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Public versus private education in primary science: The case of Abu Dhabi schools

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ABSTRACT

This study compares public and private science education in sixteen Abu Dhabi primary schools. A survey including open-ended questions was used to assess teachers' perceived strengths and challenges in teaching science. Perceptions of primary school principals were analyzed through individual interviews. Both sets of data sources were coded and several themes were identified. The predominant findings show that science teaching in Abu Dhabi's schools faces a number of challenges. This study cannot conclude that either public or private education is superior in this context. However, it can begin to delineate how they differ. Many of the identified issues could be addressed by targeted, well-publicized professional development, which focuses on both teaching science content and integrating science throughout the curriculum.

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1. Introduction

1.1. Public versus private schools – which is better?

The public versus private school debate continues to intrigue scholars as they try to make sense of contradictory evidence of the superiority of either. Much of the debate in the U.S. was fueled by The National Assessment of Educational Progress (NAEP) report on Student Achievement in Private Schools (Perie, Venneman, & Goldstein, 2005) based on cross-sectional data. They report that private schools outperformed public schools in all major subject areas, including science. While controlling for demographic variables, one study in the U.S. concluded that private school parents had a higher perception of school quality than public schools parents, particularly in the areas of instructional program, support for student learning, school climate and parent–school relationships (Charles, 2011). A recent review that assessed the results of international research on market and government providers of education concluded that “the private sector outperforms the public sector in the overwhelming majority of cases” (Coulson, 2009, p. 31).

The private school advantage is evident in a comparison of student cognitive achievement scores in a series of studies comparing both types of schools in Colombia, the Dominican Republic, the Philippines, Tanzania and Thailand (Cox & Jimenez, 1991; Jimenez, Lockhead, Luna, & Paqueo, 1991). The achievement advantage is particularly large for math scores. This is consistent with a previous study which showed both math and vocabulary scores to be significantly higher in private

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institutions in the U.S. (Coleman, Hoffer, & Kilgore, 1982). One study in Indonesia even compared labor market earnings post-graduation as a measure of effectiveness rather than test scores (Bedi & Garg, 2000). They concluded that private secondary schools are superior.

So, how can the discrepancy be explained? The NAEP data from the U.S. has been reanalyzed to tell another story. When adjusted statistically for demographic variables such as income, public schools score higher than private (Lubienski & Lubienski, 2006). Another longitudinal analysis by Wenglinsky (2007) showed that the only impact on science scores was socioeconomic status. Thus, the claim that private schools are better than public schools, based on higher achievement scores at private schools, has come under fire. The argument is that each type of school attracts different kinds of families. Therefore, differences exist before students even walk through the classroom doors.

Sawyer and Sawyer (1982) examined 90 students prior to their entry into schools and noted that, “at the kindergarten level, private school students possessed readiness skills superior to those of public school students in the areas of verbal and numerical memory and receptive language. Further, parents of private school students involved themselves in their children’s education significantly more than did the parents of public school children” (p. 1). Even the study conducted in Indonesia by Bedi and Garg (2000) came under attack as others contributed to the private school advantage, described not with quality of education but with the province from which the students came (Fahmi, 2009; Newhouse & Beegle, 2006).

It is therefore argued that if these differences exist before formal schooling, then quality of schooling may not necessarily be the main factor that explains higher achievement in private schools. Many hold that differences in achievement scores may be attributed to the fact that public schools are more heavily regulated and provide a greater variety of services. As Bracey (2008) points out, “private schools have more affluent students, fewer special education students, fewer minorities, and fewer English-language learners” (p. 396). In other words, before we can make a claim that private education yields better results than public education, we need to be sure that we are comparing apples to apples.

The focus of this study is on comparing science teaching practices among types of schools and not achievement. The issue of families’ economic status will not be addressed. However, a few assumptions may be made. Many families present in the UAE are there purely for economic reasons – their SES is enhanced by being in the UAE and is vastly different to their status in their country of origin.

1.2. *Public versus private schools in Abu Dhabi’s educational system*

Much like the increase in private education in sub-Saharan Africa (Barry, 2009) and Pakistan (Andrabi, Das, & Khwaja, 2008), the United Arab Emirates (UAE) has seen a surge in private educational institutions, particularly over the past two decades. This is due to identified shortcomings in the existing education system and a dependence on foreign labor due to low number of qualified Emirati nationals, including teachers. In mid 2011 in the Emirate of Abu Dhabi alone, the labor force was estimated to be comprised of about 1,287,000 non-nationals and 116,400 UAE nationals (SCAD, 2012). UAE nationals are a numerical minority in their own country, having occupied both professional and unskilled jobs with foreign workers. Some argue that the continued dependence on foreign labor, as the UAE celebrates its 41st year as a nation, is due to the fact that nationals lack the qualifications necessary to fill positions in science, technology, engineering and mathematics (STEM) fields (Al Kibsi, Benker, & Schuber, 2007).

There is an international trend for students to shy away from STEM (Darby, 2005; Palmer, 2007) and the same may be true in the UAE. The consequence is a shortage of qualified STEM professionals at a time when countries are desperately trying to keep up with rapidly changing scientific innovation (Laugksch, 2000). This trend is apparent in the UAE, as its foreign workforce continues to swell.

As a result of such shortcomings in both attracting students to the STEM fields and increasing academic rigor in its educational system, the UAE encouraged the establishment of private schools. These schools are open to nationals and non-nationals, with one of the major requirements for student admission being sufficient fluency in English. In addition, UAE schools engage in massive recruitment efforts to bring Western, English native speaking teachers to occupy teaching positions in both private and public sector schools. ADEC has published science standards for the primary grades, which all schools are required to meet regardless of the curriculum or approach they have to teaching science. Although private schools operate under several different curriculum structures including French, Canadian (Alberta), Indian, and Australian, the majority of the private schools follow British or American curricula and the public schools draw heavily from the same principles under the New School Model. This research sought to compare the beliefs, practices and support of primary science teachers in Abu Dhabi in both public and private schools.

1.3. *Purpose of this study*

The purpose of this study is to provide baseline descriptions of similarities and discrepancies in science education that exist between public and private schools in Abu Dhabi. Guiding research questions include: (1) how do the schools compare in terms of science teaching practices? (2) how do the schools compare in terms of science teaching resources? In addressing these questions the school climate, including aspects such as leadership and collegiality, and its influence on science teaching practice will be explored.

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