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The Male Dilemma: Patterns of Gender Disparity in Academic Performance in Oman

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ABSTRACT

The fact that young males lag behind their female counterparts in school and at university has become part of a worldwide phenomenon. There is currently a reasonable concern in many academic circles that boys are not succeeding in school as much as they should. It is feared that this phenomenon will have serious implications on the structure of the labor market, as well as on the family structures and relationships. Globally, boys are more likely to 'drop out' of schooling prematurely, and this in turn, results in lesser employment opportunities and therefore, inferior quality of life. It is important, therefore, to understand not only the nature of the actual performance differences, but also which differences matter and why. This paper is part of a larger project, which seeks to systematically examine why young males in Oman do not seem to be performing academically well compared to their female counterparts; and to identify and examine the factors that influence boys' school performance. This specific study aims to determine the level of academic disparity in different subject areas and at different age groups. The total sample of the study consists of 8000 students from all regions of the Sultanate in three different grade levels: Grades 5, 10, and 12. Data collected from students' records revealed that girls outperformed boys with an average of 10% in science, math, IT, English and Arabic language. The results of this study will be used as a launching board for planning relevant pedagogical, psychological, and sociological interventions as well as in developing a practical gender equity strategy. This paper may have implications for other education systems that are beginning to experience reversed gender discrimination in education.

KEYWORDS : Gender Gap, Academic disparity, Science, Math, IT, English, Arabic language, Social balance, male dilemma, Oman, gender equity, Reversed gender discrimination.

Introduction

In recent years, those charged with the responsibility of leadership in education have noticed that although males and females may be provided the same learning experiences and opportunities, female students generally appear to achieve a higher standard of academic success than their male counterparts. The high incidence of success obtained by females as compared to their male counterparts has almost become commonplace. Over the last 25 years, there has been a notable shift in the pattern of educational performance of male and female students as revealed by literature monitoring achievement tests results as well as by national final examination results. Girls seem to be outperforming boys in all areas of the assessed curriculum (Francis and Skelton, 2005; Gibb and Fergusson, 2009; Rowe 2002).

Apparently, this is part of a worldwide phenomenon. For example, boys consistently perform more poorly than girls in Year 12 across Australia (Collins et al, 2000). With reference to literacy, particularly verbal reasoning and written communication, Rowe, (2000a) refers to a large body of research that indicates considerable differences between male and female students as well as levels of achievement and rates of progress. It happens that, this phenomenon is no different in Britain than in Australia and the USA (Kenway & Kelly 2000; Pollack 1999). Previous research has shown that boys are significantly more 'disengaged' with schooling and more likely to be at 'risk' of academic underachievement — especially in literacy (Lingard, Martino, and Mills, 2009; Martino, and Kehler, 2006; Rowe & Rowe 2000). Boys are often found to exhibit greater externalizing behavior problems in the classroom and at home such as anti-social thoughts and conduct, restlessness, and particularly inattention (Rowe & Rowe 2000). Boys also report significantly less positive experiences of schooling in terms of enjoyment of school, perceived curriculum usefulness, and teacher responsiveness (Rowe, 2000b). According to Gibb and Fergusson (2009), ratios of success of females in New Zealand are greater than those of males in 12 out of 14 subjects. In addition, their study shows that females have a tendency to choose majors like education, health, medicine, biological sciences and English language more than males.

In England, an analysis of changes in the achievement of children of different school ages shows that over time, girls' performance surpassed boys in all levels of compulsory education, whereas boys' under-achievement increased over time (Machin and McNally, 2005). Younger, Warrington, & Williams (2010) conducted a study to examine the gender gap at GCSE in eight contrasting English secondary schools, and to discuss the reality and rhetoric of classroom interactions, focusing on the views of teaching staff, the perspectives of Year 11 students, and observations of teacher–student interactions in the classroom. The results suggest that most teachers believe that they give equal treatment to girls and boys, particularly in support of their learning, but focus group interviews with students and classroom observation suggest that this is rarely achieved; in most schools, boys appear to dominate certain classroom interactions, while girls participate more in teacher–student interactions, which support learning.

Based on the literature, there seems to be reason for concern. Boys' underachievement seems to permeate through all levels of schooling and different subject areas such as science, math, and languages. For example, in 2007 the results of the "Trends in International Mathematics and Science Study" (TIMSS) of approximately 425,000 fourth and eighth grade students from 59 countries showed significant differences between female and male students in science and mathematics in favor of the female students. Grade Eight girls obtained higher average achievement scores than boys across all participating countries with an international average of (453) for girls and (448) for boys. The same patterns of academic disparity also appear in the 2011 TIMSS results. (<http://timss.bc.edu/timss> 2011). On standardized achievement tests of basic school skills, females also surpass males in writing ability and reading achievement while males surpass females in science and mathematics (Madu and Kasanga, 2012). Generally, these gender differences are small. The one exception is the significant female advantage in writing skills. According to Tella (2003) the female advantage on standardized tests of reading and writing achievement substantially outstrips the male advantage on standardized tests of science and mathematics. This, however, does not negate the fact that the literature on gender gap varies according to contexts (Mirjana, Zoran, Anja, and Zoran, 2011).

At the regional level, literature on low academic achievement of boys in relation to that of girls is replete with long lists of causes and effects (Ridge 2009). In the United Arab Emirates, for example, boys are posting lower examination scores and dropping out of high school at a much greater rate than girls, with fewer boys going on to university education. According to Ridge (2009) about 70 percent of Emirati girls enroll at university after high school, while the percentage of boys is only 27.

Gender disparity in the local context

The education system in Oman has grown exponentially in the last 40 years. The modern education system started with three schools enrolling only 900 boys. Over the years, school enrolment of the two genders reached parity due to positive gender policies and the government's tireless monitoring to ensure that education provision is fair and equitable. The current system provides 10 years of basic education (K-10), and two years of post-basic (grades 11 and 12). Basic Education was initially introduced in the academic year 1998/1999 in 17 schools involving 14,000 students, 397 classes, 637 teachers and 80 administrators (Al Barwani and Osman, 2011). There are now over 1300 grades 1 through 12 schools enrolling over 600,000 students, nearly half of whom are girls. The TIMSS results of 2007, and 2011 provide clear evidence of the existence of the phenomenon of boys' academic underachievement in Oman.

The disparity in academic performance between female and male students can also be observed at the higher education level in Oman. At Sultan Qaboos University, for example, over the years female students have outperformed their male counterparts across colleges and disciplines with an average GPA of (2.92) for females and (2.63) for males. In addition, out of the 215 students on academic probation in 2012 academic year, (89.3%) of them are males while (10.7%) are females https://sis.squ.edu.om/siswebreg//3s/probList_webjsp. Moreover, on the Deans' Honors Lists across the colleges, the top students are almost consistently females. For example, (93.4%) of the college of education Dean's honors list in 2012 are female students (<https://sis.squ.edu.om/siswebreg/>). The fact that over (90%) of SQU's Honor Lists have continuously consisted of female students has made it extremely difficult for the university to recruit qualified male demonstrators assistant lectures and lecturers. In addition, for some cultural and religious reasons the rate of labor force participation for female nationals is still considerably lower than that for male nationals, despite the fact that female nationals attain higher educational levels (RAND, 2008) This situation, in turn, has and will continue to have negative impact on the balance of the number of male and female university academic staff. This common trend may also apply to many other public and private higher education institutions. The fear is that in the future, higher education institutions may have to recruit less qualified male academic staff in order to strike a balance between males and females at the expense of quality.

To further elaborate on the relevance of the disparity in academic performance between males and females to the Sultanate of Oman, it is to be noted here that there are now two different measures for accepting male and female students into higher education upon completion of the high school diploma. Males are now being accepted with lower overall admission grades percentage than females. This; *inter alia*, has resulted in a significant number of highly qualified females (with overall admission grades percentages in the upper 80s and 90s) not finding acceptance to the universities.

As noted earlier, there seems to be a general consensus among researchers regarding gender disparity in academic performance. However, there are diverse opinions with regard to the factors that influence academic attainment of males and females. Kenny-Benson (2007), for example, points out those girls were more likely to hold mastery over performance goals and to refrain from disruptive classroom behavior than boys, which led to predicting girls' greater effort in learning over time. The gender difference in learning strategies also accounted for girls' edge over boys in terms of grades. According to Tinklin, (2003), there is no simple explanation for gender differences in terms of academic attainment and the factors

affecting it. Factors such as peer influence, interaction of teaching and learning styles, teacher-pupil relationships and classroom interactions, curriculum content and assessment methods, and parental and societal influences are believed to contribute differently and in various degrees to gender academic disparity. Resonating with Tinklin, Bahr (2002) concluded that systemic factors that affect education for boys include family, school and community environments, peer culture, student-teacher relationships, and teacher classroom practices.

Gilbert (2009) suggests that the research evidence on gender disparity in academic performance should have implications for both the education sector and the labor market in both short and long terms. In the labor market, there is already a need for qualified males to fill in specialized area-related jobs. In education, there is a need to develop curricula, pedagogy and teaching that responds to the real needs of male students. Research indicates that differences in performance need to be examined according to differences between and within gender groups (Kenway & Kelly 2000). It is important, therefore, to understand not only the nature of the actual performance differences, but also which differences matter and why. A number of countries such as the US, the UK, and Australia have set up task forces to address the issue of boys' education, in general, and they addressed questions of what kind of help educators can provide to solve this problem (Rowe 2000).

Evidently, there is a growing global concern regarding the gender gap in educational outcomes, and there exists a plethora of research in the western literature examining the factors affecting boys' attainment. However, there is no boys' attainment-related research in the local Omani context despite the seriousness of the situation. It is justifiable, thus, to argue that there is a crisis in boys' education that merits close attention, particularly with regard to the influences, not only on school and the eventual work force, but on the fabric of the Omani society at large. To this end, this study seeks to, first, determine the level of academic disparity in different subject areas and at different age groups, and, then, to uncover patterns of disparity among subject areas and grade levels. It is hoped that this study provides crucial data that can be used to help in planning relevant pedagogical, psychological, and sociological interventions as well as in developing a practical gender equity strategy.

Research Questions

How do male students perform when compared academically with their female counterparts at different grade levels?

Does the academic performance of male and female students vary according to subject matter (science, mathematics, IT, and English and Arabic languages)?

Methodology

Research Design

A descriptive analytic methodology which draws upon mixed methods of quantitative data sources was used. The overall project investigated students' performance in four age groups: Grades 5, 10, 12, and college level students. The purpose of the project is to identify the contributing factors influencing the academic performance as well as assessing the impact of these factors on students' performance. In addition, ethnographic data was collected and analyzed. This particular study examines the patterns of academic disparity among males and female students in grades 5, 10, and 12 in the achievement tests of five subject areas: Science, Math, IT, English and Arabic Language.

Sample

The sample of the study consisted of 8000 students from grades 5, 10, and 12 from 35 schools. The schools were selected randomly from 7 governorates in Oman, with 5 schools each representing the student population in the public school system.

Instruments

Data collected for this study was based on students' scores on the achievement tests developed by the Ministry of Education according to the guidelines and specified curriculum of the selected subject areas (Science, Math, IT, English and Arabic Languages).

Results and Discussion

Table 1: T-Test results of students' achievement by grade and subject area.

Subject	Grade level	Gender	N	Mean	Std. Deviation	T value	P
sciences	5	Male	695	62.30	19.05	-5.797	0.000
		Female	990	67.77	19.08		
	10	Male	868	50.99	17.21	16.147	0.000
		Female	1379	63.10	17.47		
	12	Male	621	55.76	19.06	11.68	0.000
		Female	749	67.11	15.86		
Math	5	Male	695	59.38	18.23	10.847	0.000
		Female	989	69.11	18.07		
	10	Male	869	46.40	16.58	18.202	0.000
		Female	1379	60.13	18.66		
	12	Male	662	50.33	17.81	9.869	0.000
		Female	749	58.89	14.76		
English	5	Male	695	59.71	17.79	13.671	0.000
		Female	990	71.64	17.51		
	10	Male	869	49.53	16.71	14.923	0.000
		Female	1379	63.10	17.47		
	12	Male	732	51.37	18.97	8.678	0.000
		Female	989	58.84	16.58		
Arabic	5	Male	694	65.91	22.62	-8.742	0.000
		Female	990	75.20	19.73		
	10	Male	868	50.74	21.26	24.229	0.000
		Female	1378	71.20	16.30		
		Male	1219	48.12	20.72	22.227	0.000
		Female	1418	64.82	17.33		
Information Technology 10	5	Male	658	77.19	16.03	0.284	0.774
		Female	856	76.97	15.21		
		Male	747	69.26	21.63	16.141	0.000
		Female	841	84.26	14.10		

Table 1 portrays the findings of the students gender differences in achievement in five subjects (Science, Math, English, Arabic and information technology) by grade level (5,10,12). The findings show that there are significant differences in achievement attributed to gender in all levels of four content areas studied (Science, Math, English, and Arabic). The only non-significant differences in achievement between males and females were exhibited in 'Information technology' for grade 5 students. However, significant differences continue to be observed for grade 10.

Figure 1: A Comparison of students' scores in biology, chemistry and physics in grade 12

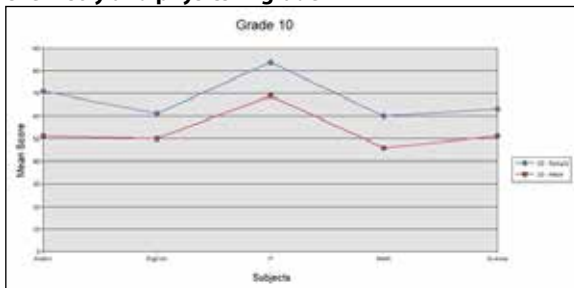


Figure 1 above illustrates that although girls outperformed boys in all three disciplines, their disparity appears to be wider in biology compared to chemistry and physics respectively. This seems to be consistent with previous research on gender gap in science achievement (Dawson, 2000; Kahle, Parker, Rennie, & Riley, 1993; Woodward & Woodward, 1998; Burkam, Lee, & Smerdon, 1997; Farenga & Joyce, 1999; Jones, Howe, & Rua, 2000; Murphy & Whitelegg, 2006; Osborne & Collins, 2001; Spall, Barrett, Stanistreet, Dickson, & Boyes, 2003; Italy (Falchetti, Caravita, & Sperduti, 2007; Friedler & Tamir, 1990; Trumper, 2006; Yerdelen-Damar & Eryilmaz, 2009; Hoffmann, 2002; Scantlebury, Baker, Sugj, Yoshida, & Uysal, 2007). Given the fact that science curriculum in Oman is designed and developed centrally by the Ministry of education, this pattern of disparity might be due to gender gap in in-

terests toward science. According to Baram-Tsabari & Yarden, (2005), there is a persistent stereotypical gender gap between girls' and boys' interests within science. They reported that while physics and technology prove significantly less interesting to girls than to boys, biology is of greater interest to girls than to boys.

Overall, in the following graph a comparison of students' scores by subject area is presented. The graphs further indicate that females outperformed males in all subjects with clear fluctuations of scores at different grade levels. It is observed that grades 5 and 12 male and female scored higher in science than grade 10. That is both males and females scores were high in grade five but declined in grade 10 but increased again in grade 12. What is interesting is that the gap between males and females performance are of similar size in all the subjects in favor of the females.

Figure 2: A comparison of students' scores by subject area in grade 5

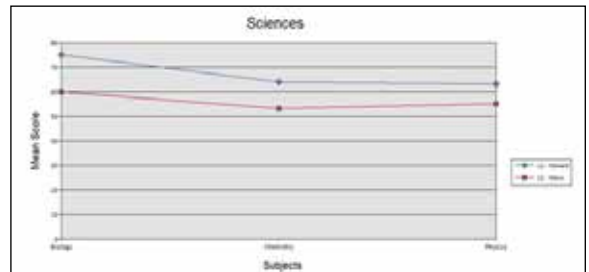
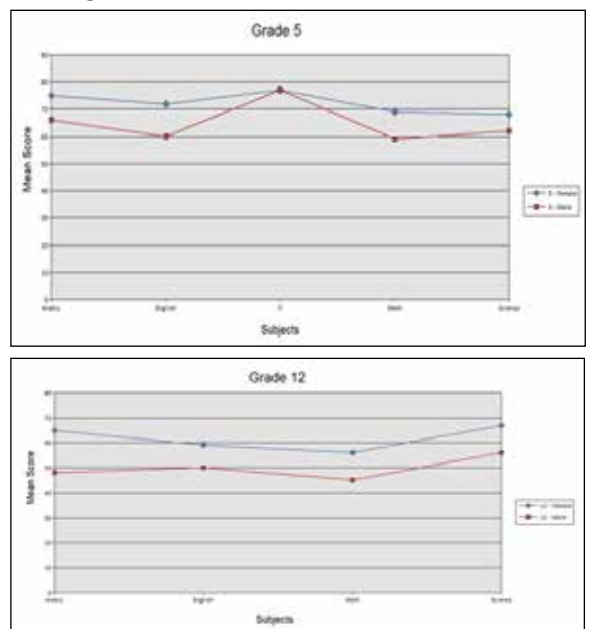


Figure 3: A comparison of students' scores by subject area in grade 12



With regard to the gender differences in achievement by subject, figure 2 show that grade 5 females outperformed males in all subjects (Arabic, English, Math and science) except one (Information technology). However, the size of the gap in achievement between males and females in the different subjects is similar. Both groups (males and females) level of achievement is seen in order from high to low as IT, Arabic, English, Math and science. That is, regardless of the level of achievement both males and females achieve higher scores in IT than in other subjects and lower scores in science and math respectively. Here, it can be said that the level of difficulty in the different subjects is identical for both groups regardless of the difference in performance.

As for the gender differences in achievement Figure 3 reveals that grade 12 females outperformed their male counterparts in all subjects. However, for both males and females the level of achievement from high to low scores is Science Arabic, English, and Math. That is, grade 12 males and females.

With regard to grade 10 gender differences in achievement, figure 2 also reveals that grade 10 female students outperform male students in all subjects with similar degree of differences. However, females level of achievement in the different courses is seen in order from high to low as IT, Arabic, science, English, math whereas the order for males is IT, Science, Arabic, English and Math. It is worth observing that the order is almost identical for both groups except in the case of Arabic and science.

Conclusion

Research in general indicates that there is a clear and consistent pattern of gender disparities in academic performance in different subject areas, across countries, and age groups. Findings in Oman have shown a similar trend in grades 5, 10 and 12 in Math, Science, English, and Arabic, with Technology showing a slightly different trend.

Global findings have shown that the most pronounced gender difference in academic achievement appears to be in reading, where females not only exhibit higher performance in reading, but also enjoy reading more than boys. Consistent with these findings, females in Oman outscored boys in both English and Arabic language by a margin of 10 to 16 points respectively. This may explain the gender differences in other subjects that require higher levels of reading ability. Globally, the pattern of disparities in other subjects such as mathematics and science appears to vary significantly according to age groups and level of achievement indicating a downward trend for females when reaching higher grade levels. Global findings show that in mathematics males' advantage over females emerges in later school years, while in both science and mathematics there is no gender differences amongst low achievers. However, the global downward trend for females at higher level was not observed in the Omani context. On the contrary, females consistently outperformed males in Math and science at all grade levels up to higher education and beyond.

Further analysis of the science performance indicates that female achievement being congruent with the international findings, where the performance gap in biology was higher compared to chemistry and physics. With regard to technology, however, one can note an interesting trend, whereby both genders perform equally well. However, both genders converge at grade 5 and diverge again at grade 10 with females performing higher than males. This finding comes as a surprise considering today's youth are highly immersed in social media and expected to be equally skilled in IT related fields.

Overall, the implications of these findings are vast. Given that the Arab/Muslim society is staunchly patriarchal, with the male members required by "Sharia" to be the leaders of the family and its providers. One then wonders how these societies will look like if the male academic achievement patterns continue on its downward trend, the economic and social repercussions will be severe. This paper did not attempt to answer the difficult question of why do male underachieve, and what can be done to reverse this trend (these would be addressed in future research papers). It rather focused on identifying the size and location of the achievement gaps. It essentially draws attention of educators and policy makers to the dangers of slighting this phenomenon and believing that this is a passing trend with no interventions required. The paper also touches on the notion of reversed gender discrimination which seems to be a reality that educators are not yet ready to confront. Questions such as whether our education systems are actually addressing boys learning require serious investigation.

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