

Societal Cultural Dimensions and GDP as Predictors of Educational Leadership and School Autonomy Indicators' in PISA

Inga Minelgaite¹, Rasa Nedzinskaitė², Kari Kristinsson¹

¹ University of Iceland, School of Business, Gimli v. Saemundargata, 101 Reykjavik, Iceland, inm@hi.is; karik@hi.is

² Academy of Education, Vytautas Magnus University, 31 T. Ševčenkos St., LT- 03113 Vilnius, Lithuania, rasa.nedzinskaite@vdu.lt

Abstract. This paper examines how societal cultural values and the economic well-being of a country can predict school leadership and autonomy, two managerial indexes within education measured in the Programme for International Student Assessment (PISA) test. Regression analysis (n = 70 countries) indicated that societal cultural dimensions, as measured by Hofstede's model, have significant predictive power for both indexes. Specifically, study uncovered that the Power Distance and Individualism dimensions have a positive relationship with educational leadership, while Long-term Orientation and Uncertainty Avoidance have a negative relationship. Furthermore, study identified a negative relationship between school autonomy and the Masculinity and Uncertainty Avoidance dimensions. A country's economic well-being, measured by GDP, is identified as a significant factor in educational leadership, with countries with higher a GDP scoring lower in educational leadership, however, GDP was not a predictor of the autonomy index. The study uncovers the under-researched connection between PISA and societal cultural dimensions and highlights the importance of contextualization in terms of societal cultures.

Keywords: *societal culture, cultural dimensions, educational leadership, school autonomy, PISA, Hofstede's model.*

Introduction

In a globalized and competitive world, quality of education has become “recognized as a major economic and social asset” for countries (Volante, 2016, p. 997). This signif-

importance of education puts pressure on central and local governments, policy makers and stakeholders to focus on improving the quality of education, a prerequisite of economic growth (Hanushek & Woessmann, 2007).

In comparing countries in the education field, the OECD PISA (Programme for International Student Assessment) results (OECD, n.d.) have become the main reference. OECD PISA, not only focuses on students' ability to reproduce knowledge, but also "examines how well students can extrapolate from what they have learned and can apply that knowledge in unfamiliar settings, both in and outside of school" (OECD PISA 2016, 2, p. 25). PISA's unique characteristics include orientation on policy, an expanded concept of literacy, a focus on lifelong learning and students' motivation to learn, to name a few. The PISA test is the most commonly used tool in assessing a country's success in the education field, by measuring education outcomes, focusing in particular on students' assessment in mathematics, science, and reading. The PISA also measures other important characteristics impacting education, such as school governance

A general strategy some advocate is putting more resources into schools, which in turn will lead to improved student outcomes. Others propose more focus on schooling policy. However, both of the approaches "do not seem very effective and do not lead to the anticipated student outcomes" (Hanushek & Woessmann, 2007, p. 1), one of the reasons being resistance to change by current employees.

Yet another prominent approach is to attempt to replicate the success of PISA champion countries, in this way putting Finland, the PISA top-lister for a few consecutive years, in the spotlight. The number of research papers analysing Finland's success and accelerating cooperation with Finnish educational institutions demonstrates efforts to "import" a recipe for success. However, this "import" approach is problematic if societal culture, a profoundly powerful variable, is not considered. The relevance of the sociocultural background of a country when adopting particular policies is evident (Simola, 2005), due to every country's culturally-bounded elements affecting success in adaptation of policy (Jahnukainen, 2011). P. Hatherley-Greene (2016) illustratively outlines the reason why the simple "import" of the Finnish system will not produce the desired results: "society's approach to education reflects its beliefs and values. Finland's school system is a product of its unique culture" (n.d.).

The significant part of previous research has focused on student related outcomes of PISA (Balart, Oosterveen, & Webbink, 2018), and existing knowledge is largely oriented on the outcomes of educational processes rather than on managerial processes such as educational leadership or school autonomy. Furthermore, a lack of focus on cultural differences is observed in interpretations of PISA results, and while research has looked at various economic factors, comparative research on cultural effects is virtually non-existent. Management literature has provided strong evidence on the relationship between societal culture and organizational outcomes (e.g. GLOBE research, House et al., 2004), due to its influence on attitudes and behaviours (Mockaitis, 2005) and has established the

relevance of cultural contextualization, particularly due to globalization and its varying effects on individual countries (Northouse, 2018; Ritzer, 2011).

Based on the above outline, this study assumes that societal cultural values guide action and have implications on management related perceptions and practices (de Vries, 2001; Mockaitis, 2005; Mockaitis & Šalčiuvienė, 2004), which leads to differing outcomes in educational leadership and levels of autonomy in organizations. In this vein, the study employs the well-established social sciences approach of Hofstede's cultural dimensions in an attempt to uncover their relationship to two management related indexes of PISA, namely educational leadership and autonomy. Furthermore, this study aims to provide evidence on whether countries economic well-being, measured by GDP, plays a role in this equation. Hence the research question of the study is: *Do societal cultural values and economic well-being predict school leadership and autonomy results in PISA?*

The study contributes to the subject of educational leadership and provides alternative interpretations of PISA results. Furthermore, the study utilizes two ground-breaking and widely used instruments from education (PISA) and the cross-cultural management field (Hofstede's societal cultural dimensions), and offers unique insights, enabling further research and more informed theoretical and policy-level debate around education.

Literature review

Societal cultural dimensions

Societal culture is defined through the commonality of shared beliefs, rules, values and traditions (Gudykunst & Ting-Toomey, 1988). Grounded in a shared mindset, societal culture is “the collective programming of the mind distinguishing the members of one group or category of people from another” (Hofstede, 2011, p. 3), and as such, forms the value system within societies, determining interpretation about what is right, what is wrong, how problems should be solved and what is most valued within a particular society. Societal culture is particularly relevant in analysis of good-practice and change implementation at organization, sector or policy level. Hofstede (1984) suggests that a country's value system in organizational settings and effective management practices need to be aligned with societal cultural values. The biggest threat is to assume that a successful management practice in one country can be automatically replicated in another country. The literature provides a range of examples of how cultural values relate to and explain various phenomena. For example, Arrindell et al. (1997) used Hofstede's model (1990) and found that cultural dimensions had predictive value in cross-national variations in subjective well-being. Organization-level research by Waldman et al. (2006) uncovered that societal cultural values explained leadership variables of corporate social responsibility values in management. Even though measuring and comparing countries based on societal cultural values is a well-established line of research in organizational

science, it is relatively new and under-utilized in education research, a gap which this study fills.

Comparing cultures as a way to explain differences has been done for a long time and resulted in the development of the concept of cultural dimensions (see Kuhn & McPartland, 1954; Kluckhohn & Strodtbeck, 1961; Haire, Ghiselli, & Porter, 1966; Rokeach, 1973; Hall, 1976). However, the real “explosion of studies of cultural effects and their consequences” (Littrell, 2013, p. 571) was triggered by the research of Geert Hofstede (1988), grounding existing theories of culture (e.g., Inkeles and Levinson, 1969) with empirical data and making it “a paradigm for comparing cultures” (Hofstede, 2011, p. 2) and “a foundation for further cross-cultural research” (Taras, et al., 2013, p. 2). Furthermore, a summary of 121 instruments of culture measurement developed over 50 years revealed that “97.5 percent of all reviewed measures contain at least some dimensions that are conceptually similar to those introduced by Hofstede” (Taras, Rowney and Steel, 2009, p. 61). While acknowledging the value of other prominent models of cultural dimensions (see Inglehart, 1991, 1998; Schwartz, 1994; Smith, Dugan, & Trompenaars, 1996), we employed Hofstede’s 6-dimensional model of culture (n. d.) in this research based on the aforementioned impact Hofstede’s model had on the development of societal cultural dimensions and its wide application in cross-cultural research. Despite criticism, Hofstede’s model, is the most commonly used method to compare societal cultures (Smith & Bond, 1999) and provides useful insight into cross-cultural differences (Hofstede, 1980, 1984). Furthermore, Beugelsdijk, Maseland and van Hoorn (2015), as a result of longitudinal analysis of Hofstede’s model, concluded that “cultural differences between country pairs are generally stable” (p. 223), furthermore the validity of the instrument has been confirmed by 400 external validations (Hofstede, 2001).

Hofstede’s original model (1980) described cultures in four dimensions and was later expanded. In this research we employ the 6-dimensional model with the following dimensions:

- Power Distance (PDI) – High Power Distance societies accept a hierarchical order in which everybody has a place, and which needs no further justification, while low Power Distance societies strive to equalize the distribution of power and demand justification for inequalities of power. This dimension describes “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally” (Hofstede, 1991, p. 28);
- Uncertainty Avoidance (UAI) – “the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede, 1991, p. 113); a high score in UAI indicates a society which feels uncomfortable with uncertainty and ambiguity, while a low score in UAI indicates a society that feels comfortable with just “letting” the future arrive without trying to control it.
- Individualism (IDV) – identifies the relationships between an individual and society with loose ties (high IDV), where individuals are expected to take care of

only themselves and their immediate families, or tight-knit groups (low IDV) – collectivistic societies prefer society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty (Hofstede, n.d.);

- Masculinity (MAS) – distinguishing societies in which gender roles are distinct and “masculine” values, such as achievement, heroism, assertiveness, and material rewards for success are dominant (high MAS) and those in which gender roles overlap (low MAS) – Femininity, where preference for cooperation, modesty, caring for the weak and quality of life with consensus-oriented values (Hofstede et al., 1998);
- Long-term vs. Short-term Orientation (LTO). This dimension is focused on how society maintains links with its own past while dealing with the challenges of the present and the future. Societies with a low score in LTO maintain time-honoured traditions and norms and view societal change with suspicion. A high score in LTO indicates a society with a more pragmatic approach, where thrift is encouraged and efforts in modern education as a way to prepare for the future are made (Hofstede & Minkov, 2010).
- Indulgence vs. Restraint. Indulgence refers to a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms (Minkov, 2009; Chinese Culture Connection, 1987).

These dimensions represent differences among countries in various fields of life: work or school, home and family life, based on differences in attitudes (Snaebjornsson et al., 2017). However, these differences are not static and might change over time and as a result of changing economic conditions. For example, N. Basabe and M. Ros (2005) found that wealth reinforces Individualism in a society. Furthermore, they contest that, less developed countries, with less education tend to be more authoritarian or hierarchical cultures, resulting in acceptance and legitimization of differences in status and power. Less developed, collectivistic and hierarchical societies are characterized by pronounced competitive attitudes and success-centrism (Basabe & Ros, 2005).

A direct relationship between students’ learning outcomes and societal cultural dimensions has been suggested by Hofstede (2001) and Hofstede et al. (2001, 2010), stating that performance in mathematics correlates significantly with high scores in the LTO dimension, but this is not the case with science. As mentioned above, the study presented in this paper addresses under-researched management related indexes of education in PISA and societal cultural dimensions.

Educational leadership and school autonomy

Empiric (Fuchs & Wößmann, 2007; Hanushek, Link & Woessmann, 2013; Cheng, Ko, & Lee, 2016) and international students’ test results (OECD PISA, 2011, 2016) indicate that

school autonomy effects students' education process. Higher autonomy within a school effects school management, decision-making, budgeting, schools' self-management, and local school management. Furthermore, school autonomy is considered an important condition for the improvement of school practices (Cheng, Ko, & Lee, 2016). However, when school autonomy is considered in this light, implicit assumptions are made regarding motivation and assumed responsibility by all stakeholders and decision-makers.

Fuchs and Wößmann (2007) and Hanushek, Link, and Woessmann (2013) analysed PISA data, attempting to identify the effects of autonomy on students' learning outcomes. They concluded that student performance is higher where school autonomy is higher in terms of personnel-management, academic content, and resources. Furthermore, the literature suggests that the relationship between students' educational achievements and school autonomy is asymmetrical in different countries. More specifically, school autonomy has a higher impact on student achievement in economically developed countries than in economically developing countries, as concluded by Hanushek, Link, and Woessmann (2013), describing it as, "highly heterogeneous, varying by the level of development of a country" (p. 228). OECD PISA 2015 results substantiate the conclusions of Hanushek, Link, and Woessmann (2013), and contest that after accounting for the socio-economic profile of students and schools, only 12 education systems, students in schools whose principal reported that more responsibilities lie with either teachers or the principal, score higher in science. Despite the asymmetry of school autonomy depending on a country's economic development, it is essential to recognize the relationship between school autonomy and such crucial organizational components as distribution of responsibilities, accountability, competence of the educators, and the school principal's leadership and management skills.

The literature indicates divergent views on school autonomy in research. On the one hand, prevalent is the view towards school management focusing on inclusion of a wide range of stakeholders, consequently making responsibility and decision-making segregated beyond the boundaries of the school (Bell & Bush, 2002). In other words, the more multi-levelled school governance is, the more the school itself becomes accountable to society, and the processes become more transparent. On the other hand, international data on student achievement (OECD PISA, 2016) indicate that the more decision-making power is concentrated inside the school, that is decision-making power is distributed among the school's principal and teachers, the higher student achievement is. This suggests that concentration of autonomy in decision-making regarding content of study, personnel issues, and financial issues, are some of the preconditions for higher student achievement.

The literature studies the relationship between educational leadership and school effectiveness (Leithwood, Jantzi, & Steinbach, 1999; Leithwood, Steinbach, & Jantzi, 2002). Recent research on this relationship, has focused on the school principals' role. Day et al. (2010) suggest that school principals "are perceived to be the main source of leadership by

key school staff” (p. 3). Leadership of the school principal is connected the with power of decision making. Furthermore, it is related to the ability to employ conditions of autonomy, and therefore is one of the determining factors of student achievement (Mulford, Silins, & Leithwood, 2004; Robinson, Lloyd, & Rowe, 2008; Day et al., 2009; Dyer & Renn, 2010). More specifically, the school leader’s role is seen as crucial in addressing “the network of interrelated factors that affect student learning” (Dyer & Renn, 2010, p. 183).

The literature suggests a distinction between the impact of school leadership based on the level of challenges the school is facing. The work of Leithwood, Louis, Anderson, and Wahlstrom (2008) concludes that the bigger the challenges the school faces, the more impactful school leadership will be. The school leader’s role effects student achievement indirectly (Dyer & Renn, 2010; Mulford, Silins, & Leithwood, 2004; Moos, 2009). Particularly, the school leader’s impact on student achievement is manifested in the formation of school conditions, personnel development, classroom settings, and organizational learning and teaching work (Dyer & Renn, 2010; Mulford, Silins, & Leithwood, 2004), or setting the direction of the school, empowering teachers and organizing the school environment (Moos, 2009). Meta analyses by Robinson, Lloyd, and Rowe (2008) in studying the impact of particular types of leadership on student outcomes revealed that “the closer educational leaders get to the core business of teaching and learning, the more likely they are to have a positive impact on students’ outcomes” (p. 664). Interestingly, meta analyses indicate that instructional leadership has a higher impact on student achievement than transformational leadership. This suggests the importance of task-oriented leadership, above people-oriented leadership (Northouse, 2018).

The importance of context with regard to school leadership is indicated in the literature. Belchetz and Leithwood (2007) performed qualitative research in six schools and concluded that the influence of a school principal’s leadership is context-dependent. Specifically, the authors contended that success factors in one country might be a hindrance in another. In this vein, some research focuses on context in order to define factors contributing to school leadership in particular cultural environments. L. Moos (2009) employed this approach in a study of schools in Denmark and concluded that crucial competences for school principals are: communication with teachers and students, leading processes, the ability to analyse and reflect, awareness of effective relationships between students and teachers, and the ability to analyse the teaching and learning needs in class. A school principal’s leadership is greatly affected by government educational policy which in itself is contextual (Belchetz & Leithwood, 2007), therefore factors like requirements of the school principal, his scope of responsibility, competence, and strategy are country dependent.

Hanushek, Link, and Woessmann (2013) highlight the importance of a country’s well-being when considering the effects of autonomy on educational outcomes and make a distinction between developed and developing economies. Their research suggests that autonomy over academic content, personnel, and budgets exerts a positive impact on stu-

dent achievement in developed countries but has a negative effect in developing countries. Hanushek, Link, and Woessmann (2013) conclude that “the autonomy effects are most pronounced in decision-making on academic content, with some additional relevance for personnel autonomy and, less so, for budgetary autonomy” (p. 227).

Based on this literature review, it can be concluded that both the school principal’s leadership and school autonomy are contextual and dependent on the level of economic development of the country. Concentration on decision making power in a school principal’s position, particularly in economically developed countries, is related with higher performance of the school’s achieved results. However, in developing countries, higher school autonomy and concentration of decision-making power in the principal’s position has a negative effect on student achievement.

Methodology

In order to answer the research question, namely, *Do societal cultural values and economic well-being predict school leadership and autonomy results in PISA?* We employed data from recent PISA (2015) test results. This sample is comprised of 35 OECD countries and 35 partner countries and economies.

For the purpose of the research presented in this paper, two indexes from PISA were employed, the index of school autonomy, and the index of educational leadership. Both indexes represent a leader-centric approach, as both are built on answers of school principals. As seen in Table 1, autonomy is measured as a percentage, while educational leadership is calculated as an index from –1 to 1.

Table 1
Descriptive Statistics

Variables*	N	Minimum	Maximum	Mean	Std. Deviation
Auto	70	26,4	98,7	67,207	16,919
EduL	70	-0,96	1	0,118	0,398
PNI	60	11	100	55,417	20,752
IDV	60	13	91	47,133	23,423
MAS	60	5	100	48,183	21,265
UIA	60	8	100	67,017	22,296
LTO	60	0	100	48,717	24,732
IND	60	0	97	45,367	22,551
GDP	69	1832,499052	102517,1382	28612,388	21616,354

*Auto – school autonomy; EduL – school leadership; PNI – Power distance; IDV – Individualism; MAS – Masculinity; UIA – Uncertainty Avoidance; LTO – Long-term Orientation; IND – Indulgence

The index of school autonomy informs how much (%) of responsibility (related to resources, curriculum, and admission policy) is held by the principal, teacher, school board and/or local/regional authorities and national authorities. The higher the percentage, the more withholding of power is enacted. This particular index in PISA 2015 data revealed that in 22,86% (n = 16) of countries more than 50% of power is concentrated in the principal's hands in such decisions as formulating the school budget, hiring and firing teachers, or decisions regarding a particular student's admission to the school (52,86%; n = 37).

The index of educational leadership represents how a school's goals and curricular development are framed and communicated, the presence of instructional leadership, how instructional improvements and professional development are promoted by the principal, and teacher participation in leadership. In Table 1 (see above) -1 in this index represents low levels of inclusion of teachers in the above-mentioned processes, however, +1 represents a highly inclusive decision-making environment. PISA 2015 data revealed that in more than 94% (n = 66) of countries principals include teachers in decision-making and discuss the school's goals at least once a month (57%; n = 40).

For investigation of societal cultural values, Hofstede's six dimensions, i.e., Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Long-term Orientation and Indulgence (Hofstede, n. d.), were chosen based on the rationale outlined in the literature review. The quantitative measurement of national cultures in this study is available at <https://www.hofstede-insights.com/country-comparison/> for 60 of the 70 countries in the PISA 2015 OECD data. As shown in Table 1, the six cultural dimensions are on a scale from 0 to 100, with a mean close to 50. It is important to keep in mind when interpreting the cultural dimensions that, for example, Power distance (PNI) indicates the degree to which people accept that power is distributed unequally in their society, with a higher number indicating more power distance in a given society.

In order to investigate whether school leadership and autonomy can be related to economic well-being, gross domestic product (GDP) per capita from 2015 was chosen as the indicator of economic well-being of a country. Data on GDP was accessed at the database of the World Bank, available at <http://www.databank.worldbank.org>.

In order to answer the main question of this research, the following hypotheses in the form of questions were formulated:

H1: Do societal cultural dimensions predict educational leadership? If yes, then which dimensions have the strongest predictive power?

H2: Do societal cultural dimensions predict autonomy? If yes, then which dimensions have the strongest predictive power?

H3: Are the answers to H1 and H2 similar for high-GDP and low-GDP countries?

Results

To test the effect of cultural dimensions on educational leadership and autonomy we use the following linear models (Field, 2009): Model 1 uses educational leadership for the dependent variable, while Model 2 is used to estimate autonomy.

Model 1:

$$EduL_i = \beta_0 + \beta_1 PN1 + \beta_2 IDV + \beta_3 MAS + \beta_4 UIA + \beta_5 LTO + \beta_6 IND + \beta_7 GDP$$

Model 2:

$$Auto_i = \beta_0 + \beta_1 PN1 + \beta_2 IDV + \beta_3 MAS + \beta_4 UIA + \beta_5 LTO + \beta_6 IND + \beta_7 GDP$$

The correlation and multicollinearity test for all variables are shown in Tables 2 and 3, respectively.

Table 2
Correlations for all variables

Variables	Auto	EduL	PNI	IDV	MAS	UIA	LTO	IND	GDP
Auto	1								
EduL	-0.178	1							
PNI	-0.228	0.232	1						
IDV	.337**	-0.110	-.615**	1					
MAS	-0.196	-0.015	0.216	0.032	1				
UIA	-.348**	-0.101	.260*	-0.204	0.037	1			
LTO	.277*	-.454**	0.101	0.104	0.089	-0.022	1		
IND	-0.062	0.099	-.332**	.286*	0.031	-0.203	-.271*	1	
GDP	.337**	-.334**	-.566**	.622**	-0.004	-.279*	0.164	.308*	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

As seen in Table 3, all variables have a tolerance of more than 0.2 and VIF of less than 5. Multicollinearity is therefore not a concern in the regression analysis.

Table 3
Multicollinearity test results

Model	Variables	Tolerance	VIF
1	(Constant)		
	PNI	0.462	2.163
	IDV	0.470	2.128
	MAS	0.898	1.113
	UIA	0.894	1.119
	LTO	0.781	1.280
	IND	0.748	1.338
	GDP	0.515	1.941
2	(Constant)		
	PNI	0.462	2.163
	IDV	0.470	2.128
	MAS	0.898	1.113
	UIA	0.894	1.119
	LTO	0.781	1.280
	IND	0.748	1.338
	GDP	0.515	1.941

As shown in Table 4, Model 1 indicates that educational leadership is significantly predicted by societal cultural dimensions. The multiple regression analysis indicates that the six predictors explained 32% of the variance ($R^2 = .322$, $F(7,51) = 4.94$, $p < .01$). It was found that Power Distance significantly predicted educational leadership ($\beta = .41$, $p < .05$), as did Individualism ($\beta = .34$, $p < .05$), Uncertainty Avoidance ($\beta = -.22$, $p < 0.1$) and Long-term Orientation ($\beta = -.48$, $p < .01$). Therefore, H1 is strongly supported by Model 1. In particular, we can see that Power Distance and Individualism have a significant positive relationship with educational leadership, while Long-term Orientation and Uncertainty Avoidance have a negative relationship with educational leadership. GDP is also a significant factor in educational leadership ($\beta = -.31$, $p < .05$) with higher-GDP countries scoring lower in educational leadership.

For Model 2 we looked at whether societal cultural dimensions could significantly predict autonomy as measured in PISA 2015. Multiple regression analysis indicates a significant relationship between societal cultural dimensions and autonomy, with the six predictors explaining 23% of the variance ($R^2 = .226$, $F(7,51) = 3.42$, $p < .05$). We find that Individualism has a marginally significant positive relationship with autonomy ($\beta = .33$, $p < 0.1$). However, both Masculinity ($\beta = -.22$, $p < 0.1$) and Uncertainty Avoidance ($\beta = -.31$, $p < .05$) have a negative relationship with autonomy. The strongest predictor of autonomy therefore seems to be Uncertainty Avoidance, with a strong negative rela-

tionship. Different from our model on educational leadership we do not find that GDP is a significant predictor of autonomy.

Table 4
Results of regression models

Variables	Model 1			Model 2		
	Unstan- dardized Coeffici- ents	Std. Error	Standar- dized Co- efficients	Unstan- dardized Coeffici- ents	Std. Error	Standar- dized Co- efficients
	B		Beta	B		Beta
(Constant)	0.253	0.315				
PNI	0.008**	0.003	0.403**			
IDV	0.006**	0.003	0.338**			
MAS	-0.001	0.002	-0.062			
UIA	-0.004*	0.002	-0.223*			
LTO	-0.008***	0.002	-0.482***			
IND	0.001	0.002	0.050			
GDP	0.000**	0.000	-0.310**			
(Constant)				77.156***	13.139	
PNI				0.029	0.130	0.038
IDV				0.225*	0.116	0.329*
MAS				-0.16*	0.091	-0.215*
UIA				-0.218**	0.087	-0.307**
LTO				0.124	0.086	0.189
IND				-0.107	0.094	-0.152
GDP				0.000	0.000	0.009
F-Statistics	4.944***			3.424**		
R ²	.404			.320		
Adjusted	.322			.226		

Overall, we find that societal cultural dimensions, measured by Hofstede's 6-dimensional model, are strong predictors of both educational leadership and autonomy indexes as presented the in PISA 2015 results. Due to the limits of the data available, it is necessary to use relatively simple models for our analysis. However, these models seem to strongly indicate that culture is an overlooked factor when examining educational

leadership and autonomy. As further data becomes available, future researchers should not overlook the role of societal cultural dimensions.

Conclusion and discussion

The research presented in this paper focuses on societal culture and a country's well-being as contextual variables when interpreting two leader-centric managerial indexes in PISA. This research contributes to the existing body of knowledge in a variety of ways. Firstly, it provides evidence on configurations of societal cultural dimensions as predictors of both managerial indexes in PISA, school leadership and autonomy. In line with the literature, this research provides additional explanations as to why the simple "importing" of PISA top-listers' policies and practices will not suffice in attempts to improve educational systems due to socioeconomic and cultural differences (Simola, 2005; Jahnukainen, 2011; Hatherley-Greene's, 2016). Consequently, this research provides explanations regarding the results of both indexes which are rooted in societal culture and should be addressed considering values, attitudes and beliefs of the particular country. Secondly, this study takes an interdisciplinary approach by employing one of the most commonly referred to datasets in educational science, namely PISA, and the prominent organizational sciences approach of Hofstede's cultural dimensions. Thirdly, in line with previous literature, this study highlights the importance of a country's economic well-being when considering PISA results, suggesting the need for contextualization when interpreting PISA results.

Power Distance has a significant positive relationship with educational leadership, the index representing inclusive decision-making. This finding is somewhat surprising, as Power Distance in management settings, as outlined by Snaebjornsson et al. (2017), describes more hierarchical societies and is associated with more positive views on autocratic leader behaviour and attitudes (Den Hartog et al., 1997; Suutari, 1996), as well as formal relationships between superiors and subordinates (Hofstede, 1984). A possible explanation for such a finding is the leader-centric origin of the index, as it collects answers from the principals of the schools; while the data might represent accurately the views and attitudes of the principals, other views of 'followers', in this case teachers, are missing. Bligh contends the importance of followers' voice (2011, p. 426): "follower-centred approaches deepen almost any leader-centric analysis: when we shift questions of perception and attention from leaders to followers, then inevitably new issues arise and new questions are raised". Hence, further research is needed to investigate the particularities of this finding and to develop a more holistic view, including both leaders' and followers' attitudes.

A significant positive relationship between the Individualism dimension and the educational leadership index was found in this research. Individualism represents "preference

for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families” (Hofstede, n. d.). In this vein, it is not an unexpected finding, as one might assume principals’ additional efforts to include teachers in decision-making processes, a prevalent approach in modern education management, in societies that are oriented towards closed circles.

A country’s economic well-being, measured by GDP, was a significant factor in educational leadership, with higher-GDP countries scoring lower in educational leadership. The differences between highly economically developed countries and developing countries has been discussed in the literature (Bell and Bush, 2002), particularly with emphases on developed countries seeking “to retain their strong economies by investing heavily in education to prepare workers with basic and advanced skills” (p. 12), while developing countries focus on ensuring “that there is a universal system of primary education with some profession to secondary education and a limited university sector” (p. 12). This finding presents an opportunity for future research, relating the economic development of a country with particular managerial indexes in PISA.

For the autonomy index, the strongest predictor was the Uncertainty Avoidance dimension, with a negative relationship. This finding is not surprising, as high scores in Uncertainty Avoidance indicate a society which is uncomfortable with uncertainty and ambiguity and which does not try to control the future. A negative relationship with the autonomy index suggests that such a society will have low levels of autonomy, indicating less flexibility for schools to make decisions locally. Furthermore, in high uncertainty societies people are more reluctant to exercise autonomy and accept responsibility, including managers (Kanungo and Mendonca, 1996).

The Masculinity dimension also had a negative relationship with the autonomy index. Masculine societies are characterized as achievement-driven, with a focus on heroism, assertiveness, and material rewards for success. A negative relationship with the autonomy index means that in such societies autonomy given to a school will be low, hence it will not be based on cooperation and decisions made by consensus (Pavett & Morris 1995; Suutari, 1996).

Educational leadership is significantly predicted by four out of the six societal cultural dimensions in this research, while the six societal cultural dimensions predicted 23% of the variance in the autonomy index. We can conclude that societal cultural dimensions and countries’ well-being are important contextual factors that should not be ignored when interpreting international test results (PISA) and comparing countries. Furthermore, these contextual differences should be considered when formulating, reforming and adopting education policies and practices.

Limitations and future directions

While acknowledging certain shortcomings of the study, such as the use of relatively simple statistical models, this research paper certainly presents interesting directions for future research. For example, a longitudinal analysis of the school leadership index in relation to societal cultural values and GDP. In this paper, such an analysis was not possible due to the newness of the school leadership index in PISA, which was first presented in 2015. Yet another direction for future research would involve the inclusion of organizational cultural values in addition to societal cultural values into the analyses, however, this would require a considerable amount of resources and would in itself present methodological challenges.

References

- Allen, A., & Mintrom, M. (2010). Responsibility and School Governance. *Educational Policy*, 24(3), 439–464. <http://dx.doi.org/10.1177/0895904808330172>
- Arrindell, W. A., Hatzichristou, C., Wensink, J., Rosenberg, E., van Twillert, B., Stedema, J., & Meijer, D. (1997). Dimensions of national culture as predictors of cross-national differences in subjective well-being. *Personality and Individual Differences*, 23(1), 37–54.
- Balart, P., Oosterveen, M., & Webbink, D. (2018). Test scores, noncognitive skills and economic growth. *Economics of Education Review*, 63, 134–153.
- Basabe, N., & Ros, M. (2005). Cultural dimensions and social behavior correlates: Individualism-Collectivism and Power Distance. *International Review of Social Psychology*, 18(1), 189–225.
- Belchetz, D., & Leithwood, K. (2007). Successful leadership: does context matter and if so, how? In C. Day, & K. Leithwood (Eds). *Successful Principal Leadership in Times of Change: an International Perspective* (pp. 117–137). Netherlands: Springer.
- Bell, L., & Bush, T. (2002). The policy context. In T. Bush, & L. Bell (Eds.), *The Principles and Practice of Educational Management*. Sage.
- Beugelsdijk, S., Maseland, R., & van Hoorn, A. (2015). Are scores on Hofstede's dimensions of national culture stable over time? a cohort analysis. *Global Strategy Journal*, 5(3), 223–240.
- Bligh, M. C. (2011). Followership and follower-centred approaches, In A. Bryman, D. Collinson, K. Grint, B. Jackson, & M. Uhl-Bien (Eds.), *The SAGE Handbook of Leadership* (pp. 425–436). SAGE.
- Burns, T., & Köster, F. (2016). Modern governance challenges in education. In T. Burns & F. Köster (Eds.), *Governing Education in a Complex World* (pp. 17–39). OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264255364-3-en>
- Bush, T. (2003). *Theories of Educational Management*. 3rd Ed. London: Sage.
- Bush, T. (2007). Educational leadership and management: Theory, policy and practice. *South African Journal of Education*, 27(3), 391–406.

- Bush, T., & Bell, L. (Eds.). (2002). *The principles and practice of educational management*. Sage.
- Caldwell, B. J. (2002). Autonomy and Self-Management: concepts and evidence. In T. Bush & L. Bell (Eds.). *The Principles and Practice of Educational Management*. Sage.
- Cheng, Y. C., Ko, J., & Lee, T. T. H. (2016). School autonomy, leadership and learning: A reconceptualization. *International Journal of Educational Management*, 30(2), 177–196, <http://dx.doi.org/10.1108/IJEM-08-2015-0108>
- Cheung, H. Y., & Chan, A. W. (2007). How culture affects female inequality across countries: An empirical study. *Journal of Studies in International Education*, 11(2), 157–179.
- Day, C., Sammons, P., Hopkins, D., Harris, A., Leithwood, K., Gu, Q., Brown, E., Ahtaridou, E., & Kington, A. (2009). *The Impact of School Leadership on Pupil Outcomes*. Research Report No. DCSF-RR108. London: Department for Children, Schools and Families/National College for School Leadership.
- de Vries, M. F. R. K. (2001). *The Leadership Mystique: a user's manual for the human enterprise*. Financial Times/Prentice Hall.
- Den Hartog, D. N., House, R., Hanges, P. J., Dorfman, P. W., & Ruiz-Quintana, S. A. (1997). Emics and Etics of culturally endorsed implicit leadership theories: Are attributes of charismatic/transformational leadership universally endorsed? *The Leadership Quarterly*, 8, 203–233.
- Dimmock, C., & Walker, A. (2002). School Leadership in Context – Societal and Organisational Cultures. In T. Bush, & L. Bell (Eds.), *The Principles and Practice of Educational Management*. Sage.
- Dyer, K., & Renn, M. (2010). Development Programs for Educational Leaders. In E. Van Velsor, C. D. McCauley, & M. N. Ruderman (Eds.), *Handbook of Leadership Development*. 3rd ed. USA: Jossey-Bass.
- Field, A. (2009). *Discovering statistics using SPSS*. Sage Publications.
- Fuchs, T., & Wößmann, L. (2007). What accounts for international differences in student performance? a re-examination using PISA Data. *Empirical Economics*, 32, 433–464.
- Gudykunst, W. B., Ting-Toomey, S., & Chua, E. (1988). *Culture and Interpersonal Communication*. Location: Sage Publications, Inc.
- Haire, M., Ghiselli, E. E., & Porter, L. W. (1966). *Managerial Thinking: An International Study*. 2nd ed. New York, NY, USA: Wiley.
- Hall, E. T. (1976). *Beyond Culture*. Garden City: Anchor.
- Hanushek, E. A., & Woessmann, L. (2007). The Role of Education Quality for Economic Growth. *Policy Research Working Paper, 4122*. World Bank, Washington, DC. © World Bank.
- Hanushek, E. A., Link, S., & Woessmann, L. (2013). Does school autonomy make sense everywhere? Panel estimates from PISA. *Journal of Development Economics*, 104, 212–232, <http://dx.doi.org/10.1016/j.jdeveco.2012.08.002>
- Hatherley-Greene, P. (2016). *Why Finnish model of education cannot be imported to the UAE*. Accessed at <https://www.thenational.ae/opinion/why-finnish-model-of-education-cannot-be-imported-to-the-uae-1.225642>.

- Hofstede, G. (1984). *Culture's consequences: International differences in work-related values* (5). USA: Sage.
- Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, 2(1). <https://doi.org/10.9707/2307-0919.1014>
- Hofstede, G. H., Hofstede, G., & Arrindell, W. A. (1998). *Masculinity and femininity: The taboo dimension of national cultures* (3). Sage.
- Hofstede, G., & Minkov, M. (2010). Long-versus short-term orientation: new perspectives. *Asia Pacific business review*, 16(4), 493-504.
- Hofstede, G. (2001). *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA: Sage.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: software of the mind*. 3rd ed. New York: McGraw-Hill.
- Inkeles, A., & Levinson, D. J. (1969). National character: The study of modal personality and sociocultural systems. In G. Lindzey & E. Aronson (Eds.), *Handbook of Social Psychology* (pp. 418–506). New York: McGraw-Hill.
- Jahnukainen, M. (2011). Different Strategies, Different Outcomes? The History and Trends of the Inclusive and Special Education in Alberta (Canada) and in Finland, Scandinavian. *Journal of Educational Research*, 55(5), 489–502. <https://doi.org/10.1080/00313831.2010.537689>
- Kanungo, R. N., & Mendonca, M. (1996). *Ethical dimensions of leadership* (3). USA: Sage.
- Kluckhohn, F. R., & Strodtbeck, F. L. (1961). *Variations in Value Orientations*. New York: HarperCollins.
- Kuhn, M. H., & McPartland, T. S. (1954). An empirical investigation of self-attitudes. *American Sociological Review*, 19(1), 68–76.
- Leithwood, K., Jantzi, D., & Steinbach, R. (1999). *Changing Leadership for Changing Times*. Milton Keynes: Open University Press.
- Leithwood, K., Louis, K., Anderson, S., & Wahlstrom, K. (2004). *Review of Research: How Leadership Influences Student Learning*. New York: The Wallace Foundation.
- Leithwood, K., Steinbach, R., & Jantzi, D. (2002). School leadership and teachers' motivation to implement accountability policies. *Educational Administration Quarterly*, 38(1), 94–119.
- Littrell, R. F. (2013). Explicit leader behaviour: a review of literature, theory development, and research project results. *Journal of Management Development*, 32(6), 567–605.
- Mockaitis, A. I. (2005). A cross-cultural study of leadership attitudes in three Baltic Sea region countries. *International Journal of Leadership Studies*, 1(1), 44–63.
- Mockaitis, A. I., & Šalčiuvienė, L. (2004). Darbuotojų požiūrių į vadovavimą Rytų Europos šalyse lyginamoji analizė. *Management of Organizations: Systematic Research*, 31, 153–165.
- Moos, L. (2009). Hard and Soft Governance: the journey from transnational agencies to school leadership. *European Educational Research Journal*, 8(3), 397–406.
- Morgan, G. (1997). *Images of Organization*. Newbury Park, C A: Sage .
- Mulford, B., Silins, H., & Leithwood, K. (2004). *Educational Leadership for Organisational Learning and Improved Student Outcomes*. Dordrecht: Kluwer Academic Publishers.

- Northouse, P. G. (2018). *Leadership: Theory and Practice*. Sage publications: USA.
- OECD. (2016). *PISA 2015 Results Policies And Practices For Successful Schools. Volume II*. <https://doi.org/10.1787/9789264267510-en>
- Pavett, C., & Morris, T. (1995). Management styles within a multinational corporation: A five country comparative study. *Human Relations*, 48, 1 171–1 191.
- Ranson, S. (2011). School Governance and the Mediation of Engagement. *Educational Management Administration & Leadership*, 39(4), 398–413.
- Ritzer, G. (2011). *Globalization: the essentials*. John Wiley & Sons: UK.
- Robinson, V. M. J., Lloyd, C. A., & Rowe, K. J. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly*, 44(5), 635–674.
- Rokeach, M. (1973). *The Nature of Human Values (438)*. New York: Free Press.
- Simola, H. (2005). The Finnish miracle of PISA: historical and sociological remarks on teaching and teacher education. *Comparative Education*, 41(4), 455–470, <https://doi.org/10.1080/03050060500317810>
- Snaebjornsson, I. M. (2016). *Leadership in Iceland and Lithuania: A follower centric perspective*. (PhD dissertation). Iceland: Haskolaprent.
- Snaebjornsson, I. M., Edvardsson, I. R., & Littrell, R. F. (2017). Societal Culture in Iceland and Lithuania: Managerial Implications. *SAGE Open*, 7(2), 1–15. <https://doi.org/2158244017704023>
- Suutari, V. (1996). Leadership ideologies among European managers: A comparative survey in a multinational company. *Scandinavian Journal of Management*, 12, 389–409.
- Taras, V., Rowney, J., & Steel, P. (2009). Half a century of measuring culture: Approaches, challenges, limitations and suggestions based on the analysis of 121 instruments for quantifying culture. *Journal of International Management*, 15(4), 50–75.
- Taras, V., Sarala, R., Muchinsky, P. et al. (2013). Opposite Ends of the Same Stick? Multi-Method Test of the Dimensionality of Individualism and Collectivism. *Journal of Cross-Cultural Psychology*, 45(2), 213–245. <https://doi.org/10.1177/0022022113509132>
- Waldman, D. A., De Luque, M. S., Washburn, N., House, R. J., Adetoun, B., Barrasa, A., ... & Dorfman, P. (2006). Cultural and leadership predictors of corporate social responsibility values of top management: A GLOBE study of 15 countries. *Journal of International Business Studies*, 37(6), 823–837.

Nacionalinių kultūrinių dimensijų ir BVP prognostinė galia PISA švietimo lyderystės ir mokyklos autonomijos indeksams

Inga Minelgaite¹, Rasa Nedzinskaitė², Kari Kristinsson¹

¹ Islandijos universitetas, Vadybos fakultetas, Gimli v. Saemundargata, 101, Reikjavikas, Islandija, inm@hi.is, karik@hi.is

² Vytauto Didžiojo universitetas, Švietimo akademija, T. Ševčenkos g. 31, 03113 Vilnius, rasa.nedzinskaite@vdu.lt

Santrauka

Straipsnyje analizuojama, kokią įtaką nacionalinės kultūros vertybės ir šalies ekonominis išsivystymas gali turėti mokyklos lyderystei ir autonomijai – dviem švietimo vadybos indeksams, matuojamiems EBPO PISA tyrimuose. Tyrimui pasitelkti EBPO PISA 2015 metų duomenys. Atlikta statistinių duomenų (70 šalių) regresinė analizė atskleidė, kad nacionalinės kultūros vertybės pagal Hofstedo 6 dimensijų modelį turi teigiamą prognostinę galią abiem minėtiems švietimo vadybos modeliams. Tyrimas atskleidė, kad galios distancijos, arba hierarhiškumo (angl. *Power Distance*), ir individualizmo (angl. *Individualism*) dimensijos yra pozityviai teigiamai susijusios su mokyklos lyderyste. O ilgojo laikotarpio orientacijos (angl. *Long Term Orientation*) ir neapibrėžtumo vengimo (angl. *Uncertainty Avoidance*) dimensijos yra neigiamai susijusios su mokyklos lyderyste. Statistinė duomenų analizė rodo, kad vyriškumo (angl. *Masculinity*) ir neapibrėžtumo vengimo (angl. *Uncertainty Avoidance*) dimensijos turi neigiamą tarpusavio ryšį su mokyklos autonomija. Šalies ekonominis išsivystymas, kuriam matuoti pasitelktas šalių BVP, yra statistiškai reikšmingas faktorius kalbant apie mokyklos lyderystę. Įdomu tai, kad šalys, kuriose BVP yra aukštesnis, pasižymi mažesne mokyklos lyderyste, remiantis EBPO PISA (2015) rezultatais. Pastebėtina, kad šalies BVP neturi įtakos mokyklos autonomijai. Straipsnyje, remiantis atliktu tyrimu, aktualizuojama nacionalinių kultūros vertybių svarba atliekant tarptautinius mokinių pasiekimų tyrimus, pvz., PISA. Tyrimas atskleidė, kad atliekant tokio pobūdžio tarptautinius tyrimus svarbus šalies kultūrinis kontekstas.

Esminiai žodžiai: nacionalinė kultūra, kultūros dimensijos, švietimo lyderystė, mokyklos autonomija, OECD PISA, Hofstedo modelis.

Gauta 2018 08 28 / Received 28 08 2018
Priimta 2018 09 17 / Accepted 17 09 2018