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entitled

Saudi Ministry of Education General Supervisors' Attitudes Towards Public School Finance: A Descriptive Study

by

Sultan Mutahhiri

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Educational Administration and Supervision

_____
Dr. Randall Vesely, Committee Chair

_____
Dr. Edward Janak, Committee Member

_____
Dr. Nancy Staub, Committee Member

_____
Dr. Michael D. Toland, Committee Member

_____
Dr. Scott Molitor, Acting Dean
College of Graduate Studies

The University of Toledo

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An Abstract of

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The Kingdom of Saudi Arabia (KSA) spends almost $50 billion, or 19% of its $254 billion budget, on education, but student achievement is still lagging in most international measures (e.g., TIMSS & PISA) relative to other countries, many of which spend far less than the KSA. These discrepancies between spending and achievement raise concerns about the KSA's public school finance system and its potential areas of inequity, inefficiency, inadequacy, and unaccountability. In research on public school funding, a few principles of a sound school finance system have emerged, namely the principles of Horizontal Equity, Vertical Equity, Adequacy, and Accountability (Crampton & Whitney & Crampton, 1996). However, most of the research on these principles has been on public school finance systems in various states around the United States, and to a lesser extent on some European and African countries. To date, little research on public school finance on the Saudi education system has been conducted in general, let alone on the principles of a sound school finance system listed above. Thus, the purpose of this study

was to address this gap by studying the attitudes of General Supervisors in the Saudi Ministry of Education (MOE) towards the school finance principles of Horizontal Equity, Vertical Equity, Adequacy, and Accountability. Data was collected using a translated and modified version of Park's (2010) survey, named Attitudes toward Funding Equity in Public Education, in which the principles above were operationalized as four scales with seven items per scale (28 items total). The translated and modified survey was reviewed by experts in educational finance (n = 2) and instrument design (n = 1) in both English and Arabic and was distributed to participants electronically as a Qualtrics survey via email. A Classical Test Theory (CTT) approach was used to assess the measurement aspects of the data. The data was analyzed using descriptive and scores among each scale were examined using Pearson correlations. The CTT analysis identified four likely invalid sets of responses, which were eliminated from the 65 responses received, resulting in 61 responses that were used for data analyses. Additionally, one of the items of the survey, in the Horizontal Equity Scale, was eliminated due to its negative influence on the reliability of the data from one of the scales. The results showed that, overall, the General Supervisors of the Saudi MOE tended to give higher scores (more agreement) on each of the four scales. However, a potential ceiling affect was identified, which indicated that each scale may not have been gathering true maximums. Additionally, the results show that all the responses to the scales were positively correlated with each other (r = .249 to .504), although Horizontal and Vertical Equity had the lowest correlation all other scale scores (r = .174). The strongest correlation was between scores on the Adequacy and Vertical Equity scales (r = .504). Further implications and recommendations are discussed in the dissertation.

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Chapter One

Introduction

This dissertation focuses on the principles of public school finance in the Kingdom of Saudi Arabia (KSA). In Chapter 1, the researcher introduces the problem of interest—attitudes of general supervisors in the Saudi Ministry of Education (MOE) towards the principles of public school finance—and explains the significance of the research. Additionally, Chapter 1 also states the purpose of the study and the research questions to be investigated. The theoretical framework upon which the dissertation is based—Whitney and Crampton's, 1996 Principles of a Sound State School Finance System—is also introduced. Lastly, definitions of the key terms are provided and the overall organization of the proposal is outlined.

Statement of Problem

The educational system of the KSA is not performing well despite the steadily increasing budget for the MOE (Education Training and Evaluation Commission [ETEC], 2019; Herrera & Ouedraogo, 2018). For example, Saudi students' scores on the Program for International Students Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) tests are low compared to most other countries around the world that participate in the assessment. According to TIMSS, Saudi students had the lowest average math and science scores out of all 45 participating countries (Mullis & Martin, 2015), despite the fact that many of the countries that scored better spent less per capita on education than Saudi Arabia (OECD, 2019). In the 2019 PISA test, Saudi students scored an average of 399 on reading, 375 on mathematics, and 386 on science, while the average scores for the 36 countries that make up the Organization for

Economic Cooperation and Development (OECD, 2019) were 487 on Reading, 489 on Math, and 489 on Science (PISA, 2019). Some modest improvements in TIMSS have been made in recent years, which reflects efforts to improve education, but, according to ETEC (2019), the results are still low compared to other nations, which raises concerns about education quality. These relatively low academic achievements despite ample spending raise serious questions about the financing of Saudi public schools and the extent to which the funding system aligns with key principles of school finance such as equity, adequacy, and accountability.

In response to subpar educational outcomes, the KSA has initiated educational reforms intended to build on the country's fundamental strengths while addressing its weaknesses in order to help KSA citizens—and by extension the entire country—achieve greater global success. Many of these reforms are outlined in the *Saudi Vision 2030* strategic plan (KSA, 2016). One of the *Vision 2030* programs focuses on human capital development, with the aim of improving the usefulness, quality, and flexibility of the educational system in order to strengthen the KSA's regional leadership and international competitiveness (KSA, 2016). To accomplish this goal, the government has stated that it is allocating 19% of its budget to the Ministry of Education (MOE), approximately $190 billion Saudi riyals ($5.6 billion U.S. dollars), which marks a 29% increase in the financial resources dedicated to education (Ministry of Finance, 2020). The recent increase in the MOE budget is quite large, although funding for the MOE has been rising consistently in recent years. In 2019, the MOE received SAR$135 billion (USD$36 billion), compared to an average of SAR$123 billion (USD$32.8 billion) in 2016, 2017,

2018 (MOE, 2020), an increase of almost 10% (Ministry of Finance in Saudi Arabia, 2020).

These results prompted the Saudi MOE to implement reforms and to further decentralize the education system. MOE hopes that school decentralization will help reduce duplication, clarify tasks, increase fiscal accountability within schools and enhance the quality of governance (Minister of Education, 2020). However, Saudi Arabia's experiments with decentralization and devolution of authority from the central to the regional and school levels seem to have been limited to the devolution of tasks and duties that are administrative rather than those geared toward the development of local schools through the decentralization of educational decision making (World Bank, 2019). Furthermore, previous research has found that the massive budgets entrusted to the education system may lack adequate governance or oversight since most administrators likely have limited experience with sound governance principles which enhance fiscal accountability, autonomous decision making, and creativity (Meamar, 2014).

As a result, it may be the case that even with reforms, the Saudi system does not possess the qualities that define sound school finance governance, which Crampton and Whitney (1996) define as incorporating principles of equity, efficiency, adequacy, accountability, and stability. Examining MOE employees' perspectives about whether the Saudi system possesses or is moving toward possessing these qualities will allow those within the Ministry to understand how their actions are perceived at the local level, which may serve as an indicator of whether the Saudi system possesses these qualities or may indicate whether there are diverging ideas about how to understand these qualities. Unfortunately, little is known about how the Saudi MOE's budget is procured and

allocated for two reasons: (1) prior research on the topic is scant and (2) the financial reports of the Saudi ministries are not public information since the ministries are accountable to the King more than the general public, owing to the fact that funding comes in large part from petroleum revenue rather than taxes. Knowing the attitudes of educational experts in Saudi Arabia towards principles of school funding may help the Saudi Arabia Ministry of Education and school administrators to address these challenges and obstacles. For these reasons, the concept of this study will be to try to survey knowledgeable employees in the Saudi MOE who can provide additional information about their attitudes towards principles of public school finance in relation to the Saudi education system.

Significance of the Problem

This study is important because it can help provide an appropriate roadmap in managing education finance effectively. There is limited research on the Saudi school funding system (Aljabri, 2003). By addressing the attitudes of high-level MOE employees towards the principles of a sound state school funding system, the study can illuminate which principles educational employees in Saudi Arabia value and which ones they do not value highly. Depending on the resulting attitudes, it may be possible to determine areas of school finance that would require more focus and development, given the realities of the Saudi system. The study is theoretically significant because it can help address the issue of how the MOE can best apply the principles of a sound state school funding system in a Saudi context. In terms of practical significance, research is essential for several reasons. First, by evaluating the attitudes of MOE employees in terms of the principles of a sound state school funding system, it can suggest avenues for

improvement of the financing of the Saudi system. Second, it has the potential to suggest to educational leaders how to fund schools in effective ways that will support their promotion of achievement for all students. Third, and it offers individuals that evaluate educational policy reform a tool for evaluating the practical consequences of the school funding system.

Purpose Statement and Research Questions

Because of the dearth of research on the topic of school finance in Saudi Arabia in general and the lack of studies about the attitudes of Saudi educational experts towards the school finance in particular, the aim of this study was to determine the attitudes of Saudi MOE general supervisors towards key principles of public school funding. Since the principles of a sound state school finance system have their roots in the context of the educational system of the United States, however, it raises questions about whether such a framework is applicable to Saudi Arabia. To adapt these principles to Saudi Arabia in a way that makes sense, it is necessary to consider the differences in the contextual terrains of the two countries in addition to language differences. Still, despite the differences in the contextual terrain, the basic principles of a sound school finance system can apply if the differences in the contextual terrains are taken into consideration. To better understand the extent to which these principles align with the Saudi school finance system, this dissertation proposes to survey employees in the Saudi MOE on their perceptions.

Stated more specifically, the purpose of this research is to examine the attitudes of Saudi MOE employees towards widely cited principles of public school finance (i.e., vertical and horizontal equity, adequacy, and accountability). In order to address the

purpose of the research, this study aims to answer the following two major research questions:

1. What are the attitudes of Saudi MOE general supervisors towards four widely cited public school finance principles (horizontal equity, horizontal equity, adequacy, and accountability)?
2. To what extent do the attitudes of Saudi MOE general supervisors towards these four public school finance principles (horizontal equity, vertical equity, adequacy, and accountability) correlate with each other?

Theoretical Framework

The theoretical framework that guided this research is based on Crampton and Whitney's (1996) *Principles of a Sound State School Finance System*. They proposed five principles of a sound system for funding schools: equity, efficiency, adequacy, accountability, and stability.

Equity is defined as providing a fair and equal amount of funding for the benefit of students and other stakeholders (Crampton & Whitney, 1996). Equity can be divided into vertical and horizontal equity, whereby horizontal equity refers to the everyone being treated equally regardless of needs or abilities, while vertical equity refers to a varied treatment based on needs and/or abilities (Crampton & Whitney, 1996). Besley and Coate (1999) underscore the importance of equity in education funding as it ensures that students benefit equally from government incentives. In terms of Saudi Arabia, the issue of equity revolves around funding for education based on gender, students with disabilities, and urban, rural, and nomadic communities.

Efficiency is defined as the best possible use of resources by minimizing unnecessary costs and maximizing outcomes (Crampton & Whitney, 1996). According to the Education Partners Project Foundation for State Legislation (1996), efficiency is a critical aspect in the development of school financing, as it ensures that there is no wastage of resources. Likewise, according to Jordan and Lyons (1992), efficiency is vital in the development of an education financing system as it will ensure optimal use of resources to avoid waste. As a result of this element, unnecessary expenditures will be eliminated to ensure that funds are only reserved for critical services. In Saudi Arabia, efficiency can be tied to how well students perform on international tests like the Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) scores in relation to their per pupil expenditures.

Adequacy is defined as providing enough resources to school districts to achieve educational goals and standards (Crampton & Whitney, 1996). According to Reschovsky and Imazeki (2000), the principle of adequacy is important because without sufficient resources, it is impossible to achieve the established educational goals and standards. For Saudi Arabia, adequacy may address the quality of education based on the same populations as mentioned in the equity paragraph: males and females, students with disabilities, and urban, rural, and nomadic communities.

Accountability is defined as the use of "generally accepted budgeting, accounting, and auditing procedures" that are communicated to and overseen by the key stakeholders and funders of the school system (Crampton & Whitney, 1996, p. 12). On accountability, Jordan and Lyons (1992) argue that schools can demonstrate that they use funds

according to set statutes. Hence, this element will ensure that the Saudi school funding system adheres to the generally accepted accounting, budgeting, and auditing procedures.

Stability is defined as maintaining predictability and consistency of educational revenues and expenditures over time (Crampton & Whitney, 1996). Stability is essential in the development of any education system (including the Saudi education system) as it will cushion the sector from unpredictable fluctuations, which may impair access to free education and the provision of services associated with it (Crampton & Whitney, 1996).

Definition of Terms

Equity

The fair distribution of resources, services, and burdens (Rice, 2004), typically measured in terms of per-pupil expenditures (Whitney & Crampton, 1998). Often divided into horizontal and vertical equity:

- **Horizontal equity**: Provision of equal resources across the board for all students under similar circumstances (Berne & Stiefel, 1994), also referred to as the equal treatment of equals (Crampton & Thompson, 2011).
- **Vertical equity**: The differential treatment of students or groups of students with identifiably different educational needs (Baker, Green, & Richards, 2008), also characterized as the unequal treatment of unequals (Crampton & Thompson, 2011).

Adequacy

Defined as "sufficient resources to ensure students an effective opportunity to acquire appropriately specified levels of knowledge and skills" (Guthrie & Rothstein, 2001, p. 103).

Accountability

Holding different levels of administration responsible for ensuring expectations and outcomes are met, such as ensuring equity of outputs (King et al., 2005).

Efficiency

Achieving the best possible outcomes with available funding while minimizing costs (Belfield, 2002).

Stability

The ability of a school district to predict the funding it will receive year to year for effective planning (Crampton, 2010).

Organization of Chapters

The dissertation contains five chapters. In the first chapter, the problem, purpose, research question, theoretical framework, and definition of key terms were presented. In Chapter 2, the literature concerning the relevant research, theories, concepts, and contexts is reviewed. Finally, the methods used for investigating the problem are described in Chapter 3. The final dissertation, which has yet to be written, will contain two more chapters. Chapter 4 will report the results of the study, while Chapter 5 will discuss the implications of the results and draw the overall conclusions of the study.

Chapter Two

Literature Review

This chapter includes a review of the literature relevant to the principles of public school finance. In addition to that, the chapter also reviews research that applies these principles, which originated in the United States, to the public school systems of other countries, including Saudi Arabia. Next, the chapter takes an in-depth look at the contextual terrain of Saudi Arabia that will inform how these principles might be translated from an American context to a Saudi one. Finally, this chapter ends with a summary of the main findings of the literature.

Equity, Adequacy, Efficiency, Accountability, and Stability in School Finance

Although this dissertation project is primarily based on Crampton and Whitney's (1996) *Principles of a Sound State School Finance System*—namely the five principles of equity, adequacy, efficiency, accountability, and stability—it is important to review additional school finance literature to further develop a comprehensive understanding of these principles.

Equity

Equity and equality are often used interchangeably, but there are semantic and conceptual differences that distinguish the two. Equality means that two or more entities are treated in the same way, which in school finance might mean equal resource and funding allocations. However, equality in educational inputs may not always be desirable or even fair since different children live in different conditions and have different opportunities that, depending on the extent of the differences, might reach the point of being considered unequal. Thus, it may indeed be fairer to provide somewhat adjusted

amounts of resources to balance out the inputs, or, to borrow a common colloquial phrase, to level the playing field. In such cases, equity (rather than equality) is the appropriate term and concept. Thus, the concepts of equity and fairness are interlinked (Omoeva, 2017).

In some contexts, equity and equality can amount to the same thing, such in rare cases where all other conditions are equal as well. However, in most real-world situations, there are always some differences in individual conditions and contexts that must be accounted for, which typically amounts to a redistribution of educational resources (human, institutional, and financial) with the aim of reducing systemic inequalities, which characterizes equity. In this sense, equity of inputs is a way to achieve equality of outcomes or equality of opportunity (Omoeva, 2017).

Equity is one of most often discussed principles of finance in public education given that one of the main tenets of public schooling is that it is a public good for all children equally (Rice, 2004). As a result of its importance in public education, equity has been defined and discussed from numerous perspectives, each giving rise to a number of slightly different definitions. For instance, Wise (1972) identified 10 distinct definitions of equity, and since then, even more definitions have emerged (Rice, 2004).

In general, equity refers to the fair distribution of resources, services, and burdens (Rice, 2004), but what does fair distribution mean? The answer to that question is not as straightforward as it might seem, since defining what constitutes such concepts of fairness and equity have varied depending on the time and place (Rice, 2004).

One of the questions plaguing discussions of equity is the issue of equal resources for everyone versus needs-based variations in provision of resources. Odden and Picus

(2014) touch upon this concern in their definition of equity, "each child receives substantially equal educational resources, plus additional resources for identifiable needs, such as special education and limited English proficiency" (p. 19). As this quote exemplifies, there are two parts of equity: that which comes before the "plus" in this quote and that which comes after: "equal educational resources" and "additional resources for identifiable needs." At first, these two parts might seem contradictory—equal funding for all but then additional funding for some.

To help address how these two parts of equity can work together, the concepts of horizontal and vertical equity emerged. Horizontal equity means equal resources across the board for all students under similar circumstances (Berne & Stiefel, 1994). Vertical equity, in contrast, entails the differential treatment of students or groups of students with identifiably different educational needs (Baker, Green, & Richards, 2008). In shorthand, horizontal has been referred to as the equal treatment of equals while vertical equity refers to the unequal treatment of unequals (Crampton & Thompson, 2011).

Horizontal Equity

Horizontal equity is almost identical to the concept of equality. Indeed, horizontal equity is most often defined as the "equal treatment of equals" (Crampton & Whitney, 1996; Crampton & Thompson, 2011; Johnson & Vesely, 2017). As Berne and Stiefel (1994) wrote in their foundational article on equity in school finance, horizontal equity is the provision of equal resources across the board for all students under similar circumstances. It is typically operationalized as equality of per pupil expenditures (Crampton & Whitney, 1996). As previously noted, however, equality of inputs is rarely ideal or fair, which is where the concept of vertical equity comes in.

Vertical Equity

Vertical equity is the differential treatment of students or groups of students with identifiably different educational needs (Baker et al., 2008) and is often characterized as the "unequal treatment of unequals" (Crampton & Whitney, 1996; Crampton & Thompson, 2011; Johnson & Vesely, 2017; Malen et al., 2017). Vertical equity allows differential spending levels based on the needs of students, such as students with developmental disabilities, limited English proficiency, and/or family poverty. Vertical equity may also address conditions outside the classroom that may affect a student's ability to learn, such as nutrition, health, and/or family environment. For example, school lunch vouchers for students impoverished may be one form of vertical equity. However, it presents a more complex challenge to school funding formulas than horizontal equity/equality because there is no wide consensus on what constitutes an unequal condition that must be accounted for or what specific adjustments to funding would be fair or just. While horizontal equity is operationalized as equality of per pupil expenditures, vertical equity is operationalized through weighted per pupil expenditures, or weighted pupil units (Malen et al., 2017). When an entire school funding system is based on such operationalized weighted pupil units, it can be considered a weighted student funding (WSF) or student-based budgeting (SBB) system (Malen et al., 2017).

Adequacy

Often discussed in tandem with equity is the concept of adequacy. Adequacy means funding is sufficient to achieve the desired goals or a particular purpose. Guthrie and Rothstein (2001) elaborated on this blending of sufficiency with desired outcomes in defining adequacy as "sufficient resources to ensure students an effective opportunity to

acquire appropriately specified levels of knowledge and skills" (p. 103). Thus, the determination of adequacy depends on what the stated goals of an educational system are. If the funding available cannot reasonably be considered sufficient to achieve the goals, then it is not adequate. For example, Odden and Picus (2014) explained, "Adequacy requires that each district receives sufficient funding to enable it to provide a child with an education that reaches a certain level of quality" (p. 19).

Equity and adequacy are somewhat related in the literature. Some definitions of adequacy highlight the connection it has to equity, while others emphasize the differences. For example, Swanson and King (1997) stated that determining adequate levels of funding requires the establishment of "standards of sufficiency," which may be "quite unrelated to the standard of equity" (p. 296). However, King, Swanson, and Sweetland (2003) argue that adequacy is "the ideal state of vertical equity" (p. 307). These seemingly contradictory positions—which Swanson and King were both involved in authoring—call further attention to the fundamental difference between horizontal and vertical equity. While adequacy and horizontal equity may be largely unrelated, adequacy and vertical equity are very closely related—to the point that adequacy might be said to be the ideal state of vertical equity. In a departure from Swanson and King's definition, Stiefel and Cordes (2015) stated that adequacy is a slightly different concept from equity.

One of the concerns that plagues questions of adequacy in school funding is what happens if desired outcomes are not met. For example, what if the number of students in a school who fail a state test is higher than the state's benchmark? Does that mean more money needs to be spent at that school in order to be considered adequate? The answer to that question in most of the literature seems to be that, no, students failing to achieve a

certain goal does not necessarily mean the funding is not adequate. According, to King et al. (2005),

> In the absence of full understanding of these relationships [between equitable spending and disparities in outcomes], the best that we can do at the moment from a policy standpoint is to identify resource levels that can produce the results we want to achieve with children of differing characteristics with a reasonable degree of probability. (p. 7)

Thus, the definition of adequacy in terms of achieving outcomes does not always need to be based on actual outcomes; rather, it is based on the ability to achieve its goals with the given funding within a reasonable degree of probability.

Similarly, Guthrie and Rothstein (2001) state that the determination of adequacy for policy judgments rests on the following two criteria:

1. the desired learning or performance levels (the goals or outcomes), and
2. the resource levels likely to allow schools to accomplish these goals or outcomes.

The keyword in the second criteria above is the word "likely," which is related to the ability within a reasonable degree of probability.

How can that reasonable degree of probability be determined? Some strategies used by policymakers and analysts to determine adequacy include:

1. **The econometric approach** – statistical analysis of data such as schooling input measures, student achievement and other measures of output, and demographic information.

2. **The successful school approach** – analysis of expenditures within districts that have successfully achieved stated state standards to determine what resources were adequate for them to achieve their goals.
3. **The professional judgment approach** – determination of the costs of resources needed based on a panel of experts an ideal delivery system to meet curricular standards within a given state
4. **The whole-school reform approach** – costing out one or more models for whole-school reform intended for adoption in their entirety by schools. (Guthrie & Rothstein, 2001)

While these are a few of the most common ways of determining adequacy, there are numerous other approaches (Baker et al., 2018; Baker et al., 2020).

Efficiency

As public schools have encountered greater scrutiny of their financial operations, efficiency and accountability have become increasingly important (Wood, Thompson, & Crampton, 2019). Although efficiency in education might seem like a newer concept, it has a nearly 170-year history in public education in the United States. The phrase thorough and efficient education first appeared in 1851 in the Ohio Constitution, which was subsequently adopted by many other states' constitutions (Johnson & Vesely, 2017; Neff, 2007).

Even though efficiency has been mentioned in numerous U.S. state constitutions for quite a while, it has not always been well received. According to Rice (2004), from the 1980s onward, efficiency has become a more prominent concern in debates and scholarship on public education in the United States, while equity received more attention

during the 1960s and 1970s. Prior to that, concepts like thorough and efficient education had been considered under different terms. Typically, thorough has been tied to the concept of adequacy while efficient has been tied to equity in the literature (Johnson & Vesely, 2017; Neff, 2007).

As Belfield (2002) defines it "Efficiency involves getting the most out of the resources available and therefore has two sides: what is 'got out' compared to what is 'put in'. Both sides need to be considered: efficiency can be improved either if more is obtained from the same inputs or if the same amount is obtained but with less inputs" (p. 6). Thus, efficiency typically indicates the systematic relationship between educational inputs--such as expenditures per pupil, teacher quality, class size, and class time--and outcomes, usually measured as student performance on a standardized test (Rice, 2004).

Since efficiency is really a measure of inputs and outputs, where the goal is to minimize the former and maximize the latter, it could be argued that efficiency is implied by equity, adequacy, and accountability, where equity is a measure of the inputs and accountability and adequacy are measures of outputs. The other difficulty with measuring efficiency is that outcome measures tend to be limited to standardized tests. Much has been written about the problems with measuring efficiency in terms of standardized test results taken during one year, which does not capture the long-term and sometimes intangible benefits of public education (Rice, 2004). Indeed, the relationship between inputs and outputs is a complex function that often does not get captured in measures of efficiency, with some studies even finding that there is no clear relationship between educational inputs and student performance outcomes (Rice, 2004). These limitations are

taken into consideration in the Instrumentation section of the Methods chapter when describing how the variables will be measured.

Accountability

Historically, state legislatures have enacted accountability measures as a way to achieve equity of inputs while accountability policies ensure equity of outputs (King et al., 2005). Likewise, Della Sala and Knoeppel (2015) characterize accountability as the "levers to provide equal educational opportunities for all students" (p. 2). Park (2010) noted that accountability measures often do not take equity or adequacy in funding into account, so that some schools may get penalized when their student performance levels do not meet the stated standards and benchmarks little concern for whether that school received adequate funding to begin with. Thus, accountability without concern for equity or adequacy can further inequity as failing schools get defunding (Rice, Monk, & Zhang, 2020; Park, 2010). However, Lafortune, Rothstein, and Whitmore Schanzenbach (2016) found that reforms to school finance and accountability measures have resulted in decreases in the achievement gaps between high- and low-income school districts.

Högberg and Lindgren (2020) divide "outcome-based accountability" into three dimensions:

How the school and student performances are measured (e.g., standardized tests)?

What the measurements are compared against (e.g., benchmarks, standards, goals)?

What the consequences are (e.g., incentives, disincentives, sanctions, rewards)?

In contrast, Hevia and Vergara-Lope (2019) propose dividing accountability into two types: social accountability and educational accountability. Social accountability is

the involvement of the community in the school system, or the extent to which citizens hold the government accountable for their educational needs. For Hevia and Vergara-Lope, educational accountability is the more traditional form of accountability wherein the schools (and the principals and teaching staff in the schools) are held to account for the outcomes of their students. Put simply, in the former, the general public holds the government accountable whereas in the latter, the government holds the schools accountable.

Ehren and Perryman (2018) note how accountability in modern educational systems has become increasingly complex because of shifts toward "network governance" that raises questions about "which actors at which levels should be held accountable for which outcomes, and how this can function in a coherent and intelligent manner" (p. 946). According to Ehren and Perryman, network governance of education is becoming increasingly common in countries that are moving towards decentralization, which is a direction that the KSA purports to be going in. Thus, it is necessary to keep in mind that there are multiple layers of duties and outcomes that must be clarified in order to decide who is accountable to whom and for what, which is a longstanding definition of accountability (Darling-Hammond & Ascher 1991) that is become increasingly complex in more decentralized and intricately networked systems (Ehren & Perryman, 2018).

Stability

Of the five principles of a sound state school finance system outlined by Crampton and Whitney (1996), stability at that time was the principle least addressed in school finance literature and legislation. As Crampton (1990) wrote, "The concept of stability in education finance lacks the development found with adequacy" although it is

still an important concern (p. 353). Not much has changed since 1990 when Crampton identified the lack of scholarship on the concept of stability. The present review of the extant literature reveals that 30 years later, this lack of research on stability in school finance research is still the case. A search of articles on research databases like EBSCO and Google Scholar revealed that the number of studies on the topic of "school finance" that contain "equity," "efficiency," "adequacy," and/or "accountability" in the title results in several hundred to over a thousand hits compared to about two dozen results with the word "stability" in the title.

Still, a few definitions of financial stability in school funding do exist and are reviewed here. According to Crampton (2010), stability refers to the ability of a school district to predict the funding it will receive year to year for effective planning. In a dissertation on the financial stability of Texas public schools, Caloss (2018) noted that financial stability can be divided into short-term and long-term stability, in which he defined the latter as being able to develop and implement a budget over a five- to ten-year period necessary to achieve goals.

However, to a great extent, stable funding is beyond the control of school districts because they are dependent upon broader economic conditions and the fiscal situation of the state at large (Crampton, 2010). Moreover, Fox et al. (2002) found that accountability-based funding formulas can contribute to instability, showing how these principles are interlinked in ways that push and pull against each other. Thus, it is important for officials to set aside sufficient rainy day funds when the economy is strong and revenue is at a surplus so that funding for public education can remain stable even during economic downturns (Crampton, 2010). For example, recent studies on school

finance have pointed to the importance of stability in funding during the current COVID pandemic, which has put major strains on local and state resources (Baker & Di Carlo, 2020; Wojcikiewicz, & Darling-Hammond, 2020). Because of the lack of scholarship on the stability principle and the uncertainty involved, this principle presents difficulties when trying to apply it to different contexts.

Equity of Inputs Versus Equity of Outcomes

One more way to conceptualize the relationship between the above principles of school finance is to divide them into two categories of equity: equity of inputs and equity of outcomes. Park (2010) conceptualized these principles in this way to design the data-collection instrument that is being adapted for use in this dissertation. Equity of inputs refers to how resources are distributed, both vertically and horizontally (Brimley & Garfield, 2002; Odden & Picus, 2000), while equity of outcomes refers to school performance, such as student achievement, school goals, or governmental mandates (Berne & Picus, 1994; Odden & Picus, 2000; Park, 2010; Wood et al., 2019). Thus, equity of inputs includes the above concepts of horizontal and vertical equity, while equity of outputs includes the concepts of adequacy and accountability. Efficiency and stability are not included in either of these concepts because they describe neither inputs nor outcomes but rather how resources are managed in between the input and outcome stages.

Applying the Sound School Finance System to Saudi Arabia

What makes a school funding system fair, effective, and efficient? That is, what makes it a "sound" system? To address questions like these, in the 1990s the National Conference of State Legislatures and the Foundation for State Legislatures in the United

States convened and put their efforts together to initiate the Educational Partners Project. The purpose of this project and the resulting reports was to address concerns about educational funding in the United States, including state-to-state differences. With 50 states each having its own say on how to fund its education system, 50 somewhat different funding models have emerged over time in the United States. Despite these differences, could a common set of principles be deduced that would constitute a sound finance system while also allowing for difference across states? What emerged from this initiative was a report by Crampton and Whitney (1996) called the *Principles of a Sound State School Finance System*. From their study, they proposed five principles of a sound system for funding schools: efficiency, accountability, equitability, stability, and adequacy. These principles have already been covered in the Theoretical Framework section of this dissertation, but here the literature concerning the applicability of these three principles to the educational system of Saudi Arabia is reviewed.

To determine the applicability of the principles of a sound state school finance system, as put forth by the Education Partners Project Foundation for State Legislatures (Whitney & Crampton, 1996), it is important to understand how funding works within the Saudi system in terms of Whitney and Crampton's (1996) five principles of equity, efficiency, adequacy, and accountability. However, because many of the concepts of a sound state school finance system were developed in the context of the American educational system—its politics, economics, and demographics—it may not directly translate to other countries around the world.

Despite the potential limitations, Whitney and Crampton's (1996) Five Principles have been applied to some other countries. For example, Brown (2006) applied some of

the concepts to South Africa, specifically the concepts of horizontal and vertical equity. According to Brown (2006), most of the focus of international educational debates about equity has been placed on horizontal equity. Brown argues, however, that in countries "where there are substantial differences in educational status between different groups in society," such as South Africa, "there is a need to view horizontal equity as a precondition (i.e., a means, not an end) for tackling vertical equity (the unequal, but equitable, treatment of unequals)" (p. 509). In a study of school finance equity in higher education in the country of Ghana, Aboagye (2015) made a similar point to Brown that there are substantial disparities between the statuses of different groups in society that require putting attention on horizontal equity first as a means to help address vertical equity second. Thus, wherever there exists a disparity in educational status, vertical equity ought to be not only a major concern but the ultimate goal. While some literature has explored the principles of a sound state school finance system internationally, as of yet no studies appear to have addressed the ideas in relation to the Saudi education system.

Saudi Arabia's Contextual Terrain: The Saudi Public Education System

The legal framework that establishes the principles of public education in the KSA, unlike in many countries, is not based on a formal constitution, nor is it based on legislative bodies. In the KSA, the Holy Quran is considered the de facto constitution that establishes the fundamental rights and principles, but of course this holy book does not include laws for everything (Aldaghishy, 2019). Modern laws are instead enacted through Royal Decree, in which the sitting King of the KSA declares a new law henceforth that is to be followed unless undone or superseded by a future Royal Decree. These are like

Executive Orders in the United States, if such orders were the only source of laws. Although the Saudi King is the final authority of the state, he usually makes his Royal Decrees in consultation with his *shura* council and his Council of Ministers (Aldaghishy, 2019).

Some important Royal Decrees for public education in the KSA include the following:

- Royal Decree no. 22646/R (2004): Primary education was made compulsory for both boys and girls from ages six to fifteen.
- Royal Decree No. A/2 of 10/1 A.H. 1423 (2002): General Administration for Girls' Education (GAGE) was incorporated into the Ministry of Education (MOE).
- Royal Decree No.75M (2007): Decentralization reforms under the Tatweer project (2007)

This small sample of Royal Decrees illustrates how all of the laws and rights that inform the principles of public school funding in Saudi Arabia are determined not by a constitution or legislative action, but rather by executive orders from the King. Because these Royal Decrees govern future actions unless undone or superseded by a later King, it is important to go briefly into the history of the development of the Saudi public education system.

Since 1932, public education in Saudi Arabia has been free for all Saudi males, although discrimination based on gender or ability existed (Dakhiel, 2017). It is currently compulsory for both boys and girls up to the age of 15, but free public education is also available at the post-secondary level for those who decide to pursue that path and meet

the admissions standards. This has not always been the case, and it has taken Saudi Arabia almost 100 years to get its education system where it is now, during which much change has occurred.

In 1932, Saudi Arabia was officially recognized as a state, and with the powers of the Directorate of Education expanded to monitoring educational affairs of all schools across the entire country (Ministry of Education – Establishment, 2019). The quantity of schools expanded rapidly, although the quality of education was low (Ibrahim & Ghanem, 1994, p.7). When the Directorate started, it oversaw only four schools, but by the time it became the Ministry of Knowledge in 1952, the number of schools had increased to 323 ("Ministry of Education – Establishment," 2019). In 1963, the Supreme Committee for Educational Policy was established (Alreshidi, 2016) and has eight members: the King, the Crown Prince, the Minister of Education, the Minister of Information Interior, the Defense Minister, General Presidency, the Minister of Labor and Social Affairs, and the Minister of Girls' Education (Alreshidi, 2016), the Supreme Committee for Educational Policy is the only authorized body for writing educational policies. In 1975, the Ministry of Higher Education was formed, which also corresponded with the rapid growth of junior colleges and teacher colleges created for the education of teachers (Al-Zahra, 2008; Ministry of Economy and Planning, 2018).

One of the pivotal issues in Saudi education as of late has been the education of girls and women (Alsuwaida, 2016). The growth of education for girls and women can be attributed to the KSA's increased wealth and the desires of its leaders to balance internal and external socio-political changes influencing Saudi people in general and women, in particular (Al-Rasheed, 2013). Prior to the 1960s, formal public education for Saudi girls

did not exist, although some wealthy Saudis did send their daughters to private schools (Al-Zahra, 2008). According to Baki (2004), a push for women's education began to emerge in the late 1950s and early 1960s from young, educated, middle-class men who appealed to the KSA to create girls' schools to develop a class of educated women who could be well educated wives since there was a trend of Saudi men marrying educated foreigners.

The establishment of the General Administration for Girls' Education (GAGE) in 1960 signaled a dramatic reform. The GAGE oversaw all levels of female education including teacher training colleges (Mitchell & Alfuraih, 2017). According to the Saudi Embassy website, the first government (public) school for girls was created soon after in 1964 ("Education," n.d.). From the 1960s until 2002, the GAGE was its own separate entity, independent from the Ministry of Education. Yet, in 2002 the GAGE merged with the Ministry of Education as a result of claim from both the general public and the government after a fire in March 2002 in an elementary girls' school in Mecca resulted in the death of 15 young girls (Hamdan, 2005). Although the fire itself was an accident and not indicative of any inequity issues between boys and girls, the emergency response (or lack thereof) was, with some reports stating that so-called morality police prevented some girls from exiting the school due to not be appropriately covered.

Before 1953, girls' public education was optional rather than compulsory, since people were resistant to change. Thus, for about two decades, there was a significant disparity between the number of boys and girls enrolled in public schools in Saudi Arabia which gradually narrowed over time. For instance, in 1981 the school enrollments showed that boys comprised 81% of the student population whereas girls formed 43%

(Abahussain, 2016). By 1989, the gap had narrowed with a student body composed of 46% girls and 54% boys (Abahussain, 2016). In 2004, by royal decree, primary education was made compulsory for both boys and girls from ages six to fifteen (Royal Decree no. 22646/R). Despite being optional prior to 2004, most Saudi girls had been receiving an education up to that point. In fact, as early as 2000, the enrollment rate for girls was equal to the enrollment for boys (Doumato, 2010). Moreover, Saudi Arabia's 10 years strategic plan for the development of public education makes no distinction between boys and girls in goals, funding allocation, or curriculum except to expand girls' course options to include information technology and vocational training (Doumato, 2010). A 2004 ministerial decree called for the creation of sports programs and physical education in girls' schools (Doumato, 2010), but girls continued to be denied access to sports programs in schools until 2017 because much of the society rejected change and believed that study sports in women's schools may affect girls negatively (Alharbi, 2014; Ministry of Education, 2017).

Another pivotal part of Saudi Arabia's educational evolution concerns the education of Saudis with disabilities. In 1987, Saudi Arabia passed legislation that granted Saudis with disabilities the same rights as those without disabilities, including the right to public education (Peter et al., 2019). The KSA instituted the Rules and Regulations of Special Education Programs (RRSEP) in 2001, that established the right of students with disabilities to have access to special education programs (Aldabas, 2015; Alnahdi, 2014) and, in 2005, the KSA passed legislation to enhance the inclusion of children with learning disabilities into regular classrooms (Al-Ahmadi, 2009). The KSA has adopted the principle of "mainstreaming" which the Ministry of Education has

defined as “educating children with special educational needs in regular education schools and providing them with special education services” (Al-Mousa, 2010, p. 17). In 2008, the KSA formally endorsed the United Nations Convention on the Rights of Persons with Disabilities (CRPD, 2006). By signing the CRPD, the KSA has agreed to promote and protect the human rights of persons with disabilities and ensure that they have full equality under the law.

One of the most notable educational reforms to occur in Saudi Arabia was the King Abdullah Public Education Development Project, known in Arabic simply as Tatweer (which means *to develop*). Tatweer was announced in 2007 and was initiated in 2011. Tatweer was based on analyses of curricula experiments in South Korea, Finland, Singapore, the United States, and other nations around the world (Abdul-Ghafour, 2009). The goals of the Tatweer project included decentralizing the educational system, promoting teacher training, and applying a more constructivist, student-centered curriculum (Almazroa & Al-Shamrani, 2015). The reforms of the Tatweer Project also required Saudi teachers to change their focus to inquiry-based education, emphasizing understanding, collaboration, discovery, innovation, and creativity (Al-Kinani, 2013). However, Tatweer has been applied incrementally in designated Tatweer schools, while to date, most schools have continued to follow the previous approach to education that is more teacher- and subject-centered (Shafai, 2018).

In 2016 the Saudi Vision 2030 strategic plan was initiated to push educational changes (Mosaad, 2016; Saudi Arabia Vision, 2016). Saudi Vision 2030 calls for widespread reforms to education to make Saudi Arabia more competitive and innovative in relation to the international community. Crown Prince Mohammad asserted that Vision

2030 “is the first step on our journey toward a better, brighter future for our country and our citizens” (Saudi Arabia, 2016, p. 13). Some educational goals of the Saudi Vision 2030 include developing new curricula, improving teacher preparation and licensure (Saudi Arabia, 2016). In response to Saudi Vision 2030, the Ministry of Education has stated that its newest goals include improving and developing the MOE’s administration, decentralizing administration, and delegating more powers to local departments and schools (Shafai, 2018).

Despite its stated goals and efforts, the perception among Saudi educators and scholars is that the Saudi educational system has struggled to decentralize in substantive ways. Shibani (2015) conducted 42 interviews and 12 focus groups with a total 82 participants, which included members of the Ministry of Education involved in the Tatweer project as well teachers and principals at Tatweer schools and found that most of the participants reported that they had not seen or experienced any noticeable change in decision-making power five years after Tatweer reforms began in 2011. According to Shibani, the education sector remains quite centralized, as most decision-making processes and powers remain limited to highly authoritative officials.

Part of the problem has been a lack of training and development for teachers and principals tasked with taking on more decision-making responsibilities and applying new student-centered curricula. Allmnakrah and Evers (2020) stated, “the absence of Saudi teachers’ participation in the development of the Tatweer project before it was launched, and the lack of adequate teacher training on how to effectively implement the project” are two of the main reasons why the Tatweer Project has not achieved its desired results (p. 30). Likewise, Alazzaz’s (2019) findings revealed a common frustration among Saudi

teachers has been trying to learn and implement these reforms without much training or support from regional administrators and upper-level Ministry personnel. As Meemar (2014) found, decentralization of Saudi school systems depends on the administrative authority of schools. Research shows that decentralization of school systems can occur only when actual decision-making power is given to principals (Meemar, 2014) as well as teachers (Shibani, 2015). Thus, decentralization becomes more effective if schools have substantial ability to exercise administrative authority.

In her analysis of the limited impact of educational reforms in Arab countries, Karam (2014) noted that barriers have included rigid top-down management, lack of basic knowledge about effective education reform, lack of implementation management plan, and lack of professional capacity on the part of those targeted by reform. Alsaleh (2019) noted that Saudi Arabia is not any different in those regards. Moreover, a lack of involvement in decision-making processes also contributes to a lack of investment in the success of reforms. AlDossari (2016) studied resistance to change in Saudi organizations and found that study, procedural justice showed that it was a critical dimension to Saudi Arabian organizations, and they need to involve their employees when designing that stage of change, especially employees who will participate in the change. The main idea of procedural justice is to share the process and information about any change with those who are involved in and affected by that decision (AlDossari, 2016).

To better understand how to apply the principles of a sound state school finance system to Saudi Arabia, it helps to first understand some of the major ways that the "contextual terrain," in the words of Lugg et al. (2002), differs. Lugg et al. identified six characteristics of the contextual terrain that influence educational policy: the political, the

economic, the financial, the accountability, the demographic, and the staffing terrains. While the focus of this paper is on the financial terrain (including efficiency, accountability, and equity), knowing a little about the political, economic, and demographic terrains of Saudi Arabia can help provide useful additional context about how schools are funded.

Political Terrain

Politically, Saudi Arabia is a monarchy, which has near-absolute power. There is a consultative body, called the *Majlis al-Shura*, which advises the King on political matters, but ultimately the King's word is the final word. Under the King is the Crown Prince, who is second in line to the throne and is traditionally highly influential in informing the King's policy decisions. Branching off from the King and Crown Prince is the King's cabinet, called the Council of Ministers, which includes the Ministry of Education. Policy decisions, including financial decisions, are thus highly centralized and dictated from the top down. When the Council of Ministers deliberates and makes decisions, the sessions are not open to the public and there is no obligation to make financial reports to the public raising questions about transparency and other issues related to the accountability principle of a sound financial system.

Recently, there have been efforts to reform and decentralize the education system. In 2007, Saudi Arabia initiated the King Abdullah Public Education Development Project with the goal of aligning Saudi educational standards and outcomes with those of other nations (Meemar, 2014; Tayan, 2017). This $2.4 billion project, Tatweer, envisioned districts of the future as being like "mini-ministries of education that are fully empowered to develop district-wide development plans and ensure that every boy and girl in the

district has the opportunity to learn and succeed" (as cited in Meemar, 2014, p. 1). The major goals of these reforms, particularly the decentralization component, include increasing autonomy and accountability (Minister of Education, 2019; Tayan, 2017).

Economic Terrain

Saudi Arabia's economy is largely oil-based. Almost all of Saudi Arabia's governmental budget comes from oil revenue, which funds the operation of all of its services including the public school system. Throughout most of its history, Saudi Arabia levied no taxes on its citizens. However, in 2017, Saudi Arabia instituted a value-added tax (VAT), a type of sales tax, at the rate of 5% (Alhussain, 2020). As of July of 2020, the Saudi government announced the VAT rate would triple to 15% (Alhussain, 2020). The purpose of this VAT is to help reduce the Kingdom's dependency on oil revenue (Caro, 2020). Presently, it is not clear how the tax revenue is spent and to what degree if any the education system receives funding from VAT revenue, because of the lack of transparency as mentioned previously. The introduction and subsequent increase of this tax in the economic terrain may have repercussions in terms of the expectations that Saudi citizens ask for more transparency and accountability for how the tax revenue is spent.

Demographic Terrain

According to the General Authority for Statistics (2017) in Saudi Arabia, the Saudi population is 32.6 million, of which 20.4 million are Saudi and 12.2 million are non-Saudi. While all Saudis are considered Muslims, some of the non-Saudis are not Muslim. Nearly half (46%) of the Saudi population is under 25 (Alamri, 2018). According to Alamri (2018), the population of Saudi Arabia has substantially grown

since the 1970s, more than quadrupling in size. The large number of young people in particular has placed demand on the government to establish more schools and universities, along with an improvement of the quality of education (Alamri, 2018). In terms of where Saudis live, there are three broad demographic categories: nomads, rural dwellers, and urban dwellers (Dakhiel, 2017).

Research on School Finance Principles in the Saudi Educational System

While previous research on the topic of the Saudi school finance system is limited, some research is available namely in the form of doctoral dissertations. One of the first such studies comes from Aljabri (2003) who focused on efficiency in school funding. He argued that "In Saudi Arabia... where education is highly centralized, money spent on central management might be significant and a cause of inefficiency" (p. 262). Moreover, Almudarra (2017) reported that because education is highly centralized in Saudi Arabia, it limits the extent to which educators and administrators can institute changes, including those concerning funds. Efforts to reform the education system towards a more decentralized system has yielded poor to mixed results. For example, Meemar (2014) surveyed 173 Saudi school principals of Tatweer schools and found the principals perceived that they had a limited ability and low-to-moderate support exercising the new level authority that supposedly were granted in the Tatweer system. Meemar (2014) argued that decentralization reforms have been limited to administrative tasks and duties rather than educational decision making and accountability. Moreover, the large budgets entrusted to the lower levels of the education system lack adequate governance and oversight since most low-level administrators have limited experience

with the sorts of sound governance principles that enhance fiscal accountability (Meamar, 2014).

Almalki (2018) surveyed 146 school principals (94 male, 52 female) from four cities in Saudi Arabia (Riyadh et al., 2018) about their perspectives on the readiness of the current educational system to transition towards a more decentralized system where schools have greater autonomy. The study paid particular attention to issues regarding decision-making, autonomy, and accountability. According to the results of the study, participants emphasized that accountability must be determined by an independent body rather than or in addition to the Ministry of Education or a similar state organization. Likewise, in a survey of 276 education supervisors from 30 school districts in Saudi Arabia, Almannie (2015) reported that "decentralization and accountability are not fully embedded in the system of the school district" (p. 174). Almannie further argued that "All attempts to move responsibility to local districts have been weak" (p. 174), and he stated that district supervisors still lack authorization to make decisions regarding the development of schools.

Some research has also addressed the equity of the educational finance system in Saudi Arabia. One area of horizontal equity concerns gender equality in education. Saudi Arabia has a separate boys' school and girls' school system, with co-education only occurring in a small number of private schools. Despite being segregated by gender, educational funding in Saudi Arabia for male and female students should meet horizontal education standards since males and females are equal. According to Dakhiel (2017), Saudi educational policy documents recognize women's right to education equal with men's, but in practice, educational options for girls "are not identical to those for boys"

(p. 72). This situation resembles the “separate but equal” argument of racial segregation of education in the United States from the late 1800s to the 1950s, but ultimately that position was overturned by the Brown v. Board of Education (1954) decision that concluded “separate educational facilities are inherently unequal” (para. 13).

Likewise, Alamri (2019) conducted research on the soundness of the funding model for girls schools in the Alaina School District of Riyadh, Saudi Arabia. Using financial data from the Ministry of Education in the form of yearly per pupil expenditures for girls’ education within the school district, she found allocation of resources was not sound. Some areas were overfunded while others were underfunded. According to Alamri, professional development, instructional materials, technology, maintenance, student activities, and gifted and talented education were all underfunded. In contrast, elementary and secondary core teacher pay in relation to class size were over funded, as were substitute teachers, teacher aides, administrative support staff, library staff, and special education. This suggests that the people are overpaid while the resources students need to learn are underfunded. Perhaps the top-down funding method and hierarchical accountability in Saudi Arabia rather than accountability to the public or the market makes it less more likely that staff and faculty get their needs met and less likely that students get their needs met.

In terms of vertical equity, there is some evidence that Saudi funding of special education and gifted education are lacking in equitability. Research from Alamri (2019) showed that girls’ special education is overfunded while girls’ gifted and talented education is underfunded based on comparisons to the evidence-based school finance adequacy model. Another issue of vertical equity is the difference between urban and

rural schools. Al-Jabri (2003) found that at the time of his study, Saudi rural schools had significantly lower per pupil expenditures even after controlling for teacher experience and student-teacher ratios. Al-Jabri attributed the disparity in part to the smaller class sizes, leading to a drive to reduce operating expenses at the cost of quality. He argued that the continuation of such a policy would further increase the equity gap between rural and urban areas, which contradicts the Saudi government's goal of instead of meeting the government target "to achieve balanced growth throughout all regions of the Kingdom" (Ministry of Planning, 2000). However, since the Tatweer reforms have been implemented, the equity gap has begun to close. For example, Saudi teachers who agree to work in rural areas qualify for extra monthly income 5–50% to offset the costs of longer commutes through difficult terrain, such as schools in mountainous areas (Ministry of Civil Service, 2018).

Conclusion

Equity, adequacy, efficiency, accountability, and stability are principles of public school finance that refer to different parts of the funding process—some are the ends of the process while others are the means. Equity and adequacy are most often discussed together--even a cursory search of the literature on educational finance will yield numerous results with "equity and adequacy" in the title. That is because these two principles are the desired ends of a school finance system: is the system fair in its outcomes and is it sufficient in achieving its outcomes. In achieving these ends, questions arise regarding the means by which those ends are achieved. Does the system reduce waste and achieve as much as possible with the available funds? That is efficiency. Does the system have mechanisms in place to independently audit and review the process?

That is accountability. These principles identify the fundamental ends and means of a sound school finance system at any given point in time, but what about the predictability and reliability of the system over time? That is where stability comes in. Stability means that the other principles, equity, adequacy, efficiency, and accountability, can remain consistent over time, and requires responsible long-term management of funds to stabilize the budget over good economic times and bad.

Applying these principles to the contextual terrain of the KSA presents some challenges. Some of the most notable differences that must be taken into consideration include the fact that the Saudi legal and political system that governs public education is determined not by a constitution or a legislative body but rather by Royal Decrees from the King, who is the head of the executive branch and has near absolute power. Another important difference is that funding for public schools does not come from taxes levied upon the citizens, but rather largely comes from oil revenue generated from the KSA's ownership of most of the country's oil reserves. These differences suggest that the Saudi educational experts may not have particularly favorable attitudes towards the principles of public school funding. However, very few studies have tried to apply such school finance principles to Saudi Arabia, and to the researcher's knowledge, no studies have addressed the attitudes of Saudi educational policymakers towards such principles. To help address these gaps, this proposed study will attempt to survey the attitudes of general supervisors in the Saudi MOE towards the principles of public school finance, which is described in greater depth in the following chapter on the proposed methodology.

Chapter Three

Methodology

This chapter includes a description of the methods that were used to address the research questions. First, the research design is described, followed by the target population and sampling procedures. Next, the variables and constructors are defined. Then, the instrumentation methods are described, including validity and reliability. Following that, the data collection and analysis procedures are described. Lastly, ethical considerations and conflicts of interest are addressed.

Overview

A quantitative, descriptive survey design was used in this research to gather a cross-sectional sample of data of the attitudes of MOE general supervisors towards the principles of a sound school finance system. The study used variables that require self-reported data from participants, which was collected using a questionnaire modified and translated from a prior instrument created by Park (2010). In this study, the target population that was surveyed included general supervisors in the MOE in Saudi Arabia, with positions similar to those of state-level department of education employees in the United States. This research study followed a descriptive design drawing on cross-sectional attitudinal data from a population of general supervisors in the Saudi MOE.

Target Population

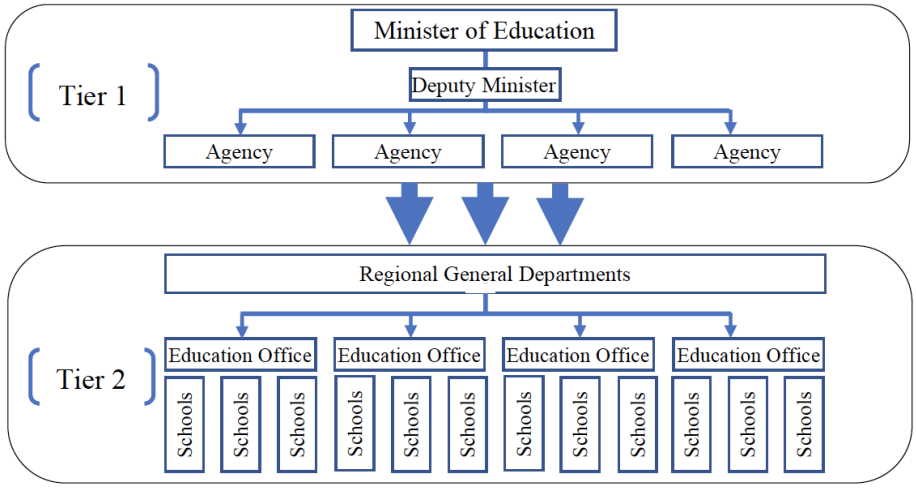
The target population for this study was "general supervisors" in the MOE, which in Arabic is a job called *mushrifu al-oumum*. According to the Research Services Director of the Education Policy Research Center in MOE, approximately 90 general supervisors work in the MOE (A. Al-Askar, personal communication, April 7, 2021). To better

understand the role of general supervisors and why they are the ideal target population for this study, it is necessary to know their level of work, role, background experiences, and qualifications.

General supervisors are upper-level employees in the MOE who are responsible for implementing MOE policies throughout all the public school districts in Saudi Arabia. General supervisors work in what Aldaghishy (2019) calls Tier 1 of MOE, which in Arabic is called the *Dewan Alwazarh* (literally "Office of the Ministry") (see Figure 1). As Aldaghishy notes, the MOE can be understood as being composed of two tiers, wherein Tier 1 includes the various vice-ministries (agencies) under the MOE, whereas Tier 2 includes all of the regional educational districts (departments) (see Figure 1). As a general rule, general supervisors must have prior experience working as superintendents of school districts (and as teachers and principals before that) at the Tier 2 level before being promoted to MOE general supervisors at the Tier 1 level. This career track means that general supervisors have a lot of knowledge about the education system from the classroom level all the way up to the MOE level. In Tier 1, the MOE currently includes 13 vice-ministries, of which the Vice-Ministry of Planning and Development and the Vice-Ministry of Shared Services are of particular interest.

Figure 1

Tiers of MOE Organizational Structure

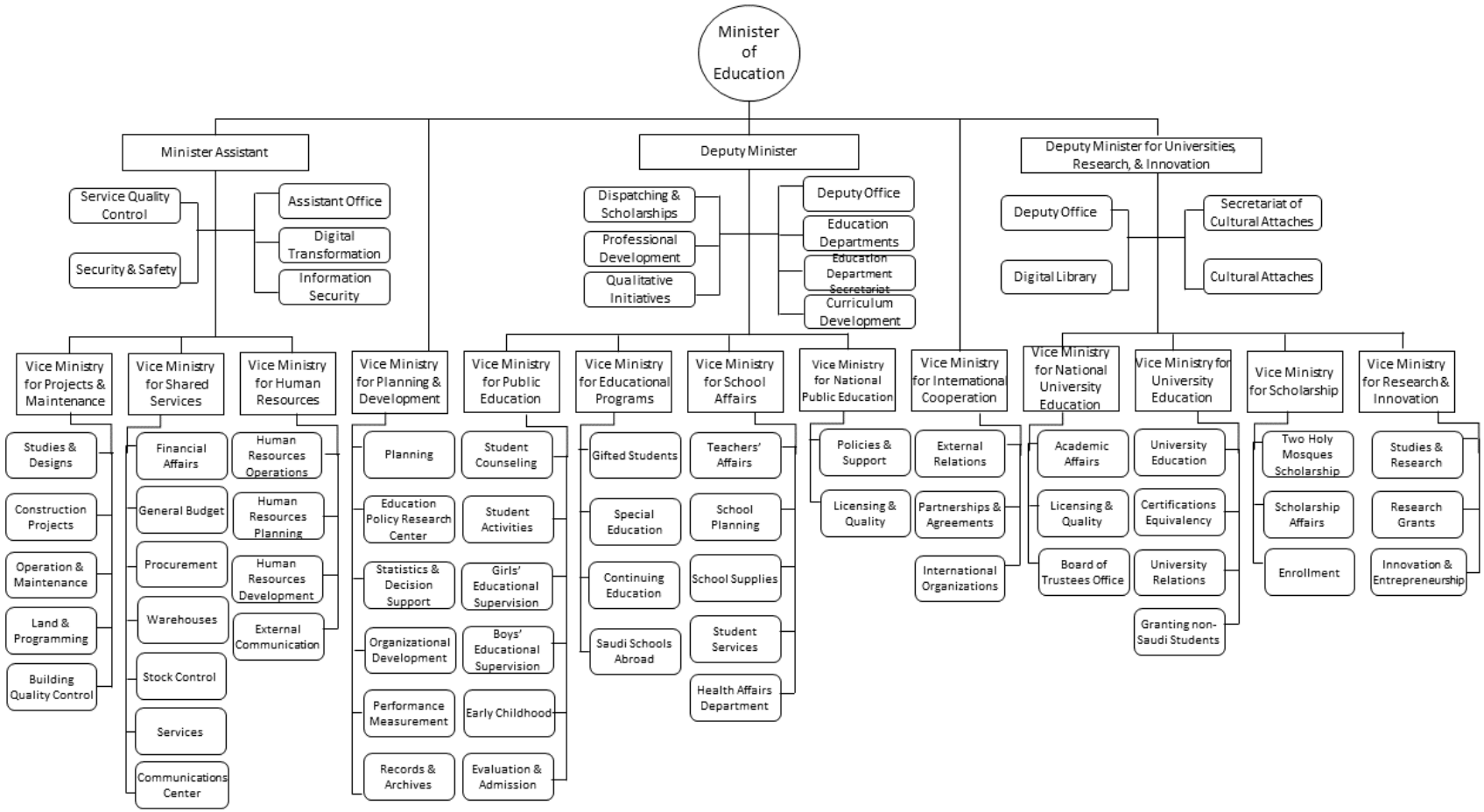


Adapted from *The Influence of the Global Education Reform Movement on Saudi Arabia's Education Policy Reforms* by T. A. Aldaghishy, 2019, p. 73. Copyright 2019 by T. A. Aldaghishy.

General supervisors of the MOE were targeted for this survey for at least two important reasons: First, because they were readily available for this study, while many higher-level MOE employees are not allowed to participate in research surveys or interviews without special permission. Second, general supervisors have a comprehensive view of the system based on their experiences in both the Tier 2 (school district) and Tier 1 (ministerial) levels of the MOE. General supervisors in 4 of 13 vice ministries/agencies that focus on school finance and policy, namely the General Administration of Planning and the General Administration of Measurement and Performance under the Vice Ministry for Planning and Development; the General Administration of School Planning under the Vice Ministry for School Affairs; the General Administration of Human Resources Planning under the Vice Ministry for Human Resources; and the General Administration of Financial Affairs under the Vice Ministry for Shared Services. See Figure 2 for a detailed organizational chart of the MOE.

Figure 2

Ministry of Education Organizational Chart



Sampling Procedure

Creswell (2012), states that "In nonprobability sampling, the researcher selects individuals because they are available, convenient, and represent some characteristic the investigator seeks to study" (Creswell, 2012, p. 145). He also emphasizes that the researcher chooses participants for convenience sampling because they are willing and available to be researched. In this study, a non-random, total population sampling (sometimes called census sampling) method was used as the sampling procedure (Creswll, 2012). Access to this sample was provided by the Educational Policy Research Center (*markaz behouth siasat al-ta'leem*), specifically the Research Services Director, who helped with distributing the survey and recruiting participants. The role of the Educational Policy Research Center is to develop educational policies to improve the quality of the educational system in general and higher education in accordance with the best scientific research methodologies, and to support decision-makers at the level of the Ministry of Education. The center also provides supportive activities such as conferences, seminars, publications, and collaborating with research partners at the local and international levels. Based on the support of the Educational Policy Research Center, it should be possible to get a high enough response rate as needed for this small target population.

Variables and Constructs

Whitney and Crampton (1996) proposed five principles of school finance which are equity, adequacy, efficiency, accountability, and stability. However, when researchers have tried to operationalize and measure these principles, they have encountered challenges (Park, 2010).

Most notably, the principle of "efficiency" has been difficult to define and measure because it involves the relationship between both inputs (like equity) and outputs (like adequacy and accountability). Additionally, as noted in the literature review, the principle of "stability" has not been developed much beyond Whitney and Crampton's original report. Thus, this dissertation will define and operationalize the principles of public school finance according to Park (2010), which are Vertical Equity, Horizontal Equity Adequacy, Accountability. Specifically, these four variables will be operationalized as constructs and measured by asking a series of questions about each principle. Scores for each principle is computed as an average score based on responses to a series of survey questions.

Aware of the nuanced shifts in the ways that school funding equity has been conceptualized in the literature and the law, including a change from focusing primarily on equity of inputs to one focusing primarily on equity of outputs, Park (2010) conceptualized four relevant domains derived from the literature on school finance and grounded in the project to develop a new instrument to measure attitudes toward school funding equity. In Park's conceptualization, horizontal equity and vertical equity relate explicitly to fairness with respect to the distribution of resources (i.e., school inputs, while adequacy and accountability relate to fairness with respect to school outputs).

Instrumentation

Attitudes towards the four principles of horizontal equity, vertical equity, adequacy, and accountability were measured with an adapted and translated version of Park's (2010) survey named Attitudes toward Funding Equity in Public Education. The survey consisted of two sections. The first section included questions to gather

demographic information in order to describe the sample. These included questions about each participant's gender, position in the MOE, educational background, and years of experience in the current position. These demographics were not pertinent to the research questions in this study, so this data was not reported (although it may be used for future studies). The second part included items (questions) translated from a survey developed by Park (2010). Park's instrument focused on four principles of school finance based on the literature: horizontal equity, vertical equity, accountability, and adequacy. For each of these principles, Park developed a series of positively and negatively phrased statements that respondents could respond to on a 5-point Likert-type scale of agreement (1 = "Strongly disagree," 2 = "Disagree," 3 = "Neither agree nor disagree," 4 = "Agree," and 5 = "Strongly agree").

Although Park (2010) provided validity and reliability evidence for scores on his survey, his evidence is not appropriate for the current study because of the modifications made herein, which included the following:

1. *Rewording items to be more appropriate for Saudi educational supervisors than for the average American citizen*: For example, Park's instrument includes items relating to issues like taxes worded from a taxpayer's perspective, which does not make sense in Saudi Arabia since Saudi public education is not funded by taxes; thus, to make these types of items more appropriate, they have been reworded to talk about distribution of funds in general rather than about taxes in particular.
2. *Rewording items so that they are all written in the positive form*: The reason for doing this is that research on negatively worded survey items have shown that they have negative effects on the instrument, such as increasing the amount of

systematic and random error, affecting the validity, and potentially measuring distinct constructs. Moreover, they do little to reduce response styles as is often assumed—systematic response tendencies that are independent of item content such as tendencies to agree to items (i.e., acquiescence), to disagree to items (i.e., nay-saying), and to provide extreme responses (Dalal & Carter, 2014).

3. *Translating the instrument from English to Arabic*: All of the participants were Saudi nationals who speak Arabic as a first language. Even though some of them might have been fluent in English, it was considered highly unlikely that they all would be fluent enough to take the survey in English. Thus, to ensure consistency in responses and so that all the participants had the same survey in the language they understand best, the instrument was translated into Arabic.

For example, the item "I do not want my taxes to be used for a neighboring high-poverty school district" was changed to be more relevant to public education experts in the Saudi MOE. Additionally, this item was changed from a negative phrasing to a positive phrasing. Finally, this item was revised to be more specific in its wording to try to minimize the likelihood that respondents would find it confusing. In its final iteration before translation, this item reads as follows "School funding formulas should provide additional per-pupil funding for students from impoverished families." After these revisions, the items were translated into Arabic. Because of modifications like these, further validity evidence was necessary (see Appendix A for the wording of all the survey items).

To provide evidence that the content of the items and item phrasing were clear, the researcher asked two members of the dissertation committee to review the survey in

order to obtain evidence of content validity. One of the committee members was an expert in quantitative, qualitative, and psychometric methods and provided feedback based on principles of good data collection instrument design. The other committee member who provided feedback was an expert in principles of school finance. Specifically, they were asked to identify vague or potentially confusing language and ensure the clarity and consistency of the instrument.

Further, since the researcher translated the questionnaire into Arabic, two Saudi education experts were asked to review a draft of the questionnaire and add their comments and thoughts to refine the survey. As in the English version, they were asked to focus on vague or potentially confusing language, clarity, and consistency. These Saudi experts were both bilingual in Arabic and English and both had relevant knowledge in the content area, one as an expert in educational policy and reform and the other as an expert in curriculum and instruction.

Since items were grouped to represent each of the four principles and asked on a rating scale, the consistency of ratings for each scale was estimated by computing Cronbach's coefficient alpha. The sample reliability estimates for the four scales are Horizontal Equity ($\alpha = .861$), Vertical Equity ($\alpha = .847$, Adequacy ($\alpha = .801$), and Accountability ($\alpha = .850$).

Data Collection

Before any data were collected, approval to conduct the study was obtained from the Institutional Review Board (IRB) at the University of Toledo. Following IRB approval, the researcher emailed the Vice-Minister for Planning and Development and Vice-Minister of Shared Services and asking permission to conduct the study in

educational departments (see Appendix C for documentation of permission from Vice Ministers). The researcher requested the Research Services Director of the Educational Policy Research Center send the survey to a list of general supervisors from the Educational Policy Research Center who work in the five departments of interest. In July 2021, the researcher emailed an electronic copy of the Qualtrics-based questionnaire to the members of the sample.

Participants were asked to complete the questionnaire within two weeks of receiving the survey. After two weeks, a follow-up email was sent to those who had not yet responded to remind them and encourage them to respond to the questionnaires within a week. Thus, the data collection portion of the study lasted about four weeks including both the initial email and the follow-up email.

Ethical Considerations

In preparation for the study, the researcher completed the training on research ethics and obtained a training certificate. The researcher also followed all IRB guidelines and protocol for ethical research and respected the rights of the participants and ensured their confidentiality. The researcher obtained and received IRB permission before conducting the study (see Appendix B). Informed consent was obtained from all participants, which included keeping them informed about the purpose and process of the research, the potential risks involved, the voluntary nature of their participation, their right to remove themselves from the study at any time, and how their privacy and personal information would be protected.

In an effort to maintain confidentiality of collected data, any electronic data downloaded from Qualtrics forms were saved on a password-protected computer

accessible only to the principal investigator and co-researcher. Once downloaded, the Qualtrics Forms data was permanently deleted from the online site. The participants were informed that the downloaded data may be kept for up to two years after the research is completed, and also that data may exist on backups or server logs beyond the timeframe of this research project. Although every reasonable effort was taken to protect confidentiality, confidentiality during actual Internet communication procedures cannot be fully guaranteed. Confidentiality was kept to the degree possible with the technology being used, but no guarantees can be made regarding the interception of data sent via the Internet by any third parties. Additionally, given that surveys can be completed from any computer (e.g., personal, work, school), it was not possible to guarantee the security of the computer on which the participant chooses to enter his or her responses. The participants were informed of these risks, no matter how minimal, and were also informed of the efforts that were made within the power of the researcher to maintain confidentiality as much as possible.

Declaration of Conflict of Interest

The author declares that there are no conflicts of interest that impact the study conducted and reported on in this dissertation. While the author of this dissertation does have a scholarship and stipend from the Saudi Arabian Cultural Mission (SACM) to study in the United States, this scholarship does not include any stipulations or requirements regarding what the author should research or write about. In other words, the author is free to research and write about whatever interests him. Moreover, the scholarship received from SACM does not include any additional funding for research, so the research itself is not funded in any way.

Data Analysis

Prior to the primary data analyses being used to address research questions one and two, preliminary analyses were conducted. SPSS was used to conduct CTT analyses. First, the psychometric properties of observed scores within each scale was assessed using a classical test theory perspective. Specifically, item analysis was conducted by examining coefficient alpha, alpha if item deleted, corrected item total correlation, the dispersion (variability) within each item, and correlations among items. While there are no widely agreed-upon guidelines for removing items when conducting a CTT analysis, in this study items were identified for removal if its inter-item correlation was less than 0.20 or negative, the corrected-item-correlation was less than 0.20 or negative, or alpha-if item deleted statistic suggested a substantive increase in reliability (i.e., change in alpha by .05). Second, univariate analyses were conducted to identify if there were any outliers or influential outliers. Third, bivariate scatterplots were created between scores on each scale to assess the linear relationship and also identify if there were outliers or if influential outliers. If any outlying cases were visually identified, then a sensitivity analysis was conducted without these respondents to see if the linear relationship was influenced.

To answer research question one descriptive analyses were conducted. Specifically, the mean, median, mode, and standard deviation of scores on each scale was computed. Additionally, a histogram was created to visually inspect the distribution of scores within each scale. To answer research question two, Pearson correlations were calculated among scores on each of the four scales. Correlations were tested at a significance level of .05.

Chapter Four

Results

Preliminary Data Analyses

CTT Analyses

The survey originally included 65 responses for an overall response rate of 72% out of the 90 general supervisors who received surveys. However, descriptive analyses revealed that of those 65, 61 were likely valid responses. Responses from the other four participants were eliminated due to incomplete data or responses that indicated the participant was not attending to the survey, as indicated by giving the same responses for all items or by responding low to all items that resulted in their responses being outliers in the data. CTT analyses also led to the determination that one survey item should be eliminated, Horizontal equity item 7. This item was eliminated due to its negative impact on the overall reliability with the Horizontal Equity scale. The analysis showed that the α for Horizontal equity item 7 increased from .77 to .82 when it is eliminated, without affecting the inter-item correlations. No other items changed the alpha when deleted, so all other items were retained. The results of the Cronbach's Alpha for all scales after these corrections are displayed in Table 1.

Univariate Data Inspection

Inspection of the univariate data revealed that one of the participants responded by giving a 1 to all items, which was assumed to indicate they did not attend to the survey items. Another participant tended to respond low to all items (e.g., 1, 2, 3). Although these responses could be valid, they were influential outliers that did not make sense. Thus, the results are presented without these two participants' responses.

Bivariate Data Inspection

An inspection of the bivariate scatterplots showed two outliers which may be influencing the linear relationship between variables. A sensitivity analysis was conducted without these cases to see if the linear relationship was influenced, and no influence was found. Thus, these participants were removed from the final analysis.

Table 1

Initial and Final Estimated Reliability (α) by Scale

	α	
Scale	Initial (n = 65)	Final (n = 61)
Horizontal Equity	.77	.82
Vertical Equity	.75	.75
Adequacy	.77	.77
Accountability	.74	.74

Note. Initial = all responses; Final = after four participants were removed. All scales initially consisted of 7 items, but after preliminary data analyses horizontal was reduced to 6 items. The sample size for the final analyses was reduced because of the identification of four influential cases.

Item-by-item descriptive statistics for the mean, standard deviation, skewness, and kurtosis measures are presented in Table 2 To see the wording of the statement for each item, see Appendix A for the full survey with item key.

Table 2

Descriptive Statistics for Items of the Four Scales (N = 61)

Item	Mean	Std. Dev.	Skewness	Std. Err.	Kurtosis	Std. Err.
Horizontal Equity						
Q1H1	3.461	1.574	-.450	.3020	-1.430	0.595
Q1H2	3.573	1.532	-.487	.3020	-1.386	0.595
Q3H3	3.984	1.314	-1.160	.3020	0.076	0.595
Q4H4	4.087	1.274	-1.265	.3020	0.352	0.595
Q5H5	4.161	1.260	-1.609	.3020	1.530	0.595
Q6H6	4.609	.870	-2.895	.3020	8.941	0.595
Q19H7	4.034	1.092	-1.162	.3020	.449	0.595
Vertical Equity						
Q8V1	3.594	1.116	-.550	.3020	-0.641	0.595
Q9V2	4.168	.954	-1.480	.3020	2.567	0.595
Q10V3	4.102	1.043	-1.253	.3020	1.188	0.595
Q11V4	4.404	.943	-1.960	.3020	4.138	0.595
Q12V5	4.408	.925	-2.021	.3020	4.604	0.595
Q13V6	4.227	.906	-1.537	.3020	2.645	0.595
Q7V7	3.334	1.368	-.399	.3020	-1.168	0.595
Adequacy						
Q14AD1	3.901	1.027	-1.003	.3020	0.704	0.595
Q15AD2	4.033	1.031	-1.341	.3020	1.826	0.595
Q16AD3	4.336	.842	-2.043	.3020	6.116	0.595
Q17AD4	4.119	1.094	-1.219	.3020	0.768	0.595
Q18AD5	4.274	.865	-1.487	.3020	2.835	0.595
Q26AD6	4.320	.839	-1.680	.3020	3.826	0.595
Q28AD7	3.143	1.045	0.1430	.3020	-0.722	0.595
Accountability						
Q20ACC1	3.620	1.054	-0.709	.3020	0.145	0.595
Q21ACC2	4.111	1.123	-1.424	.3020	1.348	0.595
Q22ACC3	3.375	1.082	-0.547	.3020	-.371	0.595
Q23ACC4	3.637	1.067	-0.776	.3020	0.121	0.595
Q24ACC5	3.784	1.128	-1.006	.3020	0.464	0.595
Q25ACC6	3.988	1.008	-1.139	.3020	1.161	0.595
Q27ACC7	4.143	1.060	-1.552	.3020	2.160	0.595

RQ 1: Attitudes Towards Principles

The total scores on each of the four scales based on the principles of a sound school finance system are presented in Table 3. The mean score on each scale is on

average near the middle to upper response options (e.g., the adjusted score for horizontal equity is 28.541/7 = 4.08), showing general agreement with the scales as measured with the items on our survey.

Table 3

Descriptive Statistics

Scale	Adj. Mean	Std. Dev.	Adj. Med.	Skewness	Std. Err	Kurtosis	Std. Err.
Horizontal Equity	4.077	5.452	4.143	-1.168	.3020	1.306	0.595
Vertical Equity	4.122	3.846	4.143	-1.901	.3020	5.605	0.595
Adequacy	4.103	3.778	4.000	-1.568	.3020	4.896	0.595
Accountability	3.897	4.180	4.000	-1.517	.3020	3.88	0.595

Note. Min score = 1; Max score = 7; N= 61

RQ 2: Correlations Between Scales

Table 4 presents a summary of the results of the correlation between scores on all four scales.

Table 4

Pearson Correlations Between Attitudes Towards Four Scales (N = 61)

	Horizontal Equity	Vertical Equity	Adequacy	Accountability
Horizontal Equity				
Vertical Equity	.174			
Adequacy	.472*	.504*		
Accountancy	.249*	.394*	.457*	

*$p < .05$ (2-tailed).

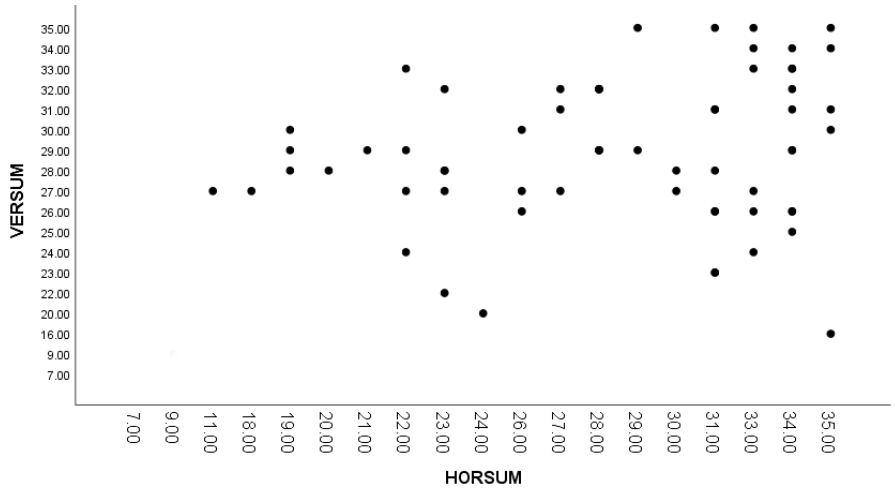
Vertical Equity and Horizontal Equity Relationships' score

At the .05 level, the results show that there is no significant linear correlation between Saudi MOE general supervisors' attitude scores for vertical equity and horizontal equity $r(59) = .174$, $p = .09$. The non-significant learn correlation between the

participants' responses on the two scales was weak and positive, which is also apparent in the scatterplot shown in Figure 3.

Figure 3

Scatterplot of the Relationships' Between Vertical Equity and Horizontal Equity Scores

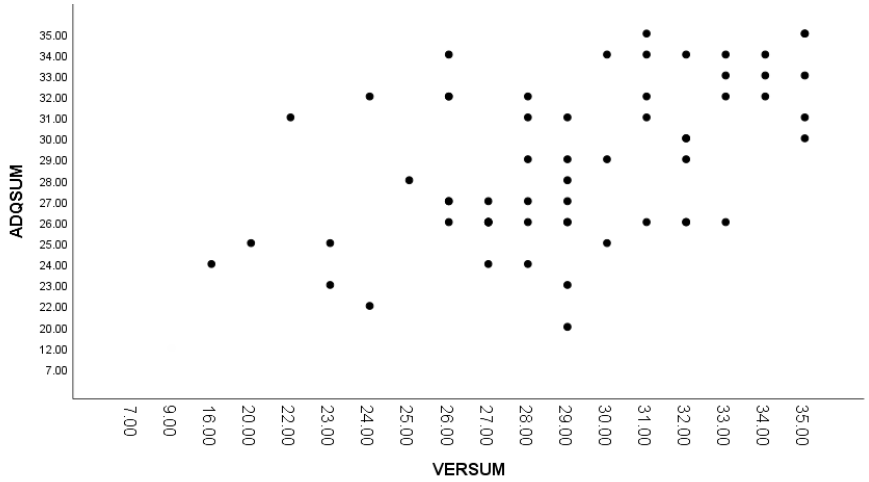


Vertical Equity and Adequacy Relationships' score

The study also showed a moderate positive relationship between Saudi MOE general supervisors' attitude scores for vertical equity and adequacy. The relationship between the two variables is significant, $r(59) = .504$, $p < .001$. The results in Figure 4 show this data in a scatterplot, which visually shows the moderately strong and positive relationship between vertical equity and adequacy.

Figure 4

Scatterplot of the Relationship Between Vertical Equity and Horizontal Equity Scores

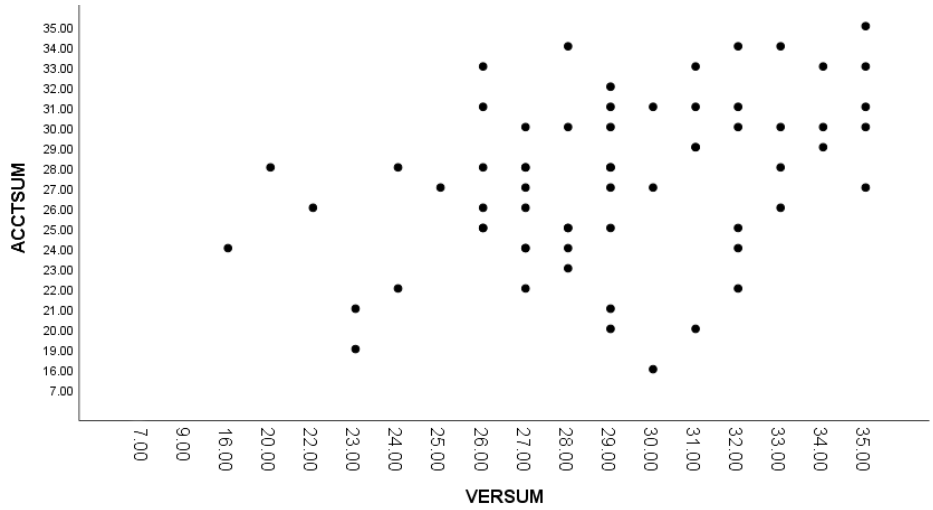


Vertical Equity and Accountability Scores' Relationships

The results show a moderate positive relationship between Saudi MOE general supervisors' attitude scores for vertical equity and accountability. In addition, the correlation is significant $r(59) = .394$, $p = .001$ (see Figure 5).

Figure 5

Scatterplot of the Relationship Between Accountability and Vertical Equity score

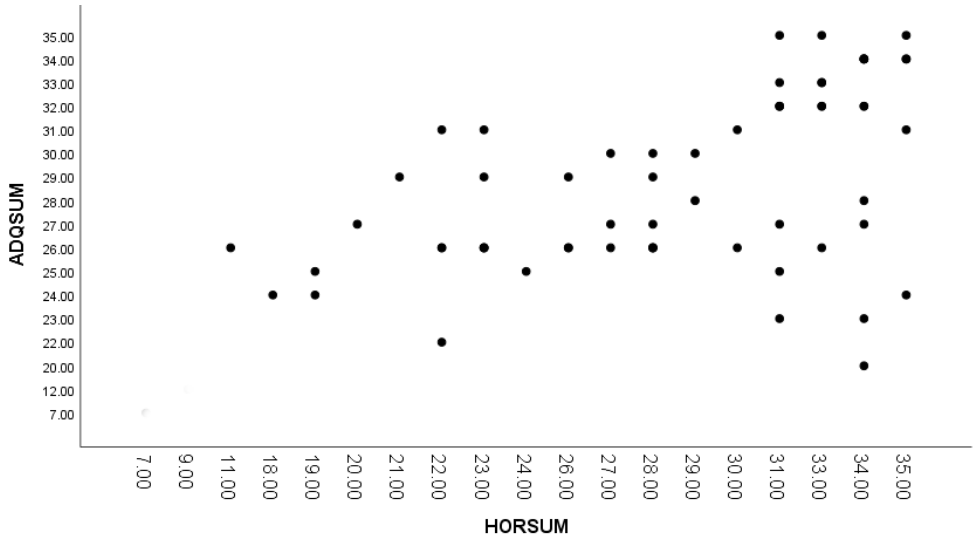


Horizontal Equity and Adequacy Scores' Relationships

The relationship between attitude scores between Saudi MOE general supervisors' attitude scores for horizontal equity and adequacy is moderate (r=.472). Moreover, there is a significant c between Saudi MOE general supervisors attitude scores for or horizontal equity and adequacy, r(59) =.472, p < .001 (see Figure 6).

Figure 6

Scatterplot of the Relationship Between Adequacy and Horizontal Equity Scores

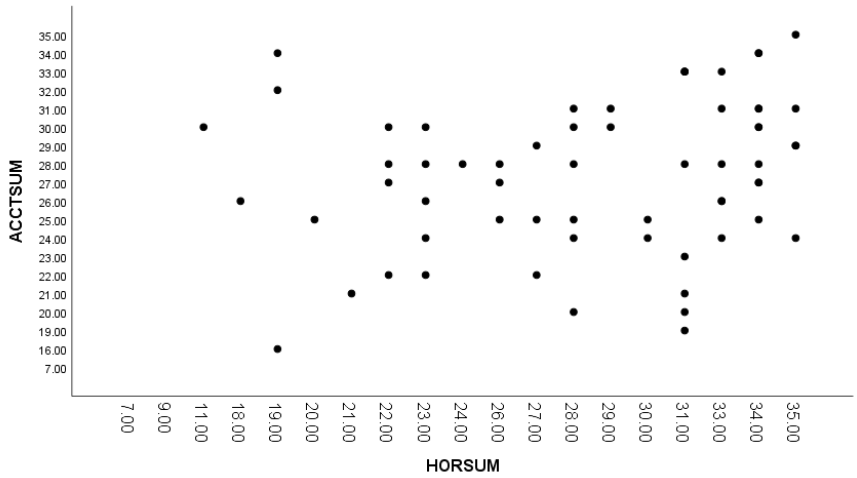


Horizontal Equity and Accountability Scores' Relationships

The results in Figure 7 show a weak relationship between attitude scores for horizontal equity and accountability. However, at a 5% level, the relationship is significant, $r(59) = .249$, $p = .027$.

Figure 7

Scatterplot of the Relationship Between Accountability and Horizontal Equity Scores

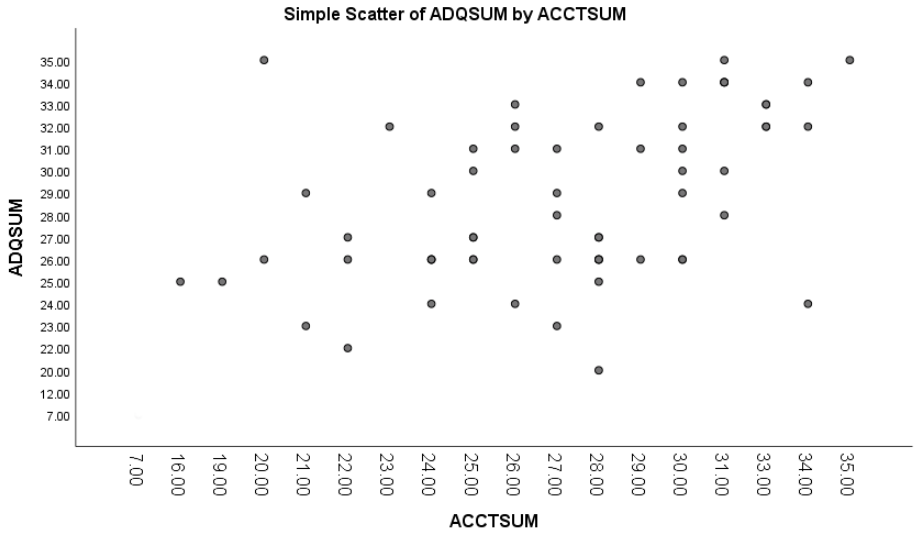


Adequacy and Accountability Scores' Relationships

The findings shown in Figure 8 indicate a moderate correlation between Saudi MOE general supervisors' attitude scores for adequacy and accountability. Further analysis shows a significant relationship between Saudi MOE general supervisors' attitude scores for adequacy and accountability, $r(59) = .457$, $p = <.001$.

Figure 8

Scatterplot of the Relationship Between Adequacy and Accountability score



Chapter Five

Discussion

Summary of Results and Connection to Literature

RQ 1: General Supervisors' Attitudes Towards the School Finance Principles

Overall, the supervisors' attitudes were generally positive on all the scales, showing agreement towards all of the principles based on the fact that most participants agreed or strongly agreed with most of the statements in the scales. In the previous literature, Musfeldt (2002) and Sallee (2005) both found generally positive attitudes towards equity, adequacy, and accountability among school superintendents and other school officials in Texas, while Park (2010) found that average citizens/parents of students in Ohio had lower levels of agreement in their responses to survey items pertaining to these scales, particularly in terms of accountability. It is notable that the findings of the present study are consistent with the findings of similar studies on school officials (e.g., Musfeldt, 2002; Sallee, 2005), but do not agree as much with Park's (2010) findings which surveyed parents of students. It is possible that the differences in awareness, knowledge, and understanding of how public school finance works might have affected the results.

The scale with the most agreement was Vertical Equity, but some questions about Vertical Equity had less agreement. In vertical equity, results showed that the participants had mixed feelings about weighted funding in general but agreed with most specific examples of weighted funding (e.g., for special needs, poverty, rural districts), suggesting that questions about principles of public school finance depend on specific situations.

The scale with the least agreement, or perhaps more accurately, most mixed agreement was Accountability, although agreement was still high/moderate overall. This is in contrast to Sallee (2005) who found that superintendents in Texas had a high level of agreement with most of the statements about Accountability. However, one area of disagreement in Sallee's study was with the statement that "State implemented achievement test are the most important tool in assessing the performance of a school district" (p. 64), which suggests that while the participants in that study agree with accountability, they disagree with narrow measures and would prefer a more robust and diversified way of determining accountability. This was similar to Musfeldt's (2002) findings, where there was general agreement for accountability but disagreement that state standardized tests were the best accountability measures. In contrast, in the present study there was a high amount of agreement with the statement that "Holding schools accountable for the results of student standardized proficiency tests is a good way to ensure that funds for schools are used well." Perhaps the difference in responses to these questions is attributable to slight differences in the wording, particularly between "good way" and "best way." School officials may believe that standardized tests are a "good way" without believing it is the "best way."

Another scale that received some mixed responses was Horizontal Equity. Sallee (2005) found similarly mixed responses among Texas superintendents in their attitudes towards questions of vertical and horizontal equity, stating that they had "passionate" and "strong views about equity" with most items yielding responses that gravitated towards the extremes of either strongly agreeing or strongly disagreeing (p. 60).

RQ 2: Correlation Between the Principles

In regards to the second research question concerning the correlation between scores on the scales for the four principles, all of the scales scores were correlated in a positive direction except for Vertical and Horizontal Equity. This lack of correlation between Vertical and Horizontal Equity raises a question in light of Crampton and Whitney's (1996) claim that the goal for policymakers is to strike a balance between these principles to "achieve an integrated funding system" (p. 5): can a balance be struck between Horizontal and Vertical Equity, or do these two principles work against each other? In other words, a school finance system that is characterized by more Horizontal Equity will tend to lack Vertical Equity, while a system that has more Vertical Equity might lack Horizontal Equity.

Additionally, the finding that Vertical and Horizontal Equity are not significantly correlated raises questions about whether labeling both with the term "equity" is appropriate. Based on the name alone, one might expect these two principles to be the most correlated out of the four principles studied in this dissertation, not the least. The terms "Horizontal Equity" and "Vertical Equity," which are frequently used in the literature, give the impression that they are closely related concepts since they both have "equity" in their names. However, the findings of this research indicate that they are the least related of the four principles included in this study, which suggests that calling them both "equity" might be a bit of a misnomer. Perhaps it would be clearer and more empirically and definitionally accurate to call them by distinctly different terms, such as "equality" for horizontal equity and simply "equity" for vertical equity.

For example, Park (2010) distinguished between equity of inputs and equity of outcomes, where Horizontal and Vertical Equity are inputs while Accountability and, to a lesser extent, Adequacy are outputs. However, this may be oversimplifying the categories since so much of what determines Vertical Equity and Adequacy is not only inputs like budget or per-pupil funding but also outputs such as student or school performance. How else would it be possible to know if a weighted funding model in the vein of Vertical Equity, for example, is truly equitable without some information about outcomes such as how well students are able to perform with varying degrees of support and resources? For instance, Sallee (2005) notes that in order to determine the appropriate level of funding to achieve Vertical Equity, it is important to know which needs and accommodations have the most impact, which requires some knowledge about outputs.

Another finding in regards to RQ2 was that Horizontal Equity also had a relatively weak correlation with Accountability, making it the least correlated scale in relation to the other scales, but again, all of the scales were significantly and positively correlated. Out of all the scales, Horizontal Equity was most strongly correlated with Adequacy. These findings suggest that horizontal equity is somewhat different from the other scales, at least based on the attitudes of the general supervisors within the Saudi MOE included in this study. Conceptually, this finding might make some sense in that Horizontal Equity is the only purely input-driven concept without consideration for other factors, such as need or accountability. It also makes conceptual sense Horizontal Equity correlated most with Adequacy since the issue of equal funding for equals does imply that such equality is adequate.

The strongest correlation was between Vertical Equity and Adequacy, although it is worth noting that Adequacy was relatively strongly correlated with all of the scales, a finding discussed in greater detail at the end of this section. The finding concerning the strongest correlation being between Vertical Equity and Adequacy supports the argument King et al. (2003) made that adequacy is "the ideal state of vertical equity" (p. 307). However, Stiefel and Cordes (2015) asserted that adequacy is a slightly different concept from equity and Swanson and King (1997) stated that adequacy might be "quite unrelated to the standard of equity" (p. 296). Though these seem like contradictory claims, the type of equity to which Swanson and King as well as Steifel and Cordes are referring is probably something more akin to horizontal equity.

Lastly, Adequacy was significantly correlated with all of the scales. Based on these findings, Adequacy seems to be the scale that is tied to the other scales the most. This makes sense from a purely conceptual perspective since in order to define adequacy, one must draw information not only from the minimum common input of funding (Horizontal Equity) but also from measures of sufficiency, which are based on needs (Vertical Equity) and performance (Accountability). Similar to King et al.'s (2005) description of Adequacy, which is that it is based on identifying "resource levels," i.e., Horizontal Equity, "that can produce the results we want to achieve," i.e., Accountability, "with children of differing characteristics," i.e., Vertical Equity (p. 7).

Given that Adequacy is closely correlated with all of the scales, while Horizontal Equity is the least correlated with the others (and, in the case of Vertical Equity, not significantly correlated at all), this might suggest that Horizontal Equity should be treated as being somewhat distinct from the others. In most conceptualizations of the principle of

Horizontal Equity, it is concerned with a flat, universal financial input, namely a per-pupil funding model that is applied consistently across the board. In that regard, it is the most input-driven scale with the least (if any) connection to contextual factors like need or outputs like achievements or accountability measures. In contrast, the other scales all involve some degree of outside information, whether contextual information about need (Vertical Equity) or sufficiency (Adequacy) or outcomes-based information about achievement and performance (Accountability).

Implications

Practical/Educational

The generally positive attitude of Saudi MOE general supervisors towards the principles of a school finance suggests that the Saudi MOE would not face substantial resistance if it were to try to apply Whitney and Crampton's (1996) model of a sound school finance system to the Saudi Arabian educational system. Moreover, the findings also suggest that Whitney and Crampton's principles are not only relevant and applicable to the United States.

Theoretical

Since no significant correlation was found between Horizontal and Vertical Equity, then perhaps rather than considering both forms of equity, it would make more sense to label them in distinctly different ways, such as calling Horizontal Equity "equality" and Vertical Equity "equity." Additionally, it would seem prudent to consider in greater depth how these concepts are and are not related to each other (and to what degree) not only based on legal theories but also based on empirical evidence.

Research

This dissertation marks the first time a study has been conducted on the principles of a sound school finance system in Saudi Arabia. At best, a few previous studies conducted research on some principles separately, such as accountability or equity. However, no previous studies have addressed multiple principles in the same study. Moreover, no previous studies have assessed Saudi attitudes towards such principles as applied to public school funding, especially not MOE employee's attitudes. This is important for at least two reasons. First, the principles all work together, so studying equity in isolation, for example, does not make much sense since equity is affected by other concepts like adequacy or accountability. Second, the attitudes of MOE employees, in this case general supervisors, helps inform how well the principles align with current attitudes, which has important implications not only for how these principles can be applied in practice, but also in terms of informing future research on this topic both in and out of Saudi Arabia.

Limitations

This study was limited to general supervisors in the Saudi MOE, so the findings only apply to this population and cannot be generalized to other populations, such as the general populace or educators and MOE administrators at different levels. Indeed, the fact that Park (2010) arrived at some markedly different results based on a similar survey of the general population of a region of Ohio might indicate that administering this survey to different populations may yield different results. Some factors that might affect the results of such a survey would be the level of knowledge the participants have of the subject matter, public school finance, as well as differences in public school finance

systems from state to state and country to country. However, additional mediating factors that might have lead to differences in the findings of the present study and Park's study include the language differences, cultural differences, and modifications made to the instrument.

Additionally, like all self-report surveys, the accuracy of the findings of this study are based on the assumption that all respondents answered honestly to the best of their ability. However, it is possible that some non-negligible number of respondents gave answers that they would expect the researcher to want to see, a phenomenon known as the observer expectancy effect.

Based on the scatterplots, there appears to be a ceiling effect where respondents gave the highest possible score on one or more variables, which can affect the magnitude of the correlation. In other words, the survey was not able to determine the ceiling score based on its current design, and thus the correlations might be based on the arbitrary cut off point rather than the true maximum.

Another limitation is that the results are specific to the sample and dependent on the instrument, meaning that had a different sample or different survey items been used, it might have resulted in different results. It is not possible to know whether the responses indicate that the respondents are truly low or high on each principle. Moreover, it is not possible to know if the principle and the way they were measured are best able to measure the low and high end. So while the results provide some indication of where the respondents stand on the principles, it is not possible to generalize the findings to other populations or to know if the results for the sample used might have changed with different or more extreme wording.

Recommendations

Practical/Educational

As explained in the literature review, for the past 10–15 years, the KSA has made efforts to decentralize its state educational system, including in the way finances are managed, but the education system has encountered much difficulty in that regard. As reform efforts continue towards increased decentralization, such efforts should be guided by the principles of a sound school finance system. The findings of this study show that the MOE general supervisors, many of whom have had administrative experience at the school and district levels, have a positive attitude towards such principles overall. If the KSA continues to move toward more autonomy for principals/superintendents to make funding and program decisions, then learning about the nuances of and applications of the principles of school finance is of the utmost importance to ensure that local decisions are well-informed and guided by grounded principles.

One type of reform that Aldagishy (2019) recommends and that the present study also supports is called "equity-driven reform" (p. 36). The idea behind this is that all educational reforms should be focused on the goal of increasing the equality of economic opportunity and maximizing the level of educational access for all students.

Another reform that the KSA should consider as it moves towards increasing decentralization is more transparency in financial data and decision making. In the course of conducting research for this dissertation, the researcher found that it was basically impossible to access financial data for Saudi public schools. Sometimes total expenditures could be found, but not detailed budgets. In fact, one of the first plans for

this dissertation involved analyzing financial documents and budgets, much the same way that Vesely & Johnson (2017) did for Ohio states. However, the researcher was informed by the Director of the Education Policy Research Center that such research would be extremely difficult to conduct due to the fact that it is considered highly sensitive data that would require multiple levels of approval in order to access it with no guarantee that the researcher would be able to access useful financial documents at the end of all that. Likewise, in his dissertation, Aldaghishy (2019) reported that there is a "a fundamental lack of data" on educational reforms in Saudi Arabia (p. 56). Thus, it is recommended that something similar to the "Freedom of Information Act" that exists in the United States should be established in the KSA, particularly as it pertains to public schools and funding. However, since schools are not currently funded by taxes, there is no clear incentive or reason for the KSA to be more transparent in its school funding decisions.

One recent development in the KSA's education system is a program called *Tarteeb*, which means "ranking." Starting on January 3, 2022, the Tarteeb program began implementing an accountability "ranking index" that ranks education offices and departments and schools based on the grades of its male and female students in the standardized tests implemented by the ETEC. The Tarteeb ranking index is intended to promote a spirit of "constructive competition" between educational departments, districts, offices, and schools in order to improve public education outcomes, particularly in regards to student achievement. So far, there has not been a lot of information on the Tarteeb process yet since it is so new, but one recommendation is that it should be informed by the principles of a sound school finance system, ensuring that accountability is tied to horizontal equity, vertical equity, and adequacy. Moreover, the tracking of such

accountability data should be analyzed in relation to financial data in order to determine how various differences in funding might be impacting student outcomes. However, one concern about increased accountability that the current research emphasizes is that if misused or misapplied, accountability measures can actually be detrimental to the other principles of a sound school finance system, namely equity and adequacy. If accountability measures like Tarteeb leads to funding cuts in failing schools, then it would pose a problem for such schools to adequately and equitably fund their educational.

Research

As previously noted, one of the initial plans for this research was to conduct research using actual financial data and documents in Saudi Arabia, which proved too difficult due to the lack of access to such data and documents. As a result, the present study involved more indirect data about the state of public school funding in the KSA, which was self-reported attitudinal data from the participants in the study. While such data provide some idea about how administrators in the MOE perceive the principles of a sound school finance system, it says little to nothing about the actual state of school funding in the KSA. While it is extremely difficult to gather such data, it would certainly be worth the effort to request and try to access such data and documents in order to better understand exactly how funding is distributed among Saudi public schools. Indeed, more research is needed on this topic in general in Saudi Arabia, whether focusing on each principle separately or in relation to each other. Any amount of research will be beneficial since this is an under-studied topic in Saudi Arabia.

Another similar study on attitudes, but including multiple levels in both Tier 1 and Tier 2, to use Aldaghishy's (2019) classification where Tier 1 includes those working in the MOE (Minister, Vice Ministers, General Supervisors, etc.) while Tier 2 includes those working in districts and schools, such as Regional Directors, District Superintendents, and School Principals—and perhaps even teachers. Such research would reveal the attitudes of Saudi educators towards the principles of school finance at all levels of the educational system. The findings of such a study could help reveal if there are any areas, positions, or levels where the administration and staff are more or less in support of the principles of school finance.

Lastly, future research using the instrument should focus on ways to word some of the items so that they are more challenging or more difficult to endorse wholeheartedly. This would help better determine how far respondents are willing to go in support of certain principles. Another way to address the ceiling effect would be Tobit regression, which is a technique to account for high scores that are cut off by the instrument at a maximum value below the actual value. However, Tobit analysis was not used in this dissertation because SPSS does not have the capability to perform such analysis, which is the statistical package that was used for this study. Other software, such as R, SAS, and STATA can perform a Tobit analysis, which would be another way this limitation could be addressed in future research

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Appendix A

Survey Key with Item Numbers and Full Survey Statements

Q1H1	Public education should serve all students equally, regardless of their developmental needs.
Q1H2	Boys' and girls' public schools should receive the same amount of funding.
Q3H3	I support full public funding of schools because the funding of every student should be equal.
Q4H4	Each public school should receive the same amount of money per pupil.
Q5H5	Public education should serve all students equally, regardless of the wealth of their family.
Q7V7	Public schools in more expensive cities should receive more federal funding to account for differences in cost of living.
Q6H6	All children have a right to have equal access to educational services of reasonable quality no matter where they live.
Q8V1	I support a weighted funding policy that spends different amounts per student at one school versus another.
Q9V2	School districts with facilities built over 30 years ago should receive additional funding to cover increased maintenance and repair costs.
Q10V3	Rural school districts should receive additional funding.
Q11V4	Students from families below the poverty line should receive meal vouchers.
Q12V5	School funding formulas should provide additional per pupil funding for students with diagnosed special needs.
Q13V6	School funding formulas should provide additional per-pupil funding for students from impoverished families.
Q14AD1	Additional funding should be allocated to schools that are struggling to meet the MOE's achievement standards
Q15AD2	The MOE should assure that every school has sufficient funds to prepare students to succeed in their chosen career paths.
Q16AD3	It is important for the government to identify a standard package of educational services that all students in public schools are entitled to receive.
Q17AD4	The government has a responsibility to provide enough funding to be able to meet national educational standards.
Q18AD5	The public school system should provide sufficient funding to support the level of instruction needed to meet the learning standards mandated by the MOE.
~~Q19H7~~	~~Public education should provide equal educational opportunities to all Saudi residents, including both citizens and non-citizens.~~
Q20ACC1	Making public schools responsible for student achievement will help to make every dollar spent on education worthwhile.
Q21ACC2	Regardless of their funding, all school districts should be able to educate students so that they perform up to government-mandated levels.
Q22ACC3	School districts that consistently fail to meet student achievement performance targets should lose some of their funding to hold them accountable.
Q23ACC4	Holding schools accountable for the results of student standardized proficiency tests is a good way to ensure that funds for schools are used well.
Q24ACC5	The requirement that all schools offer a curriculum based on government standards is a useful way to equalize academic achievement in districts with different levels of funding.
Q25ACC6	Lack of accountability for student performance is the main problem that causes the low performance of some schools.
Q26AD6	The public school funding system needs to provide every child with access to an education that is comparable to the most developed nations.
Q27ACC7	Providing financial incentives for meeting state goals will encourage schools to continuously improve.
Q28AD7	Lack of funding is the main problem that causes the low performance of some schools.

Appendix B

IRB Approval Documentation

Educational Administration & Supervision

The University of Toledo
Main Campus
Gillham Hall, 5th floor
5000 C
Toledo, OH 43606--3390
Phone # 419-530-4114
Fax # 419.530.8447

ADULT RESEARCH SUBJECT - INFORMED CONSENT FORM

ATTITUDES OF GENERAL SUPERVISORS IN THE SAUDI MINISTRY OF EDUCATION TOWARDS THE PRINCIPLES OF PUBLIC EDUCATION FUNDING: A DESCRIPTIVE STUDY

Principal Investigator Dr.Randy Vesely, Associate Professor, 419-530-8438

Other Investigators: Sultan Mutahhiri, Doctoral Candidate, 419--345--8488

Purpose: You are being invited to participate in a study entitled Attitudes of General Supervisors in the Saudi Ministry of Education Towards the Principles of Public Education Funding: A Descriptive Study conducted by Sultan Mutahhiri under the supervision of Dr. Randy Vesely at the University of Toledo in Toledo, Ohio, USA. The purpose of this study is to examine the attitudes of Saudi MOE employees towards widely cited principles of public-school finance (i.e., vertical and horizontal equity, adequacy, and accountability).

Description of Procedures: This research study will take place *online*. *The questionnaire link will be distributed to you through E--mail. The questionnaire contains 29 questions and should take approximately 10-20 minutes to complete. You will be asked to complete it within two weeks.*

Potential Risks: *There are minimal risks to participate in this study, namely the risk of potential breach of confidentiality.*

Potential Benefits: *As a participant in this research study, there will be no direct benefit for you; however, information from this study may benefit other people now or in the future which could potentially improve public education funding system.*

Confidentiality: *The researchers will not collect your identifying information. All data collected will be anonymous and protected to ensure others cannot identify you when reading the research report. Data will initially be collected in Qualtrics, which is protected by the researcher's account name and password. The researchers will not gather IP addresses. Upon completion of the data collection phase, the researcher will download a spreadsheet of the responses from Qualtrics and store the data in a password protected computer that will be accessible by the researcher only. Once downloaded, the Qualtrics and all associated data will be deleted from Qualtrics.*
In addition, no identifying information will be collected by the researchers, and no identifying information will appear in the research report.

The University of Toledo
Human Research Protection Program
Social, Behavioral and Educational IRB
Center for Creative Education – Suite 2102
3000 Arlington Avenue, Toledo, Ohio 43614
Phone: 419-383-6796 Fax: 419-383-3248
(FWA00010686)

IRB Exemption Granted Notification

To: Randall S Vesely, Ph.D.

Educational Leadership, Department of

From: Social, Behavioral and Educational IRB

IRB Number: 301153

Title: Attitudes of general supervisors in the Saudi ministry of education towards the principles of public education funding: a descriptive study

Event Review Type: Exempt

Signed Friday, September 10, 2021 12:00:52 PM ET by Cavalieri, Michelle L

The above-named project was reviewed and determined to meet criteria for exempt research under the following category or categories:

Category 2

by the designee of the University's Social, Behavioral and Educational IRB. Exemption has been granted as of 09/06/2021. The full board will acknowledge this at its next convened meeting.

NOTE: In your application, you state you "will call the Director of the Educational Policy Research Center to confirm that their role is to simply distribute the survey (i.e., forward the email I send them) and nothing else. I will also verify that they indeed do not have any power or authority over the general supervisors that might cause some undue pressure to participate." If you learn anything from this call that changes your responses to any of the questions in this xForm, you will need to notify the IRB. This IRB approval is contingent upon the information in the application being correct and accurate.

Please note the following important items:
Failure to submit a progress report by the due date (09/05/2024) will result in study closure. You must submit a final report WITHIN 30 DAYS following the completion of data collection, analysis, and cessation of all study activity.

Changes MAY NOT be made to any element of the current research without prior approval.

Only the most recent IRB approved form(s) listed below may be used when enrolling participants into research. Failure to conduct your research in accordance with what has been approved in your application may result in a finding of non-compliance with institutional policy and regulatory requirements governing research with human subjects.

Documents reviewed and approved as part of this protocol application submission:

- Financial disclosure.pdf (Conflict of Interest Disclosure)
- RSP103 Mutahhiri.pdf (Conflict of Interest Disclosure)
- 1Sultan Mutahhiri SBE_Waiver_of_Written_Consent_Exempt Research edited(1).docx (Consent - Informed Consent Form)

Appendix C

Permission from Saudi Vice-Ministers to Conduct Research

المملكة العربية السعودية
وزارة التعليم
وكالة التخطيط والتطوير
مركز بحوث سياسات التعليم

وزارة التعليم

الرقم: ٢٦٣٣١٢
التاريخ: ١٤٤٣/٢/٢٦هـ
المشفوعات:

الموضوع: بشأن تسهيل مهمة الباحث/ سلطان بن يحي مطهري

سعادة مدير عام الإدارة العامة لعمليات الموارد البشرية وفقه الله

السلام عليكم ورحمة الله وبركاته

تجدون سعادتكم أدناه باركود ورابط استبانة لطالب الدكتوراه بجامعة (Toledo) في الولايات المتحدة الأمريكية/ سلطان بن يحي مطهري، بعنوان" مبادئ تمويل التعليم في المملكة العربية السعودية".

آمل من سعادتكم التكرم بالتوجيه باستيفائها من مشرفي ومشرفات الإدارة على الباركود أو الرابط التالي:

https://cutt.us/z0JVF

وللاستفسار يمكن التواصل مع الباحث على بريده التالي:
sultan.mutahhiri@rockets.utoledo.edu

وتقبلوا تحياتي وتقديري

مدير عام مركز بحوث سياسات التعليم

أ. د. عبدالرحمن بن عبدالكريم مرزا

المملكة العربية السعودية
وزارة التعليم
وكالة التخطيط والتطوير
مركز بحوث سياسات التعليم

وزارة التعليم

الرقم: ٢٦٣٥٣٢
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الموضوع: بشأن تسهيل مهمة الباحث/ سلطان بن يحي مطهري

سعادة مدير عام الإدارة العامة للتخطيط وفقه الله

السلام عليكم ورحمة الله وبركاته

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المشفوعات:

الموضوع: بشأن تسهيل مهمة الباحث/ سلطان بن يحي مطهري

سعادة مدير عام الإدارة العامة للشؤون المالية وفقه الله

السلام عليكم ورحمة الله وبركاته

تجدون سعادتكم أدناه باركود ورابط استبانة لطالب الدكتوراه بجامعة (Toledo) في الولايات المتحدة الأمريكية/ سلطان بن يحي مطهري، بعنوان" مبادئ تمويل التعليم في المملكة العربية السعودية".

آمل من سعادتكم التكرم بالتوجيه باستيفائها من مشرفي ومشرفات الإدارة على الباركود أو الرابط التالي:

https://cutt.us/z0JVF

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sultan.mutahhiri@rockets.utoledo.edu

وتقبلوا تحياتي وتقديري

مدير عام مركز بحوث سياسات التعليم

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المملكة العربية السعودية
وزارة التعليم
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الموضوع: بشأن تسهيل مهمة الباحث/ سلطان بن يحي مطهري

سعادة مدير عام الإدارة العامة لقياس الأداء وفقه الله

السلام عليكم ورحمة الله وبركاته

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