

Improving the Quality of Learning Outcomes and Enhancing the Performance of Education Systems: A Case Study in Kuwait

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Abstract. As part of Qatar National Research Fund project, Momentum for Education Beyond 2015: Improving the Quality of Learning Outcomes and Enhancing the Performance of Education Systems in the Gulf Cooperation Council (GCC) Countries, we conducted a regional case study that aims to provide empirical evidence on the quality of education in Kuwait by examining teacher self-efficacy beliefs regarding the teaching and learning process. The study contributes to better empirical evidence and knowledge about the quality of education specifically in grade 4 and grade 8, as examined in a random sample of 22 girls and boys schools across six governorates in Kuwait. The study gathered data using quantitative methods and examined differences in efficacy levels across grades, gender, subject matter, and geographic regions. We anticipate that the case study provides insights on the challenges and constraints impeding improvement in the quality of education and system-performance in Kuwait.

Keywords: self-efficacy; assessments; expectations; learning outcomes

Motivation and Background

Within the context of *Education for All (EFA)* initiative, national and local governments have made improvements in education a key priority. However, despite advances achieved towards realizing the six EFA goals across countries over the past decade, it is projected that *not a single goal will be achieved globally by 2015* (UNESCO, 2013). Similarly, for the Gulf Cooperative Council (GCC) countries in particular, despite the fact that some progress has been made in several areas associated with the six EFA goals, *none of the countries is expected to achieve all of the EFA goals by 2015* (see Table 1). As per several indicators cited in Table 1, Qatar is expected to reach five of the six goals, Oman to reach three of the six, Bahrain will reach two of the six, UAE will reach one goal, Kuwait may reach one, and no sufficient data

on the progress of Saudi Arabia except for Goal 4 where it is expected to be far from target (UNESCO, 2013).

Table 1. Progress of GCC Countries on EFA Goals

EFA Goals	Goal 1: Early Childhood Education	Goal 2: Universal Primary Education	Goal 3: Youth and adult skills	Goal 4: Adult Literacy	Goal 5: Gender parity and equality	Goal 6: Quality of education	
Indicators	Preprimary enrollment target of at least 70%	Primary enrolment target of 95%	Lower secondary education enrolment of at least 95%	Adult literacy target of at least 95%	Gender parity in primary education	Survival rate to last grade (2010)	Pupil/teacher ratio in primary education
Target reached or close ($\geq 95\%$)	Qatar	Oman, Qatar, UAE	Oman, Qatar	Bahrain, Kuwait, Qatar	Oman, Qatar	Bahrain, Kuwait	Kuwait (9) Qatar (11) Saudi Arabia(11) UAE (17)
Far from target (80-94%)				Oman, Saudi Arabia, UAE			
Very far from target ($< 80\%$)						UAE	
Insufficient Data	Bahrain, Kuwait, Oman, Saudi Arabia, UAE	Bahrain, Kuwait, Saudi Arabia	Bahrain, Kuwait, Saudi Arabia, UAE		Bahrain, Kuwait, Saudi Arabia, UAE	Oman, Qatar, Saudi Arabia	Bahrain Oman

Effectiveness, equity, and quality of education (**Goal 6**) remain the primary challenges towards realizing EFA goals for 2015 in the GCC countries. Learning outcomes vary significantly across countries in the GCC region for which data was analyzed but are particularly alarming in Kuwait where between two-thirds of primary-age students are failing to learn, particularly mathematics. In grade 4, the learning performance of children in Kuwait is below expectations, considering the country's rate of expenditure in education (Mullis et al., 2012a).

Given that most GCC countries in general and Kuwait in particular may miss the education targets of EFA goals, it is all the more important to recognize the importance of capitalizing on learning as key to ensure good-quality education. Consequently, an in-depth empirical assessment of teachers' beliefs regarding their ability to teach and as well as their expectations is essential, as a shift in emphasis is now discernible towards quality and learning, which are likely to be more central to the post-2015 global framework (Psacharopoulos, 2014). As the post-2015 global education goals are expected to be more ambitious than the EFA goals, extending to lower secondary education, such a shift is vital to enhance teacher effectiveness and improve education opportunities for all children in Kuwait.

The purpose of Kuwait case study is to provide an empirical assessment of the quality of education in Kuwait by examining teachers' self-efficacy toward teaching particularly mathematics, science and reading literacy. Specifically, the case study addresses the following research question:

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- What characterizes the differences in teachers' self-efficacy measures across content areas and geographic regions in male and female public schools in Kuwait?

Theoretical Framework

The study is principled by the Evaluative Inquiry Cycle model (EIC) (Chahine & Clarkson, 2010). The EIC model, which guided the overall project execution, involves five basic tasks that delivered chronologically during the study implementation (see Figure1).

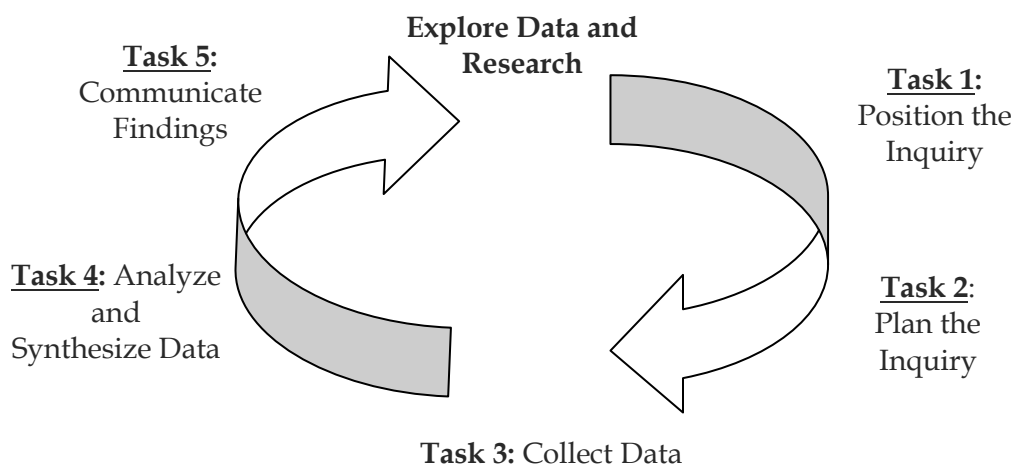


Figure1: Evaluative Inquiry Cycle Model

Education in Kuwait: Learning Outcomes

Traditionally, education assessments in Kuwait were aimed at ensuring that expected inputs meet anticipated students' needs. Outcome measures such as a satisfactory number of skilled teachers, high teacher to student ratio, relatively small class sizes, and accessible monetary resources were considered not only sufficient, but also admirable. Previous studies within Kuwait (Aldhafeeri, Almulla & Alraqas, 2006) describe education in Kuwait as based on memorizing and recalling information, which is an outdated method in modern education. Instead, these researchers argue that students need to be proactive within learning.

More recently, *Education For All* (EFA) initiative has arguably shifted the emphasis on assessment from inputs to outputs, specifically focusing on the output of competency-based learning for guiding curriculum planning across grade levels. Focusing on direct and indirect measures of student learning such as examining teacher perceptions of learning and collecting teacher and principal feedback on performance (Mullis et al., 2012 a, 2012b), provide a prospect for teachers to re-think their teaching practices and outcome expectations and to pinpoint weaknesses and suggest improvements.

Hand, O'Neil, and Sanderson (1996) argued that teaching and assessment should be inextricably linked. Hence, quality teaching can be enhanced by enacting a proficiency model that integrates basic knowledge of learning objectives with approaches tailored towards reinforcing the behavioral, cognitive and affective domains. For teachers in Kuwait to develop these models require a comprehensive knowledge of these higher-level proficiencies as well as rigorous instructional approaches to ensure that learning outcomes are attained. Teacher effectiveness and learning outcomes are contemporary indicators of quality in the field of education. Garavalia et al. (2003) argue that assessment methodologies based on the outcomes desired for learning could effectively drive new curriculum and engaging pedagogy. The authors adopt the European characterization and describe learning outcomes as "statements of what a learner knows, understands, and is able to do after completion of learning" (Bulgarelli et al., 2009). In terms of curriculum design and development, Adam (2004) contends that learning outcomes are necessary tools to mobilize educational reform. He further notes that they represent a shift towards emphasizing "learning" than 'teaching'. This change was exemplified by reinforcing a student-centered approach rather than a teacher-centered standpoint. Learning in student-centered environments strengthen the ties between teaching, learning, and assessment and reinforces the relationship between the learning design, implementation and assessment. Learning outcomes provide essential evidence regarding the acquisition of desired competencies (UNESCO, 2013). They attest to the effectiveness of education systems at delivering good-quality education and effective learning. Furthermore, there is strong evidence in the literature that measuring teacher efficacy for teaching in accordance with student achievement helps to improve the quality of teacher education programs (Gordon & Debus, 2002). In a similar vein, there is a widespread emphasis on the role of teacher beliefs and self-efficacy measures in contributing to meaningful and retainable learning.

Over the past 50 years and despite the continuing challenges ensued by rapid population growth, the state of Kuwait has achieved wide strides in expanding educational opportunities and reinforcing equitable distribution of services and educational activities across the various centers in all regions of the state. The state of Kuwait has supported numerous reform initiatives to achieve EFA goals and to promote development projects in education by increasing the rate of expenditure to 14.5% of GDP income and 4.3% of gross national GNP income in 2011/2012. The expenditure supported projects that targeted the construction of new schools for boys and girls in new residential areas and providing training opportunities through community service programs and continuing education programs for lifelong learning. Perhaps the fundamental advancement of the State was decline in illiteracy rates from 48.3% in 1970, to 3.8% in 2013, a clear evidence of the State's efforts to achieve the goal of universal education (Kuwait Department of Education, 2014).

Nevertheless, examining a few measures of comparative performance, again with a focus on international assessment reports TIMSS, PISA, and PIRLS, 2011 (Mullis et al., 2012a, 2012b) regarding teacher effectiveness and student learning reveals a number of key findings:

Finding 1: Among the six GCC countries, students in Kuwait had the lowest achievement scores in mathematics (See Figure 2).

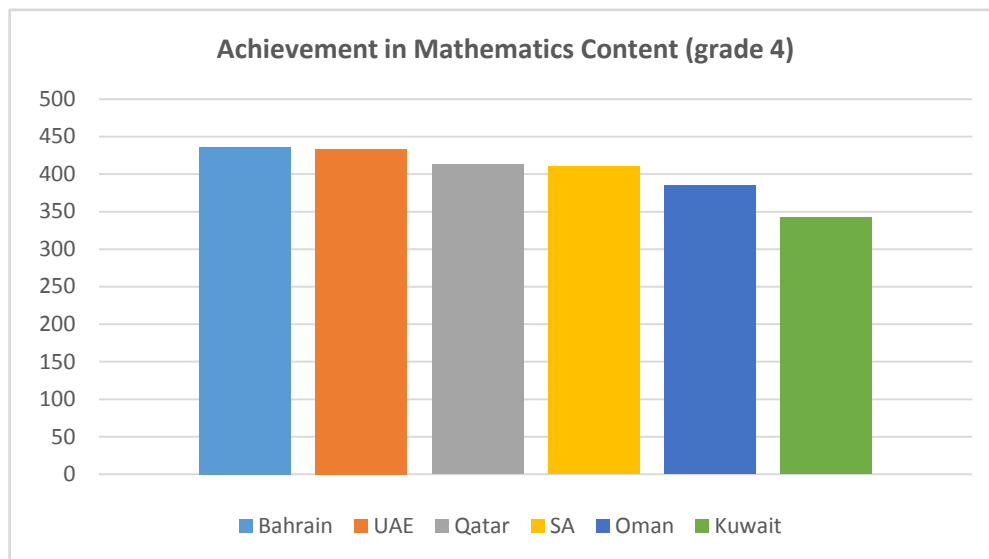


Figure 2: TIMSS mathematics scores in grade 4.

Finding 2: In terms of professional development, teachers in Kuwait had the highest frequency of attending training particularly on mathematics curriculum compared to the rest of GCC countries (see Figure 3).

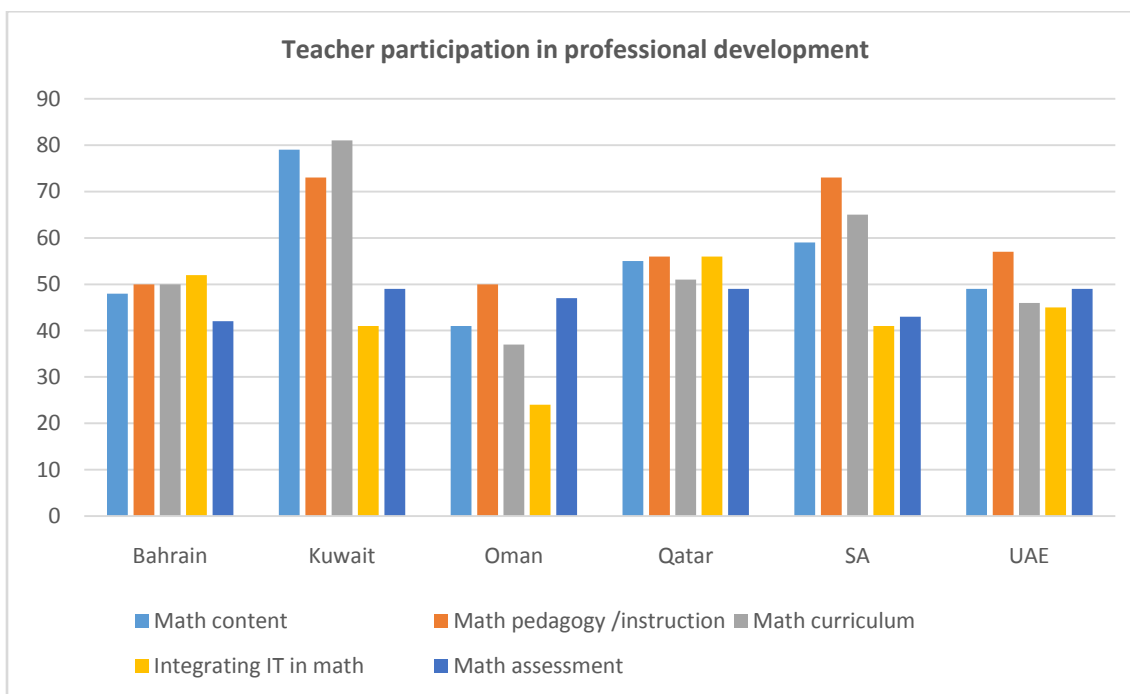


Figure 3: Teacher participation in professional Development in Kuwait.

Finding 3: percentage of students whose teachers reported that they feel confident to teach mathematics in Kuwait is the lowest compared to the rest of the GCC countries (see Figure 4).

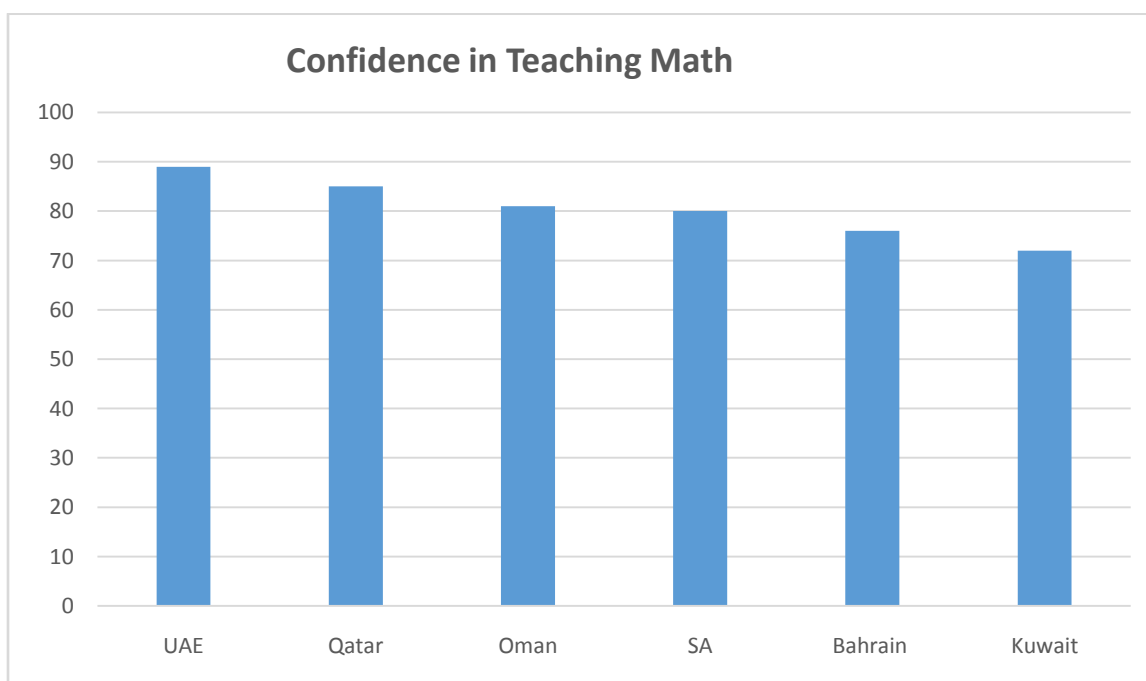


Figure 4. Teacher confidence for teaching mathematics in GCC countries.

Overall, we found significant discrepancies between the performance and outputs of education systems across the six GCC countries. This study sheds light on how teachers' self efficacy beliefs about the teaching vary across subject matters, gender, and geographic locations. We argue that a closer look at teacher -related constructs will help explore the nature of major challenges facing teachers hereby facilitating focused efforts that transform educational practices toward a robust post 2015 agenda.

Methodology

Design

This case study employs quantitative techniques. The rationale for using such a design is to measure how different are teacher efficacy levels across gender, subject matter taught, gender, and geographic locations. The study utilizes a nationally representative sample of schools and relies on surveys collected in close collaboration between UNESCO Doha research team and Kuwait National Commission.

Sampling strategy

The sample comprises 22 schools randomly selected from a population of 802 schools. To ensure sample representativeness and using 2013-2014 school distribution data, we focused recruitment efforts on elementary and middle school across the six governorates in Kuwait: Al-Ahmadi, Al-Jahra, Hawalli, Al-Asema, Al-Farwaniya, and Mubarak Al-Kabeer (See Figure 5 for the distribution of schools across the six governorates).

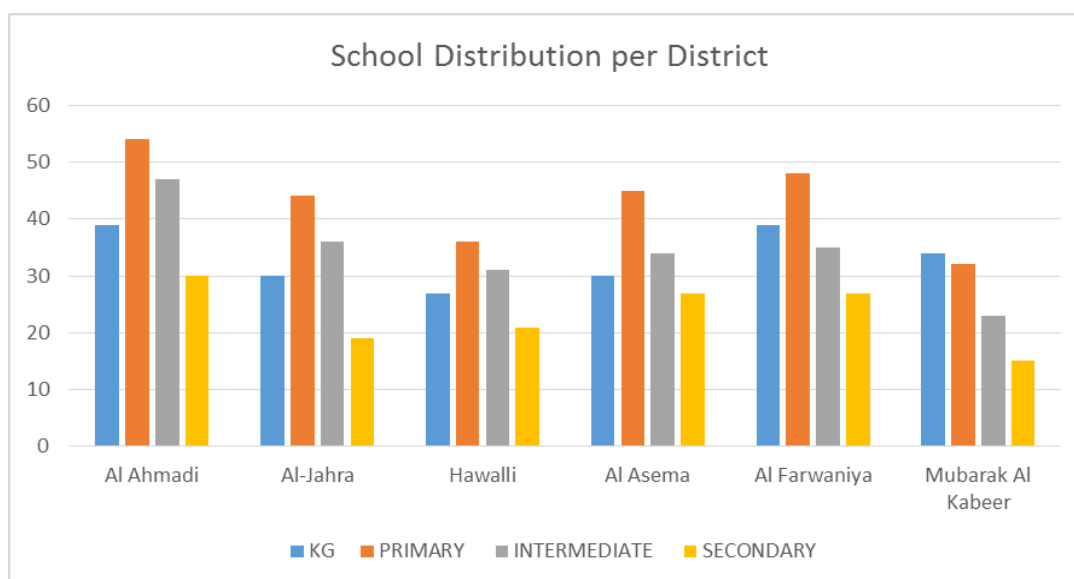


Figure 5: Distribution of K-12 public schools across six school governorates in Kuwait.

Within each school governorate, we randomly selected one girls' school and one boys' school at both the elementary and middle level. Using the RANDBETWEEN and INDEX functions in Excel, we generated random lists of schools across the six governorates (See Table 2). In this study, we report on data collected from grades 4 & 8.

Table 2: Distribution of sample across governorates and schools

Governorate	Schools				Total schools (per governorate)	Teachers Science/Math/Literacy (assuming different teachers)
	Elementary: Grade 4		Middle: Grade 8			
	Girls	Boys	Girls	Boys		
Al-Ahmadi	2	4	2	0	3	6 schoolsx3 teachers=18 teachers (G4) 2 schools x2 teachers=4 teachers(G8) Total=22
Al-Jahra	2	2	0	2	3	4 schoolsx3teachers=12 teachers (G4) 2schoolsx2teachers=4 teachers (G8) Total=16
Hawalli	2	2	3	1	4	4schoolsx3teachers=12 teachers(G4) 4schoolsx2teachers=8 teachers(G8) Total=20
Al Farwaniya	2	2	2	1	4	4schoolsx3teachers=12teachers 3schoolsx2teachers=6teachers Total=18
Mubarak Al Kabeer	2	2	2	1	4	4schoolsx3teachers=12teachers 3schoolsx2teachers=6teachers Total=18
Al Asema	3	2	2	1	4	5schoolsx3teachers=15teachers 3schoolsx2teachers=6teachers Total=21
STUDY SAMPLE					22	115

Based on the random selection of the school sample, we recruited 115 grade 4 & 8 teachers of mathematics, science, and reading literacy to participate in the study.

In this study, we argue that the selection of schools using random sampling strategies potentially guards against sampling error by reducing under-representativeness bias. Furthermore, the purposive sample of 22 schools provides in-depth descriptions of how these schools operate which in turn can help identify relevant parameters for follow-up studies.

Data Collection

Before conducting the questionnaires and interviews, permissions were sought and participants were asked to sign off on consent forms declaring their intent to volunteer in the study. We employed an Arabic version (AlKhateeb, 2004) of Mathematics Teaching Efficacy Belief Instrument (*MTEBI*) developed by Enochs et al. (2000). The *MTEBI* is an instrument specifically designed to measure teacher beliefs in their ability to teach mathematics effectively. The instrument consists of 27 items comprising 13 items on the Personal Mathematics Teaching Efficacy (PMTE) subscale, 8 items on the Mathematics Teaching Outcome Expectancy (MTOE) subscale, and 6 items on Teacher Expectations (EX). Each item is scored on a 5-point Likert scale response: 1 (strongly disagree), 2 (disagree), 3 (unsure), 4 (Agree), and 5 (strongly agree). The instrument was adapted to assess teaching efficacy of science and Arabic reading literacy (See appendix A).

Data Analysis

The quantitative data analysis of all surveys and questionnaires were tested for internal consistency and validity using Cronbach's alpha coefficient as measure. Additionally, frequencies were run to examine the percentages of responses on efficacy questionnaires. Analysis of Variance (ANOVA) was employed to explore significant differences across several independent variables including school governorates, grade levels, gender, and school subjects.

Results

To verify the internal consistency for teaching mathematics, science, and reading literacy efficacy questionnaires, a reliability analysis technique was run. Cronbach's alpha coefficient was the statistic used to measure the internal consistency of a scale and was interpreted in the same way as a correlation. A significantly high Cronbach's alpha of .729 for the 27 items on the efficacy questionnaires indicates that all items are correlated with one another thereby reliably measure the construct of efficacy (See Table 3 below).

Table 3: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.729	.703	27

We also report the response rate across schools and governorates as shown in Figure 6 below and we noted discrepancy in teacher response rate on the efficacy questionnaires between girls and boys schools.

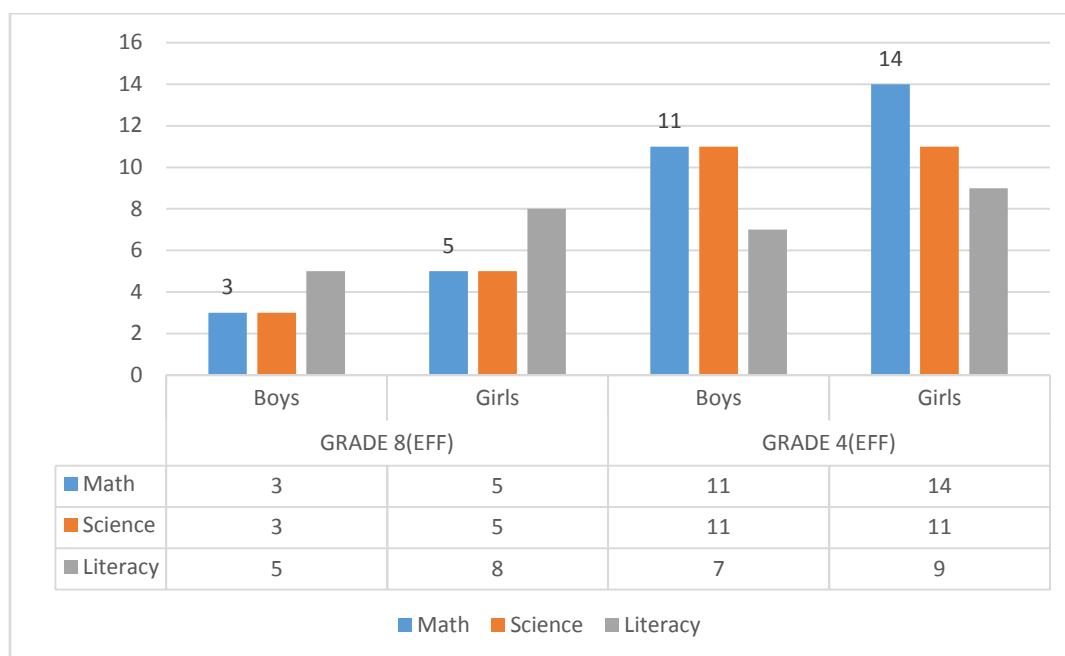


Figure 6: Teacher response rate across gender and grade level.

Furthermore, we used SPSS to run Analysis of Variance (ANOVA) method in an attempt to explore differences in teachers' responses on the efficacy questionnaires across the school governorates, grade levels, and subject matter. Additionally, we tested ANOVA assumption of normality for each question item by examining skewness and kurtosis measures, which fell within acceptable range (between -1.5 and 1.5) for most of the items. Therefore, we concluded that the 21 efficacy items and 6 expectation items have passed the normality test (see Table 4 below).

Table 4. Testing for normality for the 27 items

Test Item	Skewness	Kurtosis
Q1	-.876	-.001
Q2	-.467	-.825
Q3	.127	-1.595
Q4	-.862	-.448
Q5	-.296	-.924
Q6	.463	-1.185
Q7	.180	-.796
Q8	.850	-.407
Q9	-.506	-1.082
Q10	-.387	-.640
Q11	-.630	-.541
Q12	-1.093	.763

Q13	-.759	.490
Q14	-.629	.381
Q15	.399	-1.188
Q16	-.549	-1.123
Q17	-.669	-.671
Q18	.266	-1.229
Q19	.804	-.310
Q20	-.908	-.526
Q21	.274	-1.405
EX1	.101	-.324
EX2	-.127	-.619
EX3	-.571	.919
EX4	-.472	.241
EX5	-.601	-.110
EX6	-.002	-.719

Efficacy Results

A number of significant findings emerged as we analyzed teacher responses to the efficacy questionnaires. The results were compared across the six school governorates, grade levels (grades 4 & 8), gender, and subjects (math, science, and literacy).

Efficacy levels: Grade 4

At the elementary level, we found the following significant differences ($\alpha < .05$) in efficacy levels (See ANOVA table in Figure 7 for related statistics):

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Q8	Between Groups	3.951	5	.790	2.479	.044
	Within Groups	16.259	51	.319		
	Total	20.211	56			
Q10	Between Groups	4.272	5	.854	3.151	.015
	Within Groups	14.372	53	.271		
	Total	18.644	58			
Q12	Between Groups	10.122	5	2.024	2.456	.045
	Within Groups	42.861	52	.824		
	Total	52.983	57			
Q13	Between Groups	7.539	5	1.508	2.743	.028
	Within Groups	29.139	53	.550		
	Total	36.678	58			
Q14	Between Groups	6.491	5	1.298	3.807	.005
	Within Groups	17.733	52	.341		
	Total	24.224	57			

Figure 7. ANOVA results using SPSS for Q8, Q10, Q12, Q13, and Q14.

There were significant differences ($p=.04$ at $\alpha<.05$) among teachers' responses on Q8 (I will generally teach ineffectively), which reflected a discrepancy in the way teachers perceive their ability to teach their subjects across the different governorates (See Figure 8).

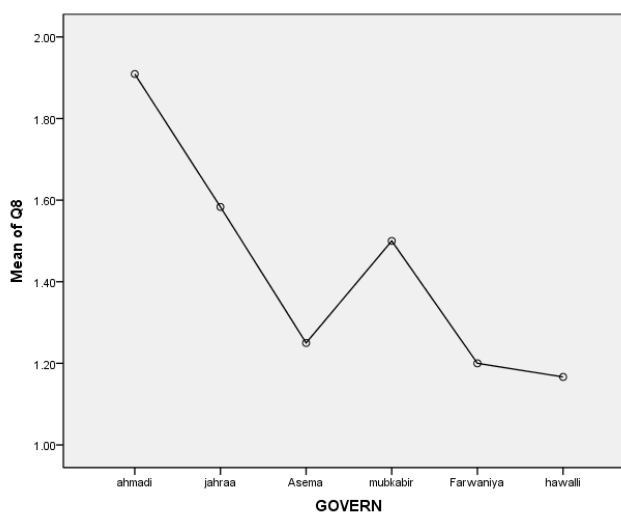


Figure 8. Mean plot for teacher responses across the six school governorates in Kuwait

We argue that the differences in the way teachers perceive their effectiveness are perhaps linked to existing policies within each governorate. Such policies play major roles in promoting or hindering teachers from being active decision makers influencing the teaching and learning in their classrooms. Despite the fact that the education system in Kuwait is centralized and monitored by the Ministry of Education which institutes provisions covering laws regulating the overall operations of public and private educational institutions (UNESCO, 2011), discrepancies emerge across governorates regarding rules as to the day-to-day execution of tasks and the opportunities and constraints afforded at the grass root level. This, we argue, affect teachers' perspectives and perceptions regarding their role as agents of change in the classroom.

Furthermore, we noted significant variations across governorates in terms of how teachers perceive the impact of their efforts on student achievement. For example, we found significant differences in degrees of agreement on Q10 (When a low-achieving child progresses it is usually due to extra attention given by the teacher) ($p=.015$ at $\alpha<.05$); on Q12 (The teacher is generally responsible for the achievement of students) ($p=.045$ at $\alpha<.05$); and on Q13 (Students' achievement is directly related to teacher's effectiveness in teaching) (See Figure 9: a,b,c) ($p=0.28$ at $\alpha<.05$). The differences were mostly prevalent between the suburban (such as Al-Ahmadi and Jahraa, the two largest governorates in Kuwait) and the urban districts, which comprise four suburban governorates.

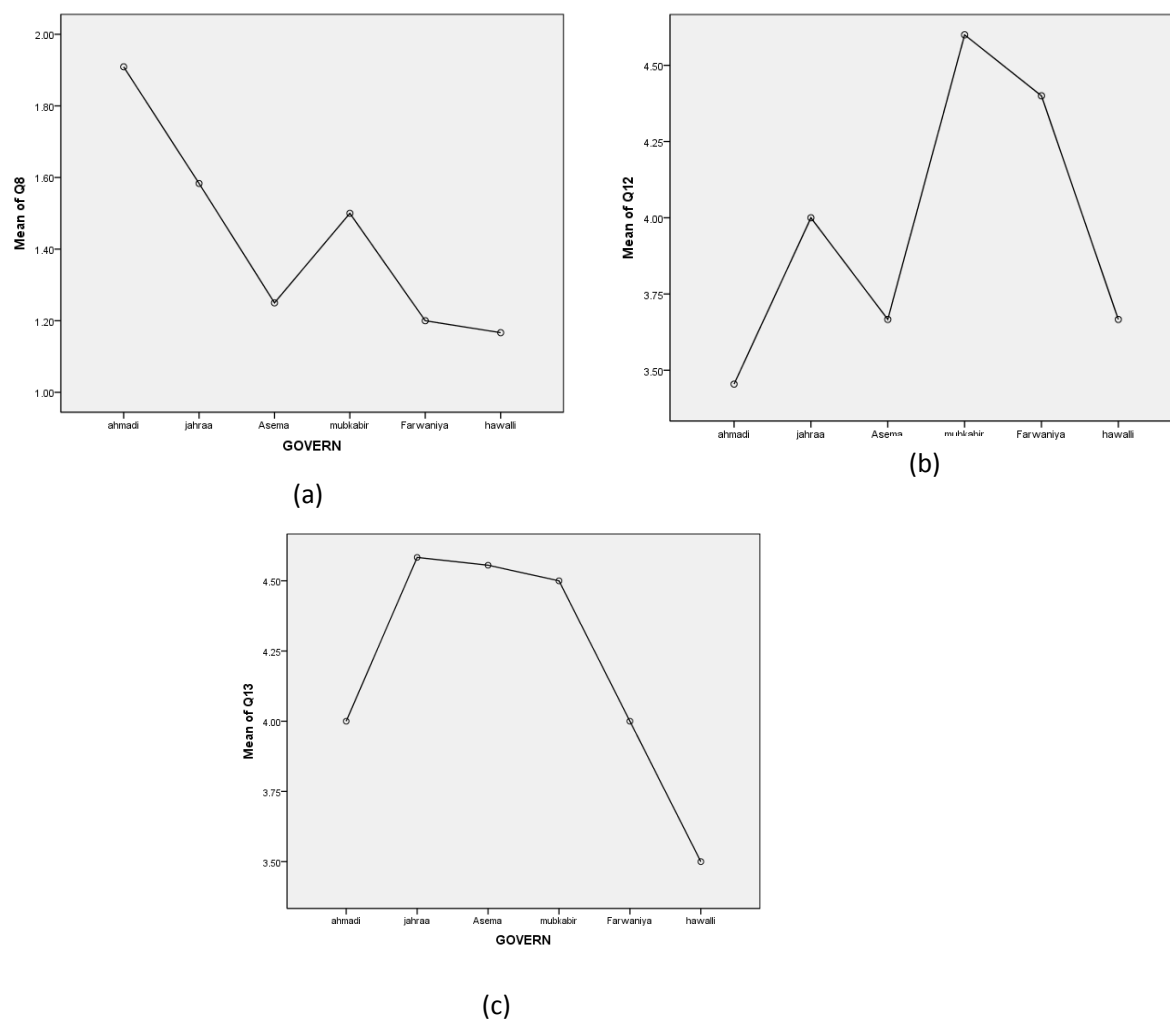


Figure 9. Mean plot of teacher responses on Q10 (a), Q12 (b), and Q13(c).

We attribute these differences to the level of training that teachers might have had particularly in areas related to the psychology of teaching and learning, across the different governorates. Despite the fact that education system in Kuwait is undergoing major reforms in the area of teacher certification and training, there are seemingly noticeable disparities in the quality of opportunities provided across geographic locations.

Moreover, significant differences in level of agreement were reported in the way parents in different governorates perceive the role of the teacher (Q14: If parents comment that their child is showing more interest in mathematics at school, it is probably due to the performance of the child's teacher) ($p=.015$ at $\alpha<.05$) (See Figure 10). For the same reason, the differences seem to arise between urban (Hawalli) and suburban (Jahraa) governorates.

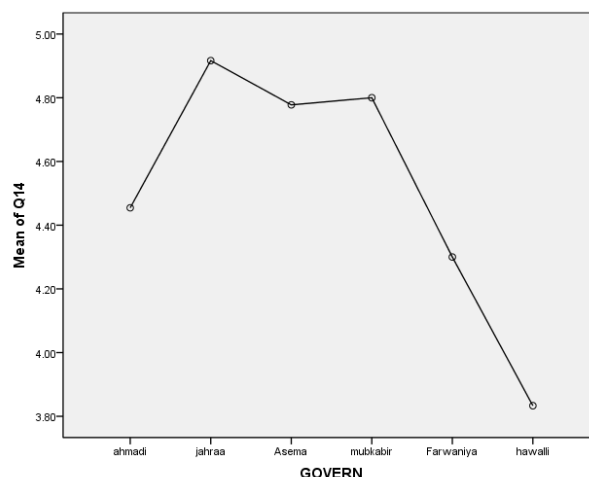


Figure 10. Mean plot of teacher responses on Q14 across governorates.

1. We noted significant differences between teachers' responses across girls and boys schools particularly in relation to teaching effectiveness and student learning (see ANOVA table in Figure 11 below).

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Q1	Between Groups	2.641	1	2.641	6.015	.017
	Within Groups	27.219	62	.439		
	Total	29.859	63			
Q4	Between Groups	2.378	1	2.378	5.435	.023
	Within Groups	27.561	63	.437		
	Total	29.938	64			
Q9	Between Groups	5.063	1	5.063	6.842	.011
	Within Groups	45.875	62	.740		
	Total	50.937	63			
Q10	Between Groups	1.373	1	1.373	4.629	.035
	Within Groups	18.688	63	.297		
	Total	20.062	64			
Q13	Between Groups	5.709	1	5.709	10.951	.002
	Within Groups	32.845	63	.521		
	Total	38.554	64			
Q14	Between Groups	3.516	1	3.516	8.954	.004
	Within Groups	24.344	62	.393		
	Total	27.859	63			
Q16	Between Groups	2.992	1	2.992	4.961	.030
	Within Groups	36.185	60	.603		
	Total	39.177	61			

Figure 11. SPSS ANOVA results for Q1, Q4, Q9, Q10, Q13, Q14, and Q16.

Of particular interest is the differential level of agreement between male and female teachers regarding the correlation between student achievement and teacher effectiveness (Q14) ($p=.004$ at $\alpha<.05$). For example, while female teachers strongly agree that student achievement is directly related to teacher's effectiveness, male teachers slightly agree (See Figure 12).

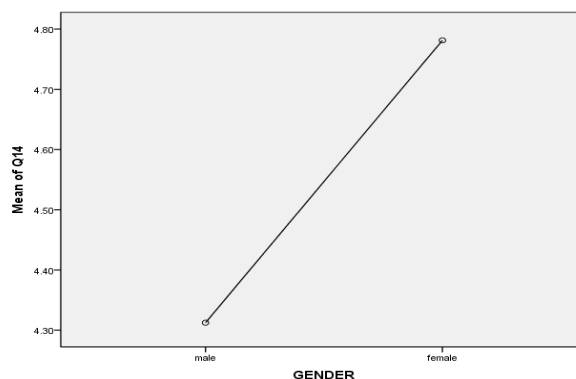


Figure 12. Differential level of agreement regarding the relationship of teacher effectiveness and student achievement between male and female elementary teachers.

We interpret the above result as pertaining to the perspective that female teachers who teach girls tend to view themselves as more nurturing and engaging hereby positively influencing student learning (Carrington et al., 2008).

2. Across math, science and literacy teaching, we also noted significant differences ($p=.010$ at $\alpha<.05$) only in teachers' expectations regarding other teachers' beliefs in their students' learning (see ANOVA table in Figure 13 below).

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
EX3	Between Groups	5.928	2	2.964	5.019	.010
	Within Groups	34.846	59	.591		
	Total	40.774	61			

Figure 13. SPSS ANOVA results for EX3

Contrary to mathematics and literacy teachers who agreed that their fellow teachers expects their students to master basic mathematics and reading skills, science teachers were not sure (see Figure 14).

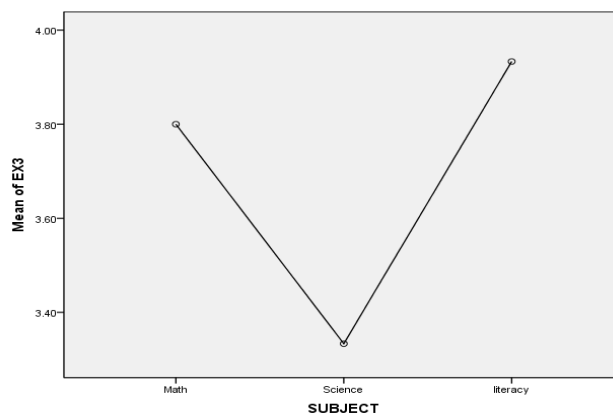


Figure 14. Differential level of agreement among math, science and literacy teachers regarding other teachers' belief in their students' learning

In conclusion, differences in several efficacy levels emerged as we examined the self-efficacy beliefs of grade 4 teachers across subjects, gender and geographic locations in Kuwait. We argue that a closer look at these differences could help shed some light on some of the challenges facing education system in Kuwait in realizing the goals of Education for All agenda, particularly goal 6 which pertains to quality of education.

Efficacy Levels: Grade 8

At the middle level, we found the following significant differences ($\alpha < .05$) in efficacy levels:

1. Across governorates, we noted differences in the way teachers' perceive their ability to improve their practices and their beliefs regarding how students are performing at an average level (see ANOVA table in Figure 14).

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Q2	Between Groups	3.643	5	.729	4.987	.003
	Within Groups	3.214	22	.146		
	Total	6.857	27			
EX4	Between Groups	9.675	4	2.419	4.292	.010
	Within Groups	12.399	22	.564		
	Total	22.074	26			

Figure 14. SPSS ANOVA results for Q2 and EX4

For example, there were significant differences ($p = .003$ at $\alpha < .05$) in agreement on Q2 (I will continually find better ways to teach) within urban governorates (Asema and Mubkabil) and between urban and suburban (Asema and Al-Ahmadi) (See Figure 15 below).

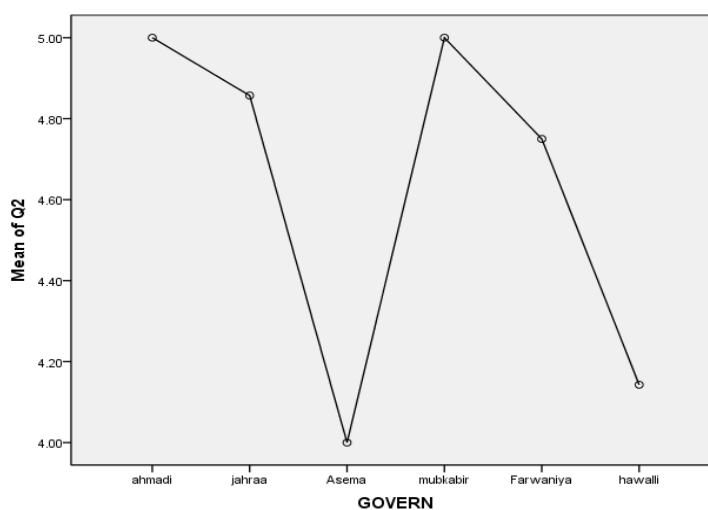


Figure 15. Differential level of agreement in teachers' perception of their ability to improve their practices across governorates

Furthermore, we noted differences ($p = .010$ at $\alpha < .05$) in teacher agreement levels on EX4 (I expect that most students in my school will perform at about the national average in academic achievement) across the six governorates (See Figure 16).

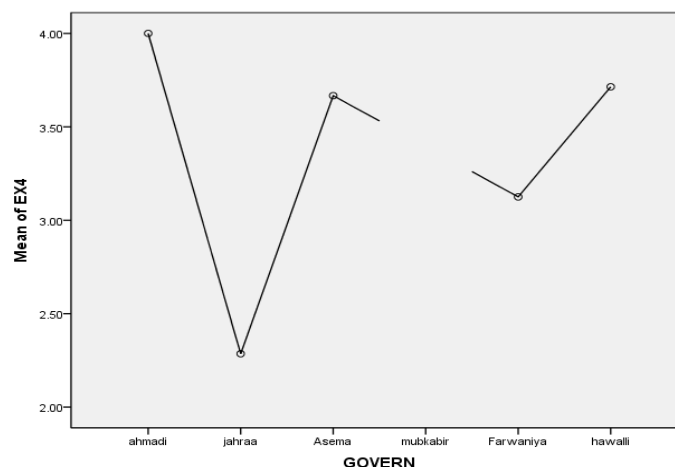


Figure 16. Differential level of agreement in teachers' expectations across governorates

Interestingly, while there were no differences noted in the level of agreement in teachers' expectations across urban governorates, we found significant differences between the two suburban governorates (Al-Ahmadi and Jahraa). It is worth noting that according to 2014 Kuwait Population Census, Al-Ahmadi governorate has the highest Kuwaiti population (265,423 Kuwaiti nationals) which constitutes 32.8% of the total population compared to Jahraa that has the smallest Kuwaiti population (171,808 Kuwaiti nationals) with only 3.5% of the overall population. This led us to believe that the discrepancy in expectations could be due to the social composition of the population in each governorate where teachers come from.

2. Across gender, there were significant differences ($p=.002$ at $\alpha<.05$) in teachers' expectations of their students (See ANOVA table in Figure 17 below).

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
EX4	Between Groups	7.456	1	7.456	12.752	.001
	Within Groups	14.618	25	.585		
	Total	22.074	26			

Figure 17. SPSS ANOVA results for EX4

Differences between agreement levels on EX4 (I expect that most students in my school will perform at about the national average in academic achievement) reported between male and female teachers suggest that in general, teachers in girls' schools have seemingly higher expectations of their students than the boys' schools (See Figure 18 below).

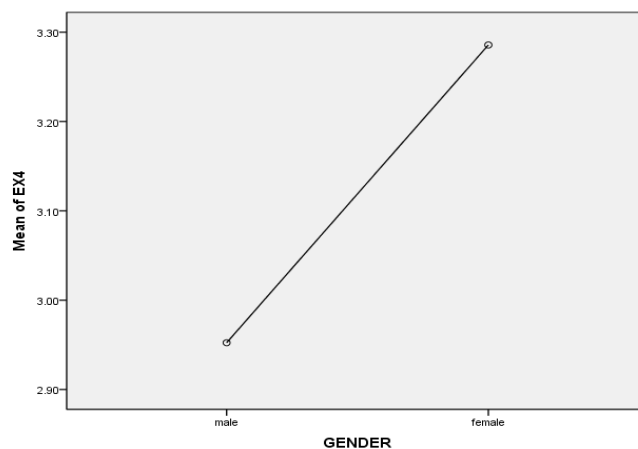


Figure 18. Differential levels of agreement in female versus male teachers' expectations

On the other hand, across subject areas, on Q1(When a student does better than usual it is often because the teacher exerted a little extra effort) science teachers tended to agree more than math and literacy teachers on efficacy related to teachers effectiveness and student achievement. However, literacy teachers had higher expectations of their students than teachers of mathematics and science (See table below in Figure 19). However, while math and science teachers tend to disagree strongly on Q3 (Even if I try very hard, I will not teach as well), literacy teachers were uncertain.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Q1	Between Groups	2.601	2	1.300	6.512	.005
	Within Groups	5.192	26	.200		
	Total	7.793	28			
Q3	Between Groups	9.691	2	4.846	3.810	.035
	Within Groups	33.067	26	1.272		
	Total	42.759	28			
Q7	Between Groups	7.232	2	3.616	3.809	.036
	Within Groups	23.732	25	.949		
	Total	30.964	27			
Q10	Between Groups	1.929	2	.964	3.529	.044
	Within Groups	7.106	26	.273		
	Total	9.034	28			

Figure 19: SPSS ANOVA results for Q1,Q3,Q7,Q10

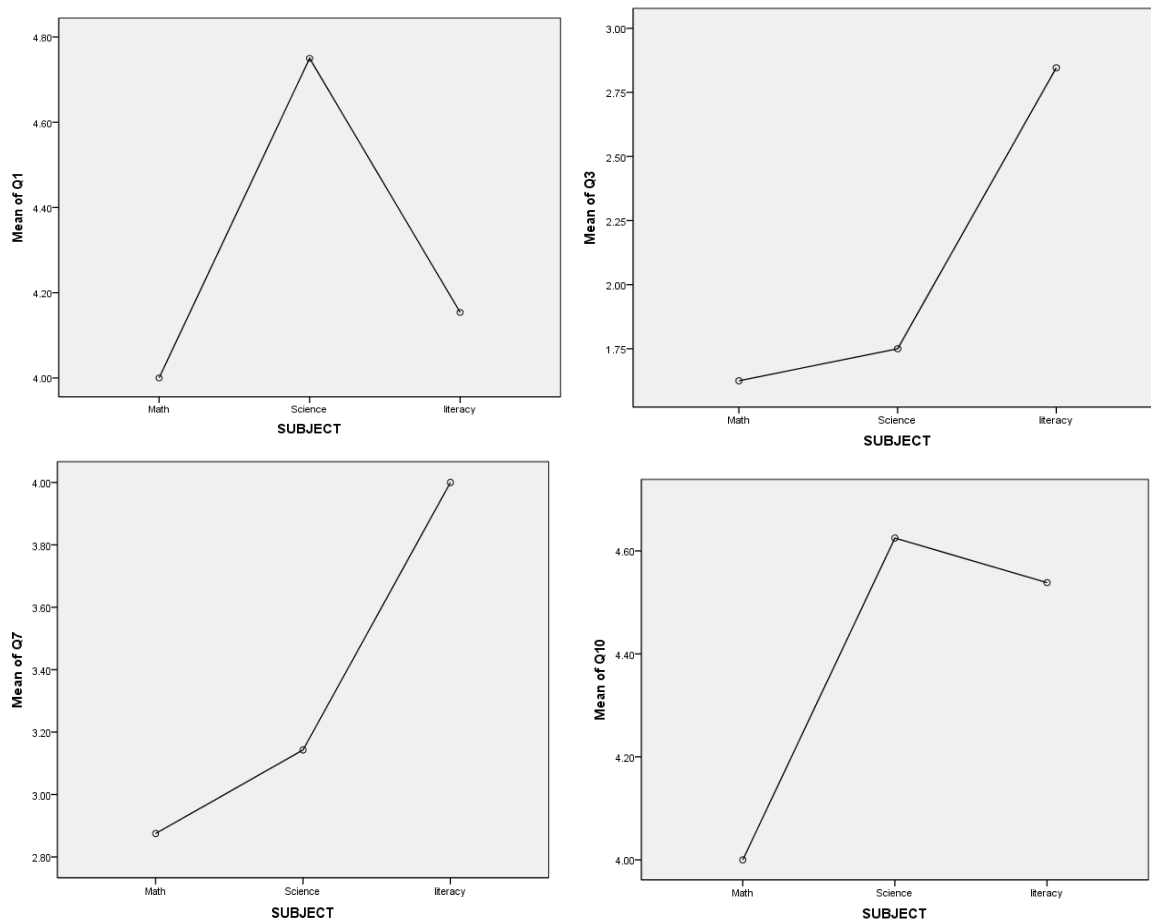


Figure 19. Differential levels of agreement in across subject areas

Additionally, literacy teachers agree on Q7 (If students are underachieving, it is most likely due to ineffective teaching) however, math and science teachers were uncertain. Finally, while science and literacy teachers strongly agree that ineffective teaching is correlated with student under achievement, math teacher only slightly agree.

Discussion

Over the past 50 years and despite the continuing challenges ensued by rapid population growth, Kuwait achieved wide strides in expanding educational opportunities and reinforcing equitable distribution of services and educational activities across the various centers in all regions of the state. Recently, Kuwait began implementing the revised curriculum in mathematics and science gradually in K-12 grades. It is proposed that the new curricula represent a shift in the way teachers deliver and facilitate the instruction in the classroom, with deeper emphasis on scientific explorations and critical thinking. Along with this reform movement, the State of Kuwait has supported numerous reform initiatives to promote development projects in education by increasing the rate of expenditure to 14.5% of GDP income and 4.3% of gross national GNP income in 2011/ 2012 (Department of Education, 2014). The expenditure supported projects that targeted the construction of new schools for boys and girls in new residential areas and providing training opportunities

through community service programs and continuing education programs for lifelong learning.

However, and despite educational efforts and significant financial investments and expenditures on development projects by the Ministry of Education and Ministry of Higher Education, issues related to teacher effectiveness and ways to strengthen teachers' beliefs in their abilities to be major stakeholders in the education process are still questionable. Results of international and national assessments showed that Kuwaiti students are not performing up to international standards in mathematics, science, and reading particularly at the 4th grade. As the results of this case study indicate, teacher motivation and efficacy are arguably major challenges facing the educational system in Kuwait. Perhaps what is needed is to provide a highly efficient system for supporting teachers by developing an infrastructure that will enhance their teaching capabilities and strengthen their content and pedagogical knowledge. Concomitantly, situated within this new system is a deliberate consideration of teacher efficacy as a construct that draws heavily on cultural, gender, and subject matter differences from one teacher to another.

This shift can be achieved by instituting a system for professional development for teachers to keep them up-to-date vis-à-vis the latest development of curricula and teaching methods as well as evaluation and leadership. Such reform initiatives is not limited to funding, but extend to include adjustments to existing policies related to administrative operations, school leadership and all administrative and technical regulations relating to education and training in the State.

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Appendix A

Mathematics/Science/Literacy Teaching Efficacy Beliefs Instrument (M/S/LTEBI)

Please indicate the degree to which you agree or disagree with each statement below by circling the appropriate letters to the right of each statement.

SA = Strongly Agree; A = Agree; UN = Uncertain D= Disagree; SD= Strongly Disagree

1. When a student does better than usual in mathematics/science/literacy, it is often because the teacher exerted a little extra effort	SA	A	UN	D	SD
2. I will continually find better ways to teach mathematics/science/literacy	SA	A	UN	D	SD
3. Even if I try very hard, I will not teach mathematics/science/literacy as well as I will most subjects	SA	A	UN	D	SD
4. When the mathematics/science/literacy grades of students improve, it is often due to their teacher having found a more effective teaching approach.	SA	A	UN	D	SD
5. I know how to teach mathematics/science/literacy concepts effectively	SA	A	UN	D	SD
6. I will not be very effective in monitoring mathematics/science/literacy activities.	SA	A	UN	D	SD
7. If students are underachieving in mathematics, it is most likely due to ineffective mathematics/science/literacy teaching	SA	A	UN	D	SD
8. I will generally teach mathematics/science/literacy	SA	A	UN	D	SD

ineffectively.					
9. The inadequacy of a student's mathematics /science / literacy background can be overcome by good teaching.	SA	A	UN	D	SD
10. When a low-achieving child progresses in mathematics /science/literacy, it is usually due to extra attention given by the teacher.	SA	A	UN	D	SD
11. I understand mathematics/science/literacy concepts well enough to be effective in teaching mathematics/science/literacy	SA	A	UN	D	SD
12. The teacher is generally responsible for the achievement of students in mathematics/science/literacy.	SA	A	UN	D	SD
13. Students' achievement in mathematics/science/literacy is directly related to their teacher's effectiveness in mathematics/science/literacy teaching	SA	A	UN	D	SD
14. If parents comment that their child is showing more interest in mathematics/science/literacy at school, it is probably due the performance of the child's teacher.	SA	A	UN	D	SD
15. I will find it difficult to use resources to explain to students why mathematics/science/literacy works.	SA	A	UN	D	SD
16. I will typically be able to answer students' questions.	SA	A	UN	D	SD
17. I wonder if I will have the necessary skills to teach mathematics/science/literacy.	SA	A	UN	D	SD
18. Given a choice, I will not invite the principal to evaluate my mathematics/science/literacy teaching.	SA	A	UN	D	SD
19. When a student has difficulty understanding a mathematics/science/literacy concept, I will usually be at a loss as to how to help the student understand it better.	SA	A	UN	D	SD
20. When teaching mathematics/science/literacy, I will usually welcome student questions	SA	A	UN	D	SD
21. I do not know what to do to turn students on to mathematics/science/literacy.	SA	A	UN	D	SD
EX1. Most of the students in my school will be at about the national average in academic achievement.	SA	A	UN	D	SD
EX2. Most students in my school are capable of mastering grade level academic objectives.	SA	A	UN	D	SD
EX3. Teachers in my school generally believe most students are able to master the basic reading/math skills.	SA	A	UN	D	SD
EX4. I expect that most students in my school will perform at about the national average in academic achievement.	SA	A	UN	D	SD
EX5. Nearly all my students will be at or above grade level by the end of this year.	SA	A	UN	D	SD
EX6. I expect most students in my school will perform below the national average in academic achievement.	SA	A	UN	D	SD