

QATAR EDUCATION STUDY 2015

School Facilities Report

Executive Summary Report, May 2016
Social & Economic Survey Research Institute (SESRI)
Qatar University, P.O. Box 2713, Doha, Qatar



Qatar Education Study 2015

School Facilities Report

Executive Summary Report

May 2016

Social & Economic Survey Research Institute (SESRI)

Qatar University

P.O. Box 2713, Doha, Qatar



About the Social and Economic Survey Research Institute

This report was prepared by the Social and Economic Survey Research Institute (SESRI), an independent research organization at Qatar University. Since its inception in 2008, SESRI has developed a strong survey-based infrastructure and provides high quality data that serves to inform and guide priority setting, planning, policy formulation and research in the State of Qatar.

The mandate of the Institute is to conduct survey research on economic, social and cultural issues that are of direct and vital significance to the development and welfare of Qatari society. Equally important, the Institute strives to build capacity within Qatar University (QU) in survey research methodology by serving as a platform for QU faculty and students to conduct their own research. Along those lines, the Institute offers training in survey research with special emphasis on topics of interest to the academic community and the Qatari society at large.

This report was prepared by:

Dr. Darwish Al-Emadi, Chief Strategy & Development Office, Qatar University.
Dr. Abdel Latif Sellami, LPI, SESRI, Qatar University.
Dr. Ahmed Al-Emadi, Dean of College of Education, Qatar University.

Reviewed by:

Dr. Hassan Abdulrahim Al-Sayed, Director of SESRI, Qatar University.
Dr. Linda Kimmel, Center for Political Studies, University of Michigan.
Dr. Erin Maureen Stepney, Senior Policy Analyst, SESRI, Qatar.
John Lee Pratt Holmes, Unit Head of CATI Operations, SESRI, Qatar.

Research Team:

Dr. Kien Trung Le, SESRI, Qatar University.
Rima Charbaji Elkassem, SESRI, Qatar University.
Marie Dieres Monplaisir, SESRI, Qatar University.
Noof Abdulhadi J H Al-Rakeb, SESRI, Qatar University.
Haneen B.K Alqassass, SESRI, Qatar University.

Data Collection:

Dr. Elmogiera Elawad, Survey Operations Manager, SESRI, Qatar University.
Saleh Ibrahim Ali and Mohamed Agied, Survey Operations Assistants, SESRI, Qatar University.
Anis Miladi, Information Technology Projects Manager, SESRI, Qatar University.
Isam M. Abdelhameed, Information Technology Projects Manager, SESRI, Qatar University.
Ayman Al-Kahlout, Information Technology Specialist, SESRI, Qatar University.

Visit <http://sesri.qu.edu.qa/> to see the online version of this report and summaries from current projects.

TABLE OF CONTENT

ACKNOWLEDGEMENTS	8
PREFACE	9
INTRODUCTION	12
SCHOOL FACILITIES	14
SCIENCE LABORATORIES	17
LIBRARY	22
SPORTS FACILITIES	25
THE CAFETERIA AND CATERING SERVICES	31
CONCLUSION AND RECOMMENDATIONS	36
APPENDIX: SURVEY METHODOLOGY	39

LIST OF FIGURES

Figure 1: “Excellent” Ratings for the Four School Facilities, by Independent School Students, Administrators, and Teachers in 2015	15
Figure 2: Evaluation of School Science Laboratories in Independent Schools by Students, Teacher and Administrators in 2015	18
Figure 3: Percent of Independent School Students Ratings for School Science Laboratories as “Excellent” in 2015	19
Figure 4 - Opinion of Independent Schools’ Students Who Rated Science Laboratories as “Excellent” in 2015	20
Figure 5 - Percent of Independent Schools’ Students Using Science Laboratories Two or More Times a Week, Students and Science Teachers Reports (in 2015)	21
Figure 6 - Quality of School Library Rated “Excellent” by Students, Teachers, and Administrators in 2015 (Independent and International Schools).....	23
Figure 7 - Percent of Students Using Library at Least Weekly, Reports from Students and Teachers in 2015 (Independent and International Schools)	24
Figure 8 - Evaluation of School Sports Facilities in Independent Schools Rated by Students, Teachers, and Administrators in 2012 & 2015	27
Figure 9 - Evaluation of School Sports Facilities in International Schools Rated by Students, Teachers, and Administrators in 2012 & 2015	28
Figure 10 - Evaluation of School Sports Facilities in Community Schools and Arabic Private Schools Rated by Students, Teachers, and Administrators in 2012 and 2015.....	29
Figure 11 - Percent of Independent Schools Offering Selected Sports Activities in 2012 & 2015	30
Figure 12: Rating the Prices of Food of School Cafeteria by Students, Teachers and Administrators in 2012 and 2015 (Independent Schools)	32
Figure 13 - Rating the food quality at the cafeteria by Students, Teachers, and Administrators in 2012 and 2015 (Independent Schools).....	33

LIST OF TABLES

Table 1: Numbers of Schools and Participants in the Qatar Education Study 2015.....	10
Table 2: “Excellent” Ratings for the Four School Facilities, by.....	16
Table 3: Evaluation of School Science Laboratories by Students, Teachers and Administrators in 2015 (Independent and Other Schools).....	18
Table 4: Percent of Students Using Science Laboratories 2 or More Times a Week in 2015, Students & Science Teachers Reports (Independent and other schools)	21
Table 5: Comparison between Independent Schools and Other Schools Regarding Price & Quality of Food in Cafeteria (2012 and 2015).....	35

ACKNOWLEDGEMENTS

The Social and Economic Survey Research Institute (SESRI) at Qatar University would like to extend appreciation and thanks to the following contributors and supporters:

The Ministry of Education and Higher Education¹
Center for Political Studies, Institute for Social Research, University of Michigan

SESRI is grateful to Dr. Ali Al-Kubaisi, Assistant Professor at SESRI, Amina Ahmed Al-Bloshi, Administrative Assistant at SESRI, Modhi Al-Hajri and Latifa Ali at Ministry of the Education and Higher Education.

Thanks are conveyed to the students, parents, teachers, and school administrators who spared some of their valuable time to take part in the survey and answer detailed questions on a variety of subjects important to the state of education in Qatar. Our thanks also go to the interviewers and supervisors who administered the fieldwork.

The opinions conveyed in this report are those of the authors and do not necessarily reflect the views of the Social and Economic Survey Research Institute (SESRI) or Qatar University. SESRI is responsible for any errors or omissions in this report, however.

Questions to be addressed to:
Social and Economic Survey Research Institute
Qatar University, New Library, 3rd Floor
P.O. Box 2713
Doha, Qatar
Phone: +974-4403-3020
Fax: +974-4403-3021
Email: sesri@qu.edu.qa
Web: www.sesri.qu.edu.qa
Social and Economic Survey Research Institute © 2016

PREFACE

This report is the second of three reports on preparatory and secondary education in Qatar entitled the Qatar Education Study (QES) 2015 and published by the Social and Economic Survey Research Institute (SESRI). The information reported here is based on the results from the QES 2015, a series of surveys conducted in October–November 2015. The report explores the views and opinions of students, teachers and administrators regarding the facilities available at preparatory (8th and 9th grades) and secondary (11th and 12th grades) schools in Qatar. In total, 3,994 participants representing 38 preparatory and secondary schools participated in the survey QES 2015 survey.

The following table is an overview of the numbers of schools and participants involved in the QES 2015:

Table 1: Numbers of Schools and Participants in the Qatar Education Study 2015

Total Number of surveyed schools	38 Schools	
	Independent Schools 24 schools	Other Schools 14 schools
Total number of surveyed students	1803 Students	
	Independent Schools 1108 students 604 Qatari 504 Non-Qatari	Other Schools 695 students 56 Qatari 639 Non-Qatari
Total number of surveyed Parents	1462 Parents	
	Independent Schools 856 parents 434 Qatari 422 Non-Qatari	Other Schools 606 parents 40 Qatari 566 Non-Qatari
Total number of surveyed teachers	495 Teachers	
	Independent Schools 373 teachers 54 Qatari 319 Non-Qatari	Other Schools 122 teachers 0 Qatari 122 Non-Qatari
Total number of surveyed school administrators²	234 Administrators	
	Independent Schools 153 administrators 95 Qatari 58 Non-Qatari	Other Schools 81 administrators 1 Qatari 80 Non-Qatari

This report provides an overview of the QES 2015 findings as they to school facilities and draws comparisons within and between groups of students, teachers and school officials. The schools included in the survey represent a cross-section of the major school types in Qatar, i.e., Independent schools as well as private (International & Community) schools offering both coeducational and single-gender programs. In addition, the report compares results of the 2015 QES cycle with those of the previous edition of the project, i.e. QES 2012³, in order to track any developments that may have occurred since carrying out the 2012 study⁴. In so doing, the report tries to shed light on important issues that may have arisen based on the perspective of students, teachers and administrators. The results given in this report will help to draw a picture of the current state of the facilities available at preparatory and secondary schools and to identify aspects of these facilities that require improvement.

The results reported here are intended to focus on four areas directly related to policy and decision-making:

- Science Laboratories
- The Library
- Sports Facilities
- The Cafeteria and Catering Services

We welcome any questions and comments that may be directed to sesri@qu.edu.qa

INTRODUCTION

In order to reach international standards in education, the leadership of Qatar has embarked on a bold course to improve its education system and has initiated a number of reforms in the education sector. One significant initiative has been the launch of Independent Schools in 2002 in an attempt to implement a decentralized system of education. According to this new initiative, government schools are financed by the state and have to comply with the standards, policies and systems mandated by the government, and each is nonetheless managed and run by an independent board that is specific to it. The reforms have led to significant improvements in the education sector in Qatar and, as a result, many Independent Schools now adhere to internationally benchmarked standards, offer learner-centered programs, and have qualified teachers and improved facilities.

Alongside Independent Schools, private sector schools also play an increasingly important role in providing education services in Qatar. The influx of a large expatriate workforce in Qatar has necessitated the creation of new schools and the presence of many foreigners in the country has generated demand for different curricula and syllabi. The need for private schools and other education facilities will continue to grow in Qatar, mainly due to increasing demand from a rapidly expanding expatriate population and the resultant preference of international curricula.

Because one of the aims of education is to ascertain students' learning, achievement, and progress, the learning process does not take place in a vacuum but rather in an environment that is structured to facilitate learning. The quality of school facilities can have a major impact on the education that students receive as they can profoundly influence learning outcomes. The presence or lack of quality school facilities and infrastructure at school can shape student performance and learning experiences, and without proper facilities and educational resources, teaching and learning may be greatly hampered.

Students, teachers and staff members are all affected by the school's physical environment⁵ for successful and enjoyable teaching and learning take place in a clean, safe and healthy school environment. Research shows that important factors to consider when looking at a school facility include age of the facility, capacity, size, etc.⁶ In Qatar, the Ministry of Education and Higher Education outlines guidelines stipulating that all educational programs, activities or services offered at Independent and other school facilities must meet the set requirements for a physical environment that is safe, secure and accessible⁷.

Following the Qatar Education Study (QES) survey conducted in 2012, the QES 2015 aimed to decipher the developments that may have taken place since 2012. Back in 2012, the QES was administered at a time when the National Development Strategy (NDS) and the Education and Training Sector Strategy 2011-2016 (ETSS)⁸ were in their early stages of execution. This makes the 2015 QES a study that is both timely and important to revisit and assess different aspects of schooling.

This report summarizes the key results from data gathered from the student, teacher and school administrator surveys comprising the following:

- a) a survey of students in Grades 8, 9, 11 and 12,
- b) a survey of teachers, and
- c) a survey of school administrators.

The survey questionnaire data are reported here for the study conducted in October–November 2015 involving large samples of Qatari and non-Qatari participants.

Structure of the Report

The report is structured as follows:

- a) Section One discusses the findings related to science laboratories,
- b) Section Two is focused on the results pertaining to the library,
- c) Section Three provides an overview of the results regarding sports facilities, and
- d) Section Four summarizes the findings regarding the cafeteria and catering services.

It is hoped that examining the views, perceptions and attitudes of different stakeholders will aid in developing future plans for education in Qatar. Therefore, recommendations that will inform policy are also included after the discussion of the relevant issues.

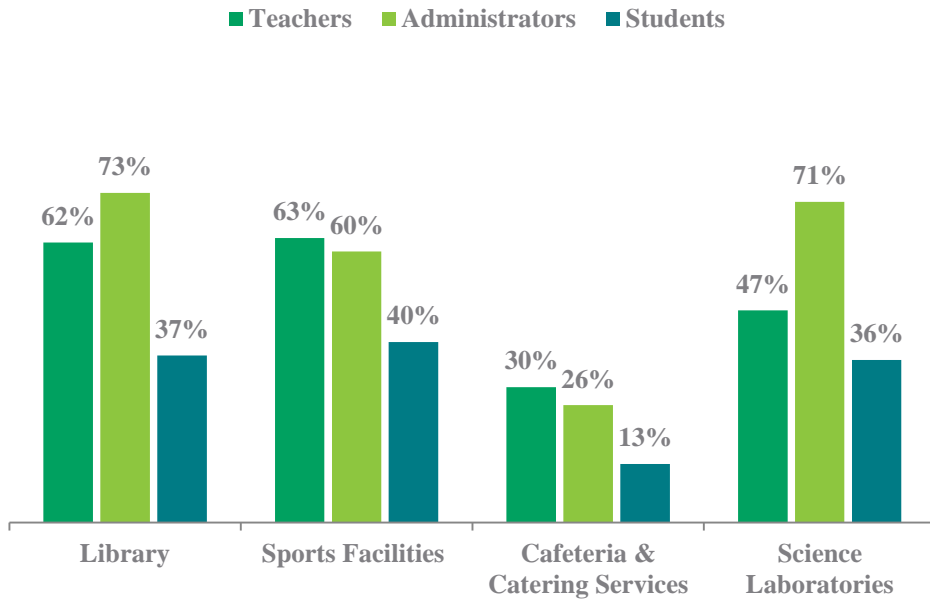
SCHOOL FACILITIES

Since the launch of the Education for a New Era initiative in 2002, Qatar has invested large amounts of money to develop its primary through secondary education system. In 2015 the total number of completed schools (K-12) in the country reached 500.⁹ In the QES 2015, students, teachers and administrators were asked about their perceptions of school facilities – science laboratories, the library, sports facilities as well as the cafeteria and catering services. To gain an informed understanding of students' perceptions of school facilities, these respondents were asked to evaluate the quality and sufficiency of the facilities.

In general, the results show that the three stakeholder groups (students, teachers and administrators) report more positive ratings of school facilities in Independent Schools, compared to those in other schools. Up to approximately 70% of all Independent School respondents rate the school facilities as excellent whereas the ratings fall to approximately 60% in the case of other schools.

Looking at facilities by type, results show that administrators' and teachers' ratings of the quality of food provided by the school cafeteria went up by 11% and 13% since 2012, respectively. The library was on average characterized as excellent by 57% of the three groups, followed by sports facilities (54%), science laboratories (51%) and then the cafeteria and catering services (23%). Therefore, it is fair to say that there have been some positive developments in the past few years but there is still room for improvement regarding the different types of facilities.

Figure 1: “Excellent” Ratings for the Four School Facilities, by Independent School Students, Administrators, and Teachers in 2015



In the 2012 cycle of the QES study, Independent School teachers and administrators showed a higher level of agreement, where both groups rated the school facilities as excellent in similar proportions. In the QES 2015, this was no longer the case since administrators appear to be much more likely to describe science labs as excellent than do teachers (71% and 47% respectively). This may be due to the direct experience of science teachers with science laboratories (see Figure 1). In contrast, Independent School students consistently appear to be the group the least likely to rate school facilities as excellent, with generally around 40% of students or less reporting this rating.

Table 2: “Excellent” Ratings for the Four School Facilities, by Independent School Students, Administrators, and Teachers in 2015 (Independent and other schools)

Items	Independent Schools %	Other Schools %
Sports Facilities		
Administrators	60	48
Teachers	63	28
Students	40	29
Library		
Administrators	73	47
Teachers	62	35
Students	37	24
Science Laboratories		
Administrators	71	55
Teachers	47	24
Students	36	24
Cafeteria Food		
Administrators	26	32
Teachers	30	13
Students	13	12

SCIENCE LABORATORIES

Cognizant of the importance of scientific research and capacity building as essential catalysts for the development and progress of the nation, Qatar has invested hefty amounts of money into promoting science as a necessary instrument for improving people's lives, the economy and society as a whole. Undoubtedly, Qatar's endeavors to shift into a knowledge-based economy require nurturing interest in science starting from the early stages of education and providing access to quality facilities that will in turn enable and foster such interest. Numerous initiatives have been introduced, especially at the primary, preparatory and secondary levels of education, and encouraging STEM careers has become an important target for the Education and Training Sector Strategy.

The Qatar National Vision 2030 (QNV 2030) identifies scientific research as one of its targets and measures progress in terms of increasing the numbers of science and math graduates (NDS, p. 143). Concomitantly, the knowledge that students gain in the classroom would be ineffectual if they do not observe the process of implementing the scientific method, critical thinking and problem-solving. Hence, the value of science labs is fundamental, for without quality labs students cannot engage critical actual science experiences that will encourage them to pursue a career in the knowledge economy. In short, it is imperative for schools to have high quality science lab facilities and equipment.

Qatar has thus introduced many channels to attract students to science fields and one of these paths entails Qatar Scientific Clubs (QSC). Recently, a cooperative venture between the QSC, the Ministry of Education & Higher Education, Ebticar for Digital Solutions Company and Boeing Company, led to a QSC-organized competition in manufacturing and innovation called "Sanne" targeting Qatari students aged 15 to 17 to promote learning science, technology, engineering and math. Four schools participated in the competition with 14 applicable inventions.¹⁰

In the QES 2015, students, science teachers and administrators were asked about the quality and sufficiency of science laboratories in Independent Schools. In general, administrators were the group most likely to rate science labs in Independent Schools as excellent, followed by teachers and students, respectively. Here, it should be noted that the QES 2015 revealed a large gap between the three stakeholder groups: 71% of administrators rated the quality of labs as excellent, compared to 42% of teachers and 36% of students who are also the prime users of these labs.

The 2015 results reveal there are no significant differences in the ratings associated with science laboratories based on the gender or nationality of the three groups (see Figure 2).

Figure 2: Evaluation of School Science Laboratories in Independent Schools by Students, Teacher and Administrators in 2015

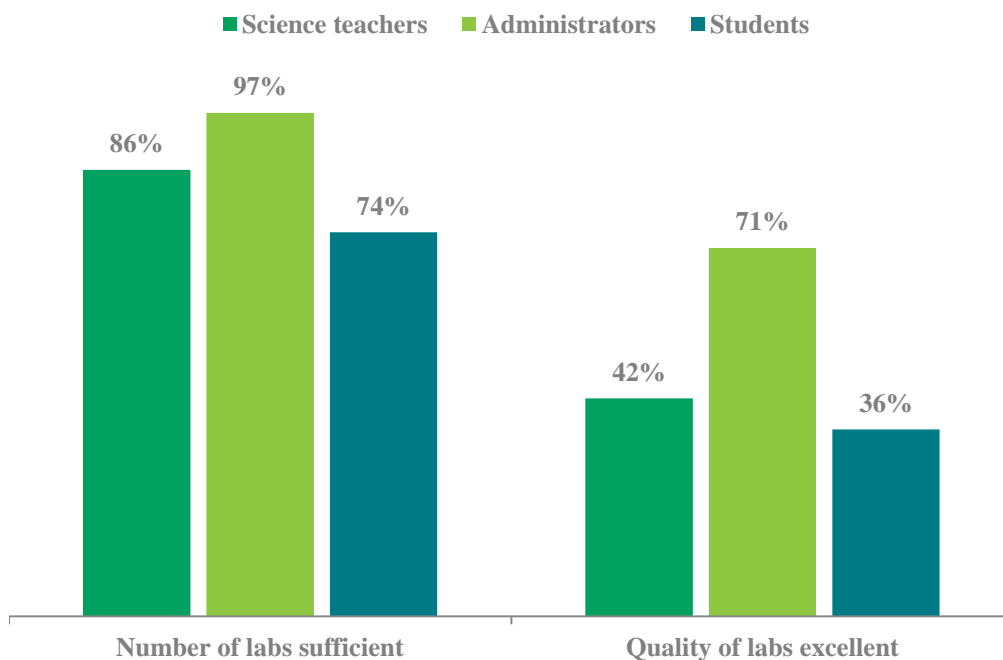


Table 3: Evaluation of School Science Laboratories by Students, Teachers and Administrators in 2015 (Independent and Other Schools)

Items	Independent Schools %	Other Schools %
Number of labs 'sufficient'		
Administrators	97	70
Science Teachers	86	71
Students	74	62
Quality of labs 'excellent'		
Administrators	71	55
Science Teachers ¹¹	42	30
Students	36	24

With regard to Independent School students' perceptions of science laboratories, there have been some positive changes in 2015, as Figure 3 shows. For preparatory and secondary grades, the 2015 ratings for science laboratories show about 40% or less of the students at both levels rating science labs as excellent.

When asked about their opinions regarding the statement, "I look forward to science classes", the results reveal that 58% of Independent School students who rate science labs as excellent strongly agree with the statement, revealing a significant 9% increase since 2012. This is in comparison to 8% of students who rate science labs as excellent and strongly disagree with the statement. In addition, with respect to the statement, "Science will be useful for my future", the proportion of students who rate science labs excellent, and strongly agree with the statement represent 66% of Independent School students in 2015. As such, there is a significant 4% increase in the proportion of students who strongly disagree with the statement since 2012. No significant differences were detected in respondents' ratings based on gender and nationality (see Figure 4).

Figure 3: Percent of Independent School Students Ratings for School Science Laboratories as "Excellent" in 2015

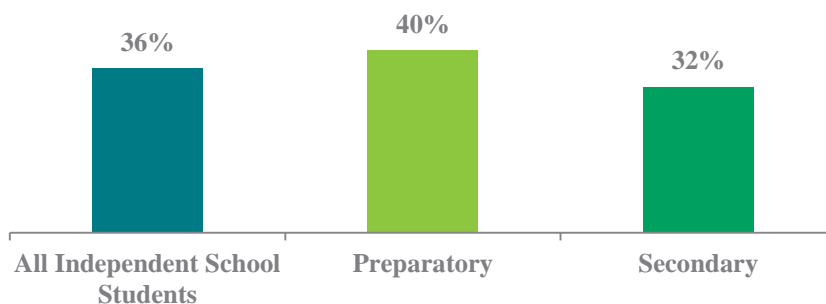
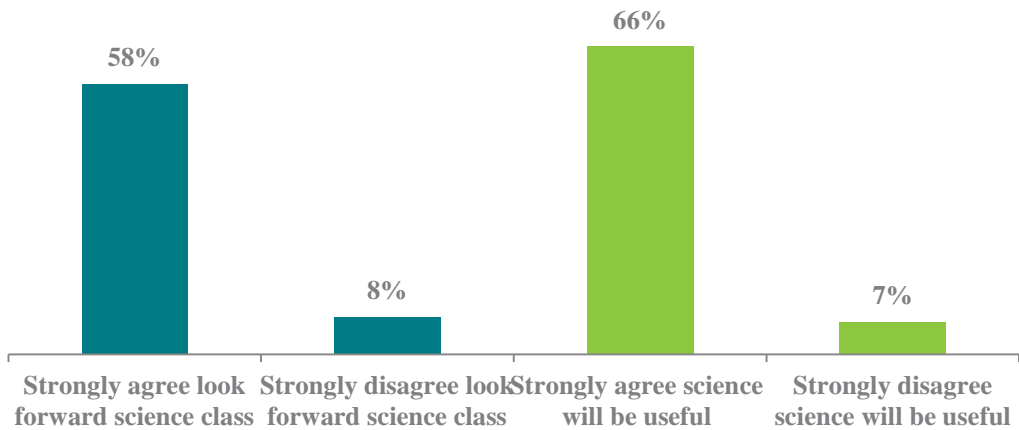
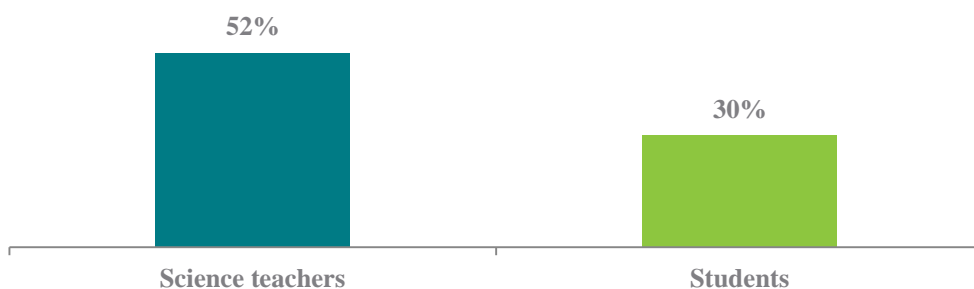


Figure 4 - Opinion of Independent Schools' Students Who Rated Science Laboratories as "Excellent" in 2015



Science teachers and students were also asked how frequently they use science labs. The results reveal there is a gap between the responses of science teachers and those of their students, with a disparity of 22% in Independent Schools and 43% in other schools. This might be due to science teachers having more than one class per week in the science labs; for the results reveal that the percentage of Independent School science teachers who use science labs two or more times per week is 52% in 2015. In other schools, where the rating gap between students and teachers is higher, 70% of science teachers report holding two or more classes per week in the labs. As for students, the percentage of those using science labs two or more times a week is quite similar in both types of schools (i.e., 30% or less) (see Figure 5 and Table 4).

Figure 5 - Percent of Independent Schools' Students Using Science Laboratories Two or More Times a Week, Students and Science Teachers Reports (in 2015)



Science educators stress the importance of science laboratories as an indispensable mean of instruction in science. Effective teaching and learning of science involves hands-on experience based on observing, treating and manipulating real objects and materials. In order to understand scientific concepts, one has to look beyond the books and conventional classroom teaching. In general, the key role of laboratory instruction consists in facilitating training in observation, supplying detailed subject matter information, and arousing students' interest in what they are learning. Hence, the aims behind the use of science labs in class include skills development, including inquiry and investigation. They also help students understand concepts and develop cognitive abilities related to critical thinking, problem solving, application, analysis and synthesis.

The results from the QES 2015 indicate that 90% of Independent School principals and 87% of other school principals report that their schools have programs or activities designed to encourage their students to be interested in science and consider careers in the knowledge economy.

Table 4: Percent of Students Using Science Laboratories 2 or More Times a Week in 2015, Students & Science Teachers Reports (Independent and other schools)

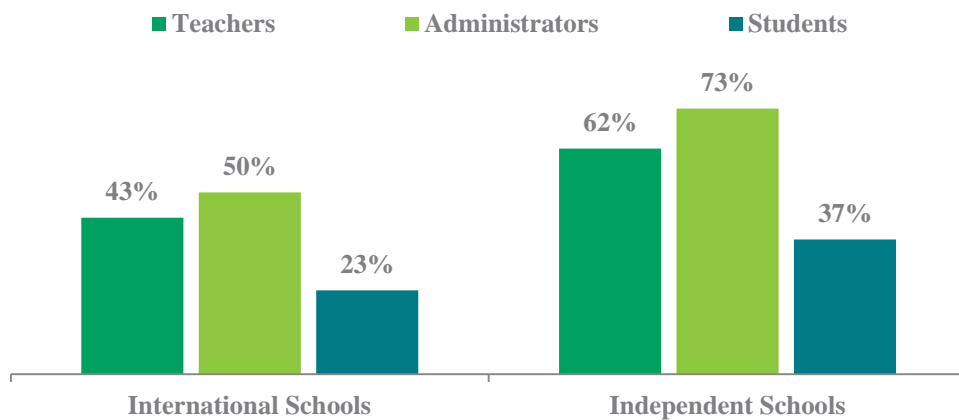
Items	Independent Schools %	Other Schools %
Science Teachers	52	70
Students	30	27
(Teacher/Student difference)	22	43

LIBRARY

With the increase of highly sophisticated advances in modern information technologies that characterize the 21st century life, the role of school libraries has been largely redefined. The school library, which is an essential educational resource, is integral to the teaching and learning process; it supports education efforts by providing teaching resources as well as information and referral services. As such, it is a fundamental catalyst for learning. Research supports the view that school libraries can have a positive impact on academic achievement, particularly at the primary and early secondary levels¹². In Qatar, much like other countries across the region, there is increasing awareness of a major deficit in the literacy achievement of the country's K-12 students. In 2014, the SEC's Annual Report on Education in Qatar Schools for the Academic year 2012-2013, pointed out that the average number of books per student in Independent School libraries is only 17.4.¹³

In the QES 2015, students, teachers and administrators were asked about the availability, use and quality of the library facilities at their schools. This section provides an overview of how the school library is perceived by respondents. Here, we focus on how the three groups rate the quality of the school library and how frequently they make use of its services. When asked to assess the quality of the library at their school, 73% of Independent School administrators and 62% of teachers described their school library as excellent, which constitutes almost twice the proportion of students at Independent Schools (i.e. 37%) who assigned similar ratings (see Figure 6). Administrators in Independent Schools appear more likely to perceive their school library as excellent (73%), compared to administrators in International Schools (50%). Similarly, Independent School teachers and students (62% and 37%, respectively) report their school library as excellent at higher rates relative to their counterparts in International Schools (43% and 23%, respectively), as Figure 6 demonstrates.

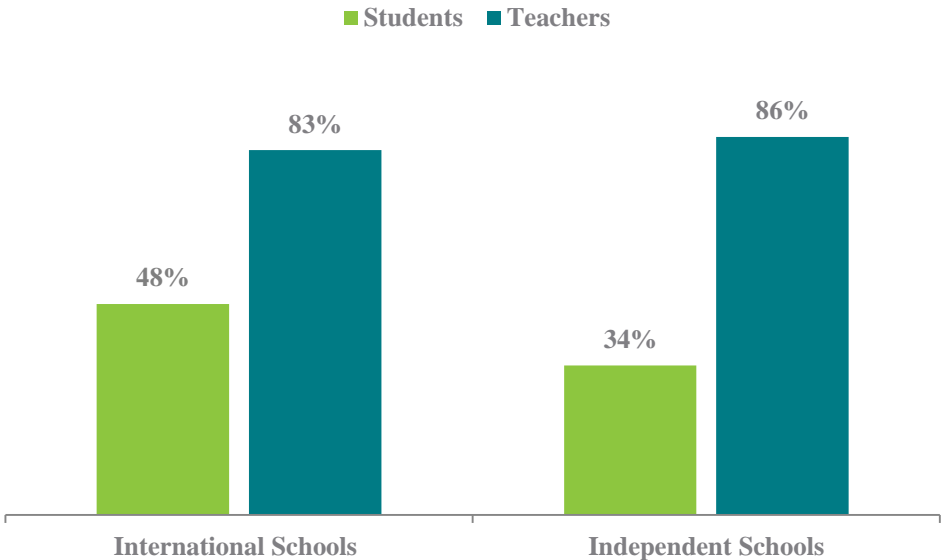
Figure 6 - Quality of School Library Rated “Excellent” by Students, Teachers, and Administrators in 2015 (Independent and International Schools)



Results also indicate that teachers report higher visitation frequency to the school library than their students do; for around 86% of Independent School teachers stated that students visit the school library at least once a week (a significant 15% increase over 2012) as compared to 34% of Independent School students in QES 2015. A similar pattern appeared among International Schools, where 83% of teachers reported that students visit the school library at least once a week, compared to 48% of students reporting library visits (see Figure 7). Clearly, there is a gap between the perception that the teachers and students have of the students' use of the library and the students' actual use of the facility. Why the libraries do not seem attractive is an issue worth investigating, but this is beyond the scope of this present report.

Interestingly, within the QES 2015 Independent Schools, boys in particular appear to be more likely to use the library at least once a week (16%), compared to girls (12%). In addition, students who reported doing additional reading outside of school constituted 40% (using the school library at least once a week), compared to 23% who did not report outside reading.

Figure 7 - Percent of Students Using Library at Least Weekly, Reports from Students and Teachers in 2015 (Independent and International Schools)



SPORTS FACILITIES ¹⁴

Research has demonstrated a link between children and adolescents' physical activity and their school performance. For example, three different studies conducted in the past five years established that relationship. A 2013 study focusing on over 800 children from Finland found that "Physical activity was associated with a higher grade-point average, and obesity was associated with a lower grade-point average in adolescence" (Kantomaa et al., 2013, p. 1918)¹⁵. Another recent study looks at the relationship between physical fitness and academic achievement in middle school students in the United States of America (Bass et al., 2013). The authors mention the growing amount of research establishing the link between physical and cognitive abilities and summarize recent findings by saying that "In addition to the role exercise plays in effecting brain plasticity, PA [physical activity] is important for cognitive development, mood state, memory, learning and concentration" (p. 832)¹⁶.

Assessing over 800 students, the study found that boys in what the study calls the "Healthy Fitness Zone" for aerobic fitness and muscular endurance were 2.5 - 3 times more likely to pass their math or reading exams. As far as girls are concerned, results show that they were 2 - 4 times as likely to meet or exceed reading and math test standards provided they were in the "Healthy Fitness Zone", leading the authors to conclude that "the need for increased PA in children and adolescents may be critical for the reversal of current disease trends and also for the improvement of academic achievement." (Bass et al., 2013, p. 832).

Since Qatar has some of the highest rates of obesity in the world as well as very high rates of cardiovascular diseases and diabetes, conditions that are largely due to unhealthy lifestyles and eating habits (QNHS)¹⁷, physical activity in schools is a central and critical component of this public health challenge. The availability of sports facilities in the schools is a starting point and a key element in enabling lifestyle changes among young people.

This section of the QES 2015 will first focus on how students, teachers and administrators perceive and evaluate the sports facilities at their school; it will also discuss the types of facilities and activities available in the schools in Qatar. Additionally, this is the second time that the Qatar Education Study (QES) collects data on sports facilities in Independent and other schools, thereby allowing us to compare the 2015 results to 2012 and assess whether any improvements over the past three years with respect to sports facilities.

In the QES 2012 report, conclusions on the presence or absence of sports facilities in the schools were drawn based on the answers of school administrators, all of whom indicated that their school had some sports facilities (QES 2012)¹⁸. The QES 2015 data from the school administrators also suggests that all of the schools are equipped with at least some sports facilities. However, the way students reported the presence or absence of such facilities at their school differs significantly from the way administrators did, indicating that many of the students might possibly not be aware of the availability of these facilities at their school, let alone using them. Whereas all of the administrators in Independent Schools reported that sports facilities are available in their school in 2015, 13% of the students in

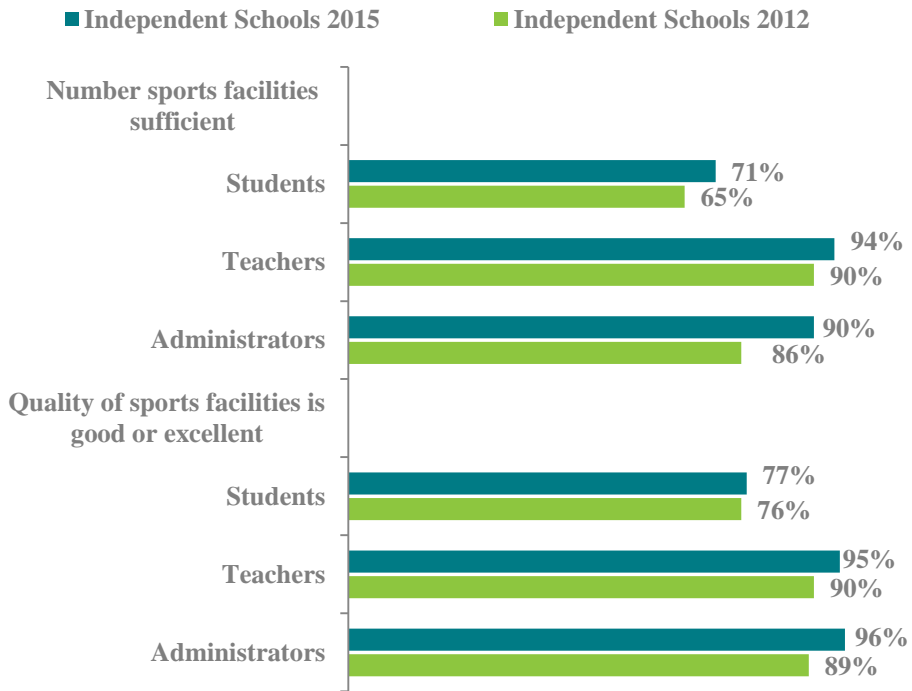
Independent Schools were unaware of sports facilities available at their school. This, however, represents a significant departure from the QES 2012 where almost a quarter (24%) of Independent School students were unaware of the presence of sports facilities at their school. A similar phenomenon takes place in International Schools where about a fifth of the students continue to be unaware of the availability of sports facilities since 2012. This discrepancy between administrators' and students' answers may reflect a lack of access to or use of sports facilities within the schools themselves; that is, the facilities may be available but the schools may not promote their use or organize students' access to them.

This report will now assess whether students, teachers and administrators (a) believe that the sports facilities at their school are sufficient, and (b) rate these facilities as good or excellent. Regardless of the type of school, participants' responses appear to be very divergent according to the group of respondents. For the results show the opinions of students, teachers and administrators' about sports facilities to be quite different, whether we are looking at Independent, International or other schools. Therefore, these perceptions and their evolution over the three years between 2012 and 2015 are presented in three separate graphs corresponding to these three school categories.

In Independent Schools, results show that students, teachers and administrators agree that school facilities have generally improved, as shown below in Figure 8. In 2015, 71% of students believed that the sports facilities available in their school were sufficient which represents a significant increase from 65% in 2012. In 2015, the likelihood that Independent School students, teachers and administrators would rate sports facilities as good or excellent was 77% for students, 95% for teachers and 96% for administrators. Moreover, teachers and administrators were more likely to rate sports facilities at their school as excellent (62% and 61%, respectively) than were students (40%). Instead, students were much more likely to describe these sports facilities as "good" (37%) and "fair" (19%) than were teachers and administrators.

In summary, in Independent Schools we have what appears to be a generational gap between students and their teachers or administrators, with students less likely to find the sports facilities in their school sufficient and less likely to rate the existing facilities as excellent. This finding could be interpreted as signaling a strong demand for the presence and use of such facilities among students and generally a more positive orientation towards the practice of sports than has been the case with their elders in the school community.

Figure 8 - Evaluation of School Sports Facilities in Independent Schools Rated by Students, Teachers, and Administrators in 2012 & 2015



In International Schools, the majority of students, teachers and administrators viewed both the availability and the quality of sports facilities as satisfactory but did so to a lesser extent than their counterparts in Independent Schools. In 2015, 62% of students at International Schools reported their sports facilities as sufficient, compared to 71% in Independent Schools. Teachers and Administrators in International Schools were also about 20% less likely to find such facilities to be sufficient at their school than those in International Schools.

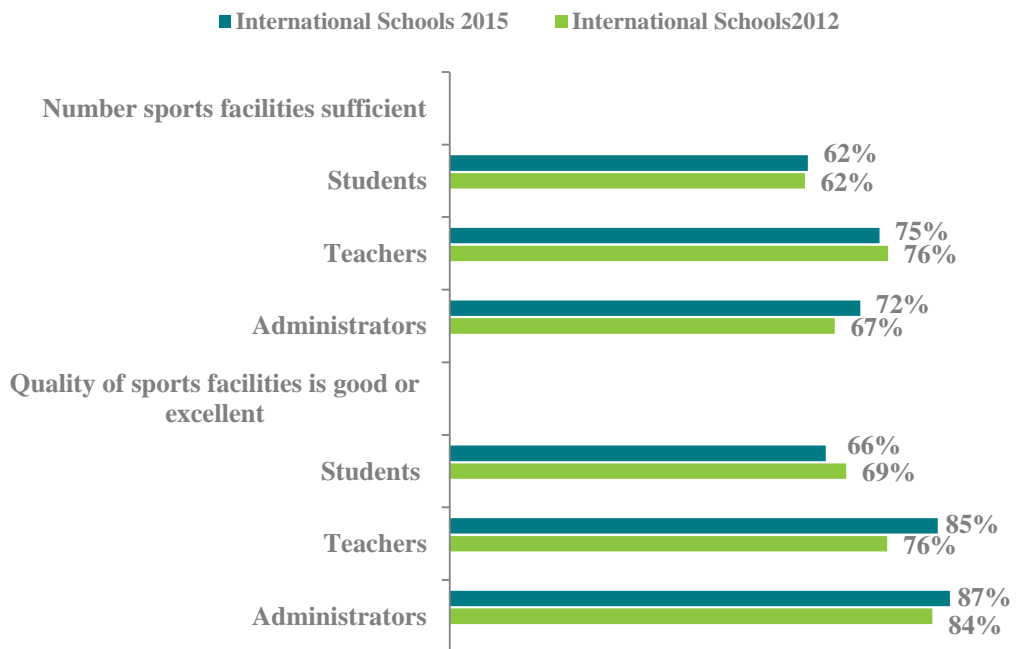
Looking at any developments that may have occurred with respect to sports facilities in International Schools, results reveal no significant changes have taken place between 2012 and 2015 with regard to both the availability and the quality of sports facilities, as reported by students, teachers and administrators. A gap also appears to be at work in International Schools, but is less significant than at Independent Schools, with just 62% of the students reporting that the number of sports facilities at their school is sufficient, compared to 75% and 72% for teachers and administrators, respectively.

Furthermore, results show that there are some differences in student ratings of sports facilities at Independent Schools based on student characteristics. Male students (35%) are

much more likely than female students (23%) to report that the sports facilities available at their school are not sufficient. Additionally, in contrast to the QES 2012, the data in 2015 shows that female students in Independent Schools are more likely to report that school facilities are excellent or good (43% and 40% respectively) than their male counterparts (38% and 33%, respectively).

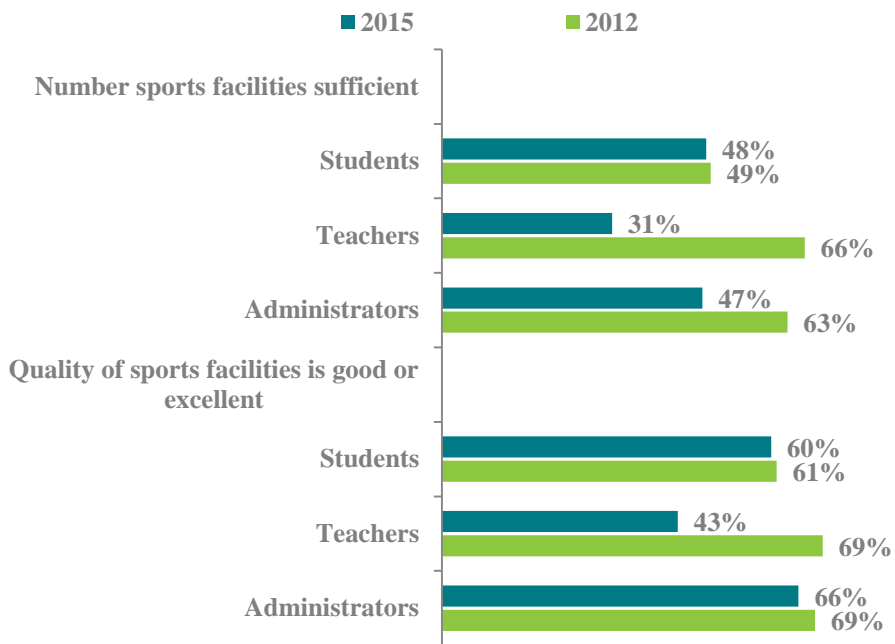
Finally, results show a significant relationship between the education level of the student's mother and the student's perception of the sports facilities at school. It appears that the higher the education level of the student's mother, the less likely the student is to feel that the sports facilities are sufficient or of excellent quality. For example, in Independent Schools, between 71% and 80% of the students whose mother does not hold a bachelor's degree viewed the sports facilities at their school as sufficient. When the mother has a bachelor's degree, however, this figure drops to 67% and when the student's mother holds a Master's or Ph.D. degree, the figure drops further with just over half of these students (51%) reporting school sports facilities as sufficient.

Figure 9 - Evaluation of School Sports Facilities in International Schools Rated by Students, Teachers, and Administrators in 2012 & 2015



Finally, looking specifically at Community Schools and Arabic private Schools, the results show much lower levels of satisfaction than in Independent and International Schools. In these Community and Arabic private schools, less than half of the students (48%) reported that the sports facilities are sufficient and the teachers seem to amplify these sentiments, with 31% of them holding the same opinion. Regarding the quality of the existing facilities, students, teachers and administrators are all much less likely in these Community Schools and Arabic Private Schools to report their sports facilities as good or excellent. Results also show a significant decline in the way teachers evaluate sports facilities at these Community Schools and Arabic Private Schools since 2012 (Figure 10).

Figure 10 - Evaluation of School Sports Facilities in Community Schools and Arabic Private Schools Rated by Students, Teachers, and Administrators in 2012 and 2015



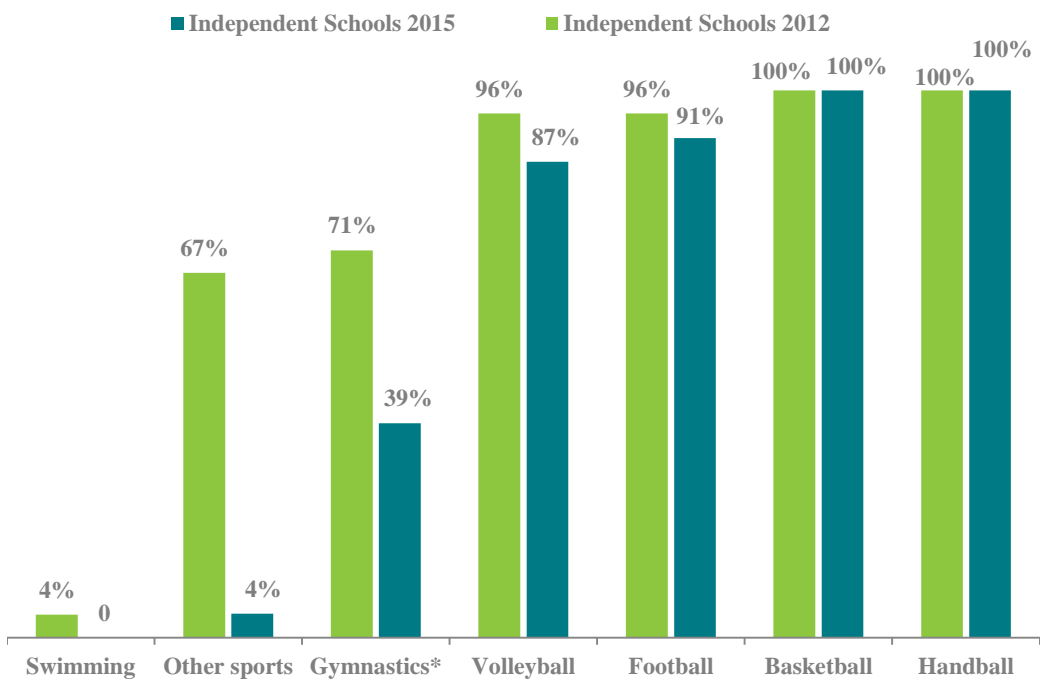
Looking at the availability and range of sports activities across schools, it appears that in Independent Schools, four sports activities are offered on average. However, one of the schools selected for the survey offers no sports activity at all to its students while another one offers six activities. Overall, about three quarters of the schools (78%) offer four to five different activities.

The QES 2012 relied on an additional questionnaire called the Supplemental Facilities Questionnaire (SFQ) for information on the range of sports activities offered in the schools. In 2015, however, the question related to the availability and range of sports activities was included in the main questionnaire. Whereas the Supplemental Facilities Questionnaire was

given only to the School Operators, the question was posed to school administrators in 2015, including, but not limited to, school operators. To analyze the data collected in 2015, we looked at the results for each school to determine whether particular sports activities were offered at school from school administrators' point of view. However, in one Independent boys' school and three International Schools, we could not determine with certainty whether a particular activity was offered because only few administrators indicated its presence.

Looking at Independent Schools in particular, the results show that the schools are well equipped in terms of the four team-sports that are prevalent in these schools, as shown in Figure 11. The results show that handball and basketball are available in every school while football and volleyball are available in 91% and 87% of the schools, respectively. When it comes to other activities, however, Independent Schools have a rather limited offer. Gymnastics is offered in just over half of the girls' schools (55%) and in a quarter of boys schools (25%). Other sports are offered in only 4% of the Independent Schools surveyed in 2015 and swimming is not available in any of those schools involved in the survey.

Figure 11 - Percent of Independent Schools Offering Selected Sports Activities in 2012 & 2015



* In one of the schools, half the administrators indicated that this activity (gymnastics) is available at their school while the other half stated that it is not. In this case, we considered this particular school as offering the activity in question.

THE CAFETERIA AND CATERING SERVICES

The cafeteria, catering services, and quality of food play a significant role within the school community as they can help promote healthy lifestyles and good eating habits. For this reason, the onus rests with stakeholders, especially decision makers, to enforce adherence to the highest levels of national nutrition standards and ensure schools and service providers comply with the Safety Regulations for Food Suppliers in schools. In 2013, the Permanent Schools Cafeteria Committee – comprising officials from the Supreme Education Council, the Ministry of Municipality and Environment, the Supreme Council of Health, nutrition specialists and representatives from Independent and Private Schools – circulated information concerning food suppliers and their adherence to the health standards outlined in the school cafeteria manual. The information describes the dietary guidelines as well as the hygiene and safety conditions school cafeterias must abide by.

It is noteworthy here that diverse awareness and educational campaigns have been launched to promote safety for students and public health in the State of Qatar and to raise school students' awareness of the importance of nutritionally sound meals for health. By way of example, many schools participate in a health enhancement programs called “schools in support of a healthy lifestyle”¹⁹ which emphasizes physical as well as psychological health by offering a variety of integrated positive services and expertise, including inter-school health-related presentations and competitions, intended to protect and promote the health habits of students and the school staff.

Consistent with this focus, a partnership between the Primary Health Care Corporation and the Ministry of Education and Higher Education resulted in an increased level of participation of schools in this program, especially since the start of the initiative. In 2013-2014 the number increased from 11 in 2010 to 108 schools in 2014, which demonstrates an increasing awareness of the importance of health-promoting school programs and healthy eating behavior within the Qatari school community.²⁰ Another project, “Sahtak Awalan: Your Health First” is a five-year initiative that Weill Cornell Medical College in Qatar developed in partnership with the Ministry of Public Health in 2012. This initiative involves culinary professionals raising awareness of healthy food and nutrition in many schools around Qatar and campaigning to disseminate information about healthy lifestyles to the local community.

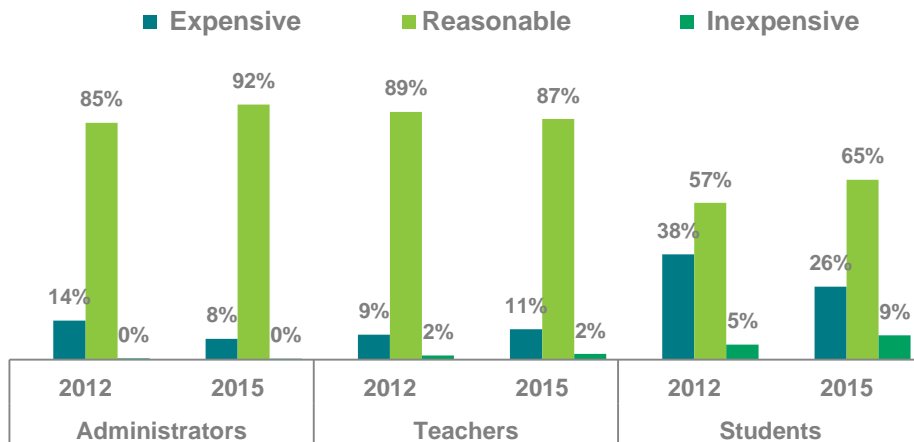
In evaluating the cafeteria and the catering services at schools in Qatar, emphasis is placed in this section on respondents' evaluations of two specific areas: (a) the prices of food at Independent Schools between 2012 and 2015 and (b) ratings of the quality of food served by school cafeteria in both fielded years. In analyzing the data, we will explore the judgements of students, teachers and administrators who are affected directly by these services, with a view to comparing results concluded from the QES 2015 and 2012.

Rating the Food Prices Served by the School Cafeteria

The results from the QES 2015 revealed that the majority of the respondents in Independent Schools reported highly positive ratings of the prices of food provided by the school cafeteria. The results indicate high rankings of the prices as reasonable for all three targeted groups: students (65%), teachers (87%) and administrators (92%). In comparison, the findings from the QES 2012 disclosed a comparably similar positive response pattern regarding the prices of food at the school cafeteria by students (57%), teachers (89%), and administrators (85%) (see Figure 12). Looking at the “inexpensive” and “expensive” response options available to the respondents, less than ten percent of students in both 2012 and 2015 and the number of students who selected the “expensive” option decreased from 38% in 2012 to 26% in 2015. As far as teachers are concerned, the results show that in 2015 as in 2012, around 10% of them consider the cafeteria to be expensive.

Finally, with respect to the prices of food in Independent School cafeterias, the results for the QES 2015 indicate that students – more than teachers or administrators – still find the food expensive, for although the majority find the food price is reasonable nearly 30% still find the food price expensive. Teachers were also about the same because even though a slightly higher percentage chose the “expensive” option in 2015, the difference was not statistically significant. Overall, the outcome appears to suggest that the prices of food offered in Independent Schools are within the reach of students, teachers and administrators, which may give the impression that the Ministry of Education and Higher Education perhaps takes into consideration the different levels of living standards of the sample.

Figure 12: Rating the Prices of Food of School Cafeteria by Students, Teachers and Administrators in 2012 and 2015 (Independent Schools)

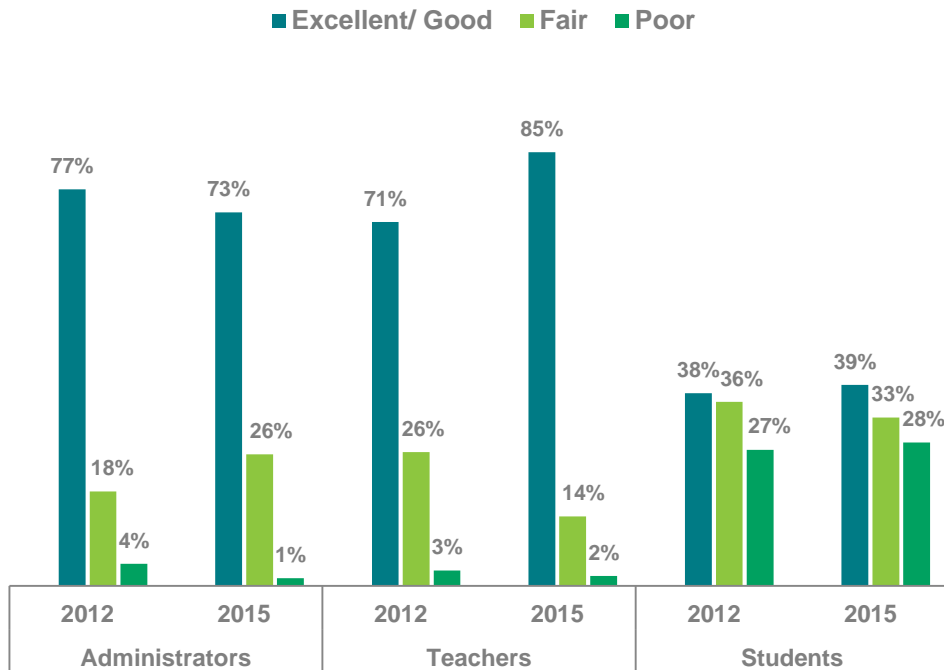


Evaluating the Quality of Food at the School Cafeteria

The three respondent groups were also asked to rate the quality of food provided by the school cafeteria. The results from the QES carried out in 2015 and 2012 concerning the quality of food available in Independent School cafeteria reveal an interesting pattern. For while about a third of the students (28% in 2015 and 27% in 2012) find the quality of food poor, only less than five percent of teachers and administrators rate it as such. As Figure 12 demonstrates, it appears that 33% of the students in 2015 and 36% in 2012, evaluates the quality of food as fair, compared to a lower percentage of teachers who hold similar views (14 percent in 2015 and 26 percent in 2012). On the other hand, administrators reported an increasing rate of “fair” evaluations in 2015 (26%), compared to 2012 (18%).

In summary, across all respondent groups, the data displays relatively high ratings for the quality of food in the cafeteria at Independent Schools in both 2015 and 2012. Students are clearly less satisfied with the cafeteria food than the other two groups, and this warrants further investigation.

Figure 13 - Rating the food quality at the cafeteria by Students, Teachers, and Administrators in 2012 and 2015 (Independent Schools)



Food Assessment by the Three Respondent Groups through Different Types of Schools in Qatar

The results presented in Table 5 below highlight the conclusions drawn from the two questions discussed above and allow for comparison between Independent Schools and other schools with regard to the quality and price of food provided by the school cafeteria. As far as the different respondents groups are concerned, the data shows that overall progress has taken place with respect to both the quality and cost of food at all school types since 2012. Table 5 shows the following findings:

1. Generally positive evaluations of the services provided by the school cafeteria in the fielded years (2012 and 2015) amongst all respondents;
2. While teachers at other schools report similar evaluations of the quality and cost of the food available in the school cafeteria's in 2012 and 2015, a significant increase is noted in the case of Independent Schools;
3. In the QES 2015, administrators and students perceive the prices of food as reasonable more than was the case previously in 2012, particularly in the case of Independent Schools; and
4. Over and above, no significant changes have taken place with regard to administrators' evaluation of the services provided by the school cafeteria in Independent and other schools during from 2012 to 2015.

Subsequently, consistent with the findings above, it appears that discernible improvements have been accomplished at Independent Schools since 2012. As Table 5 demonstrates, fewer Independent School students in the QES 2015 consider the prices of food expensive, compared to their counterparts in the QES 2012 (a 12% decrease from 38% of the students to about a quarter (26%) in 2015). In contrast, teachers at other schools display the same evaluation of the quality (71%) and price (22%) of food in 2012 and 2015. Regarding teachers at Independent Schools, they display a higher level of satisfaction with the quality of food in 2015 than they did in 2012 (85% and 71% respectively).

Table 5: Comparison between Independent Schools and Other Schools Regarding Price & Quality of Food in Cafeteria (2012 and 2015)

Items	Independent Schools %		Other Schools %	
	2012	2015	2012	2015
Administrators rated the quality of food in cafeteria (Excellent/Good)	77	73	74	84
Administrators rated the price of food in cafeteria (Expensive)	14	8	16	17
Students rated the quality of food in cafeteria (Excellent/Good)	38	39	40	46
Students rated the price of food in cafeteria (Expensive)	38	26	45	41
Teachers rated the quality of food in cafeteria (Excellent/Good)	71	85	71	71
Teachers rated the price of food in cafeteria (Expensive)	9	11	22	22

CONCLUSION AND RECOMMENDATIONS

The facilities available within a school environment have been shown to impact teaching and learning outcomes in profound ways. Indeed, there is growing evidence testifying that the adequacy of a school facility influences student behavior, performance and achievement. In Qatar, the increasing expatriate population has resulted in a growing demand for student placement at International and other schools with quality facilities. Policymakers should, therefore, take into account the impact of school facilities in determining learning outcomes and thus adopt a long-term, cost-benefit perspective for sustained efforts to improve and maintain such facilities.

Drawing on the conclusions from the Qatar Education Study 2015 along with insights from the QES 2012 and comparisons between the two, this report presents a number of important recommendations in relation to the four policy and decision making areas associated with the targets identified in the Qatar National Development Strategy (NDS) and Qatar National Vision (QNV) 2030:

- Science Laboratories
- Library Services
- Sports Facilities
- Cafeteria and Catering Services

A) RECOMMENDATIONS FOR SCIENCE LABORATORIES

Science laboratory experiences for school students in Qatar are an essential component for science education in the twenty-first century. Students need to have a sound knowledge of science to be able to participate in a knowledge-based society. Even though the results indicate improvement regarding quality and usage of science labs between 2012 and 2015 in general, certain areas still require more concerted efforts to bolster the capacity of science labs to enhance students' interest in science. Capitalizing on the quality of science labs is critical for offering a positive and supportive learning and teaching environment for both students and science teachers.

In order to improve instruction of science (biology, chemistry, physics) and enhance the quality of students' science lab experiences, schools must make the science lab experience of their students a priority. Enriching laboratory activities can help students understand scientific concepts better and enjoy their learning experiences. In this regard, school teachers need to the proper training and equipment to be able to provide quality lab instruction in a "hands-on" context that could be relatively new to them. Therefore, there is need for certain mechanisms to enable teachers to be better equipped and trained to deliver useful and purposeful lab experiences to students. For a combination of existing quality facilities and the practical knowledge of how to use them can yield positive learning outcomes. Therefore, it is recommended that professional development opportunities be provided which focus on

instructional strategies in lab contexts. This will help science teachers to stay on top of the best and most engaging pedagogical practices, stay abreast of developments in their field, and align lab activities with curriculum in meaningful and exciting ways for the students.

In regards to the science labs, it is important to ensure the safety of all students in science labs. It is recommended that proper safety measures should be taken when students engage in lab experiences. These include, but are not limited to, provision of kits and equipment such as a safety shield, heat resistant and disposable gloves, goggles, aprons, fire extinguishers, first aid kits and task specific protective equipment. In addition, schools must perform regular maintenance checks to ensure that safety equipment is functioning.

B) RECOMMENDATIONS FOR THE LIBRARY

The library is undoubtedly a crucial component of the school environment. Hence, encouraging students to make good and better use of the library and ensuring a quality learning environment is available at the library are essential and should be invested in. We recommend provision of convenient, enclosed teaming spaces for group study; those rooms should be sound proof and reserved for students. Trained librarians need to be available at the library so they may provide help and assistance as and when required. In addition, increased access to electronic databases must be made available and a multimedia center has to be set up for students to use and improve their learning.

C) RECOMMENDATIONS FOR SPORTS FACILITIES

The recommendations from the QES 2012, which assert that more needs to be done concerning sports infrastructures, remain valid for 2015. Qatar would greatly benefit from investing significantly in its schools' sports facilities. The results demonstrate that students – both boys and girls – would like to have more sports activities available to enroll in. There is a strong case for developing a sports infrastructure in all schools – and Independent Schools in particular – for this can help in meeting Qatar's public health challenges and goals. The fact that students are starting to use these facilities at higher rates is an important step towards decreasing obesity and heart-related epidemics, nurturing a culture of lifelong sports practice among residents and citizens, and contributing to better overall school achievement in academics.

Clearly, Qatar stands to gain substantially by improving and diversifying the sports infrastructure across the country's schools. There is need to ensure that every student makes use of the school facilities on a regular basis. Being socialized into enjoying sports from an early age through school would likely yield better results than trying to address the behaviors of families as a whole, where the government has very little leverage over habits and how time is spent. Every child or adolescent goes to school, and so efforts to target them in the school environment would reach every young adult from every background and lifestyle for the coming generations. However, building a proper infrastructure has to go hand in hand with the recruitment of qualified professionals who are capable of making these activities not only accessible but also attractive to the students.

D) RECOMMENDATIONS FOR THE CAFETERIA AND CATERING SERVICES

The conclusions drawn from the QES 2015 show that positive developments have occurred since 2012 with regard to the quality of food served in school cafeterias in Qatar. The results demonstrate that assessment of the quality of food at the school cafeteria by students and teachers in particular does not reflect a high level of satisfaction. Needless to say, awareness of the importance of nutritionally sound meals is crucial to a healthy lifestyle.²¹ This is of prime significance considering that childhood obesity in Qatar is increasingly becoming a critical public health concern. Both girls and boys enjoy high caloric diets that consist mainly of fast food, sugar snacks, soft drinks and sweet beverages because their parents can easily afford to pay for these foods."²²

It is, therefore, recommended that interventions start at an early age to curb this problem. Schools are the ideal place to shift attitudes and can therefore play a significant role in reshaping diet choices and nutritional preferences. We recommend using schools to campaign for dietary habits that promote health and help reduce the risk of chronic diseases. Schools need to have set guidelines that promote a diet rich in fruits and vegetables, whole grains, as well as fat-free and low-fat dairy products. They also need to show students that there are tasty alternatives to processed and prepackaged foods so that students increasingly opt out of these options and chose fresh and nutritious meals instead. These guidelines must warn students against the risks of solid fats, cholesterol, sodium and added sugars.

APPENDIX: SURVEY METHODOLOGY

Results from the Qatar Education Study (QES) come from four surveys administered under the direction of the Survey Operations Division at the Social and Economic Survey Research Institute (SESRI). The surveys were sent to central stakeholders in preparatory (8th and 9th grade) and secondary (11th and 12th grade) schools: students, teachers and administrators. Feedback from these stakeholders is critical to evaluating whether the reforms implemented in fulfillment of the targets outlined in the Qatar National Development Strategy 2011-2016 (NDS) are succeeding and, if not, which reforms may need reevaluation and additional support from the Ministry of Education and Higher Education. This survey design is especially appropriate because it paints a clear picture of the participants' school experience.

Sample design

Sampling is the process of selecting those individuals from a population to estimate characteristics of the whole population. It plays a critical part in any school survey since the ability to make valid inferences to the whole population, which is the target of the investigation, relies upon a rigorous sample design. In the following, we discuss issues related to the sampling design used in the QES.

Students were the target population for the survey sampling. The sampling frame, which is a list of all those individuals in a population who can be selected, was developed by SESRI based on a comprehensive list of all public and Private Schools in Qatar which was provided by the Supreme Council of Education. In this frame, all schools are listed with information about school names, address, school gender (boy, girl, or coed), system (Independent, International, private, or other type of schools), and the number of students in grades 8, 9, 11, and 12.

Based on the information about the school size, school system, gender and grade, we divided the sampling frame into several subpopulations (i.e., stratum). This stratification divided members of the population into subgroups that are relatively homogenous before sampling begins. We tried to make every member of the population have the same probability of being selected (i.e., self-weighting), so proportionate sampling was used to make the proportion of students in each stratum similar between the frame and the sample. This means the number of sampled schools needed to be proportionate to the number of respondents across strata in the frame (assuming that the same number of students was selected from each school).

Inside each stratum, students were randomly selected following a two-stage sampling process which is probably the most commonly used sample design in educational research (UNESCO International Institute for Educational Planning 2009). In the first stage, the school was selected with probability proportionate to its size (PPS). This gives an equal chance of selection for students while allowing for a similar number of students to be chosen from each school for each stratum. In the second stage, for ease of the field work, we randomly selected one class for each grade in the school and all students in the class were included in the survey.

In the student study, students in grades 11 and 12 in the secondary schools and students in grades 8 and 9 in the preparatory schools were selected. For the parent study, the parents of the students selected in the student study were sent questionnaires. Lead teachers of the classrooms selected for the study were sent questionnaires as were the administrators for the school.

We account for the complex sampling design in the data analysis to ensure the unbiasedness and efficiency of the statistical estimates. In particular, a weighting variable was created to take into account the selection probability and the non-response. Weighting is a mathematical correction used to give some respondents in a survey more influence than others in the data analysis. This is sometimes needed so that a sample better reflects the population under study.

Sample size, non-response and sampling error

The sample size of this survey is 42 schools. However, 4 schools refused our survey requests. For the remaining 38 surveyed schools, all students in the selected classes fully participated in the survey. In the final data, we have 1,803 students, 1,462 parents, 495 teachers and 234 administrators from these 38 schools.

With the above number of completions, the maximum sampling error for a percentage is +/- 2.4 percentage points for the student survey. The calculation of this sampling error takes into account the design effect (i.e., the combined effects from weighting, stratification, and clustering). One possible interpretation of sampling errors is: if the survey is conducted 100 times using the exact same procedure, the sampling errors would include the "true value" in 95 out of the 100 surveys. Note that the sampling errors can be calculated in this survey since the sample is based on a sampling scheme with known probabilities. This feature of random sampling is an essential element that distinguishes probability samples from other sampling methods, such as quota sampling or convenience sampling.

Questionnaire development

The questions were designed in English and then translated into Arabic by professional translators. After the translation, the Arabic version was carefully checked by researchers at SESRI who are fluent in both English and Arabic. Next, the questionnaire was tested in a pre-test of four randomly selected schools. This pretest gave valuable information allowing us to

refine question wording, response categories, introductions, transitions, interviewer instructions and interview length. Based on this information, the final version of the questionnaire was created and then programmed for data entry purposes. The questionnaires were sent to stakeholders in November 2015. Parents of the students who received the student questionnaire were also sent the parent questionnaire to be completed at home. Data were collected from teachers and administrators through interviews conducted in their respective schools.

Survey Administration

Each interviewer participated in a training program covering fundamentals of school survey, interviewing techniques and standard protocols for administering survey instruments. All interviewers practiced the questionnaire before going to the schools. In general, interviewers were expected to:

- Locate and enlist the cooperation of schools and students.
- Motivate teachers and students to be conscientious and thorough.
- Clarify any confusion or concerns.
- Observe the quality of responses.

Data were collected from students and parents using paper questionnaires (Paper-and-Pencil Interviewing – PAPI). Teachers and administrators from the selected schools were interviewed by SESRI fieldworkers using Computer-Assisted Personal Interviewing (CAPI).

Data Management

After data collection was completed, interviewers manually entered responses from students and parents into the Blaise software platform, a computer-assisted interviewing system and survey processing tool. The responses were then merged into a single Blaise data file. This dataset was then cleaned, coded and saved in STATA format for analysis. After weighting the final responses, the data were analyzed using STATA 14 which is a general purpose statistical software package commonly used in the social sciences. Tables and graphs were generated in Microsoft Excel and Word.

Endnotes:

- 1 Supreme Education Council previously
- 2 Administrators include School Principal, Academic Advisor and Subject Coordinator
- 3 The Qatar Education Study was first conducted by SESRI in December 2012, surveying more than 4200 students from 39 preparatory and secondary schools. The QES 2012 SESRI reports can be found at: <http://sesri.qu.edu.qa/Selected-Projects>
- 4 Merged data of QES 2012 and 2015 has been used in analysis.
- 5 Blagojevich, R.R., Illinois Capital Development Board & Illinois State Board of Education. (2006). Illinois resource guide for health, high performing school buildings. IL, Healthy Schools Campaign.
- 6 Schneider, M. (2003). Linking school facility conditions to teacher satisfaction and success. National Clearinghouse for Educational Facilities. Washington DC. www.edfacilities.org;
- Schneider, M. (2002). Do school facilities affect academic outcomes? National Clearinghouse for Educational facilities. Washington, DC. www.edfacilities.org
- 7 Zellman, G. L., Ryan, G. W., Karam, R., Salem, L., H., Gonzalez, G., Orr, N., Goldman, C. A., Al-Thani, H. & Al-Obaidli, K. (2009). Implementation of the K--12 Education Reform in Qatar's Schools. Santa Monica, CA: RAND Education.
- 8 Supreme Education Council. (2012) Education and Training Sector Strategy 2011-2016 Executive Summary. Doha, Qatar. Retrieved from: <http://www.edu.gov.qa/En/about/Documents/Stratgy2012E.pdf>
- 9 The Simplified Census of Population, Housing and Establishments 2015, Ministry of Development Planning & Statistics.
- 10 Alarab newspaper (25/04/2016). Retrieved from Alarab newspaper website on 15/11/2017. Article title: النادي العلمي يختتم مسابقة صانع الوطنية
- 11 Science Teachers include: Science, Zoology, Physics and Chemistry.
- 12 Oberg, D. (2001). Demonstrating the school libraries improve achievement. Access [Australia], 15(1), 15-17; Smith, E.G. (2001). Texas school libraries: standards, resources, services, and students' performance. [Texas]: EGS Research & Consulting for Texas State Library and Archives Commission. Retrieved from: <http://www.tsl.state.tx.us/ld/pubs/schlibsurvey/index.html> [23-10- 01]; Chan, C. (2008). The impact of school library services on student achievement and the implications for advocacy: A review of the literature. Access, 22(4), 15-20. Retrieved from HKBU Institutional Repository: http://repository.hkbu.edu.hk/cgi/viewcontent.cgi?article=1004&context=lib_ja; Francis, B.H., Lance, K. C., Lietzau, Z. (2010). School librarians continue to help students achieve standards: The third Colorado study (2010). (Closer Look Report). Denver, CO: Colorado State Library, Library Research Service
- 13 Education in the Schools of the State of Qatar: Annual Report for the Academic Year 2012/2013 (2014). Supreme Education Council, Doha, Qatar. <http://www.sec.gov.qa/En/Media/News/Pages/NewsDetails.aspx?NewsID=3462>
- 14 Most of comparisons in this report is between Independent Schools and other schools (International Schools, Community Schools and Arabic Private Schools), while in Sports Facilities section, comparison is made between the years 2012 and 2015 in Independent Schools, International Schools and group of schools that includes Community Schools and Arabic Private Schools due to significant difference in the results.
- 15 Kantomaa, M. T., Stamatakis, E., Kankaanpaa, A., Rodriguez, A., Taalina, A., Ahonen, T., et al. (2013). Physical activity and obesity mediate the association between childhood motor function and adolescents' academic achievement . Proceedings of the National Academic of Sciences , 1917-1922.
- 16 Bass, R. W., Brown, D. D., Laurson, K. R., & Coleman, M. M. (2013). Physical fitness and academic prformance in middle school students . Acta Paediatrica , 832-837.
- 17 Supreme Council of Health. (2013) Qatar National Health Strategy. Doha, Qatar. Retrieved from : <http://www.nhsq.info/app/media/325>

-
- 18 Social & Economic Survey Research Institute. (2012b). Qatar education study 2012: Facilities report. Doha, Qatar. Retrieved from:
http://sesri.qu.edu.qa/Education_Facility_Report
- 19 <http://www.sec.gov.qa/Ar/Media/News/Pages/NewsDetails.aspx?NewsId=9339>
- 20 <http://www.sec.gov.qa/Ar/Media/News/Pages/NewsDetails.aspx?NewsId=9339>
- 21 WHO (2008a). Why does childhood overweight and obesity matter? At www.who.int/dietphysicalactivity/childhood_consequences/en/index.html. Accessed 16/05/08;
- WHO (2003). Diet, nutrition and the prevention of chronic diseases. Report of a Joint WHO/FAO Expert Consultation. Geneva.
- 22 Kerkadi, A., Hassan A.S., Yousef A.E.M. (2009). High prevalence of the risk of overweight and overweight among Qatari children ages 9 through 11. *Nutrition & Food Science*, 2009; 39:36–45. <http://www.qscience.com/doi/full/10.5339/avi.2014.2>