are allowed to select the school that best fits their child's needs. The extent of choice would be very minimal at first because only a small number of Independent schools would open each year. Each Independent school would convert from Ministry status; current students would have first call on Independent school seats. Ultimately, competition for students and resources requires all government-funded schools—both traditional and Independent—to be more responsive to parents' demands.

⁴ The key elements of the reform are described in more detail in Brewer et al., 2007, pp. 60–66.

With the adoption of the Independent School Model, three new permanent organizations were formed to provide the necessary infrastructure: a new governing body called the Supreme Education Council (SEC) and two institutes, the Education Institute and the Evaluation Institute. The Education Institute was responsible for selecting Independent school operators, negotiating and monitoring their contracts, and supporting Independent schools. The Evaluation Institute was responsible for overseeing the design and development of the assessment system and reporting data from the system, including issuing school report cards to help parents make more-informed school choices and to assist schools in focusing their attention on areas most in need of improvement. The SEC later added the Higher Education Institute to provide scholarship support for Qataris pursuing higher education. In addition, an Office of Shared Services was added to provide the Independent schools with such services as instructional technology, transportation, and procurement of materials and equipment. Both the Office of Shared Services and an entity called the Communications Office support the three Institutes and the SEC, as well.⁵

The general design principles and their underlying components were expected to generate five major changes in the Qatari school system:

1. *Students would be introduced to modern curricula* benchmarked to curricula in countries with high student performance. All Independent schools would be expected to follow a set of centrally designed curriculum standards in four core subject areas: Arabic, English, mathematics, and science. Schools would have wide latitude in designing and selecting their curricula and the materials to meet them.
2. *Teachers would have more freedom in the classroom* to design or select their own curricula, adapt their teaching strategies and techniques to the standards, and meet the needs of individual students. This freedom was expected to increase teacher moti-

⁵ See Brewer et al., 2007, pp. 71–77, for further details on the organizational structures.

vation and satisfaction and, by extension, improve the learning environment for students. Teachers would also have more opportunities for professional development.

3. *Parents would be more informed about schools and their performance* through school report cards that provided the results of standardized student assessments aligned to the curriculum standards, as well as data from surveys of parents, teachers, and others. Parents would be able to use this information to choose the best schooling alternatives for their children. Parents would also be afforded increased opportunities to communicate with teachers and could even participate in school-level decisionmaking through boards of trustees.
4. *Independent school operators would have much more autonomy* than Ministry school principals had. These operators—who could be Qatari or non-Qatari educators, business operators, or other persons whose proposal to run an Independent school was accepted by the Education Institute—would have to comply with minimal rules. Independent schools would have to test students using national assessments and provide data for evaluation; they would also be contractually obligated to conduct self-assessments and to provide annual reports on the findings of those assessments. Motivation to produce good student outcomes would be high because government support would be provided on a per-student basis, with some cost differentials based on individual student needs.⁶ Thus, a school's success would ultimately depend on parents choosing that school on the basis of student assessment and other data.
5. *Policymakers would have more data and information about the performance of schools and of the system as a whole*, which they would use to monitor the reform and inform strategic decisionmaking.

⁶ The system for financing Independent schools is the subject of a companion report (Guarino et al., 2009).

Implementation of the Reform

Once adopted, the Independent school reform proceeded at a quick pace. It began with an Emiri decree establishing the SEC and Education and Evaluation Institutes in Fall 2002. By the following spring, the SEC had appointed the leadership of the two institutes and their operations were under way. During academic year 2003–2004, the Education Institute prepared the first generation of Independent schools, 12 in number, to open in Fall 2004.⁷

In every case, these schools were converted from Ministry schools. Parents with children attending these schools were informed of the conversion plan and were allowed to opt out in favor of another Ministry school. Very few did so. Indeed, there was immediate demand from other parents to enroll their children in the new schools. This was impossible: Even after new classrooms were constructed to accommodate the requirement for no more than 25 students in a classroom, there were no empty seats.⁸

The Education Institute also commissioned the development of curriculum standards in Arabic, English, mathematics, and science. Meanwhile, the Evaluation Institute had commissioned the development of tests and surveys to collect data from every student, teacher, and family in both the Ministry and private Arabic schools. During academic year 2004–2005, the Education Institute was preparing a second generation of Independent schools, this time 21 in number, to open in Fall 2005.

The first year of Independent school operation was understandably challenging, given the scope and pace of change. But even with the numerous challenges, there were signs that the reform was moving in a positive direction—e.g., there were waiting lists of students whose

⁷ Two of the generation I schools were actually scientific school complexes that each included two primary schools, one preparatory school, and one secondary school. Consequently, some sources consider the number of generation I schools to be 18, rather than 12. We count the complexes as two schools because all the school levels in each of the boys’ and girls’ complexes were overseen by a single school operator. See Chapter Two for a further discussion of the complexes.

⁸ Ministry school classrooms typically had 40 or more students.

parents wanted them enrolled in an Independent school. There was, however, little systematic information about what was actually happening in the new schools. The SEC leadership wanted an empirical analysis of the ways that the Independent schools were carrying out their missions and promoting the goals of the system.

Aims and Purpose of the Study

In Spring 2005, at the end of the first year of Independent school operation, SEC leadership asked RAND to evaluate the reform's progress. It was understood at that early point that some key reform components were not yet fully in place. Variety was limited by the fact that just two cohorts of Independent schools were operating.⁹ More significantly, choice was essentially absent since the Independent schools were at capacity, which meant parents were unable to enroll their children in an Independent school if they wanted to. Given that these two system components were not yet fully functioning, we decided to focus our efforts on the point where change was most likely to manifest at this early stage of the reform's implementation: the classroom. We were also able to use available data to examine changes in student performance on national tests. This two-year study, conducted from Fall 2005 to Fall 2007, addressed the following three questions:

1. *How are the Independent schools different from Ministry schools? How effectively have the components of the Independent schools been implemented?* The RAND research team explored the degree to which Independent schools were adhering to the principles that differentiated them from Ministry schools. To do this, the team examined the implementation of several components of

⁹ A diverse group of operators initially applied to run the first Independent schools. Among the first 12 schools, two operator teams represented the private sector, and one was from higher education; the other nine were associated at some point with the Ministry of Education. The potential for Independent school variety was subsequently reduced, in 2006, by a policy change that required all Independent school operators to be Qatari and to be qualified to be and act as school principals.

the Independent School Model—i.e., recruiting, retaining, and developing staff; developing curriculum and instructional materials; improving classroom practice and pedagogy; improving student performance through motivation and parent involvement; and assessing student academic achievement. (The results of this evaluation are described in Chapters Three through Seven.)

2. *Have there been changes in Ministry schools since the reform’s inception?* The research team examined whether and, if so, how the new system had promoted change in the Ministry schools, both by encouraging competition between Independent and Ministry schools and by offering new ways to think about education.
3. *What strategies should the SEC consider to promote the reform’s success?* Based on the analyses undertaken to answer the first two questions, the research team developed a set of possible future strategies for building on the accomplishments of the reform and helping to ensure its future success. (Chapter Eight sets out these recommendations.)

Organization of This Monograph

Chapter Two describes the study methods we employed. Chapters Three through Six examine key aspects of the education system that were either targeted by the reform or regarded as key indicators of reform implementation. Throughout these four chapters, data on Ministry schools are introduced as appropriate, to provide comparisons with Independent school progress and to assess any reform spill-over effects in Ministry schools. Chapter Three focuses on the reform’s human capacity, providing an overview of efforts and issues related to staff recruitment, retention, and professional development in Independent schools during the period studied. Chapter Four’s focus is on two responsibilities given to the Independent schools: developing curricula and selecting materials. Together, curricula and materials were to translate the curriculum standards and form the basis for each Independent school’s program. Chapter Five examines classroom practice and peda-

gogy, which were key reform targets. It presents findings from experts in Arabic, mathematics, and science who visited Independent and Ministry school classrooms to determine how the Independent schools were implementing the new curriculum standards in those subjects. The chapter also discusses the use of English to teach mathematics and science in Independent school classrooms. Chapter Six examines two aspects of schooling that reform designers had hoped would improve in Independent schools: student motivation and parent involvement.

Chapter Seven then presents student outcome data that had become available through the assessment system; it also discusses our analysis of the extent to which school-level factors accounted for changes in performance over time. Chapter Eight summarizes the study findings and offers a set of recommendations for building on what were found to be the reform's successes and for ensuring the reform's future.

Methods

The study design included two complementary components. The first was a case study analysis of classroom- and school-level data from 16 schools—four Ministry of Education schools, and 12 Independent schools representing different levels of Independent school experience—to provide detailed process information about how schools and classrooms were functioning. The second component was an analysis of school-level data collected in national surveys of teachers, principals, students, and parents in Ministry and Independent schools to provide additional data about school functioning and reform implementation, along with an analysis of student-performance data to provide an interim assessment of reform outcomes.

Members of the RAND study team made more than 100 visits to the schools in the sample. They held interviews with principals, administrators, and the heads of three school support organizations (SSOs);¹ and they conducted focus groups with teachers, students, and parents. Additionally, they observed more than 200 classes to assess classroom practices and the implementation of the new curriculum standards.

In addition to visiting the schools, RAND team members analyzed teacher behavior and teacher, parent, student and administrator

¹ The Education Institute contracted with four of these school support teams, which were composed of professionals with experience in education management. SSO personnel worked in each Independent school during its first year of operation, providing hands-on support and mentoring in such areas as drafting the education plan, hiring and training administrative and instructional staff, setting up financial systems, monitoring the renovation of facilities, and selecting textbooks and other instructional materials.

attitudes. Survey data from the Qatar National Education Data System (QNEDS, 2007), were used to compare school characteristics, teacher characteristics, and instructional practices among all Independent and Ministry schools. Student performance data from the 2005–2006 Qatar Comprehensive Educational Assessment (QCEA, undated) for Independent and Ministry schools were also analyzed, controlling for students’ academic achievement scores from the previous year’s (2004–2005) exam.

Finally, RAND conducted interviews with limited numbers of Education and Evaluation Institute, Ministry, and SEC staff about policy changes and examined selected policy documents in an effort to understand some of the numerous policy changes that had been implemented within the Independent school system since the reform’s inception.

Both major parts of the study design—the case study analysis and the analysis of QNEDS and QCEA data—are described in more detail in the following sections.

Case Study Data Collection and Analytic Approaches

For the case study, we collected a wide range of data using three approaches: observation, direct elicitation of information, and document collection and examination (see Table 2.1 for a description of the case study data collection approaches and units of analysis).² Most of these data were collected during nine rounds of visits to the case study schools, although not every school in the sample was visited in each round. The general plan for each school visit was to observe three classrooms, conduct interviews and focus groups with school staff and other key actors involved with the school, and tour the school to observe overall conditions. RAND team members conducted interviews and focus groups but not classroom observations during rounds 5 and 9

² The data collection instruments we used for the case study are available through a link at <http://www.rand.org/education/qatar/index.html>

Table 2.1
Data Collection Approaches Used in Case Study

Unit of Analysis	Observation ^a	Elicited Information	Secondary Data
Teachers	Teacher observation form (N=138) ^b Informal teacher observations by classroom observer in Arabic, English, math, and science classrooms (N=204)	Teacher focus group (N=95) Post-observation interview (N=194)	Curriculum materials, resources, and schemes of work used by Arabic, math, and science teachers collected by curriculum experts
Students		Student focus group (N=8)	
Classrooms	Classroom observation scoring guide (N=204) Informal classroom observations by classroom observer (N=204)		
Principals/operators		Semi-structured interview (N=116) ^c	
Other school staff		Semi-structured interview (N=64)	
SSOs		Semi-structured interview with SSO head (N=3)	
Schools	Informal school observations by classroom observer and curriculum expert (N=104)		
Parents		Parent focus group (N=11)	
Institute staff/SEC members		Semi-structured interview (N=5)	
Ministry of Education staff		Semi-structured interview (N=3)	

^a Data collection instruments used for the case study are available through a link at <http://www.rand.org/education/qatar/index.html>

^b See Table A.1, Appendix A, for details on the number of observations conducted at the sample schools by school type.

^c Each interview was counted separately; some principals were interviewed more than once.

of the school visits, and interview protocols were slightly adjusted in each round of data collection so as to focus on emerging issues, such as recent policy changes and the first distribution of school report cards.

Observations

The schools selected the classes that would be observed. RAND asked that the classes chosen represent a range of student skill levels. In total, the project team observed 204 classrooms.

Classroom observations were the most structured portion of the observations conducted. Each classroom observer completed two data-gathering instruments: a teacher observation (“snapshot”) form and a classroom observation scoring guide. Observers were trained to use both of these instruments to an acceptable level of inter-rater reliability ($\kappa = 0.59$ in Fall 2005; $\kappa = 0.79$ in Fall 2006).³

- *The teacher observation form* we used was adapted from the widely used “pre-kindergarten snapshot” instrument (Howes, 2001). A checklist designed to assess teacher behavior, it included such items as engages in whole-group activity, oversees student work, talks to student at eye level, and uses English. Observers completed the checklist during ten 20-second intervals distributed over the entire class period. A separate section that was added to the form asked observers to assess the level of cognitive demand imposed on students during each 20-second observation period. This assessment is based on Bloom’s Taxonomy (Bloom, 1956), which posits a six-level hierarchy of thinking expected of students. The six levels range from knowledge, comprehension, and application at the lower levels to analysis, synthesis, and evaluation at the higher levels.
- *The classroom observation scoring guide* is a RAND-developed structured rating form adapted from the scoring guide used in RAND’s Mosaic study of mathematics instruction (Klein et al.,

³ Typically, kappa statistics between 0.41 and 0.60 are seen as representing moderate reliability; scores between 0.61 and 0.80 are seen as representing substantial reliability (Landis and Koch, 1977).

2000). This scoring guide differs from the teacher observation form most notably in that the observer rates the entire class period rather than the teacher's behavior in 20-second intervals. Observers rate the level at which elements and concepts on seven dimensions associated with promoting student engagement in higher-order thinking and analysis were incorporated into the entire class period. The concepts considered include the teacher's efforts to model curiosity, skepticism, and openness; emphasis on analysis, reasoning, and reflection; encouragement of multiple ways to solve problems and answer questions; and encouragement of discussion of ideas among students. An eighth rating—classroom process embodies elements of the reform—was added to elicit an overall impression of the degree to which the classroom process conformed to the *Education for a New Era* reform's emphasis on student-centered teaching and learning. Each dimension was rated on a scale of 0 to 8.

Data from the teacher observation form were analyzed by examining the average percentage of rated intervals in which the teacher engaged in specified activities, such as one-on-one work with a student. For example, if a teacher engaged with students one-on-one in three out of the ten 20-second observation periods, the observer recorded that classroom as having engaged in one-on-one activities in 30 percent of our intervals. The averages for these percentages were then presented by school type so that analysts, using t-tests, could assess differences in the incidence of teacher behaviors by school type. In some cases, analysts calculated the percentage of classrooms in which the specified behavior was observed at least once, rather than calculating the average percentage of the behavior observed across the ten different intervals. Comparisons were made between Ministry school and Independent school data; statistical significance was determined by t-test. Average ratings from the classroom observation scoring guide were compared across Ministry and Independent school classrooms; again, statistical significance was determined by t-test.

The observers also made informal observations of each teacher and classroom, noting such things as seating arrangements and pres-

ence and type of displayed materials, and they took brief tours of each school to get some sense of the observed classroom’s typicality. Additionally, they conducted a brief post-observation interview with each observed teacher to ask about his or her objectives for the class period and assessment of the degree to which these objectives were met. The analysts then used this information to better understand the context of the classroom that had been observed.

An important subset of the classroom observations was carried out by three subject-matter experts—one each in Arabic, mathematics, and science—who assessed standards implementation in 13 schools and 65 classrooms during four of the nine rounds: 3, 6, 7, and 8. These experts focused their observations on standards implementation, curriculum development, and classroom processes related to the particular subject. For each visited classroom, they completed a classroom observation score guide but not a teacher observation form, because of the time it would have required. In addition, they interviewed the observed teacher and the school’s subject leader, conducted a subject teacher focus group, and interviewed the school principal. They wrote up their findings from their classroom visits and drew conclusions about standards implementation and materials use, and they made recommendations concerning teacher training and materials development.

Elicited Information

As part of our case study analysis, we conducted focus groups with teachers, students, and parents in Ministry and Independent schools. These interviews and focus groups explored the study’s main questions from the standpoint of specific stakeholders. Teacher groups focused on the appeal of Ministry and Independent school positions, as well as the challenges and rewards of working in Independent schools. Student groups focused on school satisfaction, performance motivation, and views of Independent schools. Parent groups focused on concerns about Independent schools, particularly the lack of textbooks and the ability of teachers to develop curricula and materials, a task long regarded as a Ministry function. Parents also talked about their involvement in the school and with their children’s education.

Focus group notes were content analyzed using Atlas.ti, a text management program that facilitates review and reorganization of text from a large number of documents. We coded the notes into manageable content categories: administration and finance, staff acquisition, staff retention, professional development, curriculum development, instructional materials, pedagogy, classroom management, student motivation and engagement, parent involvement, school report cards, national tests, individual school exams, surveys, financial accountability, long-term viability of the reform, and special needs programs or students. We then analyzed the content categories to identify key themes and relationships. Comparisons were made by school type and generation of Independent school, as well as other variables, such as the school community's support for education. Information collected by the subject-matter experts was analyzed separately for the most part, because it focused on a particular subject and how it was taught. However, we did look for similarities and differences across subjects in drawing conclusions about the use of standards in Independent school classrooms.

We also conducted interviews with school principals. These focused on principals' sense of autonomy, the likely effects of recent policy changes, concerns about staffing and teacher quality, and the challenges, in Independent schools, of teaching the content of the standards and supporting reform goals. Again, interview notes were analyzed using Atlas.ti.

The final element of the case study data was interviews with a small number of stakeholders. This effort was to provide important context for the information we were gathering at the school and classroom levels. We interviewed the team head of three of the four SSOs, five Education/Evaluation Institute staff or SEC members, and officials from the Ministry of Education departments of Curriculum Development and Professional Development.

Secondary Data

Curriculum experts collected and examined curriculum material, resources, and schemes of work⁴ in the Arabic, mathematics, and science classes they observed. They assessed these materials against the relevant curriculum standards.

Quantitative Data Characteristics and Analytic Approaches

We supplemented our case study data with rich data from surveys of teachers, students, school administrators, and parents that were conducted as part of the QNEDS. QNEDS collects and stores information on Ministry, Independent, and private Arabic schools, including student enrollment, student and teacher backgrounds, parent engagement, and school processes (such as pedagogy, curricular materials, and teacher professional development and training). The QCEA assessment data, which include raw and scale scores of individual students on the national assessments in Arabic, English, mathematics, and science, enabled us to assess a key interim reform outcome. Table 2.2 provides a description of the quantitative data and the units of analysis.

QNEDS Surveys

The teacher survey asked about level of education; availability, use, and adequacy of professional development opportunities; satisfaction with available school resources (e.g., library, computers); instructional pedagogy used; satisfaction with school; and relationship with colleagues. School administrators and school principals answered questions about school and student characteristics; school resources; admissions policies; staffing; teacher, student, and parent services; their own education levels, skills, and training; professional development experiences; school decisionmaking and structure; views on learning; satisfaction with school environment; and perception of education barriers. Stu-

⁴ *Schemes of work* are general outlines of the work to be accomplished at each grade in each of four subjects: Arabic, English, mathematics, and science.

Table 2.2
Quantitative Data and Sources

Assessment	Unit of analysis	Source
QNEDS	Teachers	Teacher survey (N=7,990) ^a
	Students	Student survey (N=49,000) ^a
	Principals/operators	School administrator survey (N=292) ^a
	Parents	Parent survey (N=66,446) ^a
QCEA	Students	2005–2006 individual student assessments in Arabic, English, math, and science (N=13,000 students in grades 4–6) ^b

^a Survey responses vary slightly by item.

^b Numbers vary slightly by subject. See Table B.3 in Appendix B for more detail.

dents were asked about their background; schooling experience, attendance, and discipline; attitudes about school and education; and participation in school activities. Parents answered questions about family demographics and education levels; home environment; child's education background; child's attendance and discipline; parent participation in school activities; and attitudes regarding education. Survey data permitted comparisons among Ministry and Independent schools, as well as among different generation of Independent schools.

Because these surveys covered practically the entire universe of possible respondents, conventional approaches to estimating and reporting statistical significance—which rely on making inferences to populations from samples—do not apply. Survey data essentially represent the true values in the whole population. Therefore, we do not report statistical significance when making comparisons using survey data.

QCEA Data

QCEA data were used to inform the multivariate analysis of student performance differences between Independent and Ministry school students. Student performance in all Independent, Ministry, and private Arabic elementary schools on the 2005–2006 QCEA tests in Arabic, English, mathematics, and science was examined. The team developed a separate multivariate statistical model for each of the four subjects. The models controlled for each student's scores from the previous year's

test, as well as a set of background characteristics drawn from QNEDS survey data. As discussed in Chapter Seven, the limited numbers of Independent preparatory and secondary schools made it impossible for us to conduct the analysis for those school levels.

Sample Selection for Ministry and Independent School Case Study

Initial Sample Selection

To assess how Independent schools had evolved over time and how they compared with Ministry schools, the RAND team selected 16 schools to follow for academic years 2005–2006 and 2006–2007. Of these 16, four were from each of the three generational cohorts (generations I, II, and III) of the Independent schools, and four were Ministry schools (also referred to as generation IV schools). These schools were chosen from the 46 Independent and 164 Ministry schools that were in operation as of September 2006.

This design ensured that the sample captured the full range of schools’ experience with the reform within our study’s two-year time frame. That is, generation I schools already had one year of experience when the study began and had three years of experience by the study’s end. Generation II schools allowed us to look closely at what had happened during the year when schools first converted to Independent status and how they changed between their first and second years of operation. Generation III schools offered us insights into the challenges schools experienced as they planned for conversion and then actually made the change from being Ministry to Independent status. Generation IV (Ministry) schools, which did not become Independent during the course of our study, allowed us to make comparisons with Independent schools and helped us understand how the larger reform might be influencing Ministry schools.

Schools were selected to maximize the diversity across school level (e.g., primary, preparatory, and secondary), student gender, and geographic location.

Changes to the Study Sample

In Spring 2006, the SEC changed its policy on the qualifications one must have to operate an Independent school (SEC, 2006). Initially, qualifications had been broad to encourage diversity in background and approaches of those who would contract with the government to run an Independent school. Operators could come from any country or background; it was their proposal to the Education Institute that determined whether they qualified to run a school.⁵ Non-educator operators were expected to hire a bona fide principal to oversee the Independent school's daily operations. The 2006 policy change required that, going forward, all Independent school operators be Qatari, be qualified educators, and serve as the school principal. As a result, only one (Al Thakheera Boys Preparatory) of the four generation III schools in the original study sample converted to Independent status during 2006–2007, and we had to replace three of our schools. (Table 2.3 shows the study sample and indicates the replacements.)

The fact that only 13 schools were becoming generation III schools severely constrained our choices for replacement schools. Project staff reviewed the replacement options, seeking to preserve the original sample's breakdown of school gender and level. Al Kawthar Secondary School for Girls was replaced by Al Eman, the only girls' secondary school among the generation III schools. Fatima Al Zahra'a Preparatory School for Girls was replaced by Ruqayya, the only girls' preparatory school converting in generation III. And Al Wusail Model School was replaced by Al Duhail, the one of three model schools converted in generation III that was similar in size to Al Wusail.

Study Limitations

Our study had a number of limitations. First, it was conducted when the Independent schools were new and many affecting policies were in flux: Generation I schools, opened in 2004, had been in operation for

⁵ Non-Qataris had to have a Qatari partner.

Table 2.3
Study Sample Showing Replacements Made Following Spring 2006 Change in Policy on Independent School Operators

Gen	School Name	Grade Configuration	Teacher Gender	Location
I	Khalid Bin Ahmad Al Thani Independent Preparatory School for Boys	7–9	Male	Ain Khalid
	Al Israa Independent Primary School for Girls	1–6	Female	Al Aziziya
	Al Bayan Secondary Educational Complex for Girls	10–12	Female	Al Dafna
	Omar Bin Al Khattab Secondary Educational Complex for Boys	10–12	Male	Bin Omran
II	Al Wakra Preparatory School for Girls	7–9	Female	Al Wakra
	Safia Bint Abul Motaleb Primary School for Girls	1–6	Female	South Al Saileyya
	Abu Baker Elementary School for Boys	5–7 ^a	Male	Al Muntazah
	Al Wakra Secondary School for Boys	10–12	Male	Al Wakra
III	Al Duhail Model School for Boys (replaced Al Wusail)	1–5	Female	Al Duhail
	Al Thakheera Preparatory School for Boys	7–9	Male	Al Thakheera
	Al Eman Secondary School for Girls (replaced Al Kawthar)	10–12	Female	Mseimeer
	Ruqayya Preparatory School for Girls (replaced Fatima Al Zahra’a)	7–9	Female	Mseimeer
IV	Umama Bint Hamza Primary School for Girls	1–6	Female	Al Rayyan Al Jadeed
	Al Muthana Bin Haritha Elementary School for Boys	5–6	Male	Al Aziziya/Al Ghanim/Al Murra
	Nasser Bin Abdullah Al Attiyah Secondary School for Boys	10–12	Male	Khraitiyat
	Al Rayyan Al Jadeed Preparatory School for Girls	7–9	Female	Al Rayyan Al Jadeed

NOTE: Total student enrollments for generations I, II, and III were obtained from the SEC Office of Communications and were based on Fall 2006 information. Generation IV student enrollment was based on data gathered in 2003–2004.

^a When Abu Baker Elementary School for Boys was chosen to be in the study sample, it had a 4–6 grade configuration.

a year when the study started, so the study covered their second and third years of operation; generation II schools, opened in 2005, completed their first two years of operation during the study; and generation III schools, opened in 2006, completed their first year of operation during the study.

Second, because of the need to gather in-depth information in a short time, we limited the number of case study schools to four from each generation. As a result, our data do not cover every school in these groups. To minimize bias from selecting a limited number of schools, we made an effort to represent key school characteristics in our sample. However, bias may remain.

Third, many of the key quantitative indicators in the QNEDS are based on teacher or administrator self-reports on surveys. As self-reports, these measures may not be accurate representations of the actual practices in schools and classrooms. However, we are able to compare responses to survey items with our own data from classroom observations and interviews with teachers, school heads, parents, and students.

Fourth, we were unable to link teacher data to student information. Teacher data had to be aggregated up to the school level, which reduced variability and hence the power of the QCEA analyses. Analyses of student performance were also constrained by the small number of preparatory and secondary Independent schools and the fact that student testing does not begin until grade 4. As a result, these analyses had to be limited to the performance of students in the upper elementary school grades.

Finally, several of the policies that drove the initial reform design changed over the two years of the study. Those changes are noted in the relevant chapters and their likely implications are discussed.

The reform now differs in important ways from the reform first implemented in the Independent schools in 2004. In presenting our conclusions in Chapter Eight, we have attempted to identify and be sensitive to these changes. It is important to remember, however, that our data were collected in an earlier policy context and that the applicability of our findings may thus be limited in some instances.

Recruiting, Retaining, and Developing Staff in Qatar's Independent Schools

An important goal of the *Education for a New Era* reform has been to promote the concept of teaching as a profession, one that entails learning new skills in order to develop, assess, and adapt curricula and to understand and address the needs of individual students. This goal has been key to the reform because, in general, teaching has not been a respected calling in Qatar. Male Qataris, while willing to work in the Ministry of Education, have refused to teach. As a result, Qatari boys above age 11 have been taught by expatriate (or non-national) teachers who are not respected by the boys and who are afraid to discipline their students lest they run afoul of angry fathers and are sent home.¹ Female Qataris, in contrast, have continued to find teaching attractive: It has guaranteed a gender-segregated workplace and, until recently, was one of the few work opportunities available to women.

Employment in the Ministry of Education has strongly favored Qataris in terms of salary and benefits, has emphasized security for Qataris, and has based salaries within the Ministry system on experience, largely ignoring skills (see Guarino et al., 2009, for details on teacher wages and benefits). Recruiting, hiring, and retention have also been influenced by workload expectations, as discussed in more detail below. In the centralized Ministry system, teachers present the same lessons over and over, differentiated instruction is discouraged, and all

¹ Expatriate males work on one-year contracts regardless of how long they have worked in Qatar.

materials and texts are provided. Consequently, teaching jobs are relatively easy, particularly compared with those in Independent schools, where teachers design or select curriculum, are expected to address individual student needs, and work longer hours and more days. Higher teacher salaries in the Independent schools are supposed to reflect the higher demands of these positions, but, as discussed below, teachers do not believe they do so.

The reform was determined to change many aspects of this system. Teachers in the new, Independent schools would be recognized for their skills, their ability to encourage student learning, and their enhancement of student progress toward meeting the curriculum standards. Rewards based on skills and outcomes were seen as an important way to professionalize the workforce.

Promotions in the Independent schools would not entail moving from primary to preparatory to secondary schools or into the Ministry bureaucracy, as is the customary practice in the Ministry system. Instead, teachers’ achievements would be recognized within their schools; operators² would be encouraged to provide bonuses and other forms of recognition. The idea was to encourage a culture of teaching professionalism, thereby enriching the school environment and providing teachers with incentives to remain in the classroom and improve their skills at their chosen grade level.

The reform has also afforded Independent school operators a great deal of autonomy in staff selection, pedagogical practice, and resource allocation.³ This is again in contrast to the Ministry system, where principals and teachers are assigned to schools and resources are tightly controlled above the school level. Independent school operators have the freedom to recruit teachers who are best able to meet the needs of their schools and to offer salaries commensurate with experience and

² It was not until 2006 that school operators were required to be principals. Before that time, any interested party whose proposal for an Independent school was approved by the Education Institute and who met contractual requirements could operate an Independent school.

³ Initially, operators could recruit teachers from any background. Qatarization goals may reduce this freedom, but at the time of our study, the new policy had not yet affected Independent school hiring, as we discuss later.

skills.⁴ Operators are encouraged to develop mechanisms for evaluating their teaching staff and rewarding teachers who move toward the educational goals set by the school.

In this chapter, we use data from interviews with principals and from focus groups with Independent and Ministry school teachers in our sample in academic years 2005–2006 and 2006–2007, along with data from QNEDS surveys administered to school administrators and teachers in April 2005 and 2006, to examine whether the reform has in fact promoted teaching as a profession through the recruitment strategies employed by Independent schools and the types of professional development offered to their teachers. We also compare Independent and Ministry schools in terms of recruitment, personnel policies, and provision of professional development. (Chapter Two provides a detailed discussion of the data collection tools and analytic approaches.)

Recruiting for the Independent Schools

Operators of generation I schools reported in interviews that, given the increased attention placed on English and the use of technology in Independent schools, their first year (2004–2005) found them particularly interested in recruiting teachers with English language ability and familiarity with technology and computer skills. In addition to these specific skills, operators searched for experienced teachers who held at least a bachelor's degree in the subject they were expected to teach. Other skills noted as important for teachers were an ability to get along with others and a strong work ethic. No consideration was given to a teacher's nationality. Indeed, in an effort to build a culture of innovation in their schools, many operators noted, they actively recruited teachers who were not from the Ministry and therefore possibly not

⁴ To expand the initial teacher selection pool, steps were taken to encourage Ministry teachers to join Independent schools. The Education Institute negotiated short-term arrangements, called *secondments*, with the Ministry to allow Ministry teachers to join the new schools without giving up their civil service protections. However, these arrangements were purposefully limited in duration to encourage teachers to join Independent school staffs directly.

Qatari. However, operators did recruit Ministry teachers who showed enthusiasm for teaching in new ways and saw an Independent school position as an opportunity to do this.

Using data from QNEDS teacher surveys, we explored whether Independent schools hired teachers who had more education than teachers in Ministry schools had. Figure 3.1 indicates that in both types of schools, teachers with a bachelor’s degree predominated. However, Independent schools had a slightly higher percentage of teachers with some post-graduate schooling. This may imply that Independent school administrators preferred to hire teachers with higher education levels.⁵

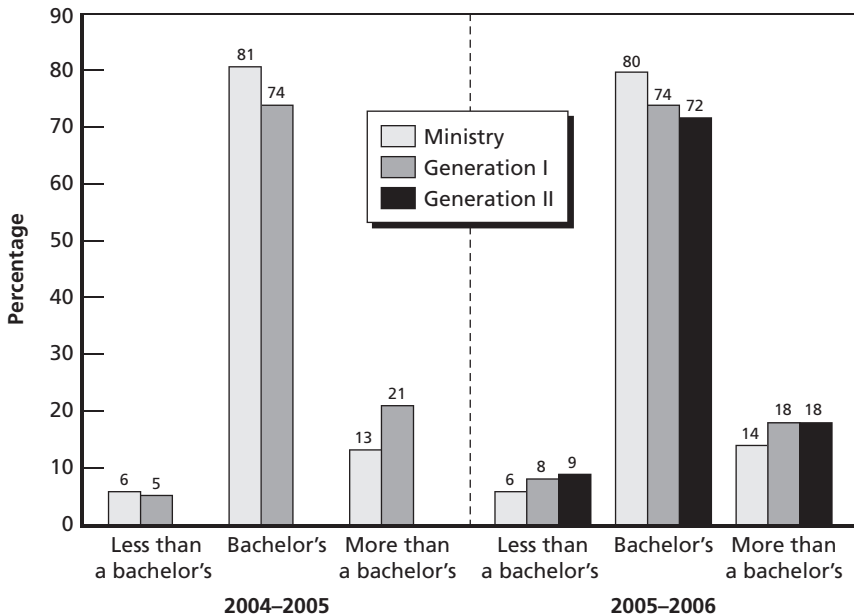
Effects of Qatarization on Recruitment

To encourage operators to hire more Qataris and to interest Qataris in applying for teaching positions in Independent schools, in May of 2005, the SEC established a policy that set minimum salaries for Qataris and minimum percentage targets for Qatari teachers in each Independent school (see Table 3.1).⁶ The SEC policy was a response to concerns that the Independent schools, which were initially for-profit institutions, would be staffed predominantly by local non-Qatari teachers, who are paid considerably less than Qataris. The SEC was concerned that operators might hire fewer Qataris in order to increase their profits.

⁵ Because these survey data cover the entire universe of possible respondents, conventional approaches to estimating and reporting statistical significance do not apply. The results reported are essentially the true values in the whole population. Therefore, any difference between reported values across groups is a real difference, even if the difference is small.

⁶ Full-time Qatari teachers seconded from any ministry in Qatar remain part of the Qatar Civil Service Cadre and are therefore entitled to a basic salary not less than the salary they were entitled to before joining an Independent school. In addition, from 2004 to 2006, seconded teachers were entitled to allowances equal to those of employees holding similar posts in the Civil Service Cadre (Education Institute, 2004). As of 2006–2007, the Education Institute also listed specific allowance amounts that schools must pay their Qatari staff, whether seconded or directly hired. These included a social allowance for single and for married employees, a housing allowance for married employees, and a transport allowance (Education Institute, undated).

Figure 3.1
Teacher Education, by School Type, 2004–2006



SOURCE: QNEDS teacher surveys, 2005, 2006.

NOTE: Numbers of teachers in 2005 = 7,019 Ministry, 771 generation I. Numbers of teachers in 2006 = 6,058 Ministry, 840 generation I, 1,002 generation II.

RAND MG880-3.1

In September 2007, a new policy revised the Qatarization requirements and raised the minimum salary for Qatari university graduates to QR9100/month (approximately \$2,500/month).⁷

Table 3.1 shows the percentages of teachers that must be Qatari, by student gender and school level, according to the new policy. The goals are higher in the girls' schools because the teachers there are already predominantly Qataris—the bulk of non-Qatari teachers are employed in the boys' schools. According to the principles that govern

⁷ Retroactive to December 2006, Qataris were to receive a monthly salary increase of QR2600 (\$715). Grants from the Education Institute covered the additional cost for academic year 2006–2007, and budgets for the 2007–2008 were adjusted accordingly (see Guarino et al., 2009, for more on wages in Independent schools).

Table 3.1
Qatarization Goals for Independent Schools

School Level	Percentage of Teachers That Must Be Qatari	
	As of September 2005	As of September 2007
Girls		
Primary (grades 1–6)	70	70
Preparatory (grades 7–9)	60	60
Secondary (grades 10–12)	60	60
Boys		
Primary (grades 1–6)	70	70
Preparatory (grades 7–9)	30	25
Secondary (grades 10–12)	25	25

SOURCE: Author’s personal correspondence with Education Institute.

teacher assignments, male teachers must teach male students above the age of 11. However, male Qataris do not consider teaching an attractive career. Therefore, boys’ schools rely heavily on expatriate teachers. Interestingly, the Qatarization goal for teachers in boys’ preparatory schools declined from 2005 to 2007, from 30 to 25 percent.

Using data from the QNEDS teacher surveys, we compared teachers’ nationalities and education levels in Independent and Ministry schools from academic year 2004–2005 to 2005–2006 to determine whether their hiring practices differed and whether the Independent schools’ hiring strategies changed after the 2005 Qatarization requirement was established. In 2004–2005, about 33 percent of the teaching staff in Independent schools was Qatari, compared with about 66 percent in Ministry schools. These numbers were similar in 2005–2006, with about 29 percent of Independent school teachers and 66 percent of Ministry teachers being Qatari. This suggests that over the period of our study, the Qatarization policy did not affect Independent school hiring, which is not surprising given that the policy’s constraints were not yet binding on schools, and no sanctions were imposed on schools that did not comply.⁸ Table 3.2 disaggregates the numbers by type of school and Independent school generation.

⁸ Education Institute staff indicated that no sanctions were levied against schools falling short of Qatarization goals if they demonstrated a concerted effort to meet the goals.

Table 3.2
Percentages of Qatari Teachers in Independent and Ministry Schools, 2004–2005 and 2005–2006

Academic Year and Type of School	Female Qatari Teachers						Male Qatari Teachers					
	Primary		Preparatory		Secondary		Primary		Preparatory		Secondary	
	N	%	N	%	N	%	N	%	N	%	N	%
2004–2005												
Ministry	1,603	90	771	83	741	72	1,224	70	187	24	88	12
Generation I	101	38	19	53	12	29	87	40	26	19	11	15
2005–2006												
Ministry	1,326	91	669	88	784	73	1,049	72	160	24	84	12
Generation I	77	48	16	45	11	25	78	45	22	17	8	10
Generation II	129	54	102	52	24	27	41	29	12	13	6	6
Qatarization goal		70		60		60		70		30		25

SOURCE: QNEDS teacher surveys, 2005 and 2006.

NOTE: Shaded cells indicate where Qatarization goals were not being met.

It should be noted with respect to the table that although Qatarization goals apply only to Independent schools, the Ministry preparatory and secondary schools for boys did not achieve the set goals during the period. In contrast, Ministry primary boys’ schools were reaching the Qatarization goals, most likely because most of these schools are “model” schools, where women are permitted to teach boys under the age of 11. Differences also can be seen across school levels, with fewer Qataris staffing secondary schools than preparatory or primary schools for both boys and girls.

In general, the Independent school operators that RAND spoke with believed that the burden of finding qualified Qatari teachers unfairly fell on their shoulders. In a culture where teaching is not a high-status profession for anyone and is considered unacceptable to male nationals, recruiting Qatari teachers into Independent schools, which are understood to be demanding workplaces, is a huge challenge. Independent school operators also understood that Qatari teachers must be paid more than others. Generation I operators felt that this was particularly unfair because the Education Institute had initially assured them, before they had opened their schools, that there would be no Qatarization requirements and that teachers could be recruited without concern for nationality. Most knew that they could find many skilled and motivated expatriate teachers who would be eager to work in Independent schools for salaries higher than those offered by their home countries.

Challenges to Retaining Skilled Qatari Teachers in Independent Schools

Independent school operators face unique challenges in attempting to recruit and retain Qatari teachers:

- *Qatari teachers seek fast promotion into administrative and supervisory jobs within the school.* In the Ministry system, highly rated teachers are rewarded with administrative positions that remove them from the classroom. Independent school operators noted in

interviews that if Independent school teachers believe they have been in the classroom too long, they resign to join other Independent schools that offer them administrative positions and correspondingly higher salaries.

- *Qatari teachers seconded from the Ministry can be called back after three years of service in an Independent school.* As a temporary solution to the staffing problem that results from these call backs, the Education Institute and the Ministry reached an agreement in 2005 to extend the duration of the secondment by one year. However, Independent school operators noted in interviews that it was becoming increasingly difficult for them to get teachers through the secondment process because the Ministry was concerned that Independent schools were taking its best teachers.
- *Qatari teachers prefer to work for the Ministry for four primary reasons: teaching load, working hours, job security, and pay and benefits.* Focus groups conducted with teachers from Ministry and Independent schools revealed that Independent school teachers considered these four issues in deciding whether to remain in a particular Independent school, move to another, or return to the Ministry. Because of the importance of their effects on teachers' decisionmaking, these reasons are each considered in more detail below.

Teaching in an Independent School Is More Demanding Than Teaching in a Ministry School

Officials in the Ministry of Education prescribe a set of textbooks that Ministry school teachers are required to use, which means that Ministry school teachers do not have to search for their own materials or develop curriculum. In contrast, teachers in Independent schools follow a set of curriculum standards, but they and their schools are responsible for developing or purchasing their own curriculum and selecting their own instructional texts and materials. Independent school teachers report that they perform many duties related to curriculum development and material selection outside of the classroom. These duties expand the scope of their responsibilities and are often quite time consuming.

The Ministry curriculum is based on a lecture and recitation format, which primarily requires students to memorize content and teachers to do little more than lecture to a class. The curriculum changes only about once a decade, so new preparations are relatively uncommon. In contrast, the standards-based reform was designed to encourage teachers to employ student-centered teaching practices in the classroom. Teachers who participated in our focus groups indicated that the incorporation of reform-oriented pedagogical styles into Independent school classrooms required teachers to be mindful and active in the classroom and to learn new skills. Furthermore, while the Ministry curriculum does not incorporate the use of information technology across subjects, the Independent school curriculum standards do. Teaching in Independent schools requires the use of information technology to prepare for classes, communicate with students, conduct research, and make presentations. In addition, unlike the Ministry schools, Independent schools require that a large portion of mathematics and science instruction be conducted in English.

Given these differences, it is understandable that the task of attracting Qatari teachers to work in Independent schools and, particularly, convincing them to leave a teaching position in a Ministry school to do so is quite challenging.

Teachers in Independent Schools Have Longer Working Hours and a Longer Academic Year Than Do Teachers in Ministry Schools

The workload in Independent schools often means long hours for teachers, with days lasting from 7:00 a.m. to 3:00 or 4:00 p.m. This is in stark contrast to the length of a Ministry school teacher’s day, which often begins at 7:00 a.m. but ends at around noon. Moreover, Independent school teachers are expected to participate in professional development courses that are sometimes offered after school hours and in the evening. In focus groups with Independent school teachers, female Qatari teachers commented that the working hours led to conflicts for those who had children in Ministry schools and whose husbands had jobs in the public sector, where work hours are shorter. Many female Qatari teachers said they would prefer to work in Ministry rather than

Independent schools because of the convenient and shorter working hours.

Independent schools also have a longer academic year than Ministry schools—180 days compared to a maximum of 130 days. And the two types of schools also follow different school vacation schedules, further complicating family arrangements.

In focus group discussions, female Qatari teachers in Independent schools noted that they often found it difficult to balance work and family responsibilities. Many female Qatari teachers felt pressure from their families to resign their Independent school positions. Qatari teachers who were working in Ministry schools earmarked to convert to Independent schools expressed great resistance to the upcoming change. Many of them said they were considering resigning from their positions because they would prefer to stay home rather than work the longer hours and accept the more challenging working conditions of an Independent school. In contrast, newly certified Ministry teachers, who had recently completed college, found the idea of working in an Independent school more acceptable. Some even welcomed the associated demands of the job in exchange for experience, autonomy, and professional development opportunities. Decentralized decisionmaking and the freedom to develop curriculum were particularly attractive to these young Qatari teachers who, despite the associated hard work, viewed an Independent school teaching experience as less boring and more personally fulfilling.

Some Independent school teachers remarked that they derived a number of intangible benefits from their work: more autonomy and freedom in selecting materials, and more freedom to recognize and address students' individual learning needs. They also reported greater collaboration among colleagues in Independent schools. For these teachers, the trade-off between longer hours and increased autonomy was positive.

Teachers in Independent Schools Feel Less Secure in Their Jobs Than Do Teachers in Ministry Schools

Qatari and expatriate teachers in boys' and girls' Independent schools reported feeling insecure in their jobs. This was particularly the case in

the first years of the reform, before the Education Institute published personnel by-laws in 2007. The feeling of insecurity was based on the perception that hiring and firing decisions were in the hands of only one person, the school operator (who was, after the policy change, also the principal). Although operators/principals told teachers that there would be clear performance evaluation criteria against which raises, promotions, and even firing decisions would be based, these teachers, many of whom had spent years in the Ministry bureaucracy, said they did not feel comfortable. They worried that despite good performance, they might lose their job at any minute simply on a whim of the Independent school operator. They reported little discussion among teachers about how one could earn promotions or raises in an Independent school.

This insecurity may reflect a lack of experience in systems other than the Ministry, where raises are linked much more closely to longevity than to performance. For Qatari teachers, the notion of working under contracts subject to annual renewal is a vast departure from the guaranteed lifetime employment offered by the Ministry. Independent school contracts violate the historical right to a guaranteed permanent job that prevails in Qatar’s government sector. Moreover, the notion of working for a single person, as opposed to a government entity, such as the Ministry, is considered culturally unacceptable to many Qataris. Qatari teachers in a number of schools said they had expected that the SEC would operate as a sort of protector of their rights, much like the Ministry, and that the SEC would provide them an avenue for voicing their concerns about or problems with operators. Without these assurances, their conditions of work were little different from those of expatriates, and this status was new and largely unacceptable.

Expatriate teachers have traditionally suffered from job insecurity in both Ministry and Independent schools. They have few alternatives available to them if they do not like the conditions of their employment. If their performance is considered suboptimal, they will simply be let go or asked to return to their country of origin with little or no notice. Qatarization policies compound these insecurities: Expatriate teachers feel that they can lose their jobs to Qatari teachers at any time (although so far, as the data in Table 3.1 indicate, the Qatarization

requirements have not changed hiring practices). However, because Qatari teachers tend not to like working in Independent schools, and fewer of them are employed there, expatriate teachers believe they have a better chance of keeping their jobs in an Independent school environment, where competition with Qataris for teaching positions is much reduced. Some expatriate teachers also reported that they believed the genuine need for their set of skills and their years of experience in international and private school teaching would guarantee them a job in the future.

In 2006, the Education Institute took steps to address perceptions of job insecurity among Qataris by improving the legal and contractual conditions of Qatari teachers and employees in Independent schools. The Education Institute, in coordination with the Ministry of Civil Service Affairs and Housing's Labour Department, drafted a standard contract identical to the one used by public entities for hiring Qataris. At the time of our study, this contract was being used by Independent school operators when they hired Qataris. Moreover, all Qatari employees in Independent schools had become entitled to the full retirement benefits enjoyed by other Qataris in the public sector; the Independent school operator and the Qatari employee were paying 10 and 5 percent, respectively, of the employee's salary each month to the country's retirement fund. Additionally, a mandatory standardized process was introduced to address ethical and administrative misconduct by Qataris. Faced with a claim of weak professional performance, a Qatari teacher would be given an opportunity to receive training for two years before the school operator could terminate his/her employment. Despite these efforts, however, Qataris remain reluctant to work in Independent schools. Moreover, none of these changes applies to expatriates.

Higher Salaries Do Not Always Adequately Compensate for the Increased Workload

Qatari teachers in the focus groups observed that while Independent schools pay higher salaries than do Ministry schools, the higher salaries generally do not offset the greater workload and longer hours. Senior teachers seconded from the Ministry felt that the compensa-

tion system was especially unfair to them because their long experience did not necessarily translate into higher Independent school salaries. Indeed, because Independent schools were focusing on recruiting teachers with English language and information technology skills, the senior teachers, many of whom lacked such skills, often saw themselves at a disadvantage. This observation was reinforced by the high level of satisfaction with salaries that was expressed in the focus groups by Independent school teachers with little or no teaching experience. In addition, the high and increasing cost of living and housing in Qatar had reduced the appeal of Independent schools to expatriate teachers. In focus groups, they noted that the housing supplement offered by Independent schools was not enough to cover the cost of housing similar in quality to the housing provided in-kind by the Ministry, which protects this benefit from inflation.

In contrast, Qatari teachers in Ministry schools did not have strong objections to their salaries. Some of these teachers did, however, comment that their take-home pay was reduced by having to pay for materials and certain services (e.g., photocopying) out of pocket.

Professional Development Opportunities Fostered by the Reform

In addition to allowing school operators the freedom to hire and retain qualified teachers to support the educational programs and goals of their schools, the reform has emphasized professional development for teachers and administrators.⁹ As discussed previously, teaching in Independent schools is more challenging than teaching in Ministry schools, so the reform has emphasized professional development for Independent school teachers as a way for them to acquire the skills needed to

⁹ The need for professional development was felt especially keenly at the onset of the reform, because Qatar University had just ended its teacher training program. Since then, a post-bachelor’s teacher training program has been established that focuses on individuals who have not yet begun to teach, providing them with intensive English language training and teacher preparation. Successful candidates receive a diploma from the University of Qatar and a certificate from Texas A&M University (SEC, 2004).

teach a standards-based curriculum and foster student-centered learning. In addition, Independent school administrators required guidance in how to operate a school according to SEC requirements.

Before the first generation of schools opened in September 2004, the Education Institute came up with several ways to help schools and teachers implement the reform in their classrooms. The first was a teacher-training program for new teachers, the Teacher Preparation and Certification Program (TPCP).¹⁰ Second, each Independent school, in its first year of operation, received the services of an SSO. SSO staff worked in the school on a daily basis, helping it make the transition from Ministry to Independent school status (for example, by teaching the standards, encouraging student-centered learning, and reorganizing the school's structure) and helping it achieve its educational mission and goals. The SSOs also helped teachers identify curricula and devise materials and lessons that aligned with the curriculum standards.

Third, the Education Institute's Professional Development Office offered a variety of professional development workshops, some provided by international contractors, to both Independent and Ministry school teachers throughout the academic year. Ministry school teachers were invited to attend these workshops so that they would understand the standards in the event that they chose to teach in an Independent school.

The Ministry has also provided its Qatari teachers with opportunities for professional development, but they have been of less depth and breadth than those offered by the Education Institute. For example, teachers can attend workshops abroad if they apply for a special stipend. In addition, the Ministry offers workshops when the curriculum changes. However, none of these opportunities is available to expatriate teachers. Officials from the Ministry's professional development office

¹⁰ The goals of the TPCP were to introduce teachers to a range of teaching strategies, methods for planning and assessment, and ways to incorporate learning technologies in the classroom, as well as to enhance their subject-matter knowledge. The program, conducted in English, included an in-school teaching experience component. The TPCP had over 400 applicants, of which 78 were selected to start in September 2003. This program lasted only one year; it was replaced by a similar teacher training program offered by Qatar University in tandem with Texas A&M at Qatar.

explained that professional development is limited to nationals because the expatriates that are hired have at least five years of experience and therefore do not need further training. Informally, the RAND team was told that investing in professional development for expatriate teachers, all of whom work on one-year contracts, makes little sense in that many of them return home at the end of the year. However, the RAND team encountered many expatriate teachers on one-year contracts who had been teaching for decades in Ministry schools.

In the following sections, we use data from QNEDS teacher surveys conducted in 2005 and 2006 to explore the types of professional development opportunities available to teachers in Independent and Ministry schools and the types of professional development that teachers reported wanting to see more of.

Providers of Professional Development

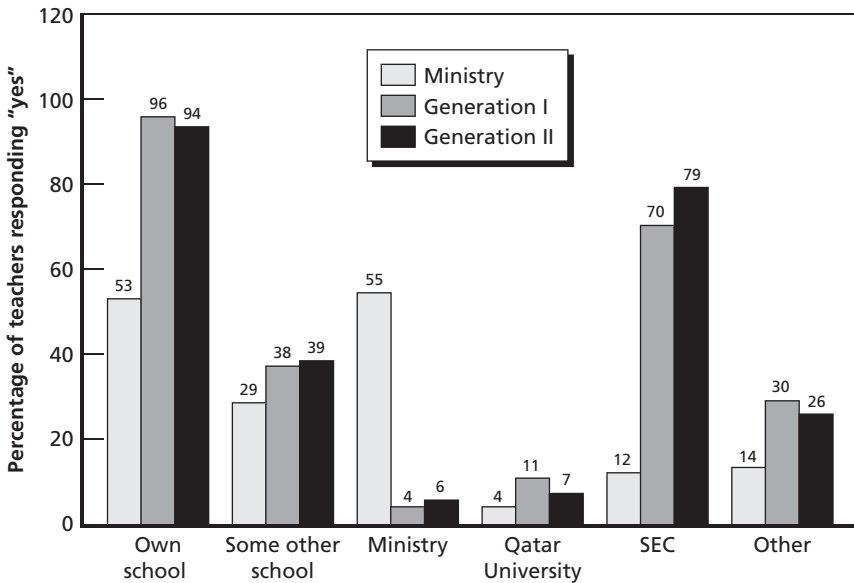
Figure 3.2 displays data on teachers’ reported use of different sources of professional development during the 2005–2006 academic year.¹¹ Studies have shown that for professional development to be most effective in shaping teachers’ pedagogical practices and the student learning environment, externally provided workshops need to be augmented with continuous and supportive training within the teaching and learning context (Adey et al., 2004).

The data revealed that teachers in Independent schools were receiving considerably more within-school training than were teachers in Ministry schools, which presumably reflects the work of the SSOs assigned to each Independent school during its first year of operation.¹² These findings suggest that the SSOs may have instilled the importance of in-school professional development, since schools continued to provide in-school opportunities after the SSOs were gone. Furthermore, teachers in Independent schools were participating in within-

¹¹ These data were available only for one year because the 2005 teacher survey did not include questions about whether professional development was provided by teachers’ own or another school.

¹² However, the QNEDS survey data do not include details about professional development, e.g., whether an SSO was the source for professional development or its focus.

Figure 3.2
Providers of Professional Development, by School Type, 2005–2006



SOURCE: QNEDS teacher survey, 2006.

NOTE: Numbers of teachers = 6,147 Ministry, 848 generation I, 995 generation II.

RAND MG880-3.2

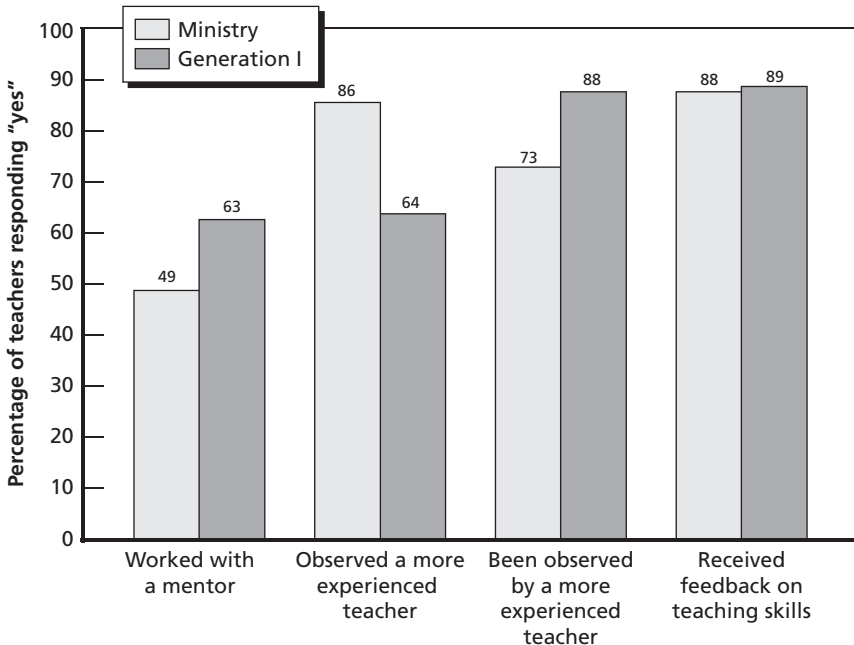
school professional development activities more than any other activities—e.g., opportunities provided by another school, by the Ministry of Education, by Qatar University, or by the SEC.

Figure 3.2 also shows that a small proportion (12 percent) of Ministry school teachers were taking advantage of professional development opportunities provided by the SEC, presumably the Education Institute’s Professional Development Office workshops and training courses. Such involvement was encouraged in the reform design because, even though it was understood that little of what Ministry school teachers would learn could be directly applied in their classrooms, it was assumed that many of them would move to Independent schools over time.

Types of Professional Development Activities in Which Teachers Participated

Figure 3.3 lists the reported types of activities in which teachers in Ministry and Independent schools participated during 2004–2005, the first year of operation for generation I schools. Teachers in Independent schools were found to be substantially more likely than teachers in Ministry schools to work with a mentor (63 versus 49 percent). However, teachers in Ministry schools were considerably more likely than teachers in Independent schools to observe a more experienced teacher (86 versus 64 percent). A large proportion of teachers in both types of schools reported having been observed by a more experienced teacher or receiving feedback on their teaching skills. The only form of

Figure 3.3
Teacher Participation in Professional Development Activities, by School Type, 2004–2005



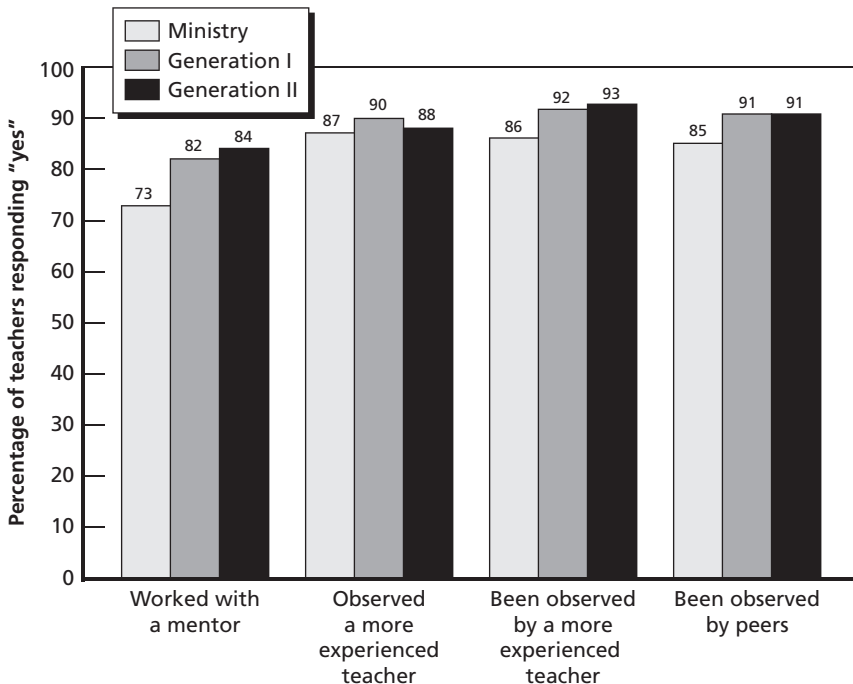
SOURCE: QNEDS teacher survey, 2005.

NOTE: Numbers of teachers = 7,019 Ministry, 771 generation I.

feedback provided to teachers in Ministry schools were written notices by Ministry “inspectors” who visited classrooms to ensure that teachers were following the curriculum and using the Ministry textbooks according to schedule. In focus groups, Ministry teachers said they did not receive continuous feedback or training on such fundamental skills as classroom management.

Figure 3.4 provides the same information for academic year 2005–2006. Teachers in generation I and II schools were substantially more likely than teachers in Ministry schools to have worked with a mentor, been observed by a more experienced teacher, or been observed

Figure 3.4
Teacher Participation in Professional Development Activities, by School Type, 2005–2006



SOURCE: QNEDS teacher survey, 2006.

NOTE: Numbers of teachers = 6,147 Ministry, 848 generation I, 995 generation II.

by peers. We also found that teachers in generation II schools were considerably more likely to report having worked with a mentor than were teachers in generation I schools. Otherwise, reports from teachers in generation I and II schools about their professional development activities were similar.

One noteworthy item with relation to the data in Figures 3.3 and 3.4¹³ is that across all schools, teachers reported greater participation in a variety of in-school training opportunities in 2005–2006 than they did in 2004–2005.

Subjects Addressed in Professional Development

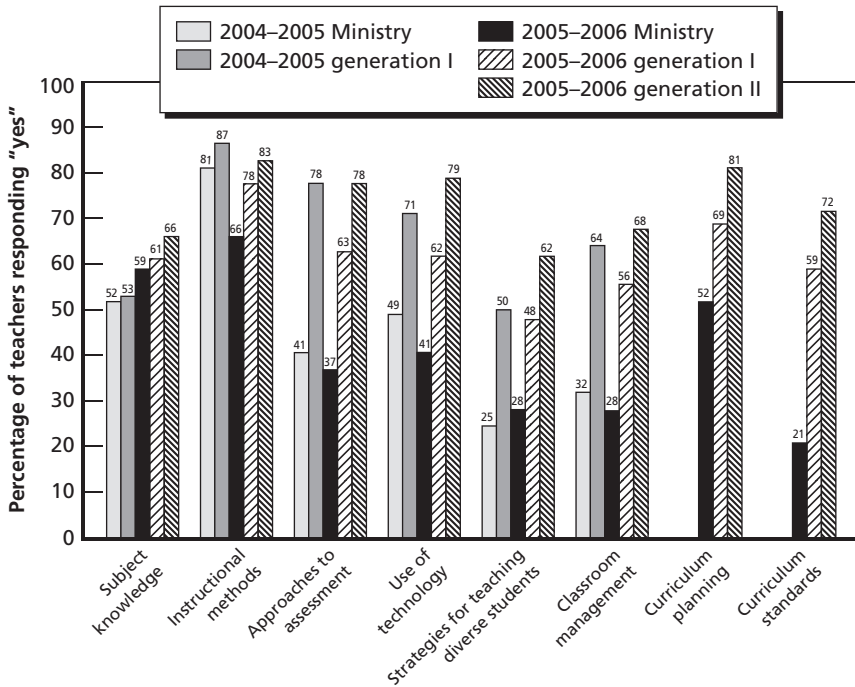
Given that many teachers newly hired by Independent schools—particularly those who are new college graduates with little teaching experience or who previously worked for the Ministry—need to learn about instructional techniques (including developing formative and continuous assessments of student learning vis-à-vis the new Qatar curriculum standards), it is important to know whether they are receiving the training necessary to perform their jobs adequately. QNEDS teacher surveys asked about the types of subjects covered in the professional development activities in which teachers participate. Among the subjects listed were several that promote the principles of the reform, including professional development in instructional practices, approaches to assessment, use of technology, and strategies for teaching diverse students. The teacher surveys also asked whether teachers had received training in the new Qatar curriculum standards and in curriculum planning.

Figure 3.5 compares the types of subjects that Ministry and Independent school teachers reported as being covered in professional development in 2004 through 2006.

Independent school teachers need more exposure than do Ministry school teachers to certain types of training, since the teaching demands in Independent schools are greater. As Figure 3.5 shows, a sub-

¹³ The results in Figures 3.3 and 3.4 cannot be directly compared because the response categories for the survey questions from which these data were drawn were not the same (the question about having been observed by peers was not asked in 2005; the question about having received feedback on teaching skills was not asked in 2006).

Figure 3.5
Subjects Addressed in Professional Development Training, by
School Type, 2004–2006



SOURCE: QNEDS teacher surveys, 2005, 2006.

NOTES: (1) Numbers of teachers in 2005 = 7,019 Ministry, 771 generation I. Numbers of teachers in 2006 = 6,147 Ministry, 848 generation I, 995 generation II. (2) For “subject knowledge,” no significant difference between Ministry and generation I schools in 2005 and 2006 or between generation I and II schools in 2006; significant differences at .01 level between Ministry and generation II schools in 2006. For seven other categories, significant differences at .01 level between generation I and II schools in 2006. (3) Teachers not asked about “curriculum planning” and “curriculum standards” on 2005 survey.

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stantially higher percentage of teachers in Independent schools reported having engaged in professional development activities consistent with the expectations of teaching in that school environment: instructional methods, approaches to assessment, use of technology, strategies for teaching students with different abilities, curriculum planning, and the new Qatar curriculum standards. Reported differences between Min-

istry and generation I schools in 2005 and 2006 and between generation I and II schools in 2006 for professional development of “subject knowledge” were small. The differences in this category between Ministry and generation II schools in 2006 were larger.

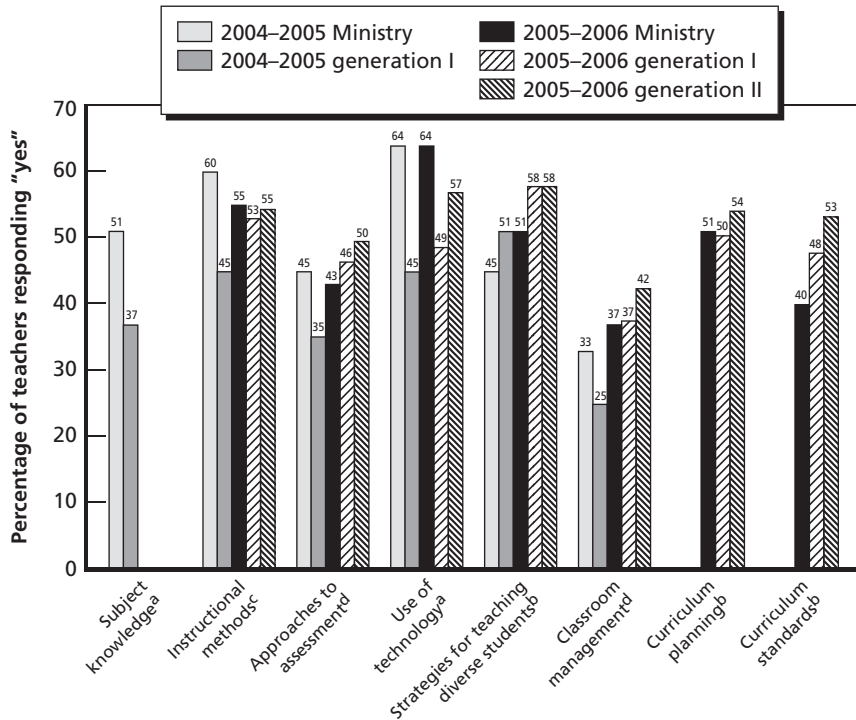
A comparison of the two generations of Independent schools revealed that a higher percentage of teachers in a school’s first year of operation (i.e., in 2004–2005 for generation I, and in 2005–2006 for generation II) reported having received more training in instructional methods, approaches to assessment, use of technology, strategies for teaching students with different abilities, curriculum planning, and the new Qatar curriculum standards than did teachers in other schools. In 2004–2005, more teachers in generation I schools were exposed to these topics than were teachers in Ministry schools. In 2005–2006, a greater percentage of teachers in generation II schools were exposed to these topics than were teachers in either Ministry or generation I schools. The only subject in which generation I and II teachers reported similar exposure was in “subject knowledge.” This suggests that the SSOs and the Professional Development Office did a good job of providing training in the areas of greatest need to first-year Independent school teachers. Whether this training resulted in changes in teachers’ classroom practices is another topic, which we explore in subsequent chapters.

Does Professional Development Meet the Needs of Independent School Teachers?

While the analyses described above suggest that Independent school teachers were receiving the types of professional development needed to perform successfully, the teachers expressed a desire for additional training. Figure 3.6 shows the percentage of teachers who reported that more training was “very much needed” in each subject.

In 2004–2005, a significantly higher percentage of teachers in Ministry schools than in Independent schools indicated that they needed more training in subject knowledge, instructional methods, assessment development, use of technology, teaching students with varied learning abilities, and classroom management. Evidently,

Figure 3.6
Teachers Who Considered Professional Development “Very Much Needed,”
by Category and School Type



SOURCE: QNEDS teacher surveys, 2005, 2006.

NOTES: (1) Numbers of teachers in 2005 = 7,019 Ministry, 771 generation I. Numbers of teachers in 2006 = 6,147 Ministry, 848 generation I, 995 generation II. (2) Teachers not asked about “curriculum planning” and “curriculum standards” on 2005 survey.

^aNo significant difference between Ministry and generation I schools in 2005 and 2006, or between generation I and II schools in 2006; significant differences at .01 level between Ministry and generation II schools in 2006.

^bSignificant difference at .01 level between generation I and II schools in 2006.

^cSignificant difference between Ministry and generation I schools in 2005; no significant differences among schools in 2006.

^dSignificant difference at .01 level between Ministry and generation I schools in 2005 and between Ministry and generation II schools in 2006; no significant differences between generation I and Ministry schools or between generation I and II schools in 2006.

they did not feel that they were receiving the types of professional development needed to perform their job well. In particular, Ministry school teachers consistently expressed a strong need for professional development on technology use.¹⁴ In 2005–2006, a higher percentage of generation II teachers than of generation I or Ministry school teachers reported that they needed more assistance in curriculum planning and curriculum standards. This suggests the possibility that the most-capable and most-assured Ministry teachers and new teachers jumped at the chance to move to Independent schools in generation I. Subsequent recruits may have been less prepared.

Our focus groups with teachers and interviews with principals in the case study schools yielded similar findings. Teachers in Ministry schools reported being dissatisfied with the training opportunities offered by the Ministry, many of them noting that training, if provided at all, was only for Qataris. When training was provided, it took the form of short-term workshops focused on changes to the Ministry curriculum. In contrast, Independent school teachers expressed appreciation for the professional development opportunities available to them. This was particularly the case for expatriate teachers who had formerly taught in the Ministry system and were receiving professional development in Qatar for the first time. However, teachers and principals noted a downside to the sheer quantity of professional development opportunities: Teachers reported feeling overwhelmed and burned out. Given the increased workload that many Independent school teachers reported, it was clear that they found it difficult to carve out time during the work day to participate in training. Teachers reported that they often stayed after regular working hours and into the evening to attend workshops, so many of their days became quite long. Some Independent school teachers reported in focus groups that they felt

¹⁴ This finding is curious. This type of training has never been offered to Ministry teachers, and clearly they were feeling its absence. At the same time, Ministry teachers have had no access to technology. In focus groups, some participants told the RAND team that the training would be pointless.

inundated with information and had a hard time digesting all the new material or implementing new techniques in the classroom.

Conclusions

The findings we have presented in this chapter suggest that, in the first two years of operation, Independent schools were markedly different from Ministry schools in terms of how teachers and other staff were hired and what types of professional development opportunities were made available to teachers.

During the period in which this study was conducted, the Ministry system did not change its hiring policies or procedures related to staff or teachers. The Ministry continued to assign teachers and principals to schools; to give principals no autonomy to hire their teachers or staff; and to not allow the professional development department to offer any new professional development programs for teachers. Some Ministry teachers were turning to the curriculum standards workshops offered by the Education Institute.

In contrast, Independent school operators during this period had the autonomy to direct the recruitment, hiring, and retention of their staff. However, their autonomy in hiring decisions has been affected by the introduction of Qatarization goals and minimum salaries for Qatari nationals. Another challenge to hiring and retaining teachers comes from the fact that teaching conditions in Independent schools are perceived as less favorable than those in Ministry schools—the hours are longer, the work is more challenging, job security is lacking (particularly for Qatari teachers seconded from the Ministry), and the likelihood of obtaining a supervisory position is lower.

Some new policies and regulations have been put in place to increase the appeal of working in Independent schools for teachers and staff without undermining the school operator's autonomy or infringing on the envisioned decentralized system of school staffing. For example, having teachers and schools contribute to teachers' pension plans may provide an incentive for Ministry teachers to join Independent schools, since it addresses the fear that they will lose their pension

plans. Furthermore, many Independent school operators have implemented performance-based evaluation systems in an effort to link performance with rewards and sanctions, although the majority of these efforts were, at the time of our study, still in their early stages. However, the lack of discussion about these systems in our focus groups seems to indicate that teachers need to be better informed about them and to become aware of ways in which positive performance may be linked to rewards.

Major steps have also been taken to address the widespread perceptions of job insecurity by improving the legal and contractual conditions of Qatari teachers and employees in Independent schools. For example, the Education Institute, in coordination with the Civil Service and Labour Department, drafted a standard contract for operators to use when hiring Qataris into their schools.

These steps have likely made Independent schools somewhat more attractive as an employment option for Qataris. But overall, Qataris continue to see teaching in an Independent school as less attractive than teaching in a Ministry school. In contrast, expatriates find teaching in Independent schools appealing in several respects: They become eligible for and receive substantial professional development, are rewarded for their abilities, and experience no decline in job security.

Efforts to recruit Qataris to teaching in Independent schools continue to be undermined by the substantially higher workload compared with that of Ministry school teachers. We found that Independent school teachers were overwhelmed and yet still believed that they needed more training to correctly and fully implement the teaching strategies that would best uphold the reform and convey the content and spirit of the curriculum standards. Furthermore, many female teachers in the Independent schools reported having difficulty balancing work and family obligations. In general, Independent schools still need to develop innovative ways to approach the workload challenge.

We found substantial differences in the professional development that Independent school and Ministry school teachers were receiving and felt they needed. Independent school teachers were more likely than their Ministry counterparts to engage with other teachers in their school—whether being observed by a more experienced teacher,

observing a more experienced teacher, working with a mentor, or being observed by peers. This close engagement was not as present for teachers in Ministry schools.

Teachers in Independent schools were more likely than teachers in Ministry schools to report having received the kinds of professional development activities consistent with the reform's expectations: instructional methods, approaches to assessment, use of technology, strategies for teaching students with different abilities, curriculum planning, and the new Qatar curriculum standards.

Data from QNEDS and from focus group discussions suggest that the SSOs and the Professional Development Office have been providing training in the areas of greatest need to first-year Independent school teachers. However, they could be doing more. Compared with generation I and Ministry school teachers, a significantly higher percentage of generation II teachers reported that they needed more assistance in curriculum planning and curriculum standards.

In May 2007, in an effort to promote the professionalism of teaching and education administration careers, the Education Institute introduced national professional standards for teachers and school leaders.¹⁵ The first of their kind in the Arab world, these standards provide measurable benchmarks for professional educators to follow. There are separate standards for teachers and administrators, each consisting of a set of statements describing desired knowledge and abilities at various points in a career, along with a corresponding set of indicators for measuring success in achieving appropriate levels of performance.

These standards provide a framework that can be used by teachers and school leaders to shape curriculum, prepare and deliver lessons, and improve the ways in which the school is administered. The standards can also serve as a basis for designing a range of professional development activities to help prepare new teachers for the classroom and to improve the skills of experienced teachers.

According to our analyses, Independent schools and Ministry schools have been hiring teachers with similar levels of education. But

¹⁵ Qatar's Education Institute developed these standards in association with Education Queensland International of Australia from January 2006 to April 2007.

we also found that Independent schools were training teachers more intensely and in ways that support their new responsibilities. While some Qatari teachers have sought positions in Independent schools in order to exercise more professional autonomy, the Ministry schools have continued to be a more attractive opportunity for most Qataris. As a result, the Independent schools have been staffed largely by expatriate teachers. In the next chapter, we examine how these Independent school teachers have managed a daunting new task: the development of curriculum and materials.

Developing Curriculum and Instructional Materials

At the heart of Qatar’s K–12 education reform are curriculum standards that define expectations for student learning and performance. These standards set clear goals for what students should know and be able to do by a specific grade or age. They also serve as the focal point for all other elements of the system, particularly with respect to professional development for teachers and assessment of student achievement.

Content and performance standards have been developed in four subjects: Arabic, English, mathematics, and science.¹ To promote autonomy and variety, the standards do not dictate, or even propose, the curriculum itself, nor do they prescribe the manner in which the information and skills are to be conveyed. All decisions regarding which textbooks to use, which pedagogical approaches to promote, and which instructional strategies and lesson plans to employ are left to the individual Independent schools. This distinction between standards and curriculum had not previously been made in Qatar, where standards had always been an *implicit* part of a national curriculum developed, mandated, and overseen by the Curriculum Development Department of the Ministry of Education. Not surprisingly, then, the need to reflect and/or develop their own individual curricula imposes many responsibilities on the Independent schools and their teachers.

¹ Brewer et al. (2007, pp. 99–110) discuss in detail the process of developing the standards and supporting their implementation.

In this chapter, we examine how Independent schools went about developing the curriculum and materials they would use to operationalize the curriculum standards, as well as the supports they relied on to carry out this time-consuming process.² We compare this process in the Independent schools with the analogous process in the Ministry schools. We use data from QNEDS teacher surveys, teacher focus groups, and interviews with principals and subject leaders to describe the process of curriculum development in Independent and Ministry schools, paying particular attention to challenges faced and support provided. We then discuss parents’ satisfaction with the curriculum development process in Independent schools using information collected in parent focus groups and institutional responses to parents’ concerns. (Chapter Two provides more-detailed information on these data sources.) We conclude by describing and comparing teachers’ satisfaction with the learning environments in Independent and Ministry schools.

Curriculum Development in the Independent Schools

Consistent with the goals of the reform, Independent school teachers were to be free to adopt whatever approaches they determined would enable students to meet the new curriculum standards while serving the school’s educational goals and the needs of the student body. For example, teachers could buy a single curriculum, buy more than one and use them together, or develop curricula themselves.³ A key constraint, especially in the first year of Independent school operation, was

² We did not examine these curricula and therefore do not know how much they differed across Independent schools. However, it is probably safe to assume that in year 1, the teacher-developed materials and lessons varied considerably. The three subject-matter experts did examine textbooks and other materials as part of their assessment of the implementation of the standards in their subject, as discussed in Chapter Five. The small number of classrooms each expert visited did not permit a systematic assessment of those materials.

³ Independent schools made these decisions in different ways. In a few schools, teachers were free to consult their colleagues but make their own decisions. More typically, a school would form committees or ask a department head to recommend appropriate materials. Some schools developed their own.

time. The standards were not completed until after the school year had begun, yet teachers needed to have something to teach when the doors first opened in September. Moreover, whatever they did teach then either had to be exchanged when the standards became fully available or had to be reasonably compatible with them.⁴ Other, longer-term constraints included the cost of buying curricula, time required to train teachers on any curriculum that was adopted, and time and skills needed to design and implement a teacher-developed curriculum. A key issue for teachers in selecting or designing curricula was the awareness that their students would be required to take the QCEA exams, which, according to the design of the reform, were aligned with the standards.

Curriculum Development Was a Challenging Task for Independent School Teachers

Many Independent school teachers participating in the RAND focus groups reported that they felt burdened by having to develop curricula for their schools. They identified three main problems, and they described measures that they took to mitigate those problems:

Teachers Had Not Been Trained to Select or Develop Curricula.

Although teachers in Independent schools felt overwhelmed by the task of developing their own curricula and unqualified to do so, these feelings diminished markedly as the year progressed. In the focus groups, teachers noted that by the second year of operation, the curriculum had become more regularized, and development had become a less overwhelming task. Moreover, teachers felt that the students were becoming more comfortable about what was expected of them.

In their second year of operation, Independent schools adopted a wider variety of methods for developing curriculum. Teachers in the schools that used teams or received assistance from external support organizations were often the ones who reported that the development of curriculum was a successful process. They indicated that the more-flexible curricula they were using allowed them to be responsive to

⁴ Draft standards were circulated so that Independent school staff would have a good idea of what the final standards were going to look like as they prepared for their first students.

student needs and that lessons used a variety of resources to meet the standards.

Finally, teachers noted another positive result stemming from their curriculum-development activities: greater autonomy in the classroom, which they found personally satisfying.

Teachers Often Had to Develop Curriculum in Addition to Accomplishing Their Other Tasks. Another common complaint that teachers voiced in the focus group discussions about the early part of the school year was the sense of being overburdened by having to develop curriculum during their non-instruction time. This was particularly the case given the short period (usually just a month before the school year opened, if at all) allotted for designing the school’s lessons. Although teachers typically were expected to teach from 18 to 21 hours a week, many of them reported spending an additional five to six hours preparing to teach their classes and devoting another five to six hours to grading papers and meeting with students. Of course, loads varied by school and teacher.⁵

Independent schools dealt with this challenge in different ways. Some principals appointed their most experienced teachers as subject leaders, provided those leaders with release time, and asked them to develop the curriculum. The role of the teachers in this case was to implement the plan prepared by the subject leaders.

Teachers Had Little or No Experience Working in Teams. Some principals asked teachers of specific subjects to meet with their subject-matter specialists and work in groups to develop curricula. This entailed working in pairs or small teams to design lessons and materials and then disseminating them to colleagues. The teams might comprise teachers from a single grade level or from across grade levels—grades 1–3, 4–6, etc. Other schools employed a rudimentary form of “curriculum mapping” across subjects in which teams in different subjects worked together to develop an “integrated” curriculum. For example, if electricity is a curriculum standard in grade 4 science, English lessons that day or week would provide reading comprehension passages about

⁵ Our sample was too small to determine a more precise estimate of variance in teachers’ workloads and the factors that might contribute to that variance.

electricity, and mathematics lessons would feature problems based on this subject matter.

For some teachers, the opportunity to work in teams and to control the content of their lesson plans was an important reason for joining an Independent school. A teacher at a boys' secondary school that had just converted to Independent school status said that the reason he had come was the freedom he would have to put together his own materials to use as learning resources and that sharing these resources with his colleagues would contribute to an improvement in education in the Arab world. A second-year teacher in a boys' preparatory school said he and his colleagues appreciated the opportunity to design curricula. It allowed them to be more flexible in their instructional approaches and to incorporate a greater number of practical applications in their lessons. For a handful of teachers, however, this was a new process, and they felt that they were too inexperienced or had not received clear enough guidance to do it well. These teachers reported being confused about responsibilities and roles.

Curriculum Development Was Less Difficult for Teachers in Independent Schools That Had Formerly Been Scientific Schools

Our focus group data suggest that curriculum design was far less challenging for the two former scientific schools that converted to Independent schools than it was for the other Ministry schools. This is not surprising given that these schools had been functioning in a semi-autonomous way since their inception in 1999, free from the Ministry curriculum. By the time they converted to Independent school status, their teachers had been working closely together for years to review and select curricula from outside Qatar that met their needs.

At the outset of the reform, both of these schools formed committees of teachers to review the new curriculum standards against their existing curriculum, which in 2003–2004 and 2004–2005 was based on the International Baccalaureate, or IB.⁶ Even though the new

⁶ The International Baccalaureate is a challenging two-year educational program recognized worldwide as a leading university entrance course. As of 2007, it was being taught in 125 countries. In 2006–2007, one of Qatar's scientific secondary schools became an approved IB school.

curriculum standards had been benchmarked to international standards and carefully reviewed both by teachers in Qatar and by external experts in each subject area, some teachers in the former scientific schools were concerned that adopting the SEC curriculum standards might mean lowering the standards already in place in their schools. As an example, they cited cases in which they had been presenting topics to their students one or two years before their slated introduction in the SEC standards. Moreover, they worried that not changing their practices in accordance with the SEC sequencing would put their students at a disadvantage on the QCEA exams.

The Education Institute Engaged Experts to Help Teachers Implement the New Curriculum Standards

The Arabic standards, in particular, proved quite challenging for teachers. They were less focused on memorization of rigid grammar rules—the typical Ministry school approach to teaching Arabic—and required that teachers use a variety of materials and texts in lessons. The Education Institute agreed that additional support was therefore needed to help teachers translate Arabic standards into materials and practice. To that end, the Institute contracted with an Arabic expert curriculum to provide standards-specific training to teachers beyond the assistance provided for the other subjects.

As operators of generation I schools started to develop their educational programs with SSOs in Spring 2004, the Education Institute received comments that the standards were too abstract and offered too little guidance for school administrators and teachers attempting to develop discipline-specific curricula. Operators and SSOs were also struggling to meet the standards in a typical five-hour day. These challenges caused concern that the Independent school operators would not be able to implement the standards, so the Education Institute decided to provide additional support for mathematics, science, and English.

The Education Institute engaged the Center for British Teachers (called CfBT at the time, but now called CfBT Education Trust), which had developed the Qatari curriculum standards, to provide standards implementation support in the other three subject areas in four ways:

1. By providing training for teachers and instructional leaders, working with SSOs and Education Institute and Curriculum Standards Office staff
2. By designing and providing schemes of work, which gave curricular examples and provided hands-on training for teachers
3. By working with the operators of generation II schools, scheduled to open in September 2005, when they started to develop educational plans for their schools
4. By evaluating the educational plan section of the applications submitted for Independent school contracts for generation II schools.

CfBT also provided guidance on scheduling and sequencing of instruction consistent with or in support of the standards. It suggested a school year of approximately 180 days, a teaching day of approximately 5.5 hours, and the number and duration of lessons in a day. However, it purposely let the Independent schools determine how to schedule teaching time and organize the teaching of the curriculum.⁷

Following these initial efforts, the Curriculum Standards Office continued to provide support for standards implementation. It hired subject-matter experts in each of the four subject areas—Arabic, English, mathematics, and science—to serve as resources for teachers on the subject matter and the standards, as well as to provide workshops and subject-specific training. In addition, the Education Institute’s

⁷ For example, Independent schools could offer a shorter teaching day over a longer teaching year or a longer teaching day over a shorter teaching year, subject to the approval of the Education Institute. CfBT also suggested proportions of instructional time (in ranges) for a given subject at each grade level, compared with instructional proportions offered by the Ministry in those same subjects, to give an idea of what students would need in order to be sufficiently exposed to the standards. The assumption was that schools would likely decide to teach Arabic, English, mathematics, and science in each grade every week. However, if they wished to vary this pattern, they could. There was no requirement for each subject to be taught every week, every semester, or even every year. More time could be allocated to a particular subject in one year than in another. CfBT was careful to provide ranges and suggestions, not prescriptions, to allow Independent schools to tailor their curricula to their aims and values and their students’ needs.

Professional Development Office developed a range of training opportunities for teachers, as discussed in Chapter Three.

External Support Was Valuable in Helping Independent School Teachers Understand the Curriculum Standards and Select or Design Curriculum Materials

During the focus groups, teachers in Independent schools said that the help they received in their curriculum development efforts was very beneficial. They were uniformly grateful for the schemes of work from the Curriculum Standards Office, which helped them understand the curriculum standards. Teachers noted that the schemes of work suggested ways to make the standards more flexible so that teachers could better adapt them to their students’ needs. A girls’ primary teacher noted that she referred daily to the schemes of work and found the assessment activities to be particularly helpful.

Independent school teachers also expressed appreciation for SSO staff, who were available to consult on all aspects of the curriculum and textbook selection and to help with class organization and presentation of lessons. However, some noted that SSO staff were busy doing so many things that they had only limited time to help with curriculum development. Teachers of mathematics and science in the upper grades and of Arabic at all grades also noted that SSO staff, typically English-speaking generalists, were often unable to provide specific substantive assistance.

Curriculum Development in the Ministry Schools

Although the Ministry of Education made an effort to compare its curriculum with the new Qatar standards, no formal policy was established to promote the implementation of those standards in Ministry school classrooms.⁸ Teachers in Ministry schools continued to rely on

⁸ With the inception of the reform, the Ministry of Education tasked the Curriculum Development Department to assess the Ministry’s curriculum against the new curriculum standards in the four core subjects to ensure that the Ministry curriculum was aligned with those standards. Ministry officials concluded that the Ministry curriculum in English, math-

Ministry-developed textbooks and a set curriculum. In addition, they continued to teach prescribed lessons and to describe their daily lesson plans in a notebook that a Ministry “inspector” would review while conducting official observations in their classrooms. These entries, which are to be written for each class period every year, even if the curriculum has not changed at all, record a timeline and set of activities, as well as the teacher’s objectives for each lesson.⁹

In focus groups, the strongest and most consistently expressed view among Ministry school teachers was that the existing centralized curriculum that guided their work was the best model for schools: Teachers should be allowed to devote their efforts to providing instruction so that they can focus on their students. Curriculum development should be left to Ministry experts; they are the appropriate people to design curriculum.

Ministry school teachers in the focus groups also commented that the Independent school teachers they knew often felt unprepared to develop curricula but were afraid to say so for fear of losing their jobs. Additionally, they expressed concern that colleagues who had moved to Independent schools did not have the qualifications or experience needed to develop curriculum or to write lesson plans for the stan-

ematics, and science covered the content reflected in the curriculum standards but in different years. However, analyses performed by CfBT when developing the new Qatar curriculum standards found the Ministry curriculum outdated. CfBT’s conclusion was that while the curriculum might cover similar content, it did not encompass the analytic skills deemed important for the global economy and emphasized in the new standards.

⁹ In visits to Ministry schools in 2001–2002, prior to when our study was conducted, RAND researchers were shown a number of these notebooks, which clearly required a great deal of time to prepare. In fact, many Ministry school teachers complained about how time consuming the task was, particularly considering that the notebooks did not depart in any way from the Ministry curriculum and that the exact same activity had been carried out in previous years, usually for the very same curriculum. Moreover, a culture had developed among female teachers that compelled them to lavishly ornament their notebooks with stickers, sketches, and other design elements. These teachers had come to believe that lack of ornamentation would somehow convey to inspectors a lack of commitment to the task, even though the ornamentation bore virtually no relationship to the content. Adornment may have become a way to communicate effort and care because, after the first year of teaching, the activity was only marginally substantive; teachers copied the prior year’s plan into a new notebook.

dards. In their view, this lack of capacity resulted in a gap between the standards’ goals and their implementation. As a result, they felt, educational quality could be compromised.

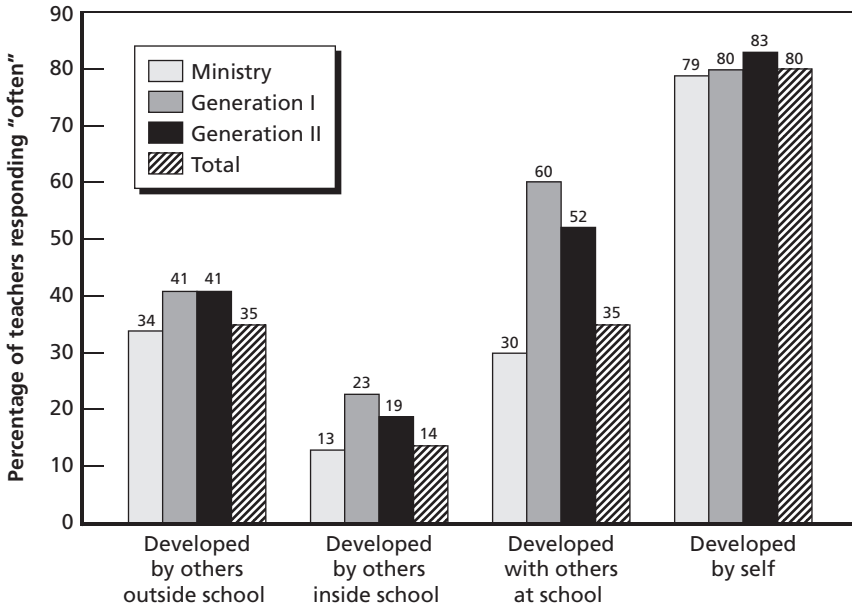
In the Ministry schools represented in the study sample, there was no culture of teamwork. Ministry school teachers indicated that they generally prepared lessons individually, and collaboration of any type was rare. While they sometimes observed each other’s classes, this was done on a strictly informal basis among colleagues comfortable with doing so. Formal exchanges were limited and, in some schools in the sample, did not occur at all. In the focus groups, Ministry school teachers attributed this situation to a lack of encouragement by Ministry officials and to the absence of formal mechanisms to encourage or enable teachers to collaborate. They also noted that although working together might be beneficial, it was not occurring.

RAND’s analysis of QNEDS data indicated that Independent school teachers used classroom materials developed by others more frequently than did Ministry school teachers. Figure 4.1 displays the percentage of teachers reporting that they “often” used materials developed by others outside their school, by others inside their school, with others at their school, or alone. Ministry teachers were found to be significantly less likely to use materials developed by others than were teachers in both generation I and II schools; the greatest difference was in the use of materials developed *with* others at a teacher’s own school. This suggests that collaborative efforts are substantially more likely among Independent school teachers than among Ministry school teachers. No significant differences were found to exist in how often teachers used self-developed materials.

Concerns About Eliminating Required Textbooks in Independent Schools

As noted earlier, the Ministry’s curriculum had always included a set of textbooks—one for each subject and grade level—that was used in all schools. Indeed, the curriculum was essentially delivered through this set of textbooks. Therefore, the task of eliminating required textbooks

Figure 4.1
Frequency with Which Teachers Use Classroom Materials Developed by Others and by Self, by School Type, 2006



SOURCE: QNEDS teacher survey, 2006.

NOTE: Numbers of teachers = 9,022 total, 7,182 Ministry, 838 generation I, 1,002 generation II.

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imposed a substantial burden on Independent school faculties, many of whom had never critically examined a textbook until the K–12 reform was under way. During focus group meetings and in interviews, Independent school administrators and teachers described the challenges they had faced as a result of this important change.

Independent schools received mixed messages about whether they were truly free to do whatever they wished with regard to developing and selecting curricula and textbooks. On the one hand, administrators and staff were frequently reminded of the word “independent” in their school’s name. They were told to use the curriculum standards as guidance and be mindful of the fact that students would be expected to take examinations aligned with those standards, but to design or select

any curricula or texts that reflected their school’s unique mission and the needs of their students. On the other hand, it was informally suggested that the adoption of a single textbook for any one class would not be viewed favorably, since no text by itself could possibly cover all of the content reflected in the standards. Thus, the guidance was unclear as Independent school teachers, principals, and operators approached the task of curriculum development. It should be noted that this message reflected concerns among the reform’s developers and the Education Institute directors that if teachers were handed textbooks, they would follow them slavishly as they had been expected to do in the Ministry and, in many cases, had done for years. Given high levels of uncertainty about who ultimately got to make decisions, virtually all Independent schools chose not to purchase textbooks in 2004 and 2005. Instead, most of them developed their own materials.

The decision to develop materials in-house was supported by a lack of materials at an appropriate level that addressed the standards and met student needs, particularly in the case of Arabic language and for mathematics and science in Arabic. The only available books in Arabic were from the Ministry, and they were generally regarded as not being adequate to cover the standards, despite the Ministry’s assessment that they were. And while there were numerous mathematics and science textbooks written in English, many principals noted that their students’ English skills were insufficient for adequate comprehension of those materials. This was especially true for boys’ preparatory and secondary schools.

Teachers in generation I schools expressed concern that because there was no set text, the curriculum would change from one year to the next and force them to start all over again each year. This fear proved to be unfounded. In the second year of the Independent schools, the previous year’s curriculum was implemented with only a few changes to accommodate experience gained in that first year.

The faculties in the Independent schools were uncertain about how to select materials for subjects not covered by the standards. The SEC had neither developed nor adopted international standards for information and computer technology, sharia studies, and some other subjects, so the schools developed their own curricula. Most schools

relied on the Ministry curriculum for sharia; some augmented it with additional goals and objectives. Information and computer technology was more of a challenge, because the Ministry had no curriculum that could be adopted or modified. One primary school for boys used the International Computer Drivers License (ICDL) standards (which include Microsoft Office™ programs), the goal being to have students pass the ICDL test at the end of their schooling.

Many Parents Were Concerned That Prescribed Textbooks Were Not Being Used in Independent Schools

In lieu of textbooks, some Independent schools relied on a variety of such learning materials as worksheets, newspapers, and teacher-generated handouts. Parents were accustomed to seeing a single book or set of books, and many worried that the lack of a textbook indicated that little learning was occurring. They had come to rely on textbooks as a means of understanding what their child was studying. In parent focus groups, some said that they would be unable to help their children with their studies in the absence of a textbook.

Many parents questioned the quality of materials used in Independent school classrooms in general and, especially, the materials students brought home. They often found typographical or grammatical errors, particularly in the English texts. Some argued that because no standards in Qatari history or sharia studies existed, the Independent schools were not fostering a sense of community or religious ideals.

Parents worried that teachers not specifically trained in curriculum development would be designing curriculum and selecting textbooks to support it. They believed that even though textbooks were often outdated, the Ministry staff who designed and periodically updated those textbooks—all of whom had Ph.D.s—were highly qualified to do so. They preferred to have trained Ministry experts develop the curriculum rather than letting inexperienced classroom teachers do it, particularly given the short time frame in which many teachers were expected to develop their lesson plans.

Some parents believed that Independent school operators were replacing texts with photocopied materials or newspapers as a way to increase their profits, presumably because this was cheaper than pur-

chasing textbooks.¹⁰ Parents felt that these operators, some of whom were not educators, were running schools simply to cash in on huge profits and had no real interest in educating the students who attended their schools.

Parents also noted that the absence of specified textbooks undermined the ability of tutors to help their children pass required exams. Over the years, a flourishing private tutoring industry had grown up around the Ministry schools, despite the fact that Ministry teachers, who did nearly all of this tutoring, were prohibited from doing so. Much of the work that tutors did was based on a known, unchanging curriculum anchored by textbooks. Regardless of which Ministry school a student attended, a tutor could count on knowing the day’s lesson and the accompanying textbook assignment. Under the Independent school system, this would no longer be the case.

Institutional Responses to Concerns

To offset some of the concerns about the lack of prescribed textbooks, the Education Institute implemented a policy for academic year 2007–2008 wherein schools had to select one primary textbook that would address approximately 70 percent of the material included in the relevant standards. Supporting material could augment the selected text. The memo sent to schools explained that beginning September 1, 2007, all Independent schools were expected to buy “class sets” of textbooks for use in different subjects in different grades—and to stop using “teacher-made” books as key resources. Furthermore, the Curriculum Standards Office requested that schools not rely on just one textbook, but on a range of textbooks and resources supportive of the implementation of the curriculum standards.

The Education Institute provided a list of texts that could form the basis of the curriculum, with the caveat that no one textbook would be able to address the standards in their entirety. In correspondence with RAND, the Curriculum Standards Office explained that the

¹⁰ This issue was presumably resolved in March 2006, when Independent schools were required to be nonprofit institutions. Under the new policy, profits for school operators were specifically prohibited, and operators’ salaries were limited.

Education Institute provided the recommended list of textbooks not to be prescriptive, but to provide guidance for those purchasing materials. At the time of our study, the Curriculum Standards Office was regularly monitoring the resources and materials that schools used through school visits and a biannual audit. To further assist schools in their selection of materials to support the standards, the Office established a resources center where teachers could browse and seek advice from the Office's subject-matter specialists or developmental specialists. In addition, various organizations and schools organized book and resources exhibitions during the school year. The Curriculum Standards Office team had developed relationships with various publishing houses to ensure that the latest information was available to the subject coordinators via monthly meetings with the Office's subject specialists.

Teacher Satisfaction with the Overall Learning Environment in Ministry and Independent Schools

In addition to describing their struggles and successes in implementing the new curriculum standards, teachers made revealing comments about the school and classroom environment during focus groups. Without proper facilities and educational resources to support their efforts, many felt that their effectiveness had been reduced. This was particularly true for Ministry school teachers. For one thing, the many restrictions imposed on them had already limited their innovativeness and enthusiasm and encouraged passivity. Several Ministry school teachers said that they felt like "teaching machines."

This limited, mechanistic vision of teachers and their mission is consistent with the limited resources that flow to individual school buildings in the Ministry of Education system. In 2000, only 41 percent of the Ministry's employees worked in schools. About 23 percent held administrative positions, and about 36 percent held other, lower-level positions (e.g., as drivers and clerks).¹¹ As a result, schools were poorly maintained, had poor libraries, and had very few computers. As

¹¹ See discussion on p. 22 of Brewer et al., 2007.

noted in Chapter Three, Ministry school teachers reported that they were forced to buy classroom materials using their own funds.

QNEDS data document the widespread dissatisfaction of Ministry teachers with the resources available to them in their school buildings (see Table 4.1). While differences by school type with regard to the provision of necessary material were relatively small, Ministry school teachers reported being substantially less satisfied than did Independent school teachers with the condition of school buildings and the quality of classroom spaces. The satisfaction gap between Independent and Ministry school teachers was the largest when it came to access to computers and technology, which is not surprising given that Independent schools were encouraged to make technology widely available and provided with the resources to do so. As Table 4.1 shows, the Independent schools appear to have been doing a much better job of providing

Table 4.1
Teacher Satisfaction with Available School-Level Resources, by School Type

Survey Item ^a	Percentage of Teachers				
	2004–2005		2005–2006		
	Ministry (N=7,019)	Generation I Independent (N=771)	Ministry (N=6,147)	Generation I Independent (N=848)	Generation II Independent (N=995)
School provides necessary material	84	91	82	88	82
Condition of school buildings	60	86	56	85	90
Quality of classroom space	66	80	64	81	86
Quality of school library	76	83	76	83	78
Access to computers and technology	46	61	47	89	81

SOURCE: QNEDS teacher surveys, 2004–2006.

^a For the first item listed, the percentages shown combine those who agreed and those who strongly agreed. The scale ranged from 1 to 5 (1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree). For the other four items, the percentages shown combine those who were satisfied and those who were very satisfied. The scale ranged from 1 to 5 (1 = very satisfied, 2 = satisfied, 3 = neither satisfied nor dissatisfied, 4 = dissatisfied, 5 = very dissatisfied).

facilities that satisfy teachers and, arguably, establishing an environment that facilitates student learning.

Conclusions

A key component of Qatar's K–12 school reform was its move to a standards-based curriculum in four core subjects and its granting of autonomy to the Independent schools to develop curriculum and instructional materials. The expectation behind the design was that Independent school teachers would be motivated to align lessons with the curriculum standards to ensure that their students acquired the requisite knowledge and skills and therefore performed well on the national assessments. Their new autonomy would encourage them to design lessons and select materials that are most relevant to their students and most effective in helping them learn.

The use of curriculum standards to guide teaching practice and to set goals and benchmarks for determining what students should know and be able to do at specific grade levels was new for Qatar. It was no surprise that teachers had difficulty understanding how to use the standards to guide their work, nor that parents and the general educational community needed time to get used to the idea that set texts, materials, and classroom lessons were not specified in the standards and that their absence did not necessarily imply that students were not learning.

The change to a system in which schools were free to design and select curriculum and materials was also challenging for policymakers. While there was never a formal policy that the use of textbooks, particularly textbook series, would be seen as a failure to fully embrace the spirit of the reform, the first Independent schools were led to understand that this was so. In 2007, as complaints from parents about the absence of textbooks mounted, the Education Institute established a policy stating that a primary textbook should be adopted. The key criterion for adoption was that the textbook cover approximately 70 percent of the material included in relevant standards. Consistent with its mission to support Independent schools, the Education Institute supported this policy with a list of texts that met the criterion, as well as

a resource library staffed by subject-matter and developmental specialists. At the time of our study, it was not clear whether the reform had reached an appropriate balance between school-site autonomy and centralized control in terms of textbook selection for curriculum design, but the question is fundamental and deserves attention.

RAND found that the Independent schools differed markedly from Ministry schools in how they went about both curriculum development and materials selection. Independent school faculties reported how they had overcome their initial difficulties and lack of experience in curriculum development and had acquired skills in developing curriculum and selecting materials. Independent schools adopted several strategies for curriculum development, including team arrangements and use of subject-matter leaders.

Despite the positive features of their new role—e.g., autonomy, engagement, sense of accomplishment—Independent school teachers raised concerns about the extra workload required for curriculum development, particularly in the first year of a school’s operation. Moreover, focus groups and interviews with principals, teachers, and parents revealed dissatisfaction about having schools and teachers develop their own curricula and choose materials for use in the classroom. Ministry teachers (perhaps not surprisingly) and some parents of Independent school students were critical of the lack of teacher expertise in this regard. They preferred the Ministry school approach, in which subject-matter experts with advanced degrees develop curriculum, and teachers simply deliver instruction.

The Independent school teachers who expressed the most satisfaction with curriculum development were those who worked most collaboratively. Data from 2004–2006 QNEDS teacher surveys demonstrate that more Independent school teachers than Ministry school teachers reported that they “often” used material developed *with* others in their school. The collaborative nature of curriculum development in Independent schools suggests that teachers were more actively participating in the learning process of their students.

Clearly, the transition from a system in which curriculum is entirely predetermined to one that requires the intense individual involvement of principals and teachers at the school level has not been easy. But

the data we used in our study indicate that there has been progress. In addition, recent policies of the Curriculum Standards Office that provide Independent schools with recommended textbooks may alleviate some concerns about the reliance on teacher-developed curriculum and materials. These policies provide guidance but still encourage Independent school teachers to seek variety and relevance in the instructional materials they use in their classrooms.

Finally, QNEDS data indicate that, compared with Ministry school teachers, Independent school teachers were much more satisfied with the physical environment and resources available in their schools. These favorable conditions may help Independent school teachers in their curriculum development efforts and support a positive learning environment.

Having examined one key change that the reform hoped to accomplish in classrooms, we now turn, in the next chapter, to another: student-centered practice and pedagogy.

Evaluating Classroom Practice and Pedagogy

In addition to introducing new curriculum standards, the reform aimed to significantly change the classroom learning environment. Observations conducted in Ministry classrooms during an earlier RAND study (Brewer et al., 2007) had indicated that the predominant method of delivering instruction in Ministry classrooms was in whole groups, with the teacher standing in front of the class and lecturing, answering student questions, or calling on students to recite or to answer questions. Students were almost never asked to analyze or synthesize any facts or material; most of the cognitive work was limited to demonstrating knowledge through recall of information. In contrast to this approach, the reform called for the Independent schools to expand the pedagogical options available to teachers and to help teachers acquire the skills needed to display them by establishing a school culture marked by flexibility, experimentation, and sensitivity to students' progress and needs.

The reform design emphasized student-centered pedagogy, which puts student needs at the center of instructional practice and typically includes varied instructional groupings, including small groups and one-on-one instruction. One-on-one activity, in particular, is emphasized because it allows the teacher to address individual students' needs. Small-group activity, either with or without teacher involvement, encourages students to interact with one another, which has been shown to promote learning.¹ Teachers in Independent schools

¹ For example, see Slavin, 1995, and Johnson, 1998.

have been encouraged to promote higher-order thinking in their students by asking them to go beyond memorizing and reciting facts to engaging in comprehension, application, analysis, synthesis, and evaluation. Consistent with reform ideals, no particular pedagogy was prescribed in the curriculum standards. Indeed, student-centered pedagogy implies variety because it is dictated to a significant degree by student learning needs.

To support teachers’ ability to employ student-centered pedagogy, the reform placed a strict limit on the number of students permitted in each Independent school classroom. There could be no more than 25, a striking contrast to the much larger Ministry classrooms, which sometimes exceeded 40 students.² This measure was also intended to enable teachers to pay attention to individual students and individual differences.

This chapter examines the extent to which teachers had adopted teaching practices that promote student-centered classroom instruction at the time of our study. We compare Independent school and Ministry school teachers based on classroom observation and teacher survey data (these instruments and the associated data collection are described in more detail in Chapter Two) and discuss the implementation of the Arabic, mathematics, and science curricula in detail based on assessments by subject-matter experts. Finally, we describe Independent schools’ efforts to teach mathematics and science in English, a goal of the reform.

Promoting Student-Centered Classroom Instruction

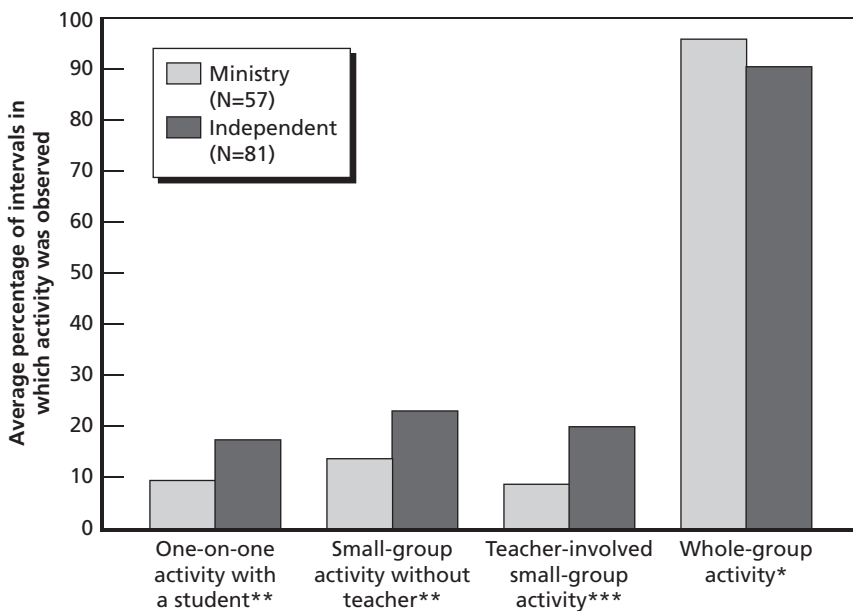
Classroom observations in Independent and Ministry schools allowed us to determine how teachers organized their classrooms for instructional purposes. The hope was that Independent school teachers would employ methods other than the whole-group instructional format that dominates Ministry classrooms. Other instructional-grouping options

² Construction of new classrooms prior to their opening enabled Independent schools to comply with the 25-student limit.

that teachers might use are one-on-one interaction between teacher and student, small-group activity conducted without the teacher, and small-group activity involving the teacher.

As shown in Figure 5.1, data recorded on the teacher observation form that was used indicate that whole-group activity continued to be the most frequent instructional format in both types of schools. There were no differences between Independent and Ministry schools in the use of whole-group instruction. However, Independent school teachers used other groupings with significantly greater frequency than did Ministry school teachers.

Figure 5.1
Classroom Instructional Groupings, by School Type



* $p < .10$

** $p < .05$

*** $p < .01$

SOURCE: Teacher observation forms.

NOTE: Inter-rater reliability data are presented in Chapter Two.

RAND MG880-5.1

Teachers’ Strategies for Engaging Students

During a class period, teachers engage in many types of activities, both instructional and non-instructional. RAND observers coded 13 specified types of activities on the teacher observation form, also noting activities that did not fit the predetermined categories.

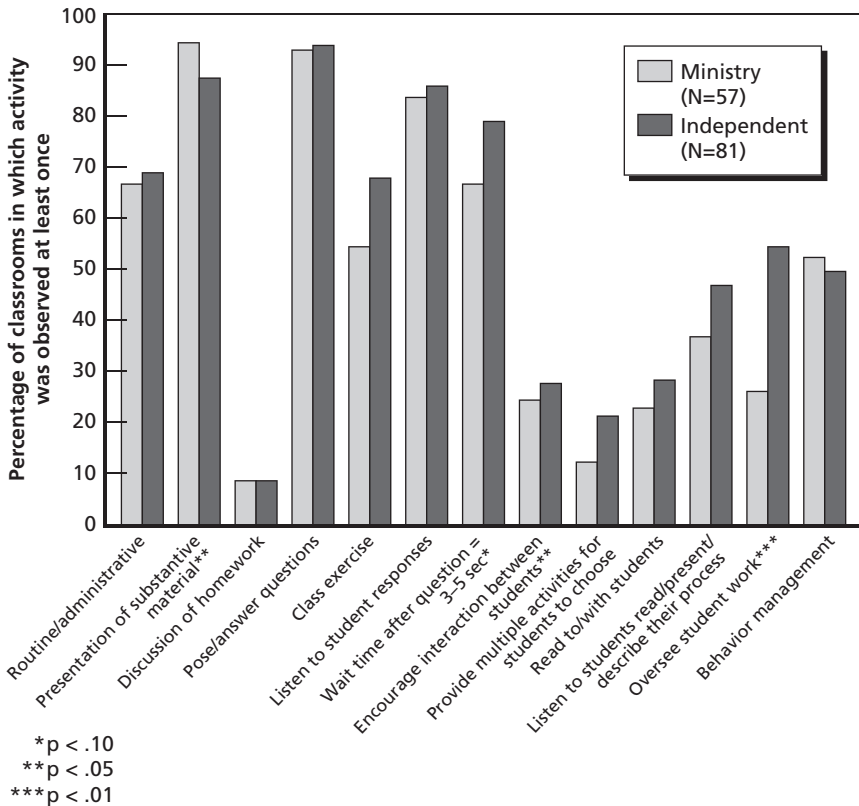
For the most part, the frequency and distribution of activities did not vary across school types. Teachers in Independent and Ministry schools were equally likely to devote time to administrative activities. They spent most of the observed class time presenting substantive material, posing and answering student questions, and listening to students read or present (see Figure 5.2).

There were a few notable differences, however. Independent school teachers were significantly more likely than Ministry school teachers to spend time overseeing student work and encouraging interactions among students. Independent school teachers were also significantly more likely to provide multiple activities from which students could choose and, after asking a question, to allow three to five seconds to pass before eliciting responses. Such wait time has been found to be associated with longer and more-correct responses, a reduced number of “I don’t know” responses, and a higher number of students who offer appropriate answers. Teachers benefit as well: Their questioning strategies tend to be more varied and flexible after a wait time, and they decrease the quantity and increase the quality and variety of their questions (Rowe, 1972 and 1987; Stahl, 1990; Tobin, 1987; Atwood and Wilen, 1991).

Overall Use of Instructional Activities

Observers used the classroom observation scoring guide to rate the entire class period on seven dimensions associated with higher-order thinking and on one dimension that assessed the degree to which classroom instruction embodied the reform’s instructional goals (see Chapter Two for details on this instrument). As shown in Figure 5.3, average ratings on the eight dimensions were low for both Ministry and Independent school classrooms. The highest rating, which focuses on the extent to which the teacher provides students with a sense of purpose, was only 4.2 out of a possible eight points. These data indicate

Figure 5.2
Teacher Strategies for Engaging Students in the Classroom, by School Type



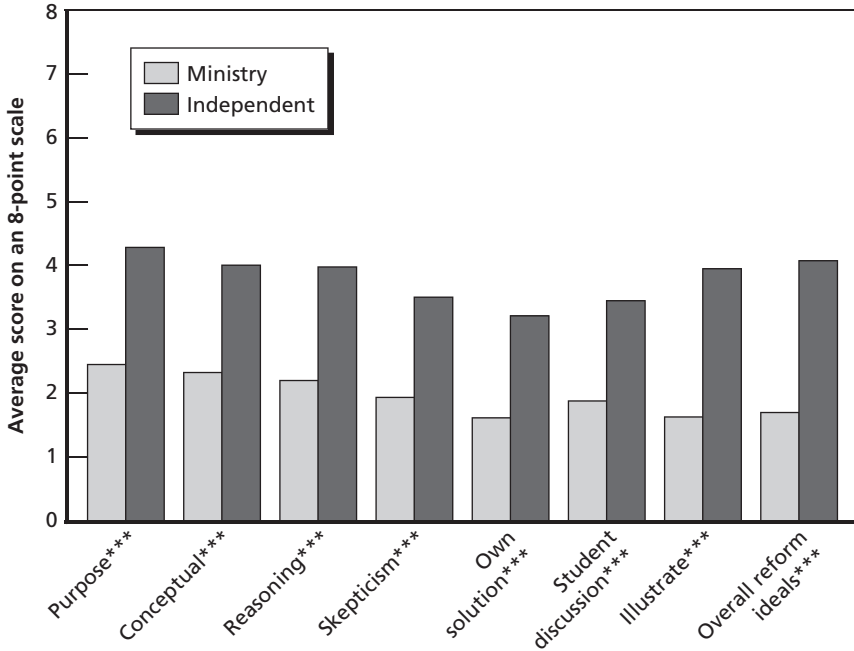
SOURCE: Teacher observation forms.

RAND MG880-5.2

that there was considerable room for improvement in both Independent schools and Ministry schools at the time of our study.

However, the scores of Independent schools were higher on every dimension. Not surprisingly, the largest difference between Independent and Ministry schools was found in the extent to which the classroom embodied the elements of the reform. But differences between Independent and Ministry classrooms were evident on the other dimensions, too. Independent school teachers were significantly more likely than their Ministry school counterparts to explain the reason for each

Figure 5.3
Types of Instructional Concepts Incorporated in Classroom Activities,
by School Type



***p < .01

SOURCE: Classroom observation scoring guide.

NOTE: The guide was administered in rounds 1–4, 6, 7, and 8 (of 9 total rounds).

RAND MG880-5.3

activity, to help students generalize from a specific instance to a larger concept, to focus on student reasoning, and to model skepticism, curiosity, and openness. Independent school teachers outperformed Ministry school teachers in encouraging students to develop their own problem-solving strategies and in engaging students in discussions of ideas and concepts. Independent school teachers were also more likely to illustrate concepts in a variety of ways—e.g., using graphs and diagrams.

Overall, Independent school teachers appeared to be using more student-centered pedagogy and to be expecting more of their students in terms of critical thinking and analysis. In general, Independent school

classrooms also provided students more activity choices and more ways to interact with their teacher than did Ministry school classrooms.

The RAND team also examined data on teaching practices from QNEDS teacher surveys. QNEDS data indicated that before Independent schools opened, in 2004, many of what are considered traditional instructional activities were being carried out in Ministry classrooms. Nearly 80 percent of teachers reported that class time was devoted “every day” or “most days” to completing worksheets; 57 percent reported that class time was devoted to reading a textbook. In 2005 and 2006, those percentages remained about the same for Ministry school teachers. But for teachers in Independent schools, they were lower—in 2005 (generation I), they had dropped to 66 percent for completing worksheets or workbooks and 49 for reading a textbook; and in 2006, textbook reading declined slightly more, to 48 and 45 percent, respectively, for generation I and generation II schools. (See Table 5.1.)

Table 5.1 indicates a 10 to 22 percentage point difference in 2006 between Ministry and Independent school teachers’ reported use of reform-oriented classroom activities—e.g., having students prepare oral reports, gather data or conduct investigations, find real-life applications of their studies, explain the reasoning behind an idea, and write an explanation of what was observed.

Although Independent school teachers reported approximately the same frequency that Ministry school teachers did for leading the whole class in a discussion or activity, Independent school teachers were less likely to report that they presented information while the class listened (i.e., that they lectured). In 2006, 57 percent of teachers in generation II and 61 percent of teachers in generation I schools reported using this teaching method, compared with 74 percent of Ministry school teachers. Independent school teachers were also more likely to report having their students work together in small groups than were teachers in Ministry schools—a finding consistent with the observational data discussed earlier. In 2006, 86 percent of generation II schools and 85 percent of generation I schools employed this instructional method “every day” or “most days,” compared with 70 percent of teachers in Ministry schools.

Table 5.1
Teacher-Reported Use of Traditional and Reform-Oriented Classroom Activities, by School Type, 2004–2006

Activity	Percentage Reporting Use Every Day or Most Days ^a					
	2004		2005		2006	
	Ministry	Ministry	Gen I	Ministry	Gen I	Gen II
Traditional classroom tasks						
Completing worksheets or workbooks	79	80	66	79	69	67
Reading a textbook or supplementary material	57	62	49	60	48	45
Reform-oriented classroom tasks						
Preparing oral reports	47	49	50	41	48	54
Gathering data or conducting investigations	42	46	42	24	27	34
Finding real-life applications	63	64	70	57	66	71
Explaining reasoning behind an idea	65	67	77	48	66	70
Writing an explanation of what was observed	59	66	74	37	48	53
Traditional instructional methods						
Lead the whole class in a discussion or activity	90	88	85	95	94	93
Present information while class listens	72	72	59	74	61	57
Reform-oriented instructional methods						
Students work individually on class work	46	50	57	52	50	50
Students work together in small groups	65	69	84	70	85	86

SOURCE: QNEDS teacher surveys, 2004–2006.

NOTE: Because these surveys cover nearly the entire universe of possible respondents, the reported results are essentially the true values in the whole population. Therefore, any differences between reported values across groups are real differences even if small.

^a The scale changed from four levels in 2004 (every day, most days, some days, almost never) to five levels in 2005 and 2006 (every day, most days, some days, rarely, never). Also, reports of “I do not have an answer” or “content not offered” were excluded.

The teacher survey also provided information about teaching tools and strategies. As Table 5.2 shows, Independent school teachers reported more often than did Ministry school teachers that they collaborated with their colleagues. They were also more likely to report working with individual students. However, the percentage of Independent school teachers reporting daily or near-daily work with individual students declined substantially from 2005 to 2006, and there was a substantial decline in the percentage of Ministry school teachers reporting this activity over the same period, as well. In 2006, teachers in generation I and II schools reported similar levels of daily one-on-one involvement with students.

Independent school teachers reported that they were less likely to rely on textbooks to deliver their lessons than did Ministry school teachers; they also utilized a comparatively greater diversity of tools and technology, such as computers, calculators, and audio-visual equipment. As discussed in Chapter Four, the reform aimed to encourage the use of a variety of instructional materials rather than reliance on a single textbook. As Table 5.2 shows, teachers in generation II schools reported using fewer textbooks than did teachers in generation I schools. Although frequent use of computers was lower in generation II compared with generation I schools, computer use in both Independent school generations was dramatically higher than computer use in Ministry schools.

The self-reported QNEDS teacher survey data are generally consistent with the classroom observation data presented earlier. Independent school teachers reported behaving differently in the classroom than did Ministry teachers, describing a more collaborative, less rigid work environment in which they were much more likely to work with other teachers and more likely to work with individual students.³ The observation data also indicate that more reform-oriented instruction practices were going on in Independent school classrooms, compared

³ It can be argued that collaboration with colleagues is less necessary in Ministry schools, since teachers in these schools rely on long-established curricula and are discouraged from innovating.

Table 5.2
Use of Teaching Tools and Strategies, by School Type, 2004–2006

Tool/Strategy	Percentage Reporting Use					
	2004		2005		2006	
	Ministry	Ministry	Gen I	Ministry	Gen I	Gen II
Teaching-related activities occurring every day or most days						
Working with other teachers	25	25	66	32	67	63
Working with individual students	58	61	78	52	63	61
Communicating with parents	17	12	14	11	19	16
Teaching tools used often, sometimes, or rarely ^a						
Textbooks	90	94	80	92	84	72
Audio-visual equipment	62	69	87	70	90	86
Calculator	62	29	42	12	23	22
Worksheets	95	96	96			
Readings	72	78	86			
Experiments	39	43	63			
Computers				24	82	73

SOURCE: QNEDS teacher surveys, 2004–2006.

NOTE: Reports of “I do not have an answer” or “content not offered” were excluded.

^a Scale changed from yes/no in 2004 and 2005 to often/sometimes/rarely/never in 2006. Responses of often/sometimes/rarely were coded as yes in 2006.

with Ministry school classrooms, including more interaction with individual students. Together, these data paint a picture of substantial change: Independent school classroom practices were looking quite different from those in Ministry schools, and Independent school teachers were reporting different behavior, as well.

Generally, Ministry school teachers have been limited in how much they can adopt the reform practices implemented in Independent schools, as discussed above. However, in certain instances, we

observed Ministry teachers adopting some of the teacher-centered techniques that are the easiest to implement, such as changing seating arrangements. The RAND team also observed a few Ministry teachers employing more student-centered teaching techniques, but these were the exception. Wherever exemplary classroom practices were observed in Ministry schools, they were attributed to the motivation and teaching skills of individual teachers.

Level of Cognitive Demand Placed on Students

A key goal of the reform was to produce students who know how to approach problems analytically and evaluate information critically. Bloom's Taxonomy, shown in Table 5.3 (and discussed in Chapter Two) represents a way of assessing the level of cognitive expectation contained in educational materials and classroom activities.

Data from the teacher observation form revealed that in both Ministry and Independent school classrooms, the lowest level in the taxonomy, "knowledge," dominated the classroom process. In more than 80 percent of both Ministry and Independent school classrooms,

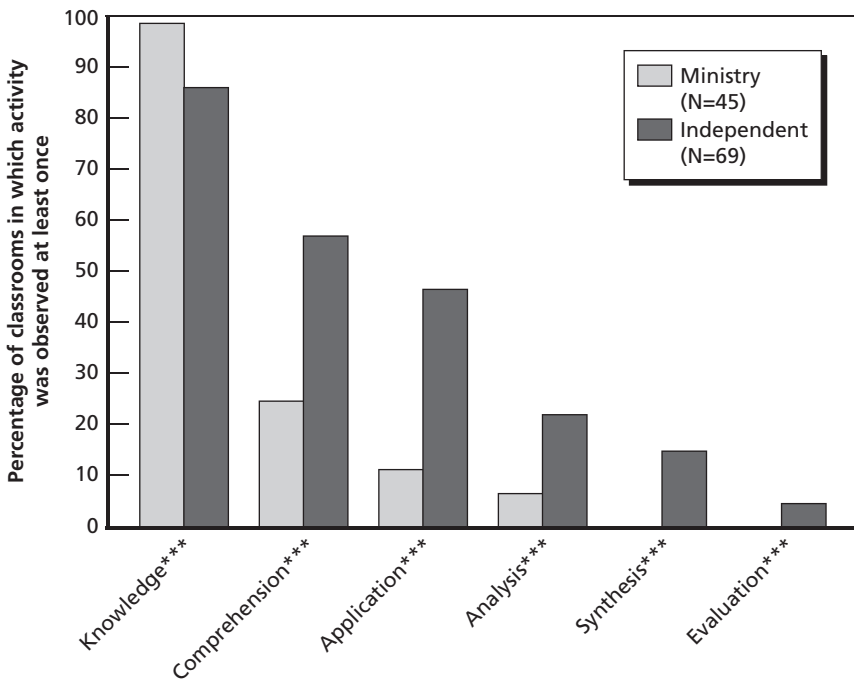
Table 5.3
The Six-Level Hierarchy of Thinking Levels Posited by Bloom's Taxonomy

Knowledge	Observation and recall of information, including knowledge of dates, events, places (example: child reciting a poem in Arabic class)
Comprehension	Understanding information, grasping meaning, predicting consequences (example: teacher asks questions to make sure child understands poem)
Application	Using information, methods, and concepts in new situations; solving problems (example: teacher asks students to apply story elements to other situations)
Analysis	Seeing patterns, recognizing hidden meanings, identifying components (example: teacher asks students to find and understand metaphors in a story)
Synthesis	Using old ideas to create new ones, generalizing from given facts (example: teacher asks students to come up with rules about the relationship between climate and nearness to equator)
Evaluation	Comparing and discriminating between ideas, assessing the value of theories and presentations, verifying the value of evidence (example: students are asked to compare and analyze two pieces of literature)

lessons and exercises demanded only “observation” and “recall.” This suggests that students were generally not expected to think analytically or to synthesize or evaluate facts or ideas.

Figure 5.4 presents data indicating that students in Independent schools were being asked to do more thinking than were students in Ministry schools. As discussed above, both types of schools tended to emphasize knowledge over other forms of thinking, but the expectations for students in terms of reasoning and analysis were significantly higher in Independent school classrooms. For example, Independent school classrooms engaged in significantly more “comprehension”

Figure 5.4
Cognitive Demand Placed on Students in the Classroom, by School Type



***p < .01

SOURCE: Teacher observation forms.

RAND MG880-5.4

activities than did Ministry school classrooms. Independent school classrooms were also significantly more likely to engage in “application” activities, and “synthesis” and “evaluation” were unique to Independent school classrooms.

Implementation of the New Curriculum Standards in Arabic, Mathematics, and Science

The findings discussed thus far focus on instructional practices, teaching tools and classroom strategies employed in Independent schools, and the level of cognitive demand placed on students during instruction. None of these findings addresses the content of lessons, especially the extent to which teachers have been implementing the curriculum standards. To address this question, RAND recruited three subject-matter experts to observe a small number of Arabic, mathematics, and science classes, mostly in Independent schools. These experts observed 65 classrooms in 13 schools. They interviewed the teacher after each classroom observation, held a focus group with other teachers of the subject area, and separately interviewed the school’s principal or operator and subject leader.⁴

The findings, summarized here, are remarkably similar across subjects, although some unique issues arose for individual subjects. Overall, the subject-matter experts found that Independent schools were working hard to implement the standards, even in schools where some serious student motivation and behavior issues existed. However, the experts revealed the following areas of difficulty that teachers faced in attempting to fully implement the new standards.

⁴ As noted in Chapter Two, in addition to these activities, curriculum experts were asked to fill out classroom observation forms. Their observations were included with those of the site visit teams in our analyses of these data.

Demands Imposed by Curriculum Development and Implementation Limited Most Schools’ Efforts to Integrate Across Subjects

The curriculum standards designers recommended that science and English teachers coordinate their efforts so that English vocabulary would include the scientific terms that students would encounter in science class. Independent school teachers reported that they did not have time for coordination even though they recognized its importance. Indeed, there was a general lack of coordination, even in cases where it might have saved time and possibly enabled teachers to coordinate more closely with their colleagues.

Standards Implementation Was Not at the Expected Level in Most Classrooms

According to all three subject-matter experts, implementation of standards was below expectations. The science expert, for example, noted that as many as half of the teachers he observed focused on conveying subject *content* but did not ask students to think critically or analytically. Similarly, the Arabic expert reported that students were not challenged to use higher-order thinking skills in most classrooms he visited. Mathematics teachers uniformly used a problem-solving approach, but many focused on end-of-the-chapter exercises, not higher-order thinking. The experts found that Independent school teachers had consistent weaknesses in promoting higher-order thinking. This suggests that teachers may need professional development that is more focused on how to help students acquire and apply these skills.

The Focus on Professional Development in English Was Drawing School Attention and Resources Away from Professional Development in Other Subjects

Independent schools were seeking to improve English proficiency among the teaching staff, and in many of the schools, this became the dominant professional development concern. In a number of Independent schools, the bulk of the professional development budget targeted English training because one of the reform’s aims was for English to become the language of instruction in mathematics and science in all Independent schools. According to the Arabic expert, teachers in some

Independent schools felt that Arabic was downgraded in the eyes of the students because of the emphasis on English and its use as the language of instruction for mathematics and science. The Arabic expert reported that a number of Arabic teachers felt that they needed more opportunities for content-focused professional development in the subject of Arabic and, particularly, extra training on how to implement the Arabic standards. In one case, an Independent school had not provided training of this kind from its own professional development budget because, the teachers there contended, the top priority was to raise the English competence of both teachers and students.

Pedagogy Was More Student Centered in Independent Schools Than in Ministry Classrooms But Was Still Predominantly Teacher Centered

Labs in many of the observed science classrooms were essentially demonstration sessions with little or no hands-on experience for students. In Arabic classes, teachers typically did much of the talking, and students generally answered teachers' questions. In one classroom observed by the Arabic expert, students initiated nothing at all.

Teachers Had Problems Implementing Group Work Activities

In some of the classrooms where instruction appeared to be more student centered, the execution missed the mark. For example, the science expert observed what appeared to be a substantial amount of group work but, upon closer observation, turned out to be more of a management tool than a technique for engaging students in group problem solving. That is, teachers who were unsure about how to implement group-oriented activities simply had students sit together, even though they were pursuing individual tasks. Similarly, the mathematics expert described a situation in which group work was an end in itself rather than a means to improve student learning. The Arabic expert also reported numerous instances of poorly facilitated group work. For example, in one secondary classroom, students sat in groups but did their own work, despite the fact that the lesson lent itself to some interesting group discussion. In this classroom, the teacher asked students to come up with ideas for a title for a poem they were studying. The

teacher could have also asked them to discuss the merits of the different titles, using the text as a basis for their views, but did not. Teachers in both mathematics and science reported that they would like to encourage more group work but claimed that their need to focus on classroom management interfered with this desire, particularly in the preparatory schools.

Materials Were Aligned with the Standards “in Spirit,” But Lesson Plans Were Not Associated with the Relevant Standards

The Arabic expert noted that two secondary school teachers had used the same lesson plan but, when asked what standards their lessons were to cover, had indicated different ones. This conveyed to the Arabic expert a tenuous grasp of the standards. In addition, teachers’ answers to questions about the Arabic standards were very general, which the Arabic expert interpreted as a lack of nuanced understanding of them.

Information and Communications Technology Resources Were Commonly Used in These Classes But Rarely in New and Interesting Ways

The use of information and communications technology in science classes was limited to displaying demonstrations of scientific processes; there was no student involvement. The science expert saw just one instance in which the technology was integrated with the science instruction in a way that engaged students directly. The same phenomenon was found in mathematics classrooms, where the teacher used PowerPoint™ to display the content of his lecture. Interestingly, Ministry teachers with whom the Arabic expert spoke claimed that most of the problems with their teaching could be attributed to the lack of information and communication technology resources available to them. They claimed that if these resources were available, they could promote more student engagement and understanding of the topic. However, what the science and mathematics experts found in observed classrooms that had such resources available was that teachers were not using their unique capacity to engage students. This suggests that teachers may need professional development that is more focused on

the integration of information and communications technology into teaching and learning.

Teachers Were in Need of More Subject-Specific Professional Development to Help Them with These Issues

As discussed in Chapter Four, the Arabic standards depart from the traditional approaches to teaching Arabic, and the Curriculum Standards Office provided additional support for teachers to help them understand and implement these standards. This extra support was also needed because the SSOs generally were not well equipped to train teachers in the subject of Arabic. The Arabic expert noted that teachers needed more help in making a paradigm shift from a focus on grammar and information retrieval to a focus on higher-order thinking. Most Arabic teachers he spoke with supported the goals outlined in the standards and were aware that they needed this help. The mathematics expert noted that the training provided by the SEC to generation I schools had been subject specific, but that generation II schools had received generic professional development. He recommended that mathematics teachers be trained in the use of information and communications technology, instructional methods that promote critical thinking, and the teaching of mental math and problem-solving.

The observations by the subject-matter experts were consistent with RAND's classroom observation and survey data in confirming that Independent school teachers were working hard to implement the new curriculum standards and were employing a number of student-centered teaching techniques. However, the data show that teachers were still struggling to implement these techniques in depth. In addition, they show that the pressures to implement the standards and deliver the content may have reduced the opportunities for teachers to promote problem solving and higher-level thinking among their students—something that could continue until teachers become more comfortable with and more confident in the new standards and have learned better techniques for teaching these skills. The findings of the subject-matter experts suggest that teachers in Arabic, mathematics, and science consistently need more support in content-specific pedagogy, effective use of information technology and instructional

resources, and managing the challenges of understanding and implementing the curriculum standards while encouraging student-centered learning, critical thinking, and problem solving.

Teaching Mathematics and Science in English

Independent school operators were required to put into place a plan to move toward teaching mathematics and science in English within three to five years of the schools’ opening. The Education Institute reviewed and assisted in the development of these transition-to-English instruction plans and developed support mechanisms. One mechanism was through the SSOs. SSO staff members, most of whom were native English speakers and all of whom were fluent in English, provided English language training. Subject-matter experts in the Curriculum Standards Office organized professional development workshops and conducted school visits to evaluate the progress of the implementation effort.

We relied on two sources of information concerning progress made in the implementation of this language policy. We examined data from the QNEDS administrator survey to gain a broad perspective on the extent of implementation. To gain a more in-depth understanding of its impact on schools and classrooms, we asked the subject and curriculum experts to pay particular attention to the use of English in the classrooms they visited, any challenges to implementation, and the effects that it was having on implementation of the curriculum standards.

QNEDS Survey Data

To explore the extent of English instruction, we examined school-level data from the QNEDS administrator surveys from 2004–2005 and 2005–2006 on reported English use in mathematics, science, and computer science classes.⁵ In 2004–2005, 77 percent of the 18 genera-

⁵ The scale changed from 2004 to 2005. The survey asked administrators whether the subject was taught in Arabic. The analysis assumed that when subjects were not taught in Arabic, they were taught in English.

tion I schools (13 schools) reported that mathematics and science were taught exclusively in English, and 65 percent (11 schools) reported that computer science was taught exclusively in English.

The percentage of science classes taught exclusively in English declined to 67 percent in 2005–2006 (i.e., declined by one school). While this difference is not large, it is consistent with other trends. Moreover, even with the decline, noticeably more generation I than generation II schools were offering instruction in English. We found similar trends in mathematics and computer science.

One likely explanation for the differences between generation I and II schools is that the scientific complex schools, which had been providing mathematics and science instruction in English long before they became Independent schools, were part of generation I. Generation II schools also reported greater variation in the extent of English instruction, perhaps reflecting the greater challenges in using English for the first time.

Subject-Matter Experts' Assessment of How Well the Independent Schools Were Implementing the Language-of-Instruction Policy

The three curriculum experts assessed how well school officials understood the language-of-instruction policy and asked them to describe the implementation process within their schools. These experts also examined the actual use of English as the language of instruction in Independent school classes and judged its effect on implementation of the curriculum standards.

The experts noted that teachers were using several strategies to facilitate use and understanding of English. These included articulation of vocabulary and scientific terms in English, with primary communication remaining in Arabic, and repetition of terms in Arabic after expressing them in English. Some teachers spoke English during most of the class period and switched to Arabic only to improve students' understanding of the material; others spoke Arabic when they themselves had difficulty expressing concepts in English. Students often were permitted to use Arabic to do their group work and to communicate with each other. Some schools were integrating English fully in the early grades and partially in the later grades as part of the implemen-

tation of their three- to five-year plan, and were adapting their hiring practices to recruit native English speakers or making English proficiency a condition for hiring a candidate. As discussed earlier, training and professional development to learn English also played a prominent role in Independent school plans, and teachers were being sent to English language centers with increasing frequency.

Yet despite these measures, the subject-matter experts noted that several problems remained. Most students and teachers lacked basic English language proficiency, and the need to switch instruction from Arabic to English within three to five years strained school capacity to hire and/or train English-proficient teachers. According to the experts, important aspects of the reform, such as student-centered learning, critical thinking, and problem solving, could have been suffering because of time spent learning in a different language. In their view, students’ understanding of substantive concepts may have been compromised because students were struggling with instruction and material in English.⁶

These observations highlight important challenges that schools were being confronted with in attempting to successfully implement English as the language of instruction in mathematics and science:

- The curriculum standards for mathematics and science are demanding and time consuming, and the ongoing translation necessitated by instruction in English translation uses up valuable classroom time.
- Strategies to overcome lack of student proficiency in English may not be sufficient to handle curricular concepts and may limit students’ ability to develop critical-thinking and problem-solving skills.
- Many Qatari teachers are not strong in English, making it difficult to meet Qatarization requirements and effectively shift to using English in mathematics and science. And if the lack of strength

⁶ These issues related to language of instruction have implications for language of assessment, as discussed in Chapter Seven.

in English leads to simplified lessons, student achievement may be compromised.

Conclusions

Classroom practices in Qatar's Independent schools differed substantially from those in Ministry schools. While there is still much room for improvement in the Independent schools, their teachers, compared with Ministry school teachers, employed more student-centered practices and spent more time and energy responding to individual student differences. Independent school teachers also placed greater cognitive demands on their students than did Ministry teachers, and adopted reform-oriented pedagogy more often.

Independent school teachers were enthusiastic about implementing the new curriculum standards. Although implementation is imperfect in many areas, teachers were aware of and responsive to the curriculum standards. The primary challenge will be to continue to deliver curriculum consistent with the new standards while effectively promoting critical thinking and problem solving among students.

Overall, English instruction in mathematics and science classes was more prevalent in generation I than in generation II schools. The school administrator survey data and the observations by subject-matter experts suggest that some Independent schools were offering mathematics and science instruction in English. However, these efforts may have been compromising the ability of Independent schools to reach other objectives, such as promoting critical thinking and analysis and potentially raising student achievement. The curriculum experts reported that use of English may be impeding higher-order thinking and teacher-student communication when the teacher and/or students are not proficient in English.

The rapid timeline for implementing the language instruction policy was generally straining the capacity of Independent schools to provide instruction in English, even with the assistance of SSOs. The compressed time frame for implementation of this practice was also challenging Independent schools as they tried to meet Qatarization

goals. Additionally, interviews with Independent school principals indicated that the language-of-instruction policy could make achieving the Qatarization goals more difficult, because Qatari teachers, especially those coming from the Ministry schools (where English was not needed), generally have limited English skills. Recently, the Education Institute authorized Independent schools to use end-of-year financial surpluses to provide further training for instructional staff during the summer months.

The overarching goals for the language-of-instruction policy remain unclear. The policy may conflict with the main goal of the reform: to raise student academic achievement. Although schools have instituted plans to provide more and better English instruction—e.g., hiring more English-proficient teachers and providing more teacher training—English-language instruction will take time to fully implement. In the interim, focusing on this aspect of the reform may work against student achievement and Qatarization goals.

In addition to employing more student-centered pedagogy than did their Ministry school counterparts, Independent school teachers placed more cognitive demands on their students. But much more needs to be done in the Independent school classrooms. Independent school teachers worked hard to teach the standards but were more successful in conveying content than process. Use of English in mathematics and science classes has been uneven because teachers and students lack English proficiency. The next chapter focuses on student motivation and parent involvement—two additional ways in which the reform hoped to promote student achievement.

Improving Student Performance Through Motivation Strategies and Parent Engagement

Lack of motivation, particularly among male students, has long been a concern of educators and others in Qatar. Guaranteed employment in the government sector for Qatari nationals is often cited as the main reason for motivational problems—graduates who want to work can find well-paying, secure, prestigious jobs regardless of their academic performance or qualifications. Government jobs also offer good benefits, such as low-interest loans on land, a furniture allowance for male employees, interest-free car loans, and a housing allowance. Moreover, working hours are typically shorter than those in the private sector, and the work itself is perceived to be less difficult. In 2004, 77 percent of working Qataris were employed in the government sector. A recent survey of high school seniors found that more than half of those surveyed aspired to a government job, with boys more likely than girls to seek this option (75 percent versus 33 percent, respectively) (Stasz, Eide, and Martorell, 2007). Guaranteed employment contributes to a school culture characterized by low motivation and high rates of absenteeism.

Although the K–12 reform does not address labor market conditions that might contribute to poor motivation among students, one of its aims is to improve motivation through student-centered learning and by encouraging schools and teachers to tackle the issue of motivation head on. Another aim is to increase student motivation and performance by more effectively engaging parents in their children’s learning and in their children’s schools. In this chapter, we examine data

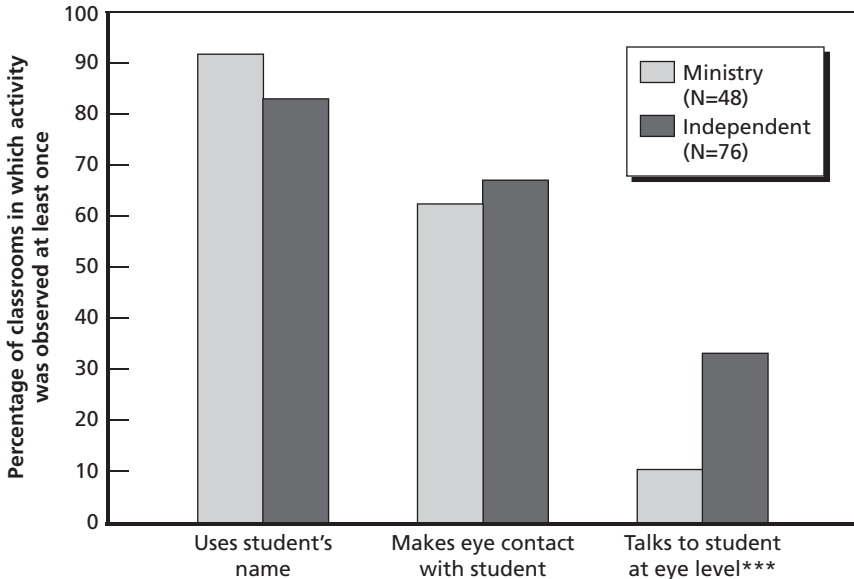
from classroom observations, parent and teacher focus groups, principal interviews, and QNEDS student and parent surveys to determine the extent to which Independent schools are contributing to increased student motivation and parents are connecting with their children’s schools. (See Chapter Two for descriptions of data collection tools and analytic approaches.)

We found that whereas motivation was limited, aspirations were not. QNEDS survey data on both parents and students revealed extremely high aspirations in both groups. For example, when asked “How far in school do you want your child to go (in school)?” on the 2005–2006 parent survey, 59 percent of Ministry school parents and 62 percent of Independent school parents answered “Ph.D.” Students surveyed in that same year had slightly more modest aspirations: 48 percent of Ministry school students and 54 percent of Independent school students indicated that they wanted to earn a Ph.D. However, these aspirations did not translate into motivation in the classroom. Indeed, motivation remains a widely acknowledged problem, particularly for boys. This chapter focuses on strategies adopted to improve motivation and to engage parents in students’ learning. It also discusses students’ satisfaction with school.

Teacher Contributions to Improving Student Motivation

Teachers’ personal contacts with students have been found to build the sorts of relationships that increase a student’s desire to achieve (Wentzel, 1997; Wentzel and Wigfield, 1998). Such behavior represents a key component of student-centered pedagogy. Data from observations of teachers provided insights on how Independent school and Ministry school teachers foster relationships with their students. These data suggest that Ministry school teachers were slightly, although not significantly, more likely than Independent school teachers to use a student’s name in talking to students (see Figure 6.1). This may stem from greater familiarity between Ministry school students and teachers, who

Figure 6.1
Types of Teacher-Student Contacts in the Classroom, by School Type



***p < .01

SOURCE: Teacher observation forms.

NOTE: Inter-rater reliability data are presented in Chapter Two.

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tend to be in the same schools for years, compared with their counterparts in Independent schools. However, teachers in Independent schools were more likely to make eye contact with students and significantly more likely to speak to them at the student's eye level. This latter finding seems particularly important because it suggests that Independent school teachers have been moving around the classroom and bending down to speak with students as they work at desks and tables. Nevertheless, speaking to students at eye level was not common in Ministry or Independent schools: This behavior was found in about one-third of observed Independent school classrooms and only 10 percent of Ministry school classrooms. Clearly, much more is needed to encourage teachers to personalize their behaviors toward students and thereby support teacher-student relationships.

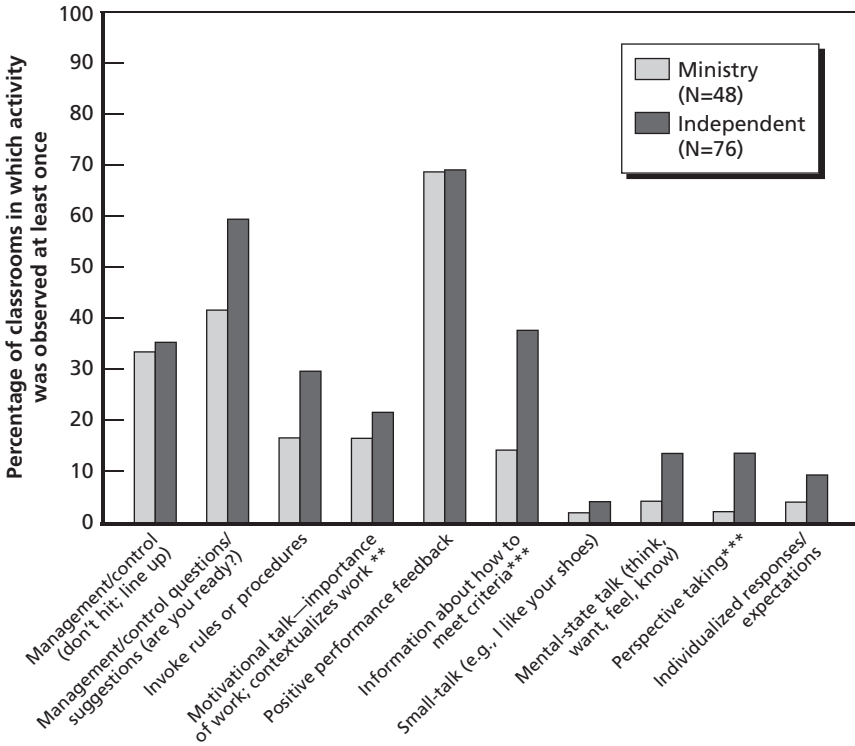
To foster standards-based learning, Independent school teachers are encouraged to adopt instructional approaches that are more student centered than those traditionally used in Ministry schools. These approaches, in turn, are meant to engage students and help promote higher levels of motivation. To determine whether and how teachers were motivating students, observers coded ten types of interventions on the teacher observation form, including motivational talk (e.g., the importance of work), positive performance feedback, mental-state talk (use of words such as *think*, *want*, *feel*, *know*), and perspective taking, which encourages students to understand the feelings and needs of others.

These observations revealed that Independent school teachers were more likely than Ministry school teachers to engage in almost every type of motivational intervention (see Figure 6.2). The only exception was in performance feedback; here, Independent and Ministry school teachers provided similar levels of information about how well students had done.

Independent school teachers spent significantly more time than did Ministry school teachers on mental-state talk. They also made significantly more perspective-taking statements (e.g., “What might Khalid do next?”). Mental-state talk helps students understand how others might experience the material or interaction and to build empathy and a broader perspective (e.g., “Ahmed thinks that sharks live underwater” or “Fatima feels sad”). Indeed, Ministry school teachers spent no time at all on these motivational activities. Of particular note is that Independent school teachers were significantly more likely to provide information to students about how to meet criteria, a very important component of motivation.

These results suggest that Independent school teachers were providing their students with more information about how to succeed, focusing on how students were feeling, and helping students to appreciate the perspectives of others. In general, Independent school teachers were approaching student motivation in a different, more supportive way than were Ministry school teachers.

Figure 6.2
Motivational Activities in the Classroom, by School Type



** p < .05

*** p < .01

SOURCE: Teacher observation forms.

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Student Satisfaction with School Experiences

QNEDS student survey data suggest that, overall, Independent school students were more satisfied with school than were Ministry school students. As shown in Table 6.1, Independent school students were more likely to agree that students got along well with teachers at their school. They also reported greater satisfaction with school activities in

Table 6.1
Student Satisfaction with Different Aspects of School, by School Type

Aspect	Percentage of Students		
	Ministry School	Generation I School	Generation II School
Students get along well with teachers ^a	58 ^b	70	64
Satisfaction on school activities	64	80	78
Satisfaction with using computer at school	64 ^b	87	84
School prepares students to obtain a good job	74	90	82
Students are proud to go to my school	60	70	67
My school is good	68	81	77

SOURCE: QNEDS student survey, 2005–2006. Total number of students ≈ 49,000; Ministry school students ≈ 35,300; Independent school students ≈ 3,700. These numbers vary slightly by item.

^a The questions on the QNEDS student surveys were written in Arabic, and any attempt to translate them would not be totally accurate. Instead, we used the English labels in the SPSS files provided to us by the QNEDS data warehouse.

^b Percentage reporting “very satisfied” and “satisfied.”

general and were more satisfied with computer use at school. The issue of computer use, which appears to have been the greatest difference in satisfaction between Independent and Ministry school students, is not surprising given the very limited availability of computers in Ministry schools. Independent school students were also substantially more likely to agree that their school was preparing them to obtain a good job, and they were more likely to report that they were proud to go to their school. Independent school students were also more likely to agree with the statement “My school is good.”

Student satisfaction rates were mirrored in those of their teachers: On the QNEDS teacher survey, Independent school teachers expressed higher levels of satisfaction with the motivation levels of their students than did Ministry teachers. Among Ministry teachers, 64 percent reported being very satisfied or satisfied. Among generation I school teachers, the level of satisfaction was 82 percent; among generation II school teachers, 70 percent.

Continuing Problems with Student Motivation

The Independent schools have had some success in motivating students to perform better in school, but we found that serious problems remained. During interviews and focus groups, school staff explained why they believed that Independent school students were more highly motivated than Ministry school students, and they described some of the issues that may limit how much more motivated they can become.

Selection Effects

First, Ministry school staff attributed the higher levels of motivation in Independent schools to selection effects: Independent schools, with their more-ambitious programs, attracted more-motivated students, while the less-motivated students remained in Ministry schools. One Ministry school teacher was of the opinion that some of these transfer students brought innovative ideas with them to the Independent schools. According to Ministry teachers, some students who had previously attended private schools moved to Independent schools. Further, at least some of these private-school students were drawn to Independent schools that offered an International Baccalaureate program and focused on English. One Independent school teacher felt that these students' academic strivings and their more involved parents had raised general expectations in the classroom, had contributed to a more competitive atmosphere, and had improved norms for behavior.

Selection effects of this sort are an unlikely explanation for most of the motivational differences we found, however, since few Ministry school students opted out of schools that converted to Independent status, and these schools had few places open to outside students. A larger selection effect may be found in generation I's conversion of the scientific complex schools to Independent school status, since these schools had always been highly selective and admitted only the best students.

Changes in Examination Requirements

Independent school students were not going to have to take the grade 12 exit exam that caps a student’s time in Ministry schools.¹ Some interviewees saw this as a positive change that would allow students to focus more on learning and less on passing the exam. Others, however, saw the replacement of the high-stakes-for-students exit exam with the low-stakes-for-students QCEA assessments² as having a negative effect on student motivation.

Reliance on Private Tutors

The widespread use of private tutors was frequently mentioned as having negative effects on student motivation.³ While tutors might be expected to enhance learning, they apparently have served a remedial function for many Qatari students. Ministry schools use a standard textbook with prescribed lessons, so remedial assistance is easy for tutors. According to teachers, students believe that they can ignore their teachers and rely on their tutors to transmit the information they need to learn. To illustrate this problem, a principal in a Ministry school said that her efforts to get students who were not doing well to pay attention in class and to come in for extra help were frequently rebuffed. The female students have told her that they will learn what they need to know from their private tutors.

¹ However, in Spring 2007, Independent school seniors received a “senior school certificate,” which provided a score summarizing their performance on the Evaluation Institute’s tests in Arabic, English, mathematics, and science, as well as school-level test scores in those subjects, scale scores by subject, a list of course work completed, and a list of non-academic accomplishments (e.g., public service). Overall scores were listed in local newspapers. (See SEC, 2007.)

² The grade 12 exit exam in Qatar is considered high stakes for several reasons. It determines whether the student graduates from secondary school, and it is used to determine admission into Qatar University, as well as into universities in other Arab nations for students applying to continue into post-secondary study outside of Qatar. The QCEA is low stake in comparison, since individual student scores are neither publicly reported nor used to determine grade promotion or university admittance.

³ On the 2005–2006 QNEDS student survey, 20 percent of Independent school students and 19 percent of Ministry students reported having tutors.

Parent Apathy

Independent school staff pointed to parents as key contributors to the student-motivation problem. In focus groups, a number of Independent school teachers reported that parents do not seem to care about their children's day-to-day progress. For example, an Independent school teacher who had taught in Egyptian schools had come to the conclusion that parents in other Arab countries were more likely to monitor their children's progress in school. An Independent school primary teacher reported that students were not very engaged. She said that one must look to the parents to encourage students at this young age, and she felt that parents were not doing this (e.g., not one of her students had fulfilled a request to bring in a plant for science class).

Comments about parent apathy were more commonly voiced by Ministry staff, who described a lack of monitoring and support at home and a general unwillingness of parents to attend school meetings. Moreover, a Ministry school principal said that the parents of the students *without* problems in her school community were more likely than were other parents to come to meetings. Parents of students with problems often did not respond to calls from the school. Thus, the principal felt that the students who needed the most parent support were getting the least.

In some Ministry boys' schools, parent involvement was low because many fathers spend long periods outside the country. They also often take their sons with them, which adds to absenteeism. One principal recounted several discussions with a father about his son's absenteeism. The father looked at his son and asked, "Do you want to go to school?" The child replied, "No," and the father said, "Okay, then you don't have to go." According to the principal, many students in this particular school were absent for as long as 25 days at a single stretch. This raises a dilemma for the school: Should students be allowed to attend at will? Or should they be suspended or expelled for not attending, which denies them an education?

Parent Involvement

According to the literature on parent involvement, it encompasses a number of elements, including communicating with the teacher and school about the child’s education, being attentive to homework and assignments, and attending school events. The more-involved parents tend to also be active in their child’s school through membership in parent groups and, in some cases, participation in school decision-making through school-organized committees and groups. It has been argued frequently in the literature that parent involvement is an essential component of effective schooling (e.g., Epstein, 1987).

The perceived lack of parent involvement described in the previous section would likely reduce the effectiveness of both Ministry and Independent schools. Research has consistently found that, while the mechanisms remain unclear, parent involvement is associated with better school outcomes for students.⁴ When teachers make parent involvement part of their regular teaching practice, parents increase their interactions with their children at home, feel more positive about their abilities to help their children in different grades, and rate the teachers as better teachers overall. As a result, students improve their attitudes and achievement (Becker and Epstein, 1982; Epstein, 1986).

The SEC recognized the importance of parent involvement in the new Independent schools. The Independent School Operating Agreement (ISOA), which is the contract between the SEC and the operator of an Independent school, explicitly notes that one goal of Independent schools is to encourage parent and community involvement with public schools. Therefore, applications to operate an Independent school include a section on strategies to promote parent involvement.

Parent-Community Boards of Trustees

The SEC expected each Independent school to establish a board of trustees comprising parents and community members who would work with the school operator to support the school and to represent parents and other stakeholders in school decisions. The Education Institute

⁴ For a review of this literature, see, for example, Zellman and Perlman, 2006.

considered these boards formal mechanisms for involving parents in their children's schooling.

There were other compelling reasons to establish boards of trustees in Independent schools. First, they would reassure parents, some of whom saw Independent school operators as operating with no controls, that an entity was in place to oversee school policy and operations on a regular basis. Parents and others had expressed concerns about the for-profit nature of Independent schools in the original reform plan and were particularly worried that operators would cut corners to maximize profits. Second, trustee boards would represent a formal way to involve parents in Independent schools. It was believed that being involved on a board or being offered the potential to get involved in this way would engage parents in the school and in the goals of the reform. Third, it was believed that Independent schools would benefit from stakeholder involvement as they tried to grapple with such issues as student engagement, program expansion, and governance.

Our data suggest that trustee boards have been effective in varying degrees. Several principals that we interviewed stated that serving on a parent board was a very new idea in Qatar. In the past, Qatari school administrators and teachers had not communicated with parents on a regular basis. Calls to parents and parent-teacher conferences were limited to situations in which a student was either performing or behaving badly. For example, a letter sent home to parents in 2004 to inform them that pilot testing would be occurring to assess the progress of the reform was the first letter ever sent that did not discuss children's problems.

Types of Parent Involvement in the Schools

Parent involvement comprises many different forms of participation. We asked parent participants in our focus groups about their children's schools and their involvement in them. We organized the results under three dimensions to facilitate our analysis and our presentation of findings: behavioral involvement, personal or home involvement, and intellectual or cognitive involvement. Parents were also asked about their perceptions of the reform and how they felt about Independent schools, particularly their level of satisfaction with communication from schools

(e.g., frequency and timeliness of information received, access to information from a variety of sources). Our goal in this case was to see how effective schools have been in reaching out to parents.

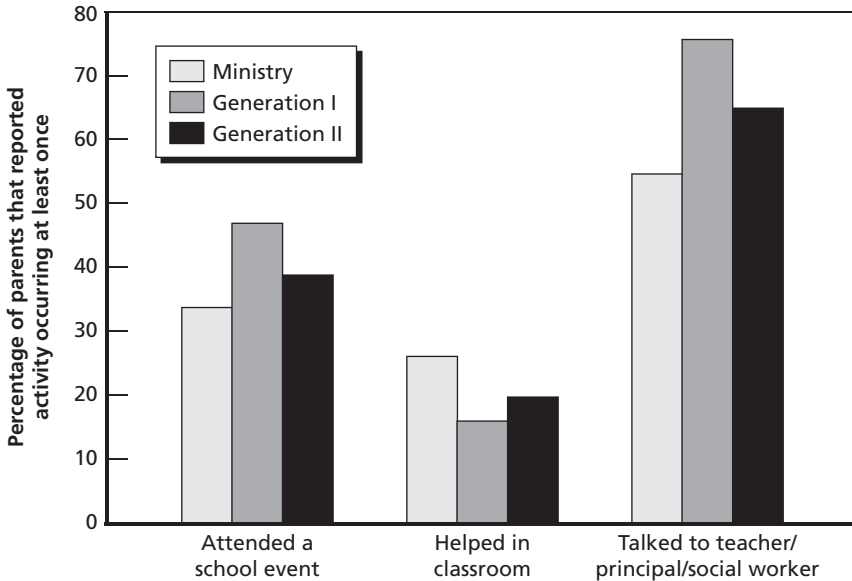
Behavioral Involvement. Behavioral involvement includes several different forms of direct parent participation, such as taking part in activities held at school (e.g., open houses), observing in classrooms, talking to the child’s teacher, attending parent-teacher conferences, and helping in such school activities as fundraising. These behaviors signify to the child the importance that the parent places on the school and on the child’s education. They also provide parents with information needed to help children manage their schooling (Stevenson and Baker, 1987).

When asked in focus groups about ways in which schools needed to improve their parent involvement efforts, parents of both Ministry and Independent school students indicated three areas of importance: having opportunities to attend monthly conferences, receiving more frequent reports on their child’s academic performance, and being notified immediately of behavioral issues. But even though parents might ask the school to actively solicit their involvement, they did not always engage when requests were made. School officials told us that it was often difficult to get parents involved in anything other than attending formal teacher-parent conferences or responding to a behavioral problem. As is true in other countries, greater success in involving parents was reported by primary teachers than by preparatory and secondary teachers in the Independent schools.⁵

Although findings from teacher focus groups indicated that overall parent involvement was limited, data from the QNEDS parent surveys suggest that involvement was higher in Independent schools. As shown in Figure 6.3, a larger share of Independent school parents reported attending at least one school event in 2005–2006, although the difference between Ministry and Independent school parents was greater for generation I school parents. However, Ministry school parents were more likely than Independent school parents to report having helped in their child’s classroom at least once. Here, the difference among

⁵ See, for example, Zellman and Waterman, 1998.

Figure 6.3
Parent Involvement in School Activities, by School Type



SOURCE: QNEDS parent surveys, 2005–2006.

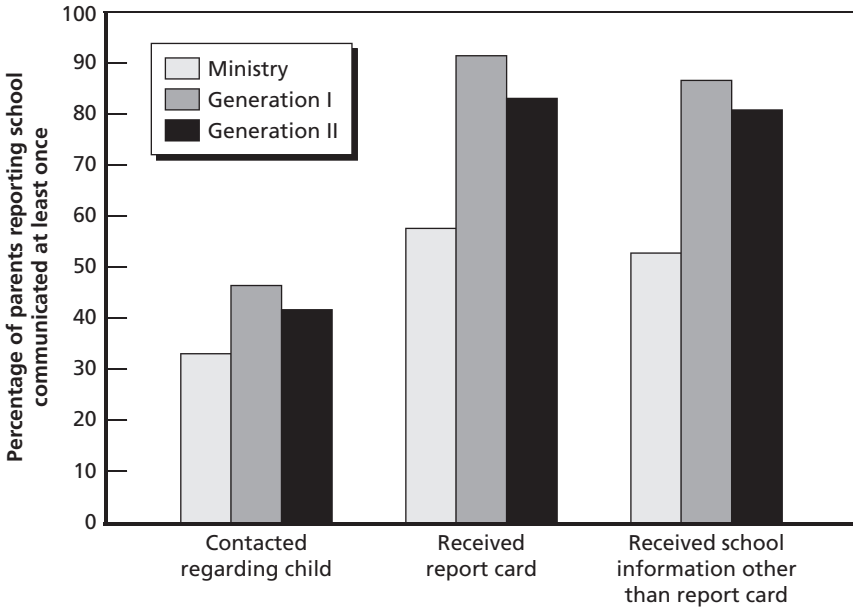
NOTES: (1) Number of schools = 45. (2) Numbers of parents = 902 Ministry, 7,813 generation I, 9,104 generation II (these numbers vary slightly by item; low end of range is presented here).

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Independent school generations favored generation II schools. Finally, just over half (55 percent) of parents with children enrolled in Ministry schools reported having talked to their child's teacher, principal, or social worker at least once, compared with 76 percent of generation I parents and 65 percent of generation II school parents.

Communication between parents and schools was more frequent in Independent schools. According to parents' reports for 2005–2006, 76 percent of generation I school parents and 64 percent of generation II school parents contacted their child's school at least once. In contrast, 55 percent of Ministry parents reported contacting their child's school at least once (see Figure 6.4). Forty-seven percent of generation I school parents reported that the school contacted them at least once regarding their child; the comparable figure for generation II school

Figure 6.4
Reported Communication Between Parents and Schools, by School Type



SOURCE: QNEDS parent surveys, 2005–2006.

NOTES: (1) Number of schools = 45. (2) Numbers of parents = 902 Ministry, 7,813 generation I, 9,104 generation II (these numbers vary slightly by item; low end of range is presented here).

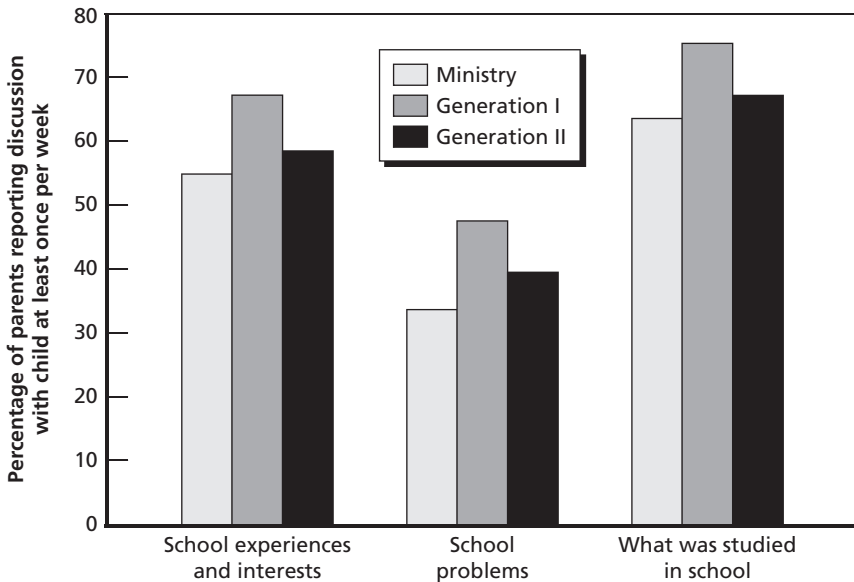
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parents was 42 percent. Just one-third (33 percent) of Ministry school parents reported having been contacted by their child’s school. Moreover, Independent school parents were much more likely than Ministry school parents to report receiving report cards (92 percent generation I and 83 percent generation II, compared with 58 percent Ministry). The number of parents who reported receiving other types of information from the school (e.g., monthly newsletters) at least once was also higher among Independent school parents (87 percent generation I, 81 percent generation II, and 44 percent Ministry).

Home Environment. Parent involvement at home has to do with building an environment that is both psychologically and physically supportive of a child’s experiences at school. For example, parents can express interest in a child’s experiences in school. The QNEDS parent

survey in 2005–2006 included an item asking how often parents discuss their child’s experiences and interests with him or her. As Figure 6.5 shows, 55 percent of Ministry school parents reported discussing these experiences and interests with their children every day or at least once or twice a week, whereas the figures for generation I and generation II school parents were, respectively, 68 percent and 59 percent. The figures for parents who reported discussing with their child any problems that he/she was having at school at least once per week were 34 percent Ministry, 48 percent generation I, and 40 percent generation II. However, 64 percent of Ministry school parents, 76 percent

Figure 6.5
Parent-Child Discussions of School Activities, by School Type



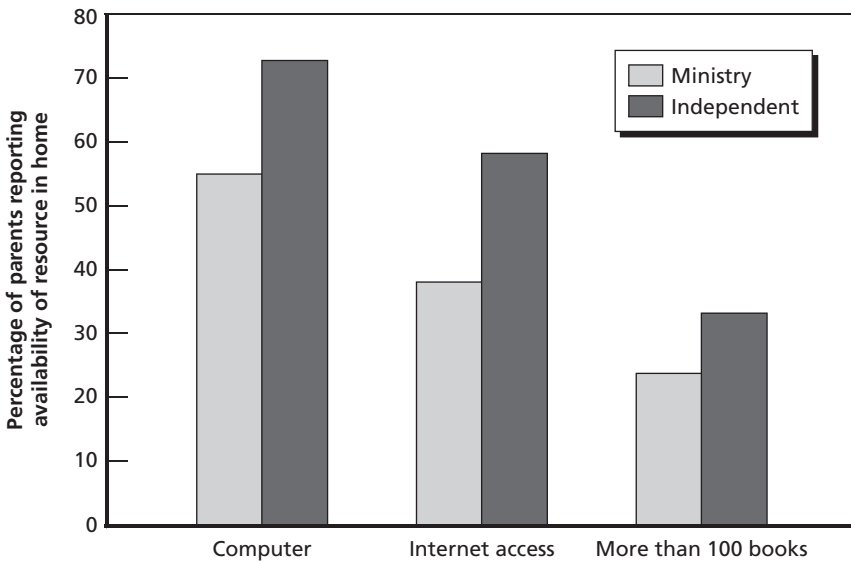
SOURCE: QNEDS parent surveys, 2005–2006.

NOTES: (1) Number of schools = 45. (2) Numbers of parents = 902 Ministry, 7,813 generation I, 9,104 generation II (these numbers vary slightly by item; low end of range is presented here).

of generation I school parents, and 68 percent of generation II school parents reported discussing with their child his/her school work at least once a week.

Another indicator of a home environment that promotes education is the availability of education-related resources. QNEDS data indicated that students in Independent schools were substantially more likely to have a computer at home than were students in Ministry schools—73 versus 55 percent (see Figure 6.6). While over half (58 percent) of Independent school parents reported having access to the Internet, only 38 percent of Ministry school parents did so. Independent school parents were also more likely than Ministry parents (33 versus 24 percent) to report having more than 100 books at home.

Figure 6.6
Availability of Educational Resources in the Home, by School Type



SOURCE: QNEDS parent surveys, 2005–2006.

NOTES: (1) Number of schools = 45. (2) Numbers of parents = 902 Ministry, 7,813 generation I, 9,104 generation II (these numbers vary slightly by item; low end of range is presented here).

These data suggest that Independent school boards of trustees, more-active distribution of report cards, and greater efforts to engage parents may not entirely explain our findings of greater engagement on the part of Independent, compared with Ministry, school parents. The selection effects discussed earlier in this chapter and in previous chapters may be operating here, as well. Those parents who are more concerned about education and more able to provide educational resources, such as computers and books, are more likely to allow their children to remain in an Independent school when it converts from Ministry school status. The small but consistent differences between generation I and generation II school parents may reflect the inclusion of the scientific complex schools, which are selective, in the first, generation I cohort of schools. It is also possible, as discussed in Chapter Three, that the most enthusiastic and reform-minded teachers were the ones that chose to move to the generation I schools from Ministry schools and elsewhere.

Involvement with Child's Cognitive Development. The third aspect of parent involvement examined was parent activities that are believed to have an effect on a child's cognitive and intellectual development. This type of participation begins with parents exposing their child to cognitively stimulating activities and materials at home. It also entails responding to guidance and requests from teachers to assist the child at home through learning activities that are coordinated with work being done in class.⁶ This form of involvement constitutes a historically new role for Qatari parents, whose engagement in school work and other intellectual activities with their children, if it occurred at all, has been limited primarily to homework.

In the focus groups, Independent school parents expressed interest in increasing their role in their child's cognitive development. In particular, they wanted to help their children with new skills acquired

⁶ Kurdek and Sinclair (1988) found that the extent to which a family engages in intellectual activities at home accounts for a significant amount of variance, beyond that explained by family characteristics, in the grades of grade 8 students. Keeves (1972) also demonstrated that, when family structure, gender, and level of family conflict are controlled for, there is a relationship between the degree to which a family engages in intellectual activities at home and a child's academic achievement.

in school, such as conducting research on the Internet and learning the English language. A major limiting factor to this involvement, according to parents, was their inability to track student progress because of the absence of the textbooks and workbooks that they were accustomed to under the Ministry school system.⁷ Parents viewed textbooks as an important means of following and reinforcing what their children were learning at school. Some parents pointed out that Ministry schools had more structure than did Independent schools. Teacher focus groups in three Independent schools revealed several different types of limitations to parent involvement. Teachers particularly noted the low education levels in some school communities. They also noted parents’ limited proficiency in English, the Independent schools’ language of instruction in mathematics and science.

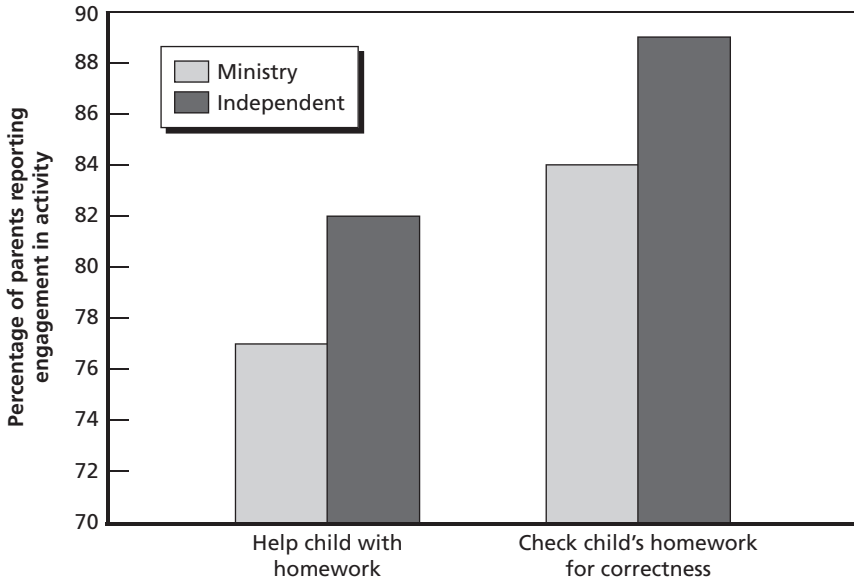
Despite these challenges, an impressively high percentage of parents reported helping their children with homework—77 percent of Ministry school parents and 82 percent of Independent school parents (see Figure 6.7). An even higher percentage—84 percent of Ministry school parents and 89 percent of Independent school parents—checked to see that the homework had been done correctly.

General Concerns Shared by Independent School Parents

QNEDS data revealed that, in 2005–2006, 80 percent of parents whose children were in Independent schools reported satisfaction with the way their school was preparing their children for the future, compared with 73 percent of Ministry school parents. However, Independent school parents who participated in the focus groups highlighted several concerns, the first of which was the perception that English seemed to be taking precedence over Arabic. They worried that their children might lose their facility with Arabic and that the use of

⁷ Independent schools were discouraged from using textbooks out of concerns that they would rely too heavily on them. After many parents complained about the absence of textbooks, however, a new policy was established: By Fall 2007, Independent schools were to adopt textbooks that addressed at least 70 percent of the standards in the relevant subject. (See Chapter Five’s discussion of this matter.)

Figure 6.7
Parent Help with Homework, by School Type



SOURCE: QNEDS parent surveys, 2005–2006.

NOTES: (1) Number of schools = 45. (2) Numbers of parents = 902 Ministry, 7,813 generation I, 9,104 generation II (these numbers vary slightly by item; low end of range is presented here).

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English as the language of instruction in mathematics and science would convey a preference for that language.

Parents of expatriate students in Independent schools expressed concerns about the Secondary School Diploma that was being granted in the Independent schools, rather than the traditional diploma earned at the Ministry schools. They worried that it would not be accepted as evidence of high school completion in Arab institutions of higher education outside of Qatar, which had little experience with diplomas issued by organizations other than the Ministry of Education.

Other concerns of parents of Independent school students pertained to widespread belief that insufficient attention was being paid to the Islamic, Arab, and Qatari identity of students; the perception that the Independent school day was too long; and the fact that the

Independent school calendar was not synchronized with the Ministry school calendar, leading to different start and end dates for the two systems. The last two of these issues were brought up particularly frequently in focus group sessions by parents who had children in both types of schools.

Interviews with Independent school administrators revealed that they were keenly aware of the challenges involved in maintaining a satisfactory and ongoing level of parent involvement. All administrators reported that establishing a good relationship with parents was an explicit goal of the school. However, administrators also noted that their efforts to engage parents were challenging and not entirely under their control. There is little tradition of parent involvement in Qatar, and parents in Ministry schools often expressed the view that running a school should be left to experts. These views are consistent with those of parents who thought that experts in curriculum design should be writing curriculum and selecting materials. Moreover, many of these parents believed that they did not have the knowledge or skills necessary to volunteer in the classroom or serve on parent advisory committees.

Conclusions

This chapter has examined two important aims of Qatar’s K–12 reform: to enhance student motivation and to increase parent engagement. While students report high educational aspirations for themselves and parents have lofty educational goals for their children, these do not translate into hard work and motivation in the classroom for the most part. Indeed, poor motivation among Qatari students has long been widely recognized. In addition, parents in Qatar have not traditionally been involved in their children’s schools. The reform’s efforts to improve motivation and parent involvement have shown some early success.

Classroom observation data indicate that Independent schools have adopted more student-centered pedagogy, which is associated with increased student engagement and motivation, and have estab-

lished school environments that encourage students to attend school and engage while there. These efforts may be paying off: Independent school students report being more satisfied with school than do Ministry school students.

In addition to increasing the frequency of communications with parents, Independent schools have attempted to engage parents, along with other members of the community, to serve on school boards of trustees so that they can participate in decisionmaking and address issues related to student motivation and school improvement. Parents of Independent school students seem more engaged in their children's education than do parents of Ministry school students; they also provide a richer environment at home to encourage learning. However, the data suggest that all parents could do much more to support their children. Motivational problems and apathy among some parents are still evident.

Measuring Student Performance

In previous chapters, we examined the functioning of Independent schools on central reform features: staffing and recruitment, professional development, curriculum and materials, classroom practice and pedagogy, and parent involvement. We also compared the functioning of Independent schools with that of Ministry schools, finding that Independent schools were more likely to implement features central to the reform. This chapter examines one of the reform's key outputs: the academic performance of Independent school students. We investigate student performance in Arabic, English, mathematics, and science on the 2005–2006 national exams in Independent schools (generations I and II) and compare it with that of Ministry and private Arabic schools. To the extent possible, we also examine possible reasons for our findings, including differences in student background and the presence of specific reform features.

We start by discussing in detail some of the characteristics of the QCEA program that shaped and constrained our analyses. We then present an overview of the 2006 QCEA results to provide context, after which we describe how we modeled and analyzed student performance. Finally, we discuss the findings and draw conclusions about their implications for the reform's progress.

Data for the achievement analysis were derived from two sources: the QNEDS (see Chapter Two for more information on the QNEDS data) and the QCEA.

The Qatar Comprehensive Educational Assessment

Standardized testing of students and publicly reported school-level results are key elements of the reform design.¹ The testing program has been implemented through a national assessment, the QCEA, which is a paper-and-pencil assessment battery consisting of multiple-choice and constructed-response (free-response) questions based on Qatar’s curriculum standards in Arabic, English, mathematics, and science.

The first administration of the standards-aligned QCEA occurred in Spring 2005. The QCEA was then refined and administered again in Spring 2006. In 2005 and 2006, students in all Ministry, Independent, and private Arabic schools were tested. In 2005, the QCEA was administered entirely in the Arabic language in all schools. In 2006, the mathematics and science portions of the QCEA were offered in both English and Arabic. Independent schools could choose which language to use for these assessments; Ministry and private Arabic school students were assessed only in Arabic.

Starting in 2007, only Independent school students were assessed. This policy change generated substantial concern because it dramatically curtailed information on student achievement and made it impossible to compare performance across school types, a key indicator of reform progress. QCEA data are critical for motivating schools to improve their performance and for providing parents with information about school performance to help them make more-informed choices about which school to send their child to once school choice becomes widespread. Comprehensive student achievement data also help keep policymakers and the general public aware of the reform’s progress. At the time of our study, the SEC was in the process of converting all Ministry schools to Independent schools, and all K–12 students attending government-funded schools were to be included in future testing.

¹ For more details on the reform’s design and the QCEA’s development, see Brewer et al., 2007.

Overview of Student Performance on the QCEA

This section presents and discusses overall student performance on the 2006 QCEA to provide a context for understanding differences in student performance by school type that are discussed later in the chapter.² The Evaluation Institute converts QCEA scale scores into performance levels that measure the extent to which students are meeting national curriculum standards. The performance levels are set by a committee comprising Evaluation Institute staff, Qatari educators, and international testing experts. The committee establishes a conversion from the scaled test scores into meaningful categories related to mastery of curriculum standards. The scores are assigned to three main proficiency categories in descending order: meets standards, approaches standards, and below standards. Table 7.1 shows the average percentage of students meeting standards and approaching standards by subject in 2006. In comparing the results shown, it is important to be aware that the content of the assessments varies because of differences in stringencies and standards across subjects and grade levels. As a result, the meaning of a given proficiency category might not be the same for each subject or grade level.

Table 7.1
Students Meeting and Approaching Standards, by School Type, 2006

Subject	Percentage of Students at Performance Level					
	Meets Standards			Approaches Standards		
	Independent	Ministry	Private Arabic	Independent	Ministry	Private Arabic
Arabic	6	3	3	30	20	19
English	7	1	1	19	5	8
Mathematics	0	0	0	48	19	19
Science	0	0	0	30	16	15

SOURCE: Gonzalez et al., 2009.

NOTE: Percentages shown are rounded to the nearest whole percent and represent the average of the grade-level averages for grades 4 to 11 for the given school type.

² This information is from Gonzalez et al., 2009.

As the table shows, few students in any school achieved at the desired level in 2006. In mathematics and science, no students in a Ministry or private Arabic school met the standards. A few students in Independent schools did meet the standards, but they constituted much less than 1 percent and therefore show up as 0 percent in the table. Students displayed somewhat more proficiency on Arabic and English standards, but performance remained low. In Ministry and private Arabic schools, only 3 percent of students met standards in Arabic and only 1 percent met them in English. The Independent school students performed better, with 6 percent meeting standards in Arabic and 7 percent in English. The relative performance of Independent schools was higher in English, which is consistent with the much greater emphasis on English language in these schools.

The second category—approaches standards—includes students whose performance was reasonably close to but not at the level of the standards. In 2006, many more students scored at this level than at the higher level, and the Independent schools had large numbers of students at this level, especially in Arabic, mathematics, and science.

Overall, these results indicate that Independent school students were significantly outperforming Ministry students but that overall performance was low in all schools. Qatar’s reform will likely need many years of sustained effort to raise achievement levels to a point where students who meet the standards represent the majority.

A Statistical Model to Examine Relationships Among Student Achievement, School Type, and Other Factors

The performance levels in Table 7.1 indicate markedly higher achievement levels at Independent schools than at Ministry schools. However, these average performance results do not take into account any differences that may exist between school types in terms of the students who attend them. In fact, Independent school students tended to have more-educated parents and to have experienced greater learning in previous grades than did Ministry school students (see Table B.1, in

Appendix B, for these data). Furthermore, student performance varied by students' and parents' background characteristics (see Appendix B, Table B.2). To more reliably estimate the true contribution of schooling to QCEA performance, we used a value-added regression model that takes into account a student's prior test scores, other student characteristics, and family characteristics. These specifications allow the best inference about the independent contribution of schools to student achievement.

In developing our particular value-added model of student achievement, we were constrained by a number of special considerations (see Appendix B for more details). First, we modeled only one year of student achievement data because there were data for only two years (2005 and 2006) for which assessments had been based on the national curriculum standards and administered to all schools (Ministry, Independent, and private Arabic schools).³ Second, the small number of preparatory and secondary Independent schools ruled out an examination of student academic achievement at the middle and high school levels, so we estimated a model for only primary schools. However, since grades 1, 2, and 3 were not tested, our model includes only grades 4, 5, and 6. Third, it was not feasible to link teacher characteristics and the implementation of specific reform features (e.g., instructional pedagogy) to individual students or classrooms. We therefore aggregated teacher information to the school level in order to include it in our achievement modeling. Finally, a substantial number of students received scores on the assessments that were so low that they were consistent with guessing. To address this issue we used a censoring regression technique to adjust for these low scores.

Using our value-added model, we measured the relationship between student achievement outcomes from 2006 and school type. To isolate the effects of school type on student learning, we controlled for student background characteristics and prior achievement, parent involvement, and teacher characteristics. We also examined the inter-

³ Prior academic achievement scores from school year 2004–2005 were used as controls. It would have been preferable to have another year of data, which would have permitted us to develop growth trajectories (see Appendix B for further discussion).

action between language of assessment and school type for the analyses of mathematics and science achievement. This allowed us to compare the performance of Independent schools with that of other types of schools in which mathematics and science assessments were administered in the same language. This more-constrained comparison was critical, because the overall Independent school effect on student achievement in mathematics and science would otherwise have been confounded with the effects of language of assessment and thus would have been invalid. It would also have been inappropriate to compare the performance of students in different types of schools who had been assessed in different languages. For example, such an analysis would not account for the fact that Independent school students not fluent in English might perform poorly on mathematics and science tests administered in English not because they lack content knowledge, but because of linguistic barriers.

To identify associations between specific reform features and student achievement, we added to the model indicators of reform implementation for which we had data.⁴ Initially, we wanted to examine associations between specific reform features and achievement within Independent schools, but we were unable to do so because of the small number of Independent schools. We therefore limited this analysis to Ministry schools, which, although not in the mainstream of the reform, have implemented some reform features, albeit at a low level. Positive associations between such features and student achievement could highlight potentially effective reform practices.

⁴ The reform features of interest included the extent to which teachers did the following: used traditional methods of instruction (e.g., reading textbooks, completing worksheets); used progressive methods of instruction (e.g., relating life situation to class, students giving presentations and explaining reasoning); used textbooks; used computers; used lectures; used visual materials; treated students with learning difficulties similar to other students; provided students with learning difficulties with specialized instruction; asked other students to help students with learning difficulties; were provided with professional development and mentoring.

Relationship Among Student Performance, School Type, and Student Characteristics

We report our results in terms of *effect sizes*, which are commonly used in reporting the results from test score models. For each result, we report the association between a particular factor (e.g., school type, nationality) and test scores. The effect size represents the association as a fraction of one individual standard deviation of performance on the test. For example, if a subject test has a standard deviation of 40 scale score points and the difference between Qatari and non-Qatari students' scores after controlling for other factors is ten scale score points, the reported effect size is $10/40 = 0.25$. Most of the effect sizes in our model range from 0.1 to 0.3, which Cohen (1988) considers modest.⁵ But we have two reasons for thinking that these effects, though modest, are important. First, because the reform is new, changes may take time to affect student outcomes; future results might thus show greater effect sizes. Second, our model essentially measures annual gains in scores, so even modest effect sizes in annual performance can accumulate into large differences if sustained and incremented throughout a child's schooling. For example, if a child were to experience a gain of 0.1 or 0.2 standard deviations per year during ten years of schooling, the cumulative effect would be 1 to 2 standard deviations, which is a very large effect.

Table 7.2 presents the effect sizes of the variables in our model that show sizable and statistically significant associations with student outcomes in at least one subject area. Appendix B provides a comprehensive list of the variables included in our model, corresponding results for these variables, and additional detail. Below we discuss the effects represented by each row of Table 7.2, following the order of the table.

⁵ Cohen (1988, p. 25) defined effect sizes as "small, effect size = .2", "medium, effect size = .5", and "large, effect size = .8", stating that "there is a certain risk inherent in offering conventional operational definitions for those terms for use in power analysis in as diverse a field of inquiry as behavioral science."

Table 7.2
Results of 2006 Test Score Model: Effect Sizes for Grades 4, 5, and 6

	Arabic	English	Math	Science
School type (vs. Ministry)				
Generation I				
Assessments in Arabic	+0.15		+0.25	+0.25
Assessments in English		+0.33	n.s.	–0.58
Generation II				
Assessments in Arabic	+0.10		n.s.	+0.40
Assessments in English		+0.14	–0.15	–1.00
Demographic characteristics				
Qatari	–0.13	–0.04	–0.12	–0.16
Non-Arabic speaker	–0.14	+0.07	–0.10	–0.18
Male	–0.18	–0.13	–0.15	–0.17
Special needs	–0.19	–0.09	–0.10	–0.23
Father not secondary graduate	–0.15	–0.10	–0.12	–0.18
Mother not secondary graduate	–0.14	–0.12	–0.12	–0.12

NOTE: Interval regressions were used to control for prior test score and background variables. Reported results are significant at .05 level; “n.s.” indicates that results were not significant.

Generation I and II Schools Were Associated with Higher Student Achievement Than Were Ministry Schools

Overall, Independent school students performed better than did Ministry students in all four tested subjects after we controlled for differences in students’ prior scores and other factors impacting student achievement (see Appendix B for a list of factors). Both generation I and II school students outperformed their Ministry peers in English (effect sizes of 0.33 and 0.14, respectively) and Arabic (effect sizes of 0.15 and 0.10, respectively). Similarly, generation I school students who took the mathematics and science assessments in Arabic tended to score higher than did Ministry school students (effect size of 0.25), and generation II students who took the mathematics and science assessments in Arabic tended to score higher on the science portion (effect size of 0.40). However, Independent school students who took mathematics and science assessments in English produced results that differed starkly from those of their Ministry school peers (who took the

assessments in Arabic), tending, on average, to perform worse than the Ministry school students.⁶ Independent school students were allegedly being instructed in the English language, but they still may not have been sufficiently proficient in English to understand classroom instruction and/or the assessment questions. Furthermore, these students may have experienced difficulty expressing their knowledge in English on the assessments. Our results also indicate that assessment in English depresses student achievement in science more than in mathematics. This is not surprising, since science is more dependent on language than is mathematics, which relies heavily on symbols. Similar results were found when we compared the performance of Independent school and private Arabic school students.

As our results in Table 7.2 show, when schools that used the same language of assessment were compared, Independent schools tended to outperform Ministry and private Arabic schools (after we corrected for any differences in the student populations attending the different types of schools). If the only differences in performance were a function of differences in student body composition, the demographic effects would be significant and the Independent school effects would be zero. In our findings, however, both sets of factors had significant effects, indicating that Independent schools do play an important role in promoting student achievement. The underlying reasons for this may be, as discussed in earlier chapters, that Independent schools, compared with Ministry schools, paid higher teacher salaries, provided more training and mentoring to teachers, and implemented student-centered pedagogical approaches with greater frequency. Furthermore, Independent schools were expected to align their curricula to the national standards as part of the reform effort and had made strong efforts to do so. Ministry schools did not have the autonomy to revise their curricula to directly address the national standards. Differences in testing conditions in Independent and Ministry schools also might have contributed to the results. It may be, for example, that Independent school students

⁶ These findings are consistent with the findings in the literature, which indicate that students generally perform best when tests are administered in their native language (see, for example, Hofstetter, 2003).

and teachers were more likely than their Ministry school counterparts to view the QCEA as a high-stakes assessment and thus were more motivated to do well on them.

Methodologically, it is not possible to disentangle all of these factors. We also cannot rule out completely the possibility that student selection is accounting for some of the differences in effects. While we controlled statistically for a substantial number of critical student and parent factors (including students’ prior academic achievement), remaining selection effects on non-observables may be operating.

Generation I Schools Showed Somewhat Larger Positive Effects Than Did Generation II Schools

One possible explanation for the larger effects for generation I Independent schools, compared with the effects for generation II schools, is that generation I schools had an additional year before students were tested in which to receive support from the Education Institute for teacher professional development, development of curriculum materials, and classroom management. Generation I schools also included the highly selective scientific complex schools, whereas the schools that converted to Independent school status in generation II did not include any unusually high-performing schools. Although we controlled statistically for initial differences in student characteristics, unaccounted-for factors may have contributed to differences in effects.

Student and Family Demographics Were Found to Be Strongly Associated with Student Achievement

The positive effects held for students from all school types and were equally powerful in Independent and Ministry schools (see Table 7.2). As such, these estimates offer general information about the factors associated with higher or lower student achievement and are important to understand in their own right.

Student Nationality and Language Spoken at Home Were Found to Be Associated with Student Achievement. Qatari students tended to score significantly lower than expatriate students in all four subject areas. In English, the difference was small (effect size of 0.02); in Arabic, mathematics, and science, it was larger (effect sizes of 0.15 to 0.16). It is

possible that non-Qatari students tend to be more motivated to do well in school because they are competing for spots in higher education in their own homelands and cannot, like Qatari students, count on guaranteed government jobs. They also have to meet stricter requirements than do Qataris to be accepted at some universities in Qatar, such as Qatar University. Students who speak a non-Arabic language at home tend to score lower in Arabic (effect size of 0.14). These students also score lower in mathematics (0.10) and science (0.18), probably because much of the instruction and testing in these subjects is in Arabic.

Student Gender Was Found to Be Closely Related to Achievement. On average, female students scored significantly higher than did male students in all subject areas (effect sizes of 0.13 to 0.18). This finding is consistent with results from our focus groups with Qatari parents, which indicated that girls were more motivated to get an education than were boys. It is also consistent with the fact that women are more than twice as likely as men to pursue post-secondary education (Stasz, Eide, and Martorell, 2007).

Students with Special Needs Scored Lower on Average Than Did Their Peers. Students with special needs have been exempt from taking the QCEA, but the data included students whose parents identified them as special needs and who took the QCEA because their schools either did not identify them as special needs or tested them despite that identification. The effect sizes for these students were 0.09 to 0.23, with the greatest effect in science.

Parent Education Levels Were Found to Be Associated with Student Educational Attainment. Students whose parents did not graduate from secondary school did less well on the assessments than did students whose parents had college experience. This poorer performance among children of less well-educated parents may reflect a home environment that places less emphasis on school achievement. Parents with college experience may place a higher value on school achievement and more actively support their children's education. This support may encourage children to learn and perform better at school.

Parent Involvement Was Found to Have Little or No Effect on Student Academic Achievement. Those parents who were more involved in school activities did not turn out to have higher-performing children

than parents who were less involved. Parent help with homework was found to be associated with very slightly lower achievement for students (see Appendix B). Our interviews with parents provided one possible explanation for this finding. Many parents whose children were in Independent schools reported that they were having difficulty helping their children with homework because of the new teaching methods, the heavy reliance on English language materials, and the lack of textbooks. Given their unfamiliarity with the new system and its methods and, in many cases, their limited English fluency, their involvement with their children may thus be less effective than it would be otherwise. Furthermore, parents may be providing the most help to the weakest students, so that help erroneously appears to suppress achievement. This association between homework help and lower performance has been documented elsewhere and explained in this way (for example, in Hoover-Dempsey et al., 2001, and Milne et al., 1986).

Teacher Education Level and Years of Teaching Experience Were Found to Be Unrelated to Student Achievement

One possible reason for this lack of association is our inability to link teacher information to student-level data, as noted previously and discussed in more detail below. Because no association was found, these data are not included in Table 7.2.

Relationship Between Student Performance and Reform Features

The findings from this analysis were quite limited, for two reasons. First, as noted earlier, we could not link teacher variables to student data. Instead, we had to aggregate teacher-level information by constructing school-level averages. Aggregating this information resulted in very little variation at the school level (the majority of items had variation well below 10 percent of the mean) and consequently in a loss of predictive power. Second, we had to limit the analysis to Ministry schools because there were too few Independent schools to ensure reliable results.

Nevertheless, we did find a positive association, albeit with quite small effect sizes (less than .1), between the extent to which teachers used visual aids and student academic achievement in Arabic, mathematics, and science. We also found that teachers who reported treating students with learning difficulties similarly to other students had slightly lower levels of student achievement in science (effect size of .04). None of the other features included in the analysis (e.g., use of progressive methods of instruction, use of computers, provision of specialized instruction to students in need, and teacher training and mentorship) showed any significant association with academic achievement. This is not surprising given the low level of variation in classroom practices in Ministry schools.

Conclusions

Our analysis was designed to address whether school type is associated with student academic achievement. We addressed this question by developing a statistical value-added model of student achievement in Independent, Ministry, and private Arabic schools for grades 4, 5, and 6. The model was important in that it allowed us to sort the effects of background characteristics from the effects of school type. In Qatar, the most important effects were observed for nationality, gender, language spoken at home, special needs status, and parent education level.

Once we controlled for the background characteristics and students' prior test scores, we found that students in Independent schools generally outperformed Ministry and private Arabic school students in Arabic and English by a meaningful amount. Independent school students assessed in Arabic substantially outperformed their Ministry school peers in mathematics and science, as well. However, Independent school students assessed in English did not perform as well as Ministry students in mathematics and science. This latter result most likely reflects a performance inhibition on the part of Independent school students because of their lack of English proficiency. The English version of the QCEA mathematics and science assessments may

have been measuring students' fluency in or familiarity with English rather than students' content knowledge.

Overall, our results indicate that, during the period studied, the reform had some success in meeting its goal of improving student academic achievement. Yet it is important to note that students are still far from meeting the national standards in Arabic, English, mathematics, and science. If the achievement gains we found in the Independent schools can be sustained over time, however, and if they can be extended to new Independent schools, the reform is likely to result in significantly higher student achievement in Qatar and a much larger proportion of students meeting the national standards.

The lack of links between teacher and student information and the small number of Independent schools made it impossible for us to reliably assess the effects on student achievement of teachers' implementation of reform features. We hope that future research will pursue this more-specific modeling and investigate these relationships within the Independent schools as the number of Independent schools increases.

Summary of Findings and Recommendations

As first discussed in Chapter One, three overarching questions guided our research:

1. How are Independent schools different from Ministry schools? How effectively have the components of the reform been implemented in Independent schools?
2. Have there been changes in Ministry schools since the reform's inception?
3. What strategies should the SEC consider to promote the reform's success?

Detailed answers to the first two of these questions have been provided in the preceding chapters. Here, we first provide an overview of those findings, after which we propose strategies for building on the reform's already achieved successes and for addressing issues that have emerged in the course of the reform's implementation.

In broad terms, our evaluation has revealed, first of all, that Independent schools differ markedly from Ministry schools in many ways. To promote the principles of autonomy, accountability, variety, and choice, Independent schools have been employing new strategies for developing staff, designing and delivering instruction, motivating students, and involving parents. For the most part, principals, teachers, parents, and students have recognized these changes and appreciate them. Second, Ministry schools have changed very little in response to the reform. Although substantial alterations in their long-established patterns were not expected, it was nonetheless disappoint-

ing that the new ways of thinking about education and new pedagogical approaches introduced in Independent schools were so rarely seen in Ministry schools.

The following sections elaborate on these general points.

Differences Between Independent and Ministry Schools

Classroom practices in Independent schools were found to be more student centered than they were in Ministry schools. Independent school teachers were more than twice as likely to engage in one-on-one activity with students, and they were almost three times as likely to work with small groups than were Ministry school teachers. However, much of this group work did not alter the group process—students in the small groups often were working on individual tasks. And whole-group instruction dominated classrooms in both types of schools.

Independent school teachers actively tried to engage students more than their Ministry counterparts did. They were significantly more likely both to encourage interaction between students and to talk to students at eye level. This second practice encourages student engagement. It also suggests that Independent school teachers were much less often standing at the front of the classroom and lecturing. Independent school teachers also placed greater cognitive demands on their students than did Ministry school teachers; they expected significantly more analysis, synthesis, and evaluation from their students. Instilling these higher-order thinking skills is a crucial goal of the reform.

Independent school teachers reported that they used student-centered pedagogical approaches more often than did their Ministry counterparts. This is not surprising considering that Independent school teachers were receiving more professional development than were Ministry school teachers. Independent school teachers also engaged less often in such traditional classroom activities as having students complete workbooks or read from a textbook, and they showed a greater propensity to be aware of and respond to differences in students’ abilities and progress. This greater responsiveness to individ-

ual differences resulted at least in part from the smaller numbers of students in Independent school classes. Many Ministry teachers said that they recognized student differences but were kept from responding to them by the large numbers of students in their classes.

Independent school teachers were clearly working hard to implement the new curriculum standards. Teachers reported that they spent many hours in meetings in which they shared ideas about how best to convey key concepts and engage students in their academic work. Some Independent schools held contests and offered prizes designed to improve student performance and generate excitement about learning. But despite these successes, it was evident that the implementation of the new standards would need more support. We found that although content was being conveyed, the use of instructional practices that call for higher-order thinking was still relatively limited. Laboratory activities intended to provide students with hands-on experiences all too often ended up as demonstrations by the teacher. Classroom materials that teachers selected or developed were sometimes inadequate and may not have been completely aligned with the curriculum standards.

Independent school parents were more involved in and generally satisfied with the new schools. They reported that there were more parent-teacher conferences than in the Ministry schools. Whereas many Ministry school parents reported that they had never talked to school staff, this was significantly less true for Independent school parents. Likewise, significantly more Independent school parents said that their child's school was preparing him or her for the future. A number of parents reported that they considered the use of English as the language of instruction in mathematics and science a key indicator that the Independent schools were doing a better job. And Independent school parents were significantly more likely than Ministry school parents to indicate that their child's school provided extra help if the child needed it.

Independent school students indicated that they were happier, more interested in, and more satisfied with their school than did Ministry students. Independent school teachers reported that their students were more motivated to learn and attributed the motivation to better facilities (particularly the availability of computers), an emphasis on

active learning, and the effectiveness of instructional strategies focused on student engagement. Compared with Ministry school students, Independent school students reported that they were prouder of their school and more satisfied with what it offered.

All of this is very good news, as it suggests that the conditions were in place in the Independent schools to support improved student outcomes on the standards-based assessments. But did Independent school students demonstrate improved performance on the assessments? Overall, Independent school students in grades 4, 5, and 6 did have better outcomes than their Ministry school counterparts in all four tested subjects: Arabic, English, mathematics, and science. Both generation I and generation II school students outperformed Ministry school students in English and Arabic; generation I school students who took the assessments in Arabic outperformed Ministry school students in mathematics and science; generation II school students who took the assessments in Arabic outperformed their Ministry peers in science. While it is true that uncorrected scores were lower for students in generation II schools than for those in generation I schools, the results were similar when such controls as parent education and student’s prior academic achievement were added. This suggests that the inclusion of high-performing schools in generation I may have somewhat elevated those scores relative to generation II school scores. Alternatively, it is possible that the differences can be attributed to the generation I schools having more highly motivated staff—teachers who had languished for years in the Ministry system and then seized the chance for change by moving to an Independent school. Future test results will help clarify the degree to which results can be attributed to school differences.

How Effectively Have the New Independent School Components Been Implemented?

The fundamental components and mechanisms of the reform have been put in place. The Independent schools have been established, and a sophisticated assessment and monitoring system has been designed and

implemented. Over time, however, new policy decisions have affected the functioning of Independent schools.

A key policy change affecting the reform concerns Qatarization. At the reform's inception, the primary goal was to improve student performance and outcomes, and Independent school operators were encouraged to locate and hire teachers that they believed were the most qualified to do this, whatever their nationality. In May 2005, to encourage operators to hire more Qataris and to interest Qataris in applying for teaching positions in Independent schools, the SEC established a policy that set minimum salaries for Qataris and minimum percentage targets for Qatari teachers in each Independent school. A new policy in September 2007 then revised the Qatarization requirements and raised the minimum salary for Qatari university graduates. The new SEC policy was a response to concerns that Independent schools, which were initially for-profit institutions, would be staffed predominantly by local non-Qatari teachers, at salaries considerably less than those paid to Qataris, in order to increase Independent school profits. At the time of our study, no sanctions had been imposed, and the policy had not yet had an impact on hiring. The Qatarization goal reduces operator autonomy, however, in that it limits operators' ability to staff their schools as they see fit.

Independent schools have been active in providing enhanced professional development to their teachers. The classroom observation data revealed that Independent school teachers were employing student-centered approaches and were challenging their students more than Ministry school teachers were. However, the data also showed that Independent school teachers were still struggling to implement these techniques and that overall levels were not high. The pressures to implement the standards and deliver their content may have been decreasing teachers' focus on promoting problem solving and higher-level thinking among their students. Reports of the curriculum experts suggested that more professional development was also needed to help teachers align classroom practices with curriculum standards.

Changes in Ministry Schools

To determine whether Ministry schools had changed in response to the reform, we compared observations made during visits to a small number of Ministry schools in 2001 with the results from the sample included in the current study. In some cases, we derived additional information from teachers who had attempted to introduce or had introduced new practices in Ministry schools. QNEDS data were also instructive for understanding the attitudes and practices of Ministry school teachers.

It was recognized at the outset that Ministry schools had few incentives to change. Change of any sort is difficult within an established system, and the obstacles were perhaps even greater in this case because the Ministry, not the Ministry schools, had always made all decisions about curriculum, personnel, instructional practices, and daily operations. Moreover, the policy directive stating that all Ministry schools would be converted to Independent schools further inhibited the desire to initiate immediate improvements.¹ Indeed, we found little evidence of change. While some Ministry school teachers reported taking advantage of training opportunities offered by the Education Institute’s Professional Development Office, many said that they could only rarely incorporate what they had learned into their classroom practices. Similarly, Ministry school teachers often indicated that although they were aware that their students had individual learning needs, they could not accommodate them because of the large number of students in their classes and the demands of the Ministry curriculum, which valued carrying out lessons as scheduled over meeting students’ learning needs. Many Ministry school teachers were aware of the new curriculum standards but thought that they could not be implemented given the prescriptions of the Ministry curriculum. Finally, with respect to innovations in pedagogy, classroom practice data from the Ministry schools included in the study sample indicate little movement from the teacher-centered, traditional practices that have long typified instruction in Ministry schools.

¹ This policy was affirmed in an Emiri decree issued in April 2009.

Recommendations to Strengthen the Reform

In response to the third question that guided our study—What strategies should the SEC consider to promote the success of the reform?—we offer here recommendations, which, if implemented, may help to strengthen the reform in the future. These recommendations are based on the material we have presented and thus focus on school-level change and the QCEA. System-level recommendations have been discussed with the SEC. In many cases, new programs and initiatives are already under way to address system issues, partly as a result of the SEC-wide strategic planning process.

The recommendations are aggregated into three categories:

1. The functioning of the reform system
2. Entities and individuals that participate in the system
3. The student assessment system.

Reform System Functioning

The first set of recommendations relates to the functioning of the reform system, with special emphasis given to the policy development process and the system's priorities, goals, and incentives.

Policy Development Process. For such a young reform, the number of policy changes that have directly affected the Independent schools has been substantial. Many of the changes were motivated by important considerations that arose as the implementation process unfolded. However, frequent policy changes can produce a climate of uncertainty and may reduce motivation and efforts to innovate, particularly if risk-taking is required. The reform would benefit from greater stability in this regard. One suggestion for ensuring policy continuity is that a formal assessment of a policy's short- and long-term effects on system performance be required before the policy is enacted.

Priorities, Goals, and Incentives. Because the priorities of some goals, such as operator autonomy, have changed since the reform's inception, it is important that the full set of goals motivating the reform be articulated and that the roles of all those that will participate in implementing and supporting the goals be clarified. It would also be

helpful to clarify where goals may be or have proven to be in conflict. Wherever possible, it would be advisable to try to eliminate the conflicts in goals or to at least articulate the inherent tensions. In particular, policymakers may want to clarify the overall role that Qatarization will play in the reform. The tension between Qatarization goals and operator autonomy and student achievement goals might be reduced by considering how to improve the capacity of the Qatari teaching workforce and how to motivate skilled Qataris to enter and remain in the classroom. The SEC’s recently adopted strategic planning process provides an excellent forum in which to articulate goals and clarify roles.

To support the goals, the system would benefit from better monitoring and improved evaluation of process and results. The QNEDS data offer many opportunities for monitoring and evaluation; they could be used for these purposes with a modest additional investment in systems and processes that turn data into actionable information.

Participants in the System

Many of the recommendations involving the entities and individuals that participate in the reform system suggest that strategies should be adopted that address stakeholder concerns and, at the same time, preserve to the greatest degree possible the autonomy of schools, teachers, and parents.

Operators and Schools. The primary role of the Independent schools and their operators is to provide high-quality educational services to students and their parents. The reform promised operators considerable autonomy in fulfilling this role, but some autonomy has been lost because of policy changes designed to promote other priorities and concerns. This role of providing high-quality educational services could be enhanced in several ways. The reform should maintain Independent school autonomy by reaffirming the principle that schools have decisionmaking authority except in certain cases that are carefully defined in the operating agreement. In exchange for this autonomy, Independent schools will need to take more responsibility for improving student outcomes.

The SEC should encourage innovative programming in schools and develop a transparent process that allows surplus funds to be used to enhance educational programs. As discussed in Chapter Four, selection and use of textbooks have been an ongoing source of concern. At the time of this study, the Education Institute was publishing lists of curriculum materials supportive of the standards. RAND encourages the Institute to continue to develop this list while allowing schools some opportunity to choose and justify the use of alternative materials.

Even though Independent schools were found to be doing better than Ministry schools in attending to student needs and teaching in new ways, our data made it clear that Independent schools could be doing much more—for example, helping teachers to align classroom practices with the curriculum standards, to understand and enhance the small-group process, and to develop English-language skills. One way to support more-innovative teaching and to build teacher skills is to use SSOs beyond the first year of an Independent school's operation. The Education Institute also should examine SSO performance to ensure that the services provided are building capacity in the most effective way.

The SEC should consider supporting greater diversity in high-quality school operators by promoting partnerships between Qatari institutions—especially businesses—and the education sector. Involving these organizations in Independent schools will promote variety and choice, as will the new voucher system and the Outstanding Schools initiative. As another possible way to increase diversity and quality, the SEC may want to revisit the decision to require school operators to be both Qatari nationals and principals.

The rich data included in the current school report cards offer several opportunities to improve schools. Developing a simplified composite index of performance that ranks schools according to student performance and perhaps other valued outcomes would make school performance more transparent for parents and might also motivate healthy competition among schools. In addition, such an index could be used to offer bonuses from the SEC to school leaders and teachers; funds from that pool could also be used for school-improvement programs.

Teachers and the Teaching Profession. Independent school teachers have been working very hard, and they need more recognition for their success. At the same time, they need more help in improving the quality of instruction, particularly in integrating content with help to students in acquiring higher-order thinking skills. Teachers also need help in learning how to use information and communications technology resources in more innovative ways.

The quality of instruction might also benefit if excellent teachers were offered incentives to stay in the classroom instead of being rewarded with administrative positions. The Education Institute’s new professional standards for teachers could be used to develop a ladder of proficiency levels that teachers could climb that would reward them for success in the classroom. Such a ladder would highlight the key skills that teachers must develop. The SEC could then support the development of these skills through professional development and other activities throughout teachers’ careers.

There is a need for Independent school teachers to be fluent in English, especially when it is the language of instruction for both mathematics and science. At the end of academic year 2006–2007, the Independent schools were directed to spend surplus funds on English instruction for teachers. As a result, nearly 1,000 Qatari teachers had the opportunity to spend time in an English-speaking country, which is an excellent way to improve language proficiency. Additional programs like this are needed to continue developing school staff’s English-language capacity.

Many challenges hinder the recruitment of qualified Qatari teachers. The SEC may want to conduct a comprehensive assessment of the teaching profession that recognizes these barriers and articulates clear strategies for overcoming them. The challenges can be addressed in part by raising the status of teaching in general. Other adjustments may also be required (some of which are already under way) to provide more security in contractual, legal, and retirement benefits for Qatari teachers. The strategy should include ways to encourage and reward Independent schools that develop and employ innovative measures, such as flexible schedules and job sharing, that accommodate family responsibilities, especially those of teachers with families.

Students. Students are at the center of the Independent school education process, and all of the recommendations presented here focus on ways to benefit students directly or indirectly. The original reform design expected that incentives for good operator performance would lead operators to develop incentives for students to perform well. Indeed, some operators have done that. But there have been continuing concerns about student motivation. Therefore, the SEC should develop more-specific incentives for individual students to do well. It could, for example, revise the testing system so that there are consequences for individual students. With a suitably redesigned QCEA in place, schools would, for instance, be able to consider student scores in making decisions about student promotion and retention.

In several of RAND's focus groups and interviews, participants were concerned that some Independent schools were not expelling students who were chronically truant or who behaved or performed poorly because the schools' operators wanted to continue to collect the per-pupil allocation. It would be helpful to students, parents, and schools for the SEC to include in its contracts with Independent schools obligations to develop and implement clear policies on attendance and performance expectations for continued school enrollment.

Parents. The reform's primary roles for parents are to make informed choices about where to send their child to school, to pressure school administrators and staff to provide a high-quality education, and to directly support their child's learning. The reform should adopt approaches that encourage schools and teachers to support parents in fulfilling these roles. One strategy is to include a measure of parent engagement in the proposed composite performance index (described above). In addition, the goals for parent engagement that are already set in each school's operating agreement should be monitored, and rewards or sanctions should be applied based on how well a school has met these goals. Focused professional development for school leaders and teachers could improve their skills and strategies for engaging parents. Workshops for parents could address existing barriers that inhibit parent participation—for example, the inability to interpret school report cards or to help their children with homework based on a new curriculum that employs English as the language of instruction in some subjects.

Although it would require a major effort, helping parents improve their fluency in English would not only increase their engagement with the Independent schools, but would also provide them with a skill that has important personal and societal benefits, particularly in Qatar’s growing private labor market.

Student Assessment System

Student assessment is at the heart of the reform: QCEA results were designed to inform parent choice and promote school improvement. Test score results from 2006 suggest that the reform’s goal of improved student achievement was being met. When we controlled for background characteristics, we found that Independent school students performed better than did Ministry school students. These findings make sense for a number of reasons and suggest that the QCEA is measuring real differences. Although we could not link instructional practices to student outcomes, we did find that Independent school teachers were substantially more likely than their Ministry counterparts to engage in classroom practices associated with better student outcomes. Independent school teachers received more professional development and mentoring, and those efforts focused on non-traditional classroom practice. Independent schools had substantially fewer students in each classroom, which allowed teachers to engage in less-traditional practices and to more effectively respond to individual student needs.

At the same time, our student achievement analyses pointed to a number of assessment system issues that deserve attention. The importance of the language of assessment in the relative achievement of Independent and Ministry school students points to a need to more carefully consider policies and practices around the language in which students are tested. Students generally were assessed in mathematics and science in the language in which they had been taught these subjects. This approach seems logical on its face but may be inappropriate for the early years of the reform. Many students in generation I and II schools had been studying English for only brief periods when they were assessed, so their ability to both comprehend and respond to ques-

tions was inadequate for demonstrating what they may have known.² Moreover, instruction in English in some Independent schools had not been fully implemented. In some cases, the widespread use of Arabic that our curriculum experts observed in Independent school mathematics and science classrooms reflected teachers' awareness that students were insufficiently proficient in English to grasp key concepts. In other cases, teachers themselves lacked English proficiency and resorted to Arabic to get substantive points across.

Until all students begin English studies in kindergarten or grade 1, it may be advisable for language-of-assessment decisions to be reached on a case-by-case basis. Language development examinations could be used to determine each student's appropriate language of assessment.

Continued assessment of students in all types of schools will improve the system's power going forward. As students are assessed over time, their progress can be assessed against their own past performance, eliminating the problem of selection bias inherent in these early data.

As discussed above, we recommend that the QCEA, which at the time of our study did not connect performance with consequences for individual students, be revised so that it does. With an adequately revised QCEA, schools could, for example, consider student scores, along with their school-level performance, in deciding student promotion and retention. This would likely help overcome students' lack of motivation to do their best—a widely reported problem with the current QCEA system.

Conclusions

The reform has achieved important successes in its early years. The fundamental components and mechanisms have been put in place, and new Independent schools have been opening every year. Independent schools have been showing clear progress in applying new student-

² Such studies as that of Hofstetter, 2003, suggest that it may take as long as seven years for non-native speakers to become fluent English speakers.

centered curriculum and teaching methods. Early test score data indicate improved student outcomes overall after possible differences in the background characteristics of Independent school students and parents are considered.

The reform has also encountered challenges. Policy changes have undermined key goals and reduced transparency. An alignment of the multiple goals and fewer policy changes can help the reform as it moves forward.

At the time of our study, all Ministry schools were expected to convert to Independent status within a few years. This transition offers an opportunity to provide training and development to teachers and administrators currently in Ministry schools so that they are prepared to assume new functions in the Independent school system. In addition, both the consolidation of SEC and Ministry functions and the SEC-wide strategic planning process offer excellent opportunities to elaborate on and implement many of our recommendations, some of which are already under way.

Qatar has invested very substantial financial and human resources in its K–12 education reform, and that investment has begun to pay off. The changes that will take place during the next phase offer important opportunities to strengthen the reform process and promote positive outcomes. With a concerted effort to identify weaker elements and strengthen them, the reform can achieve its vision of improving education for all students in Qatar.

APPENDIX A

Summary of Classroom Observations

Table A.1
Summary of Classroom Observations and Interviews at Case Study Schools

Round and Type of School	Number of Schools Visited	Classroom Observations	Post-Observation Teacher Interviews	Principal/Operator Interviews	Interviews with Other School Staff	Teacher Focus Groups	Student Focus Groups	Parent Focus Groups	School Board Member Interviews
Round 1 (Nov/Dec 2005)									
Boys Independent	4	12	10	7	0	4	2	3	0
Boys Ministry	4	12	11	4	0	4	0	1	NA
Girls Independent	3	8	8	3	0	3	2	2	0
Girls Ministry	4	12	12	3	0	2	0	1	NA
Round 2 (Feb 2006)									
Boys Independent	4	12	12	4	2	6	0	0	0
Boys Ministry	4	11	8	4	0	5	0	0	NA
Girls Independent	4	12	10	6	0	6	0	0	0
Girls Ministry	4	12	11	3	0	6	0	0	NA
Round 3 (Apr 2006)									
Boys Independent ^a	4	12	11	7	4	6	1	0	1
Boys Ministry ^a	4	2	2	7	0	5	0	0	NA
Girls Independent ^a	4	9	9	8	3	3	1	0	4
Girls Ministry	4	0	0	4	0	0	0	0	NA

Table A.1—continued

Round and Type of School	Number of Schools Visited	Classroom Observations	Post-Observation Teacher Interviews	Principal/Operator Interviews	Interviews with Other School Staff	Teacher Focus Groups	Student Focus Groups	Parent Focus Groups	School Board Member Interviews
Round 4 (Sep 2006)									
Boys Independent	6	18	18	6	0	6	0	0	0
Boys Ministry	2	6	6	2	0	1	0	0	NA
Girls Independent	6	18	18	5	2	6	0	0	0
Girls Ministry	2	6	6	2	0	2	0	0	NA
Round 5 (Nov 2006)									
Boys Independent	6	0	0	6	18	0	0	0	0
Boys Ministry	2	0	0	2	0	0	0	0	NA
Girls Independent	2	0	0	2	6	0	0	0	0
Girls Ministry	1	0	0	1	0	0	0	0	NA
Round 6 (Jan 2007)									
Boys Independent ^a	4	9	9	4	4	4	0	0	0
Boys Ministry ^a	1	3	3	1	1	1	0	0	NA

Table A.1—continued

Round and Type of School	Number of Schools Visited	Classroom Observations	Post-Observation Teacher Interviews	Principal/Operator Interviews	Interviews with Other School Staff	Teacher Focus Groups	Student Focus Groups	Parent Focus Groups	School Board Member Interviews
Round 7 (Apr 2007)									
Boys Independent ^a	1	2	2	1	1	1	0	0	0
Boys Ministry ^a	2	4	4	2	1	2	0	0	NA
Girls Independent ^a	2	6	6	2	2	2	0	0	0
Round 8 (May 2007)									
Boys Independent ^a	5	11	11	5	5	5	0	0	0
Girls Independent ^a	5	7	7	5	5	5	0	0	0
Round 9 (May 2007)									
Boys Independent	4	0	0	4	4	4	1	2	0
Boys Ministry	1	0	0	1	1	1	0	0	NA
Girls Independent	4	0	0	4	4	4	1	2	0
Girls Ministry	1	0	0	1	1	1	0	0	NA
Total	104	204	194	116	64	95	8	11	5
Total Independent	68	136	131	79	60	65	8	9	5
Total Ministry	36	68	63	37	4	30	0	2	0

NOTE: NA = not applicable.

^a Subject-matter experts conducted classroom observations.

Student Achievement Model

This appendix offers additional detail on the student achievement model and findings to supplement the discussion in Chapter Seven. We provide descriptive information on the students included in the analyses, review the challenges of the achievement model, and describe the model we selected, and then present the results obtained with the model.

School Descriptives

Tables B.1 and B.2 provide descriptive information on the students that we included in our analyses: the demographics of students enrolled in the Independent, Ministry, and private Arabic schools, and unadjusted mean scale scores for student background characteristics and school type.

Challenges in Modeling Achievement Using the QCEA

One of the main challenges in using the QCEA was that there were only two years (2005 and 2006) of data for which the assessments were based on the national curriculum standards and in which all schools (Independent, Ministry, and private Arabic) were assessed. Our analyses therefore examined the performance of students in Independent and Ministry schools in academic year 2005–2006 while controlling for students' academic achievement scores in the prior year,

Table B.1
Demographics of Students Enrolled in Independent, Ministry, and Private Arabic Schools

	Ministry Schools (N=8,204)	Generation I Independent Schools (N=1,672)	Generation II Independent Schools (N=1,526)	Private Arabic Schools (N=1,800)
Demographic Characteristics	Percentage			
Qatari	60.5	80.0	68.2	56.3
Non-Arabic speaker	4.4	1.0	5.0	1.0
Male	49.1	47.5	40.8	77.2
Special need	1.8	0.8	1.6	0.3
Father not secondary graduate	44.2	20.6	40.7	22.4
Father secondary graduate	20.3	19.3	19.2	20.6
Father some college	9.4	10.7	10.1	14.8
Father with bachelor’s	20.7	38.3	23.9	33.3
Father with master’s or higher	5.3	11.1	6.2	8.8
Mother not secondary graduate	48.0	17.6	41.9	23.2
Mother secondary graduate	22.8	20.3	21.9	28.2
Mother some college	6.8	8.0	6.9	8.6
Mother with bachelor’s	20.7	50.8	27.8	37.3
Mother with master’s or higher	1.7	3.9	1.5	2.2
Low expenditure on education (<500QR)	18.8	12.4	15.7	4.0
Medium expenditure on education (501–2000QR)	54.4	46.4	55.0	13.4
High expenditure on education (>2000QR)	26.7	41.2	29.3	82.6
Prior Academic Experience	2005 Mean Scale Score			
Mathematics	414.74	448.10	425.20	420.87
Science	484.16	524.56	492.73	478.15
Arabic	452.41	482.63	462.42	453.04
English	478.30	521.38	483.73	485.62

Table B.2
Unadjusted Mean Scale Scores for Student Background Characteristics and School Type

	Unadjusted Mean Scale Scores							
	Arabic		English		Mathematics		Science	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Qatari	465.55	54.68	477.09	65.86	463.39	83.35	485.67	65.74
Non-Qatari	483.93	52.00	485.17	61.02	485.38	77.91	511.65	61.46
Arabic speaker	473.09	54.02	480.18	64.21	472.23	81.92	495.66	65.21
Non-Arabic speaker	450.83	60.48	478.10	64.21	453.42	83.76	477.48	69.12
Male	461.04	56.49	468.73	66.99	457.19	85.91	483.48	70.61
Female	484.37	49.36	492.00	58.87	486.55	74.95	506.84	57.32
Special need	434.28	71.14	463.77	65.86	439.30	85.09	458.82	70.11
Non-special need	472.90	53.91	480.35	64.16	472.10	81.90	495.68	65.17
Father not secondary graduate	454.64	57.44	460.88	67.31	448.72	83.35	476.86	66.35
Father secondary graduate	472.75	51.42	481.82	61.82	470.38	79.93	496.14	63.63
Father some college	482.14	47.34	491.19	58.00	484.67	78.80	505.95	62.09
Father with bachelor's	489.70	47.93	497.48	57.65	494.60	74.89	512.01	61.22
Father with master's or higher	490.60	47.32	499.05	56.88	494.33	77.40	511.28	60.31

Table B.2—continued

	Unadjusted Mean Scale Scores							
	Arabic		English		Mathematics		Science	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Mother not secondary graduate	456.86	57.58	462.03	66.80	452.30	83.33	479.32	66.22
Mother secondary graduate	475.48	51.03	481.72	62.01	474.25	80.80	500.59	63.42
Mother some college	490.06	47.35	498.48	52.67	486.77	79.73	511.77	62.13
Mother with bachelor’s	486.22	48.08	498.02	58.14	491.00	75.66	507.42	62.18
Mother with master’s or higher	489.81	50.73	502.75	57.64	497.08	79.22	509.21	63.08
Low expenditure on education (<500QR)	466.64	57.49	477.35	63.48	463.99	83.02	491.41	63.93
Medium expenditure on education (501–2,000QR)	474.23	54.93	480.19	64.23	474.29	81.46	499.42	65.24
High expenditure on education (>2,000QR)	472.19	52.20	481.20	64.50	471.18	82.23	491.05	66.00
Ministry	467.26	55.42	470.12	64.80	464.11	80.76	492.06	63.89
Generation I	492.95	46.89	523.36	45.68	504.26	82.10	495.63	69.76
Generation II	478.33	53.53	488.08	59.84	476.34	82.56	515.96	64.38
Private Arabic	470.93	52.11	477.82	62.44	471.38	79.78	488.99	65.53

2004–2005. Ideally, we would need at least three years of assessment data to be able to establish a trajectory growth of student learning and measure the effects of cumulative exposure to the reform (Rogosa, 1995). With two years of assessment data, we had less power to identify significant effects.

A second main challenge was that of aligning student scores in the four subjects. English and Arabic tests for grades 4 through 11 were vertically aligned, meaning that student scores across grades were comparable. This was not the case for mathematics and science. It was possible to vertically align the English and Arabic tests because they assess fundamental skills of language development: reading, writing (grammar), and listening. However, the test developers found that mathematics and science were too subject specific to allow for this kind of linking. As students move to higher grade levels, assessments in mathematics and science become more specialized and narrower in scope, making it difficult to compare student achievement across school levels. Thus, it becomes problematic to combine students in the primary, preparatory, and secondary levels in the same analyses. Furthermore, students at different school levels experience different school structures, processes, and mechanisms.¹ We thus decided to use only primary school students in our analyses.² Students' primary grade levels were also included in our analysis to control for student developmental and grade-level curriculum differences in addition to practice effects. We were unable to perform the same analyses for each of the preparatory and secondary school levels because so few Independent schools were operating at those levels.

A third challenge that arose in relation to the national assessments was the fact that a considerable number of students received the lowest obtainable scale score (LOSS) on the national exams. Such scores are

¹ For example, Ministry and Independent primary schools were more likely to have self-contained classrooms than were the higher-level schools.

² Students enrolled in grades 4 through 6 in 2005–2006 were included in the analyses pertaining to mathematics, Arabic, and English, whereas students in grades 5 and 6 were included in the analysis pertaining to science. This is because grade 4 students had not been tested on science in the previous year, which meant we had no information on their prior academic achievement in science to use as a statistical control.

so low that they can be roughly characterized as performance consistent with guessing. Of the 13,000 primary school students included in our analyses, more than 4,000 of them received a LOSS (or what the literature refers to as *left-censored cases*). Including these scores in the analysis would have biased the results, since the variability that exists in these students’ academic ability is not reflected in these scores. However, excluding this group of students from the analysis meant that our findings would be biased by the omission of a significant number of students likely to be performing at a lower level than their peers. Furthermore, the fact that the QCEA scale has a LOSS, or a cutoff point, raised the concern that other parts of the QCEA scale might not be of equal intervals, possibly resulting in a more complex relationship (a non-linear relationship) between student assessment scores and other predictors.

Finally, we faced a challenge in using certain QNEDS database links. Although information is collected on each individual teacher through annual surveys, and QNEDS maintains internal links between individual students and teachers, we were unable to access these links because of software limitations. Instead, we aggregated teacher-level information on characteristics and qualifications to the school level so that we could relate this information to student achievement data and use it in the statistical model. Aggregation to the school level does, however, result in loss of variation within the teacher-level variables, reducing their power to predict outcomes. This limitation did not apply to the parent information, because we were able to link individual student and parent data. We linked information from parents on background characteristics and school involvement to individual children.

Model

We used a censoring regression model, i.e., interval regression, to assess the association between type of school and student attainment in mathematics, science, Arabic, and English. One of the advantages of this procedure is that it corrects for the fact that the lower end of the QCEA scale is censored. This statistical procedure utilizes all student observa-

tions, including those for students with LOSSs, to estimate a regression line. The regression line is approximated after adjusting for the 2006 scores for LOSS students based on other relevant student information and predictors included in the model. To adjust for students with 2005 LOSSs, we set up a dummy variable that identified them and used it as a statistical control in our analysis.³ Since students were nested within schools, we accounted for variations at both the student and the school level to correct the standard errors resulting from the lack of independence of test scores of students within the same school.

Initially, we treated the 2006 LOSSs as a censoring cutoff point in our interval regression modeling. That is, we hypothesized that students' unmeasured true score was below the LOSS. However, preliminary results from the interval regression model contradicted our assumption. The model estimated the LOSS students to have an average proficiency level that was "higher" than the LOSS they had been given. In fact, we found that the estimated scores for LOSS students were not far below the average assessment scale scores at their grade level. That was true for the four subject content areas. This finding suggested to us that factors other than student ability contributed to the LOSSs. One factor may be lack of student motivation to do well on the exams, a likely explanation according to school staff we interviewed. Another factor could be that some Ministry schools do not teach the content of the QCEA, in which case their students would have had little opportunity to learn what was needed to perform well on the exam.

In response to this finding, we reset the cutoff point of the LOSS students to the average scale score. In doing so, we readjusted LOSS students' unmeasured true score so that it was closer to the average scale score of their grade level rather than below the LOSS. The adjustment provided a more realistic approximation of students' true ability.

³ We also set up a dummy variable that divides up the students into quartiles based on their 2005 scale scores and used it as a statistical control to capture non-linear relationships between predictors and outcome since we were concerned that the QCEA scale was not of equal intervals or continuous. The variable was dropped since it did not improve our modeling specifications indicating that linear modeling is sufficient to estimate appropriately the relationships between predictors and outcomes.

The interval regression procedure was used once more to re-estimate the strength of the relationship of school type with student achievement, but this time with LOSSs adjusted to the mean.⁴

The findings of these analyses should be interpreted with caution. The interval regression procedure assumes that the data are a random sample from a normal population and that all cell variances in the population are the same. A test of the normality and the homogeneity of the variance assumption showed that these assumptions were not fully met.⁵

Indicators Included in the Analyses

In predicting student achievement in each of the four content areas, 14 variables were entered into the censoring regression equations to isolate as much as possible the effect of school type on achievement. The student and teacher characteristics accounted for in our statistical model were

- Student academic achievement in 2004–2005
- Student grade level
- Indicator for whether student received LOSS in 2004–2005
- Language in which student took mathematics and science assessments
- Student nationality (Qatari/non-Qatari)
- Student home language
- Student gender
- Whether the parent reported that the child has special needs
- Parent involvement with school
- Parent involvement with homework
- Parent discussions with students on school-related issues
- Mother’s education
- Father’s education

⁴ Both model specifications—using the LOSS or the grade-level average scale scores as the cutoff point—resulted in similar findings.

⁵ Violation of the homogeneity assumption might lead to an underestimation of the standard errors and thus cause insignificant relationships to appear significant.

- Parent report on how much time student spends doing homework
- Teacher's education level
- Teacher's years of experience.

Once these variables were statistically controlled, the relationship between school type and student progress in academic achievement could be examined.

Results

Table B.3 presents the results of the model for each of the four subjects, showing the effect sizes, the coefficient in scale score points, and an indicator of statistical significance. Effect sizes are simply the coefficients divided by the individual standard deviation for that subject; they therefore convey the same information.⁶ The higher the effect size (in absolute value), the more powerful the relationship between the independent and dependent variables. Next to each effect size is the regression coefficient for each variable, indicating the amount of change in student achievement for each one-standard-deviation change in the continuous variables and one-unit change for the indicator or categorical variables. The asterisks indicate the statistical significance (p-value) for each variable.

⁶ To calculate the effect sizes, we first imputed the LOSSs of the 2005–2006 assessments. We then averaged the standard deviation of the 2005–2006 assessments (which includes the new imputed values for LOSSs) for each of grades 4, 5, and 6. We next divided the standardized regression coefficient of each of the independent variables obtained from the interval regression statistical procedure by the average standard deviation of the 2005–2006 assessments. This was done separately for each subject.

Table B.3
Test Score Model Results

	Arabic (N=13,202)		English (N=12,803)		Math (N=13,008)		Science (N=8,731)	
	Effects	Coeff	Effects	Coeff	Effects	Coeff	Effects	Coeff
Student Characteristics								
Qatari (vs. non-Qatari)	-0.13	(-9.27)***	-0.04	(-2.18)***	-0.12	(-9.44)***	-0.16	(-9.84)***
Non-Arabic home language (vs. Arabic)	-0.14	(-8.69)***	0.07	(3.39)*	-0.10	(-7.61)**	-0.18	(-11.20)***
Male (vs. female)	-0.18	(-11.02)***	-0.13	(-6.78)***	-0.15	(-11.38)***	-0.17	(-10.81)*
Special needs	-0.19	(-11.96)***	-0.09	(-4.61)*	-0.10	(-7.86)**	-0.23	(-14.48)***
Hours spent on homework per day (0=<1, 1=>1)	0.02	(1.16)	0.03	(1.37)*	0.02	(1.28)	0.05	(3.22)*

Table B.3—continued

	Arabic (N=13,202)		English (N=12,803)		Math (N=13,008)		Science (N=8,731)	
	Effects	Coeff	Effects	Coeff	Effects	Coeff	Effects	Coeff
Family Characteristics								
Father education level (vs. college graduate)								
Primary/preparatory	-0.15	(-9.37)***	-0.1	(-5.00)***	-0.12	(-9.50)***	-0.18	(-10.92)***
Secondary	-0.06	(-4.00)**	-0.02	(-1.02)	-0.08	(-5.79)***	-0.08	(-4.93)*
Some college	-0.04	(-2.23)	0.00	(0.07)	0.00	(0.09)	-0.07	(-4.40)
Bachelor's	0.01	(0.44)	0.02	(0.88)	0.01	(1.10)	-0.01	(-1.11)
Mother education level (vs. college graduate)								
Primary/preparatory	-0.14	(-8.61)***	-0.12	(-6.18)***	-0.12	(-9.16)***	-0.12	(-7.64)**
Secondary	-0.08	(-5.26)*	-0.08	(-4.14)***	-0.06	(-4.91)	-0.04	(-2.31)
Some college	-0.05	(-3.32)	-0.01	(-0.65)	-0.06	(-4.74)	-0.01	(-0.56)
Bachelor's	-0.04	(-2.30)	-0.02	(-0.88)	-0.01	(-0.65)	-0.02	(-1.13)

Table B.3—continued

	Arabic (N=13,202)		English (N=12,803)		Math (N=13,008)		Science (N=8,731)	
	Effects	Coeff	Effects	Coeff	Effects	Coeff	Effects	Coeff
Parent Involvement in Child's Education								
Involvement in school events (no. of events)	0.00	(-0.18)	-0.02	(-0.78)**	0.00	(-0.07)	-0.01	(-0.66)
Involvement in homework	-0.05	(-3.16)***	-0.03	(-1.48)***	-0.03	(-2.65)***	-0.05	(-3.61)***
Discussion of academics- related issue with child	0.01	(0.36)	0.00	(-0.17)	0.00	(-0.20)	0.01	(0.69)
Parent Expenditure on Education per Year (vs. >2,000QR)								
Low expenditure (<500QR)	-0.01	(-0.48)	0.03	(1.38)	-0.01	(-0.59)	0.00	(0.40)
Medium expenditure (501–2,000QR)	0.02	(1.21)	0.02	(0.82)	0.03	(1.95)	0.02	(1.38)
Teacher Characteristics								
% of teachers with at least a bachelor's	0.00	(-0.05)	0.00	(-0.03)	0.00	(0.28)	0.03	(1.78)
Average years of teaching experience	0.02	(1.28)	0.00	(-0.03)	0.00	(0.04)	0.03	(1.88)

Table B.3—continued

	Arabic (N=13,202)		English (N=12,803)		Math (N=13,008)		Science (N=8,731)	
	Effects	Coeff	Effects	Coeff	Effects	Coeff	Effects	Coeff
School Type (vs. Ministry)								
Generation I								
Assessment in Arabic	0.15	(9.45)**			0.25	(19.27)*	0.25	(15.56)**
Assessment in English ^a			0.33	(17.11)***	0.17	(12.73)	-0.58	(-36.37)***
Generation II								
Assessment in Arabic	0.10	(5.73)**			0.09	(6.67)	0.40	(25.20)***
Assessment in English ^b			0.14	(7.36)***	-0.15	(-11.46)**	-1.00	(-64.87)***
Private Arabic	0.00	(0.05)	0.03	(1.75)	0.04	(3.70)	0.04	(2.75)

***p = .00 **p ≤ .01 *p ≤ .05

NOTE: Interval regressions (see text for methodology) also controlled for prior achievement score, student grade level, and whether the score represented a LOSS.

^a About 60 percent of generation I students took the math and science assessments in the English language.

^b About 7 percent of generation II students took the math and science assessments in the English language.

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