

# A cross-national examination of the effect of the Schwartz cultural dimensions on PISA performance assessments

Pascale Benoliel

School of Education, Bar-Ilan University, Ramat Gan, Israel

and

Izhak Berkovich

Department of Education and Psychology, The Open University of Israel, Ra'anana, Israel

## Abstract

In recent years, PISA assessments have become more frequent, and transnational borrowing and policy adaptation have steadily increased, with implications on national education reform policies. The growing impact of globalization in education policy seems to have reinforced the underlying legitimacy of an educational world that lacks cultural diversity. This study seeks to highlight cultural dimensions as significant indicators of disparities in educational performance across countries in international tests. Combining data from the World Values Survey with the PISA scores database, we examined how the Schwartz cultural dimensions relate to student PISA achievement at the national level. Results of regression analysis indicate that when controlling for GDP per capita, Conservatism (i.e., tradition, conformity, and security) remains the best predictor of PISA test results in the three core disciplines. Cultural dimensions in general, and Conservatism in particular, play a significant role in explaining academic achievements per country. Paradoxically, while globalization, in some instances, has led to positive educational policies and multicultural values that challenge Conservatism and Traditionalism, Conservatism may ultimately serve to build the group identity, social cohesion, and national solidarity necessary in this dynamic global era. This study emphasizes the need for comparative exploration that takes into account the influence of cultural dimensions at the national level. This is something that we hope will assist educational administrators to make their educational systems both more effective and more socially responsive.

**Keywords:** Schwartz cultural dimensions, PISA, comparative approach, indicators of performance, globalization

Forthcoming in Social Indicators Research.

**This is a post-peer-review, pre-copyedit version of an article published in *Social Indicators Research*. The final authenticated version is available online at:**

<https://doi.org/10.1007/s11205-017-1732-z>

## 1. Introduction

As educational leaders, policy analysts, and academics acquire more information about, and perhaps insights into, the structures, policies, and practices of various educational systems, the internationalization of educational policy-making will spread (Bieber Dobbins Fulge and Martens 2014). The emerging impact of globalization on educational policies is largely recognized. There is unprecedented interest in improving the quality of education, and particularly student outcomes (Phillips and Schweisfurth 2014; Rawolle and Lingard 2008). In this regard, new international comparisons regarding student performance have increasingly become a new indicator to measure the quality of a nation's educational system (Lingard 2010). Importantly, with the growing frequency of international assessments such as PISA, flows of transnational 'borrowing' and policy adaptation have noticeably intensified with important implications on national education reforms (Meyer and Benavot 2013; Sellar and Lingard 2014; Steiner-Khamsi and Waldow 2012).

The growing impact of international assessments seems to have reinforced the underlying legitimacy of a world of education that is not culturally diverse, while also ignoring the disparity of economic wealth among the various nations. The internationalization of the Western model of education with its organized grades and classroom procedures, its hierarchical structure and assessment procedures, has become prevalent (Power 2015; Schleicher and Stewart 2008). A central assumption underlying PISA is that global variation in students' academic performance is attributable to national educational structures and policies (Feniger and Lefstein 2014). Thus, policy makers in countries with contrasting cultures have tended to follow policy blueprints similar to those adopted by many Western governments, who for diverse reasons have chosen to restructure the administrative structures and

processes of their public sectors but with little consideration of their cultural fit (Hallinger and Leithwood 1996; Meyer and Benavot 2013). However, important economic, social, and cultural differences exist between Western and Asian learners, for example, in regard to their conception of what is meant by knowledge, and what constitutes effective teaching and learning (Bajunid 1996; Feniger Livneh and Yogevev 2012; Li 2012). These differences also play a part in shaping desired educational outcomes. For instance, a recent study has indicated that cultural background appears to be of more importance for Chinese immigrant students' educational achievements than exposure to the Australia or New Zealand educational systems (Feniger and Lefstein 2014).

The trend towards multiculturalism and significant cultural differences may have implications in determining what should be regarded as appropriate patterns of management and school organization in different societies, indicating the need for cross-cultural research in educational policy (Feniger and Lefstein 2014).

Accordingly, in considering that a cultural to a great extent shapes the context in which educational systems operate (Dimmock and Walker 2000), the goal of the present study is to highlight cultural dimensions as significant indicators in explaining educational performance differences across countries in international tests. We propose a cross-national comparison to examine the relationship between cultural dimensions from the Schwartz Cultural Framework and Value Types model (2011) and differences in PISA achievement test score indicators.

We have focused on the Schwartz framework due to its extensive use as a national cultural framework for facilitating international comparisons in social research, and because the framework includes value measurements which have been shown to have cross-culturally equivalent meanings at an individual level to

operationalize cultural dimensions. By focusing on cultural dimensions as predictors of success in international assessments, we seek to extend the pool of knowledge regarding additional indicators explaining and predicting differences across countries in the results of international assessments such as PISA. Specifically, the current study first examines how high-performing countries in PISA assessments differ from low-performing countries in terms of the Schwartz cultural dimensions. The study then goes on to examine which of the Schwartz cultural dimensions, after wealth (GDP per capita indicator), best predicts PISA assessment test results.

It is therefore hoped that the present study can make important theoretical contributions. First, the significance of educational indicators today above contextual care in reading them (Novoa and Yariv-Mashal 2003), has emphasized the contribution of the OECD to the construction of a 'global field of measurement' constituted through numbers, and its enhanced role as policy actor (Lingard et al. 2005). However, studies have noted that social, cultural, demographic, and economic indicators also account for a country's educational achievements (Alexander 2012; Tan 2012). In this regard, research has indicated that in comparison to poorer countries, richer countries tend to spend more on education which may in turn give students direct access to more resources and more opportunities for learning (Baker Goesling and Letendre 2002). Second, although schools in different societies may appear to have similar formal leadership hierarchies, these appearances often disguise subtle differences in values, relationships, and processes beneath the surface (Dimmock and Walker 2000).

Essentially, cultural values can reflect major social commitments in societies and across nations (Schwartz 2006). For example, a society with a more hierarchical culture and structures may encourage responsible behavior by assigning clear,

hierarchical roles and by teaching its citizens to obey authority. Accordingly, different approaches to teaching and learning, for example, may only be truly understood when placed in their cultural context (Cheng and Lam 2013). By taking the pervasive influence of the cultural dimensions at the national level into account, this study may assist educational administrators in making their educational systems both more effective and more socially responsive.

## **2. Literature review**

### **2.1. Cultural diversity and the internationalization of education**

Globalization has emerged as a result of several factors, among them advances in information and communication technology and the opening up of markets (Power 2015). Global processes have changed the context within which educational systems operate, the way we communicate, teach, and learn. Globalization guides political, economic, and educational organization (Gaziel 2009; Rawolle 2010). Because of a global order in which knowledge is seen as major resource, isomorphic pressures toward internationalization in education and schooling have been noted (Wiseman Astiz Fabrega and Baker 2011). More importantly, global comparisons and thus global indicators and standards have begun to regulate national policy decision-making by establishing a commensurate space for measurement of national educational performance (Lingard and Rawolle 2010, 2011) where ‘reference societies’ have emerged for national educational systems (Schriewer and Martinez 2004). Lingard and Rawolle (2011) refers to an emergent ‘global education policy field’ with statistics as a dominant point to its existence. This is well-demonstrated through the emphasis in the OECD assessment program of PISA on student performance indicators in mathematics, science, and reading literacy. The quality of

education in OECD countries is increasingly being judged according to indicators of educational success such as scores achieved in these domains by 15 year-olds (OECD, 2013) creating new indicator of reference to measure a country performance with test score as basis of reference. Yet, countries differ not only in wealth and degree of social equality, but also in their cultural values requiring careful consideration of national and local histories and cultures (Lingard 2010).

Cross-cultural researchers have come to agree that cultural values influence people's thinking, emotions, and actions (Earley 1993; Schwartz 1992, 2011). Deeply rooted values are considered as abstract motivations that guide, justify, and explain attitudes, norms, opinions, and actions and serve as guiding principles in the life of a person or social entity (Feldman 2003; Schwartz 1992, 1994). Values may explain opinions, attitudes and behavior both on the individual and aggregate levels. People learn these cultural values through both formal and informal socialization, through parents, and through exposure to laws and norms reflecting cultural values (Inglehart and Baker 2000). Nations that address basic societal issues differently have different cultural values (Schwartz and Ros 1995). Research has emphasized that values shape the behaviors of a country's citizens, therefore, individual attitudes toward academic achievement may vary as a function of cultural values (Inglehart 1997; Schwartz 1997). For example, in countries characterized by Confucian cultures, cultural values affecting attitudes towards education may be different from the cultural values predominant in North American and European countries. The same could be said of the values underlying educational attitudes in Arabic-speaking cultures (Lewis 1995; Tilak 2003).

## 2.2 Schwartz Cultural Framework and Value Types

Cultural values have been displayed, conceptualized, and operationalized in different ways (e.g. Feldman 2003; Hofstede 1997, 2001; Inglehart 2004). The Schwartz research constitutes a large-scale and innovative study that improves upon previous research (Yeganeh Su and Sauers 2009; Yeganeh 2014). The current study will focus exclusively on the Schwartz cultural dimensions model (2006a, 2006b). The Schwartz cultural dimensions framework includes 10 motivationally distinct types of individual values samples from 63 nations (Schwartz 1992, 1994, 1999). It derives 10 motivationally distinct, broad, and basic values from three universal requirements of the human condition: the needs of individuals as human beings, requisites of coordinated social interaction, and group membership (Schwartz 2011).

Schwartz (1992, 1994, 2006) has described culture in three pairs of cultural dimensions: (1) Conservatism/Autonomy; (2) Hierarchy/Egalitarianism; and (3) Mastery/Harmony.

***Conservatism versus Autonomy.*** This first cultural dimension pair addresses the relationships of the individual to the group. The Conservatism cultural dimension involves values of *conformity*, *tradition*, and *security* that primarily serve the interests of others. *Conformity* assesses the importance of obedience, self-discipline, and politeness; *traditionalism* assesses the importance of respect for tradition, humility, devoutness, and moderation; and *security* assesses the importance of social order, family security, national security, and a sense of belonging. On the other hand, the Autonomy cultural dimension encompasses the values of *self-direction*, *stimulation*, and *hedonism* that focus on the interests of the individual. *Self-direction* assesses the importance of creativity, freedom, independence, and curiosity; *stimulation* assesses

the importance of variety and excitement; and *hedonism* addresses pleasure and sensuous gratification for one's self (e.g., pleasure and enjoying life).

In highly conservative cultures, emphasis is placed on maintenance of the status quo, propriety, and avoiding actions that might disrupt the cohesiveness of the group or the traditional order (Schwartz 1992, 1994). People are highly embedded in a collective mindset and the individual is expected to find meaning in participating in and belonging to the group, placing high priority on the person's in-groups. By contrast, the autonomy cultural dimension emphasizes the pursuit of individual desires, one's own preferences, feelings, and interest (Berry 2000). The individual is regarded as a unique and self-sufficient being, who is encouraged to cultivate his or her special gifts and to express his or her own ideas and intellectual directions, and to pursue his or her own affectively positive experience.

***Hierarchy versus Egalitarianism*** (Schwartz 1992, 1994, 2006). This cultural dimension pair describes how cultures differ in their methods of motivating people to display responsible social behavior that enables large numbers of people to live harmoniously together (Schwartz 1994a). Hierarchy includes the values of *power* which assess the importance of authority, wealth, social power, public image, and social recognition. In contrast, egalitarianism is focused on the values of *universalism* and *benevolence*. *Universalism* assesses the importance of broadmindedness, social justice, equality, and a world at peace. *Benevolence* assesses the importance of helpfulness, loyalty, forgiveness, honesty, and responsibility. In hierarchical societies, cultural emphasis is on the legitimacy of an unequal distribution of power, resources, and authority where the values of social power, authority, and humility are very important. A system of official roles assures socially responsible behavior, and individuals are assigned and accept social functions that bear specific obligations and



place limitations on behavior. In contrast, in highly egalitarian cultures, individuals recognize each other as equals, demonstrate concern for others, and treat each other the way they wish to be treated (Berry 2000). Egalitarianism encompasses equality, social justice, freedom, responsibility, and honesty. The cultural emphasis reflects a transcendence of selfish interests to the benefit of voluntary commitment to promoting the welfare of others.

***Mastery versus Harmony.*** Mastery versus Harmony is the third pair of Schwartz's cultural dimension and deals with the role people play in the natural and social world. Mastery focuses on the value of *achievement* which assesses the importance of ambition, success, capability, influence, and intelligence. Individuals in cultures characterized by a high degree of Mastery, seek to control and change the natural and social world by exploiting it so as to achieve personal goals or group interests (Schwartz 2006). By contrast, Harmony, which involves the value of *spirituality*, accepts the world as it is and emphasizes unity with nature (Schwartz 1992, 1994). *Spirituality* assesses the meaning of life, sense of inner harmony, and sense of detachment. In high Harmony cultures, individuals accept and attempt fitting into the world as it is, understanding it, and preserving it the way it is (Berry, 2000).

**Table 1. Schwartz's six cultural dimensions and their descriptions**

Schwartz Cultural Dimensions	Description
Conservatism	Emphasis on maintenance of the status quo, propriety, tradition, family security, modesty, fulfilling role expectations. The person is securely embedded in his or her society.
Autonomy	Emphasis on pleasure, excitement, and a life filled with variety. The individual experiences choices and the opportunity to be unique, flexibility in thoughts, ideas, emotions, and feelings.
Hierarchy	Reliance on hierarchical systems of prescribed roles to ensure responsible and productive behavior. Individuals must comply with the obligations and rules attached to their roles. Emphasis on the legitimacy of an unequal distribution of power, status, and resources.
Egalitarianism	Importance is placed on equality and opportunities for all and dedicated resources to the benefit and welfare of the less fortunate.
Mastery	Emphasis is placed on self-assertion, ambition, success, daring, and competence. Importance is placed on controlling the social environment and getting ahead.
Harmony	Emphasis on avoiding self-assertion, importance placed on fitting in with the environment, quality of life, and harmony with environment

Source: Schwartz 1994

### 2.3. National cultural values and PISA international achievements

The Program for International Student Assessment (PISA) is a triennial international survey which seeks to evaluate educational systems worldwide by testing the skills and knowledge of 15-year-old students in reading, mathematics, and science literacy in 65 countries and economies. Focused on a more pragmatic view of education, PISA is one of the first international student assessment surveys that applies concepts such as 'literacy' to students (OECD 2009). PISA has been conducted every three years since 2000 and seeks to answer, through a comprehensive and rigorous international assessment of student knowledge and skills, questions about how well students are prepared to meet the challenges of the future and their ability to analyze, reason, and communicate their ideas effectively (OECD 2012). The assessment instruments are a combination of multiple-choice and constructed-response items. The PISA development efforts are reported to be extensive in terms of validity and reliability and rigorous quality-assurance mechanisms are applied in the translation of materials

into different languages. Thus, PISA provides an international comparison regarding students' performance in different countries, with robust, cross-culturally valid measures of capabilities and skills (OECD 2012). This makes PISA an appropriate vehicle for comparing the quality of educational structures, processes, and outcomes across international boundaries.

Research has emphasized that the top ten countries in terms of PISA scores easily divide into two main groups: the ten highest achieving countries reflecting Confucian Asian cultures, and European cultures reflecting Western values (Huntly Kaiser and Luna 2012; Lee 2009). Recent international studies (i.e., PISA 2006 and 2012) are also in general agreement with this classification of high-achieving countries. For example, the ten highest scoring countries in the PISA 2012 assessments for science are Shanghai China, Hong Kong, Singapore, Japan, Finland, Estonia, Vietnam, Poland, and Canada. Similarly, the ten highest scoring countries in the PISA 2012 assessment for mathematics are Shanghai China, Singapore, Hong Kong, Chinese Taipei, Korea, Macao-China, Japan, Liechtenstein, Switzerland, and the Netherlands.

Studies have indicated that countries with higher GDP per capita generally show higher rates of student achievement (Baker et al. 2002). Richer countries can raise student achievement directly through education spending; additional resources (e.g., books, teacher attention, and family income) at the national level provide students with additional learning opportunities (Arum 1998; Bradley and Corwyn 2002). In this regard, research has shown that a positive relationship exists between student achievement and the availability of instructional materials and books (Bradley and Corwyn 2002). Also, it is acknowledged that in richer countries, families often have more human, financial, or social resources. Parents with higher socioeconomic

status can more easily provide their children with certain cognitive and social skills (Swick and Broadway 1997). Yet, the high academic performance of Asian students is often attributed to core Confucian beliefs about the role of learning and academic achievement (Li 2012).

In Confucian culture, the ethical–moral system rules all relationships in a society that is highly hierarchical, structured with superiors and subordinates (Inglehart 2006). Wisdom, responsibility, and benevolence descending from one's superiors and obedience, loyalty, and respect ascending from subordinates are the main values of such social hierarchy. People in such a society gain a sense of control through doing what they are told and conforming to agreed laws and decrees (Chang and Wong 2008). Since Social–Order values such as tradition, security and conformity depict a traditional and predictable world, any changes may be seen negatively (Hitlin and Kramer 2007). Confucianism also emphasizes the maintenance of a strong system of ethics. Conservative values and hierarchy, which are both very important in South Asian cultures, share the assumption that one should act properly within a community and place the interests of others above one's own personal needs and aspirations (Bernardo 2008). Research has indicated that for Confucian Asia (e.g. Taiwan, Japan and South Korea), values that emphasize social relationships, family, community, harmony, and trust are related to happiness and life satisfaction (Inoguchi and Shin, 2009; Shin and Inoguchi 2009; Tan and Tambyah 2011). Moreover, in the Chinese cultural context, academic achievement is seen as a social endeavor. By achieving in school, a student can bring wealth, fame, and honor to the family (Tao and Hong 2014). For example, effort rather than ability is strongly emphasized. Also, one's academic success is celebrated at the group (family) level, rather than on an individual level (Lee 1996; Li 2012).

Western Europe is characterized by high degree of egalitarianism. People take individual responsibility for their actions and make decisions according to their own personal understanding of any given situation. The Western Europe culture calls for selfless concern for the welfare of others and fitting into the natural and social world rather than striving to change it through assertive action. It has also helped lay the foundations for participatory democracy (Power 2015). Academic achievement is largely seen as an individual endeavor, and emphasis is placed on students expressing their own goals and focusing on their own needs, interests, and preferences (Tao and Hong 2014). This behavior is characterized by such traits as independence, curiosity, and choosing one's goals (King and McInerney 2012). Northern and Western Europe promote the personal self, a value system that is characteristic of more capitalist and competitive systems.

Institutions in the United States, including schools, are founded on the individualistic values of Western Europe (Trumbull Rothstein-Fisch Greenfield and Quiroz 2001), with an emphasis on individual rather than collective score grades as indicators of performance (Raef Greenfield and Quiroz 2000). American culture tends to emphasize power, achievement, and hierarchy (Greenfield 2006). American culture seem to encourage an assertive, pragmatic, innovative orientation to the social and natural environment (Greenfield and Quiroz 2013).

It seems that in general, Asians are more oriented towards social goals than their Western counterparts (Cheng and Lam 2013; King McInerney and Watkins 2012). In addition, in a study comparing the meaning of 'learning' in Chinese and American contexts, Li (2002) found little conceptual overlap in terms of how learning was interpreted. Another example attesting to these differences in core cultural values relates to the amount of time students from a diverse sampling of countries devote to

schoolwork and leisure activities. Research has indicated that in Western countries, students are also encouraged to develop personal goals in diverse areas and leisure activities, along with their studies (Larson and Verma 1999). However, in more conservative and traditional culture, the family's structure influences women students' participation in leisure involving physical activity; especially, leisure that involves physical activity since in Confucianism, appreciation of the beauty of the human body is not allowed (Tsai and Zhou, 2013).

#### **2.4. Research Questions**

Previous research has emphasized that relative to each other, English-speaking countries (e.g., Australia, USA, and New-Zealand) and Eastern European countries are more hierarchical than countries in Western Europe, with the Nordic countries ranked as the least hierarchical (Schwartz 1994, 1999). Also, English-speaking countries and Asian countries have been shown to score high on Mastery cultural dimension, whereas countries in Western Europe, Scandinavia, and Eastern Europe score high on the cultural dimension of Harmony. Research has also indicated that English-speaking, Western European, and Latin-American countries value Autonomy whereas Eastern European and Asians countries value Conservatism (Glazer 2006). According to the Schwartz cultural dimensions, Western European countries present high levels of Autonomy, Egalitarianism, and Harmony and low levels of Conservatism, Hierarchy, and Mastery.

There is a common consensus that the facets of *Power* from the Hierarchy cultural dimension, *Achievement* from the Mastery cultural dimension, *Hedonism*, *Stimulation*, and *Self-Direction* from the Autonomy cultural dimension are indicators that are emphasized more strongly by Europeans. *Tradition and Conformism* from the

Conservatism cultural dimension and Mastery are more strongly emphasized by the Confucian Asians. Contemporary researchers in education see this type of Confucian cultural orientation as largely successful (Li 2012; Tan 2012). Indeed, East Asian countries such as Singapore, Japan, Hong Kong, and South Korea are consistently the highest performers in PISA assessments, especially for mathematics (Jerrim and Choi 2014). Therefore, we propose that cultural dimensions that predominate in more conservative and hierarchical culture, such as Conservatism, Hierarchy and Mastery, should be strong predictors of performance indicators of PISA assessment test.

Specifically, the current study attempts to address the following research questions:

1. *Do high-performing countries versus low-performing countries in PISA assessment test indicators differ in terms of the Schwartz cultural dimensions?*
2. *Which of the Schwartz cultural dimensions are the strongest predictors of performance indicators in PISA assessment tests (after accounting for differences in the average wealth of the subject countries)?*

### **3 Method**

#### **3.1. Participating Countries and Students**

All OECD countries have participated in PISA since its inception in 2000. PISA 2012 is the program's 5th survey. Similar to the previous cycles, the 2012 assessment covered reading, mathematics, and science, with the major focus on mathematical literacy (OECD 2012). The PISA study provides comparable information on student for all OECD member countries (see Organization for Economic Co-operation and Development, 2012 for details). This includes 65 countries in total, made up of 34 OECD countries and 31 partner countries. In the present study, we have combined the data from the sixth wave of the World Values Survey assessing the Schwartz values

with the database of test scores in math, science, and reading from the PISA 2012 to estimate each country's values and how these values relate to the indicators of student achievement in the PISA test at the national level. We have included in this comparative study controls for GDP per capita index. Combining the available data, we constructed a dataset containing participants in 33 of the 65 OECD countries.

The following countries were included in the study:

*Albania, Argentina, Armenia, Australia, Brazil, Chile, China, Colombia, Cyprus, Estonia, Germany, Hong Kong, Japan, Jordan, Kazakhstan, Malaysia, Mexico, the Netherlands, New Zealand, Peru, Poland, Qatar, Romania, Russia, Singapore, Slovenia, Spain, Sweden, Thailand, Tunisia, Turkey, the USA, Uruguay.*

## 3.2 Measures

3.2.1 **Schwartz Human Values.** Individual data from the sixth wave of the World Values Survey (WVS) was used. Ten distinct types of individual values from the value orientation scales developed by Schwartz (2001) were included in the WVS 2010-2014 survey, which is a compilation of surveys conducted in more than 80 countries representing about 85 percent of the world's population (Inglehart 2004). The World Values Survey (WVS) of 2010-2014 was conducted among a representative random sample of the adult population within each nation-state. Data for 49 nations was available. Since, Schwartz's questions are given in reverse order (1) "very much like me"; (6) "not at all like me", we reversed the values prior to any analysis (alpha Cronbach=.81). The *benevolence* value was omitted from the data because only 13 countries out of 33 provide complete data for this value.



3.2.2 *Indicator of Educational achievement.* We used the Program for International Student Assessment (PISA 2012) micro database to measure educational achievement. PISA mapped performance in the three subjects used in the study on a scale with an international mean of 500 and a (student-level) standard deviation of 100 test-score points across the OECD countries. In our study, the mean score is 458.5 (SD=60.60), for mathematical literacy, 465.06 (SD=56.53) for science literacy and 459.84 (SD=53.07) for reading literacy.

*Control variables - The GDP per capita index.* The GDP per capita indicates the average standard of living of individual members of the population and the economic strength of each country. The measure is commonly used in cross-cultural research designs in different national settings (National Center for Education Statistics (NCES) 1996, 2001; Science and Engineering Indicators, 2002; Shapiro & Kamin 2004). Data on GDP per capita in 2009 US dollars is from the World Bank World Development Indicators. We chose to control for GDP per capita because of the important differences across countries in available resources, but also because countries with higher gross domestic product (GDP) per capita generally show higher rates of student academic achievement (Baker et al. 2002).

All raw data is presented in Appendix A and includes the Schwartz cultural dimension means, PISA test score indicators, and GDP per capita for the countries included in our study sample.

## 4 Results

Table 2 illustrates the means, standard deviations and correlations for all the study variables.

**Table 2.** Descriptive statistics and inter-correlation matrix for the study variables N=33

	M	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Conservatism	2.55	.48	1									
(2) Hierarchy	4.07	.61	.49**	1								
(3) Autonomy	3.27	.35	.69***	.46***	1							
(4) Harmony	2.50	.41	.74***	.07	.61***	1						
(5) Egalitarianism	2.51	.46	.87***	.25	.70***	.83***	1					
(6) Mastery	3.05	.63	.84***	.65***	.73***	.62***	.73***	1				
(7) PISA-Mathematic	458.00	60.60	.39*	.19	.27	.31	.32	.36*	1			
(8) PISA-Reading	459.84	53.07	.42*	.26	.29	.31	.33	.37*	.96***	1		
(9) PISA-Science	465.06	56.53	.42*	.24	.32	.31	.33	.38*	.97***	.98***	1	
(10) GDP per Capita	25051.96	22159.86	.32	.20	.11	.07	.14	.20	.22	.26	.23	1

\*p&lt;.05; \*\*p&lt;.01; \*\*\*p&lt;.001

The correlation pattern shown in Table 2 reveals several important insights, indicating that the measures relevant to the proposed outcomes were significantly correlated. First, academic achievement in mathematics in PISA test was positively associated with Schwartz cultural dimensions of *Mastery* ( $r=.36, p<.05$ ) and *Conservatism* ( $r=.39, p<.05$ ); academic achievement in reading in PISA test was positively associated with Schwartz dimensions of *Conservatism* ( $r=.42, p<.05$ ) and *Mastery* ( $r=.37, p<.05$ ); academic achievement in science in PISA tests was positively associated with Schwartz dimension of *Conservatism* ( $r=.42, p<.05$ ) and *Mastery* ( $r=.38, p<.05$ ). Second, there were no statistically significant associations between the GDP per capita index factor and each of the academic outcomes of mathematic, reading, and science ( $p>.05$ ).

#### 4.1. Hypothesis test

Our first research question asked:

*Do high-performing countries versus low-performing countries in PISA assessment test indicators differ in terms of the Schwartz cultural dimensions?*

First, we plotted PISA values in the three core disciplines according to median scores in order to dichotomize the variables and create “low-high” groups in PISA performance test results. Because splitting continuous variables into categorical variables leads to reduced statistical power, Irwin and McClelland (2003) recommend the use of a median split instead of a mean split. The countries that performed lower than the PISA median in our sample were: Peru, China, Qatar, Jordan, Argentina, Tunisia, Australia, Albania, Uruguay, Mexico, Malaysia, Brazil, Thailand, Kazakhstan, Colombia, Romania, and Turkey. The countries that performed higher than the PISA median in our sample were: Germany, Sweden, the United States,

Russia, Spain, New Zealand, Slovenia, Armenia, Estonia, Poland, Cyprus, Netherlands, Japan, Chile, Hong Kong, and Singapore.

Using independent samples T-test, results reveal that the high-performing countries versus low-performing countries were significantly different in terms of their Schwartz cultural dimension levels. When compared with the low-performing level group, the high-performing group in mathematics reported significantly higher levels of *Conservatism* (M=2.34, SD=.41; M=2.77, SD=.46; T=-2.81, p<.01), *Harmony* (M=2.36, SD=.42; M=2.65, SD=.36; T=-2.12, p<.05); *Egalitarianism* (M=2.35, SD=.36; M=2.69, SD=.51; T=-2.14, p<.05) and *Mastery* (M=2.82, SD=.62; M=3.29, SD=.56; T=-2.28, p<.05). Similarly, when compared with the low performance level group, the high performer group in PISA science test reported significantly higher levels of *Conservatism* (M=2.34, SD=.41; M=2.77, SD=.50; T=-2.82, p<.01), *Harmony* (M=2.36, SD=.42; M=2.65, SD=.36; T=-2.12, p<.05); *Egalitarianism* (M=2.35, SD= 0.52; M=2.69, SD=.62; T=-2.10, p<.05); *Mastery* (M=2.82, SD=.62; M=3.29, SD=0.56; T=-2.28, p<.05). Finally, when compared with the low performance level group, the high performer group in reading achievement in PISA test reported significantly higher levels of *Conservatism* (M=2.39, SD=.42; M=2.78, SD=.47; T=-2.43, p<.05); *Hierarchy* (M=3.88, SD=.68; M=4.32, SD=.40; T=-2.27, p<.05), and *Mastery* (M=2.82, SD=.62; M=3.36, SD=.56; T=-2.63, p<.05). Overall the cultural dimensions of *Conservatism* and *Mastery* were significantly different in the three core disciplines.

Our second research question asked:

*Which of the Schwartz cultural dimensions were the strongest predictors of performance in PISA assessment tests (after accounting for differences in the average wealth of the subject countries)?*

In order to identify which of the Schwartz cultural dimensions were the best predictors of each PISA indicators of academic achievement outcome, namely reading, mathematics, and science, three stepwise multiple regression analyses were conducted. In each regression, the Schwartz cultural dimension of Conservatism, Mastery, Hierarchy, Autonomy, Egalitarianism and Harmony were used as predictors. In the first regression, PISA academic achievement in mathematics was used as the dependent variable. In the second regression, PISA academic achievement in science was used as the dependent variable. In the third regression, PISA academic achievement in reading was used as the dependent variable.

Then, additional analysis was conducted, using only the significant predictors of each of the academic achievement outcomes, namely reading, mathematics and science in PISA tests, and controlling for GDP per capita index. Table 3-5 identifies the significant predictors that emerged for each of the final regression models. Regression analysis (Table 3-5) indicated that when controlling for GDP per capita, *Conservatism* explained 15% of the variance in science achievement ( $\beta = .39$ ,  $p < .05$ ), and 12% of the variance in mathematics achievement ( $\beta = .35$ ,  $p < .05$ ). As for reading achievement, when controlling for GDP per capita, *Conservatism* explained 14% of the variance in reading achievement ( $\beta = .38$ ,  $p < .05$ ).

**Table 3:** Results of Hierarchical Regression Analysis for Predicting Science Achievement while controlling for GDP per capita

	<i>B</i>	<i>T</i>	<i>Sig</i>
(Constant)		30.40	.00
GDP per Capita	.23	1.33	.19
<i>F</i>	1.77		
<i>R</i> <sup>2</sup>	.05		
(Constant)		8.95	.00
GDP per Capita	.10	.62	.53
Conservatism	.39	2.22	.03
<i>F</i>	3.47*		
$\Delta R^2$	.15		

\*p&lt;.05; \*\*p&lt;.01; \*\*\*p&lt;.001

**Table 4:** Results of Hierarchical Regression Analysis for Predicting Mathematic Achievement while controlling for GDP per capita

	<i>B</i>	<i>T</i>	<i>Sig.</i>
(Constant)		27.84	.00
GDP per Capita	.22	1.31	.19
<i>F</i>	1.72		
<i>R</i> <sup>2</sup>	.05		
(Constant)		8.03	.00
GDP per Capita	.11	.65	.51
Conservatism	.35	2.00	.05
<i>F</i>	2.95*		
$\Delta R^2$	.12		

\*p&lt;.05; \*\*p&lt;.01; \*\*\*p&lt;.001

**Table 5:** Results of Hierarchical Regression Analysis for Predicting Reading Achievement while controlling for GDP per capita

	$\beta$	<i>T</i>	<i>Sig</i>
(Constant)		32.20	.00
GDP per capita	.26	1.51	.14
<i>F</i>	2.29		
<i>R</i> <sup>2</sup>	.07		
(Constant)		7.36	.00
GDP per capita	.14	.81	.43
Conservatism	.38	2.20	.03
<i>F</i>	3.73*		
$\Delta R^2$	.15		

\*p&lt;.05; \*\*p&lt;.01; \*\*\*p&lt;.001

## 5. Discussion

With the rapid growth of globalization, the use of large-scale standardized international assessment as indicator of performance has increased considerably as a way to evaluate and compare the quality of the future labor force across different countries (Schwippert and Lenkeit 2012). This is particularly well illustrated by the greater number of participant countries, an increased public awareness, and ongoing comparisons of country performance rankings (Meyer and Benavot 2013). However, globalization tends to ignore that theory, policy and practice borrowed may interface with the cultures of different host societies (Schwippert 2007). Societies differ greatly in the extent to which their educational philosophy and practices express more hierarchical and conservative cultural dimensions or more egalitarian, democratic and autonomy cultural dimensions. Accordingly, the main objective of this study was to determine the extent to which cultural dimensions from the Schwartz typology play a significant role in explaining and determining higher achievements in PISA international assessments. The theoretical grounds for the study were based on the premise that cultural dimensions may be viewed as important components of a students' country's success in international assessments beyond the success that would be predicted based on the country's economic growth indicator and educational structures.

The first question to consider is whether significant differences exist in terms of the Schwartz cultural dimension levels between the higher-performing countries and the lower-performing countries in PISA assessments. The present findings indicate that significant differences exist between the groups. This provides initial support for our premise that cultural context matters when it comes to educational achievement. This may be because cultural orientations underlie societal structural

arrangements and provide both guidance and justification for the decision makers who shape societal institutions. This strengthens the assumption that culturally shaped beliefs and forms of interactions may explain differences in the achievement levels of different countries in international test performance indicators, reflecting the importance of the social and cultural milieu (Coleman 1988; Bourdieu 2011).

More specifically, the results indicate that when comparing high-performing countries to low-performing countries, *Conservatism* and *Mastery* were significantly higher for the best performers in the three core disciplines of the PISA achievement test indicators. In line with the Schwartz typology (2005), cultural dimension of *Conservatism* entails subordination to persons with whom one frequently interacts such as parents, teachers, and managers, as well as subordination to more abstract entities such as religious and cultural customs and ideas. More conservative cultures tend to emphasize the preservation of social order, encouraging individuals to ignore personal preferences that might disrupt the status quo (Tao and Hong 2014). Moreover, *Mastery*, which encompasses the values of motivation for achievement, reflects a long-term need for success or the concern for the attainment of excellence (McClelland 1961). Specifically, societies whose culture emphasizes *Mastery* believe that man's role is to control, and to shape the world so as to promote group interests. This perspective is achieved as an endorsement of ambition, success, competitiveness, and daring. These cultural dimensions are close to the values that prevail in Confucian culture, where student commitment and parental involvement in education is particularly high.

This finding is consistent with previous research confirming cultural explanations for strong performances on PISA tests in East Asian education systems (2009) (Tan 2012). In this regard, previous research has shown that *Conservatism* and



*Mastery* are higher in East Asian countries (Glazer, 2006). Research has attributed the strong performances to a high degree of commitment to education and ambition associated with Confucian culture, as well as a focus on disciplined study routines (Tan 2012). Similarly, in his research Simola (2005) explained the success of Finland on the basis of historical developments, attributing positive results on PISA tests to a relatively authoritarian, obedient, and a more traditional mentality associated with Finnish culture. Therefore, it may be that these cultural dimensions motivate individuals to invest in group tasks and legitimize self-enhancing behavior as long as this behavior contributes to group prosperity and success.

The second research question seeks to examine which of the cultural dimensions from among Conservatism, Hierarchy, Autonomy, Egalitarianism, Mastery, and Harmony, best predicted success on PISA indicators. The results showed that *Conservatism* was consistently the best predictor of PISA achievement test results. Specifically, analysis indicated that when controlling for GDP per capita, *Conservatism* constantly remains the best predictor of PISA achievement test results in the three core disciplines. This means that beyond economic disparity, cultural dimension in general, *Conservatism* in particular, play a significant role in explaining academic achievements per country. This result is consistent with previous research showing that GDP and educational expenditure are not consistently predictors for student achievement (Hanushek and Wößmann 2010). More importantly, *Conservatism* which involves the values of tradition, conformity and security expresses obedience to the expectations of authorities; it seems, that people in countries whose culture considers unconditional respect for parents and religion and opposes behaviors that threaten the traditional family provide strong motivators for

successful achievement independent of the financial conditions of the country. This result emphasizes the motivational power of the cultural dimension of *Conservatism*.

The findings obtained by the present study testify to the connection between cultural dimensions and success in international assessments. Although the enormous pool of information provided by international assessments has a great potential to inform policy and improvement (Sellar and Lingard 2014), our findings are important given that global forces and internationalization seem to imply a challenge to and a questioning of national cultures and traditions (Giddens 1994). Perhaps, paradoxically, while globalization, in some instances, has led to positive educational policies and multicultural values (Appadurai 1996); still, *Conservatism* may facilitate academic performance in the global world. It may be that these two paradoxical entities may not necessarily contradict each other but rather, can coexist in a complementary way. Even though the worldwide exchange of information seems to intensify diversity and cultural transformation, challenging the excesses of tradition, and *Conservatism* (Held 1999); *Conservatism*, which encompasses conformity and respect for tradition, may serve to build the group identity, social cohesion, and national solidarity necessary in the dynamic global realm. Globalization presents both opportunities and threats; thus, it appears that nations may change their functional role (Hirst and Thompson 1996) becoming both more practical in exploiting what globalization has to offer and more reactive to its detrimental effects. Therefore, in reaction to the globalization process and forces, national identity may be strengthened rather than weakened.

### 6.1. Limitations and future research

The major strength of the present study is that the likelihood of common method variance was low because data was collected from three sources minimizing problems associated with same source bias (Avolio, Yammarino & Bass 1991): WVS (Schwartz framework), PISA achievement (OECD) and GDP per capita (WBWD). Also, to ensure that all comparisons made in the current study use the same variables for each country, countries that for some reason had missing data were excluded from the sample. However, several limitations of the study warrant further attention in future research. The WVS data, however, is limited in other ways. The WVS Schwartz value types are also 1-item questions (one Schwartz item for each of 10 values). So results need to be interpreted with caution.

Future research should extend the inquiry to additional explanatory indicators at the national level. Variability in cultural dimensions within countries might also help to explain variations in educational performance indicators in international assessments. For example, it may be that more racially and ethnically homogeneous countries such as the Scandinavian countries might have less variability in cultural dimensions than more racially/ethnically heterogeneous countries such as the United States. Finally, research has acknowledged that *Conservatism* is closely tied to religiosity across countries (Schwartz and Huisman 1995). Since cultural dimensions can motivate and justify the emphasis of the right on giving institutionalized religion influence over national policy, future research should also investigate those influences on student assessments. Therefore, future researches examining variables at the global but also at the local and school levels may help to uncover additional indicators to explain differences in PISA achievement scores across countries and regions.

## References

- Alexander, R. J. (2012a). *International Evidence, National Policy and Classroom Practice: Questions of Judgement, Vision and Trust*. Paper presented at the From Regulation to Trust: Education in the 21st century, Third Van Leer International Conference on Education, Jerusalem.
- Alexander, R. J. (2012b). Moral Panic, Miracle Cures and Educational Policy: What Can We Really Learn from International Comparison?. *Scottish Educational Review* 44(1), 4–21.
- Appadurai, A. (1996). *Modernity at Large*, University of Minnesota Press, Minnesota.
- Arum, R. (1998). Invested dollars or diverted dreams: The effect of resources on vocational students' educational outcomes. *Sociology of education*, 130-151.
- Avolio, B. J., Yammarino, F. J., & Bass, B. M. (1991). Identifying common methods variance with data collected from a single source: An unresolved sticky issue. *Journal of Management*, 17(3), 571-587.
- Bajunid, I. A. (1996). Preliminary explorations of indigenous perspectives of educational management: The evolving Malaysian experience. *Journal of Educational Administration*, 34(5), 50-73.
- Baker, D. P., Goesling, B., & LeTendre, G. K. (2002). Socioeconomic status, school quality, and national economic development: A cross-national analysis of the “Heyneman-Loxley effect” on mathematics and science achievement. *Comparative education review*, 46(3), 291-312.

- Bernardo, A. B. I. (2008). Individual and social dimensions of Filipino students' achievement goals. *International Journal of Psychology*, 43, 886–891.
- Berry, J. W. (2000). Cross-cultural psychology: A symbiosis of cultural and comparative approaches. *Asian Journal of Social Psychology*, 3(3), 197-205.
- Bieber, T., Dobbins, M., Fulge, T., & Martens, K. (2014). Reacting to internationalization processes in education—at last! US Education policy after the PISA study and the Bologna process. *A new constellation of statehood in education policy*.
- Bourdieu, P. (2011). The forms of capital. (1986). *Cultural theory: An anthology*, 81-93.
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual review of psychology*, 53(1), 371-399.
- Chang, W. C., & Wong, K. (2008) Socially-oriented achievement goals of Chinese university students in Singapore: Structure and relationships with achievement motives, goals and affective outcomes. *International Journal of Psychology*, 43, 880–895.
- Cheng, R. W. Y., & Lam, S.-F. (2013). The interaction between social goals and self-construal on achievement motivation. *Contemporary Educational Psychology*, 38, 136–148.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 95-120.
- Dimmock, C., & Walker, A. (2000). Globalisation and societal culture: Redefining schooling and school leadership in the twenty-first century. *Compare*, 30(3), 303-312.

- Dimmock, C., & Walker, A. (2000). Developing comparative and international educational leadership and management: A cross-cultural model. *School Leadership & Management, 20*(2), 143-160.
- Earley, P. C. (1993). East meets West meets Mideast: Further explorations of collectivistic and individualistic work groups. *Academy of Management Journal, 36*(2), 319-348.
- Feldman, S. (2003) Values, ideology, and structure of political attitudes. In D. O. Sears, L. Huddy & R. Jervis (Eds.), *Oxford Handbook of Political Psychology* (pp. 477–508). New York, NY: Oxford University Press.
- Feniger, Y., Livneh, I., & Yogev, A. (2012) Globalisation and the politics of international tests: the case of Israel. *Comparative Education, 48*(3), 323-335.
- Feniger, Y. & Lefstein, A. (2014). How not to reason with PISA data: an ironic investigation, *Journal of Education Policy, 29*(6), 845-855.
- Gaziel, H. (2009). The impact of globalization upon education: universal or contextual?. *World Study in Education, 10*(2), 63-78.
- Giddens, A. (1994). *Beyond left and right: The future of radical politics*. Stanford University Press.
- Glazer, S. (2006). Social support across cultures. *International Journal of Intercultural Relations, 30*(5), 605-622.
- Greenfield, P. M. (2006). Applying developmental psychology to bridge cultures in the classroom, In S. I. Donaldson, D. E. Berger, & K. Pezdek (Eds.), *Applied Psychology: New Frontiers and Rewarding Careers* (pp. 135–152), Mahwah, NJ: Erlbaum.
- Greenfield, P. M., & Quiroz, B. (2013). Context and culture in the socialization and development of personal achievement values: Comparing Latino immigrant

- families, European American families, and elementary school teachers. *Journal of Applied Developmental Psychology*, 34(2), 108-118.
- Hallinger, P., & Leithwood, K. (1996). Culture and educational administration: A case of finding out what you don't know you don't know. *Journal of Educational Administration*, 34(5), 98-116.
- Hanushek, E. A., & Woessmann, L. (2010) *The High Cost of Low Educational Performance: The Long-Run Economic Impact of Improving PISA Outcomes*, OECD Publishing. 2, rue Andre Pascal, F-75775 Paris Cedex 16, France.
- Held, D. (1999). *Global transformations: Politics, economics and culture*. Stanford University Press.
- Hirst, P., & Thompson G. (1999). *Globalisation in Question: The International Economy and the Possibilities of Governance*. Malden, MA: Polity Press.
- Hitlin, S., & Kramer, K. (2007). Value-Dimensions in America, *ANES Pilot Study Report, no. nes011893*.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd Ed.). Beverly Hills CA: Sage.
- Hofstede, G. (1997). Organization culture. *The IBM handbook of organizational behavior*, 193-210.
- Huntly, I., Kaiser, G., & Luna, E. (2012). *International comparisons in mathematics education*, Routledge.
- Inglehart, R. (2004). Mapping global values. *Comparative Sociology*, 5(2), 115-136
- Inglehart, R. (Ed.). (2004) *Human beliefs and values: A cross-cultural sourcebook based on the 1999-2002 values surveys*. Siglo XXI.

- Inglehart, R. (1997). *Modernization and post-modernization: Cultural, economic and political change in 43 societies*. Princeton, NJ: Princeton University Press.
- Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review*, 65, 19-51.
- Inoguchi, T., & Shin, D. C. (2009). The quality of life in Confucian Asia: From physical welfare to subjective well-being. *Social Indicators Research*, 92, 183–190.
- Irwin, J.R., & McClelland, G.H. (2003). Negative consequences of dichotomizing continuous predictor variables. *Journal of Marketing Research*, 40, 366-71.
- Jerrim, J., & Alvaro, C., (2014). The mathematics skills of school children: how does the UK compare to the high performing East Asian nations? *Journal of Education Policy*, 29, pp. 349-376.
- King, R. B., & McInerney, D. M & Watkins (2012). Studying for the sake of others: The role of social goals on academic engagement. *Educational Psychology*, 32, 749–776.
- King, R. B., & McInerney, D. M. (2012). Including social goals in achievement motivation research: Examples from the Philippines. *Online Readings in Psychology and Culture*, Unit 5.
- Larson, R. W., & Verma, S. (1999). How children and adolescents spend time across the world: work, play, and developmental opportunities. *Psychological Bulletin*, 125(6), 701.
- Lee, W.O. (1996). The cultural context for Chinese learners: Conceptions of learning in the Confucian tradition in D.A. Watkins, B. Biggs (Eds.), *The Chinese Learner: Cultural, Psychological and Contextual Influences, Hongkong and*



- Melbourne* (pp. 25–41), Comparative Education Research Centre and Australian Council for Educational Research.
- Lee, J. (2009). Universals and specifics of math self-concept, math self-efficacy, and math anxiety across 41 PISA 2003 participating countries. *Learning and Individual Differences, 19*, 355–365
- Lewis, C.C. (1995). *Educating hearts and minds: Reflections on Japanese preschool and elementary education*. New York, NY: Cambridge University Press.
- Li, J. (2002). A cultural model of learning. *Journal of Cross-cultural Psychology, 33*, 248–269.
- Li, J. (2012). *Cultural foundations of learning: East and West*. New York, NY: Cambridge University Press.
- Lingard, B. & Rawolle, S. (2010). Globalization and the rescaling of education politics and policy: Implications for comparative education, In M. Larsen (Eds.), *New thinking in comparative education: Honouring the work of Dr Robert Cowen*. Rotterdam: Sense Publishers.
- Lingard, B. & Rawolle, S. (2011). New scalar politics: Implications for education policy. *Comparative Education, 47*(4), 489-502.
- Lingard, B., Rawolle, S. & Taylor, S. (2005). Globalising policy sociology in education: working with Bourdieu. *Journal of Education Policy, 20* (6), 759-777.
- McClelland, D. C. (1961). *The achieving society*. Princeton, NJ: Van Nostrand.
- Meyer, H.D. & Benavot A. (2013). *PISA, power and policy: The emergence of global educational governance*. Oxford studies in comparative education.
- Novoa, A., & Yariv-Mashal, T. (2003). Le comparatisme en éducation: mode de gouvernance ou enquête historique. *L'éducation comparée: un outil pour l'Europe: l'Harmattan*.

OECD (Organisation for Economic Cooperation and Development). (2004). Learning for Tomorrow's World – First Results from PISA 2003. Paris: OECD.

<http://www.oecd.org/>

[document/55/0,3746,en\\_32252351\\_32236173\\_33917303\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/55/0,3746,en_32252351_32236173_33917303_1_1_1_1,00.html).

OECD (Organisation for Economic Cooperation and Development). (2009a). PISA 2006 Technical Report. Paris: OECD.

[http://www.oecd.org/document/41/0,3343,en\\_32252351](http://www.oecd.org/document/41/0,3343,en_32252351)

[\\_32236191\\_42025897\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/41/0,3343,en_32252351_32236191_42025897_1_1_1_1,00.html).

Phillips, D., & Schweisfurth, M. (2014). *Comparative and international education:*

*An introduction to theory, method, and practice.* A & C Black.

Power, C. (2015). *The Power of Education.* Springer Singapore.

Raeff, C., Greenfield, P. M., & Quiroz, B. (2000). Conceptualizing interpersonal

relationships in the cultural contexts of individualism and collectivism. In S.

Harkness, C. Raeff, & C. M. Super (Eds.), *New Directions for Child and*

*Adolescent Development, Variability in the Social Construction of the Child*

(pp. 59-74). San Francisco: Jossey-Bass.

Rawolle, S. (2010). Understanding the mediatisation of educational policy as

practice. *Critical Studies in Education*, 51(1), 21-39.

Rawolle, S., & Lingard, B. (2008). The sociology of Pierre Bourdieu and researching

education policy. *Journal of Education Policy*, 23(6), 729-741.

Shapiro, I., & Kamin, D. (2004). *Share of economy going to wages and salaries drops*

*for unprecedented 14th straight quarter*, Center on Budget and Policy

Priorities, Austin, TX.

- Shin, D. C., & Inoguchi, T. (2009). Avowed happiness in Confucian Asia: Ascertaining its distribution, patterns, and sources. *Social Indicators Research, 92*, 405–427.
- Schleicher, A., & Stewart, V. (2008). Learning from World-Class Schools. *Educational Leadership, 66*(2), 44-51.
- Schwartz, S.H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries, In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 25, pp. 1-65), New York: Academic Press.
- Schwartz, S.H. (1994a). Are there universal aspects in the content and structure of values?, *Journal of Social Issues, 50*, 19-45.
- Schwartz, S.H. (1994b). Beyond Individualism/Collectivism: New cultural dimensions of values, In U. Kim, H.C. Triandis, C. Kagitcibasi, S.C. Choi, & G. Yoon (Eds.), *Individualism and Collectivism: Theory, Method and Applications* (pp. 85-119). Newbury Park, CA: Sage.
- Schwartz, S. H. (1999). Cultural value differences: Some implications for work, *Applied Psychology: An International Review, 48*, 23-47.
- Schwartz, S. H. (2005). Basic human values: Their content and structure across countries, In A. Tamayo & J. B. Porto (Eds.), *Values and Behavior in Organizations*, (pp. 21-55). Petrópolis, Brazil: Vozes.
- Schwartz, S. H. (2006). Value orientations: Measurement, antecedents and consequences across nations. In R. Jowell, C. Roberts, R. Fitzgerald, & G. Eva (Eds.), *measuring attitudes cross-nationally – lessons from the European Social Survey*. London: Sage.
- Schwartz, S. H., & Bardi, A. (1997). Influences of adaptation to communist rule on value priorities in Eastern Europe. *Political Psychology, 18*, 385-410.

- Schwartz, S. H., & Bardi, A. (2001). Value hierarchies across cultures taking a similarities perspective. *Journal of Cross-Cultural Psychology*, 32(3), 268-290.
- Schwartz, S. H., & Huisman, S. (1995). Value priorities and religiosity in four western religions. *Social Psychology Quarterly*, 88-107.
- Schwartz, S. H., & Ros, M. (1995). Values in the West: A theoretical and empirical challenge to the Individualism-Collectivism cultural dimension. *World Psychology*, 1, 99-122.
- Schwartz, S. H. (2011). Values: Individual and cultural. In S. M. Breugelmans, A. Chasiotis, & F. J. R. van de Vijver (Eds.), *Fundamental questions in cross-cultural psychology* (pp. 463–493), Cambridge, England: Cambridge University Press.
- Schwippert, K. (2007). *Progress in reading literacy: The impact of PIRLS 2001 in 13 countries*. Waxmann.
- Schwippert, K., & Lenkeit, J., (2012). *Progress in reading literacy in national and international context. The impact of PIRLS 2006 in 12 countries*. Waxmann Verlag.
- Sellar, S., & Lingard, B. (2014). The OECD and the expansion of PISA: New global modes of governance in education. *British Educational Research Journal*, 40(6), 917-936.
- Simola, H. (2005). The Finnish miracle of PISA: historical and sociological remarks on teaching and teacher education. *Comparative Education*, 41(4), 455-470.
- Steiner-Khamsi, G. & Waldow, F., (2012). *Policy Borrowing and Lending*. World Yearbook of Education (Eds). London and New York: Routledge.

- Swick, K. J., & Broadway, F. (1997). Parental efficacy and successful parent involvement. *Journal of instructional psychology*, 24(1), 69-81.
- Tao, V.Y.K., & Hong, Y.Y. (2014). When academic achievement is an obligation: Perspectives from social-oriented achievement motivation. *Journal of Cross-cultural Psychology*, 45, 110–136.
- Tan, C. (2012). *Learning from Shanghai: Lessons on achieving educational success*. Springer: Science & Business Media.
- Tan, S. J., & Tambyah, S. K. (2011). Generalized trust and trust in institutions in Confucian Asia. *Social Indicators Research*, 103(3), 357–377.
- Tilak, J. B. (2003). Vocational education and training in Asia. *International handbook of educational research in the Asia-Pacific Region* (pp. 673-686). Springer Netherlands.
- Triandis, H. (1995). *Individualism and Collectivism*. Boulder, CO: Westview.
- Trumbull, E., Rothstein-Fisch, C., Greenfield, P., & Quiroz, B. (2001). *Bridging cultures between home and school: A guide for teachers*, Mahwah, NJ: Lawrence Erlbaum Associates.
- Tsai, C.L. & Zhou, L. S. (2015). A cultural confrontation: Western impacts on female college students' leisure opportunities in Taiwan and China. *Social Indicators of Research*, 120(1), 261–276.
- Wiseman, A. W., Astiz, M. F., Fabrega, R., & Baker, D. P. (2011). Making citizens of the world: the political socialization of youth in formal mass education systems. *Compare: A Journal of Comparative and International Education*, 41(5), 561-577.

Yeganeh, H., Su, Z., & Sauers, D. (2009). The applicability of widely employed frameworks in cross-cultural management research. *Journal of Academic Research in Economics*, 1(1), 1-24.

Yeganeh, H. (2014). Culture and corruption: A concurrent application of Hofstede's, Schwartz's and Inglehart's frameworks. *International Journal of Development Issues*, 13(1), 2-24.

**Appendix A.** Schwartz cultural dimensions means across country, PISA scores and GDP per-capita across country, N=33

		PISA- Mathemati c	PISA- Readi ng	PISA- Science	Autonom y	Conservatis m	Hierarch y	Harmon y	Egalitarianis m	Master y	GDP per capita
1	Albania	394	394	397	2.82	2.15	3.09	2.62	2.51	2.31	5325.00
2	Argentina	388	396	406	3	3.01	4.47	2.69	2.56	3.19	14760.00
3	Armenia	504	512	521	3.80	2.1	4.26	2.71	2.24	3.02	3504.00
4	Australia	391	410	405	3.67	2.91	4.67	2.61	2.71	3.76	65600.00
5	Brazil	423	441	445	3.17	2.26	4.88	2.1	1.96	3.12	11199.00
6	Chile	560	523	523	2.8	2.38	3.9	2.57	2.11	3.08	15723.00
7	China	376	403	399	3.80	2.91	3.43	2.83	2.69	3.13	6626.00
8	Colombia	440	449	438	2.96	2.04	4.4	1.74	1.86	2.56	7826.00
9	Cyprus	521	516	541	3.08	2.1	4.18	2.18	1.89	2.48	27662.00
10	Estonia	514	508	524	3.67	2.83	4.21	2.85	3.19	3.89	19328.00
11	Germany	453	477	467	3.43	3.12	3.94	2.93	2.99	2.82	45091.00
12	Hong Kong	561	545	555	3.38	2.89	4.07	2.64	3.02	3.21	38039.00
13	Japan	536	538	547	4.19	3.76	4.93	3.33	3.85	4.16	38528.00
14	Jordan	386	399	409	2.75	1.81	3.26	1.91	2	1.91	4618.00
15	Kazakhstan	432	393	425	3.72	2.69	3.63	3.03	2.78	3.23	13650.00
16	Malaysia	421	398	420	3.46	2.21	3.16	2.29	2.44	2.99	10514.00
17	Mexico	413	424	415	3.13	2.31	4.84	2.02	2.21	2.74	10293.00
18	Netherlands	523	511	522	3.79	3.49	4.88	3.1	3.11	4.44	50930.00
19	New Zealand	500	512	516	3.53	3.04	4.6	2.75	2.78	3.76	41952.00
20	Peru	368	384	373	3.29	2.46	4.48	2.45	2.57	3.04	6593.00
21	Poland	518	518	526	3.29	2.38	3.98	2.2	2.21	2.81	13760.00
22	Qatar	376	388	384	2.59	1.51	3.34	1.5	1.42	1.57	93352.00
23	Romania	445	438	439	3.56	2.23	4.26	2.21	2.62	2.88	8853.00

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24	Russia	482	475	486	2.91	2.38	3	2.54	2.56	2.83	14680.00
25	Singapore	573	542	551	3.14	2.77	3.42	2.91	2.67	2.93	54649.00
26	Slovenia	501	481	514	3.24	2.51	4.57	1.94	2.19	2.76	23161.00
27	Spain	484	488	496	3.19	2.52	4.33	2.34	0	3.22	29685.00
28	Sweden	478	483	485	3.15	3.11	4.57	2.5	2.87	3.74	60566.00
29	Thailand	427	441	444	3.13	2.62	3.58	2.6	2.71	3.02	6270.00
30	Tunisia	388	404	398	2.77	1.89	3.23	2.92	2.41	2.15	4263.00
31	Turkey	448	475	463	2.77	2.25	3.28	2.24	2.2	2.33	10972.00
32	United States	481	498	497	3.69	2.92	4.59	2.96	2.73	3.56	52392.00
33	Uruguay	409	411	416	3.18	2.60	4.9	2.39	2.43	3.99	16351.00

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