

The Managerial Experience and Postgraduate University Training of School Principals: A Comparison of Two Post-Socialist Countries Using TIMSS 2015 and PIRLS 2016 Data

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Abstract. Contemporary research on education policies and practices of post-socialist countries is not expansive. According to our understanding, there are at least several reasons for a rather limited interest of researchers. There is no single, universally accepted theoretical approach to post-socialist development; territorial disputes pose problems to statistical data analysis; some countries with authoritarian regimes tend to play with the data and improve the numbers; there are difficulties of finding the data about non-EU countries. One of the possibilities of conducting comparative studies is the usage of international large-scale assessments (ILSAs). The aim of our study was to highlight the different attitudes toward the training of school principals in Lithuania and Kazakhstan on the basis of a secondary analysis of TIMSS 2015 and PISA 2016 data. Results indicate that there are essential differences between the two countries. The percentage of students in schools where Lithuanian school principals have undergone postgraduate university training exceed the percentage of students in Kazakhstani schools 4 to 5 times. Lithuanian school principals also have, on average, 1.5 times longer professional experience than Kazakhstani school principals. However, data of TIMSS 2015 and PIRLS 2016 show no direct relationship between the level of education and work experience of school principals and student achievement. We assume that higher professionalism and experience of school principals may contribute to the efficiency of school management, while the effectiveness of student learning may be determined by a variety of other factors.

Keywords: post-socialist education, TIMSS 2016, PIRLS 2016, school principals' work experience and postgraduate university training in Lithuania and Kazakhstan.

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Mokyklų vadovų vadybinė patirtis ir universitetinės magistrantūros studijos: dviejų posocialistinių šalių palyginimas, pasinaudojant TIMSS 2015 ir PIRLS 2016 metų tyrimų duomenimis

Santrauka. Moksliniai tyrimai apie posocialistinių šalių švietimo politiką ir praktiką nepasižymi didele gausa. Mūsų manymu, tokį gana ribotą mokslininkų susidomėjimą nulemia keletas priežasčių. Pirma, nėra visuotinai pripažintos socialinės teorijos, aiškinančios posocialistinio pasaulio raidą. Antra, teritoriniai ginčai apsunkina statistinių duomenų rinkimą ir analizę. Trečia, kai kurioms posocialistinėms šalims, kurioms būdingas autoritarinis valdymas, būdinga „pagražinti“ duomenis tam, kad geriau būtų atrodoma tarptautiniuose reitinguose. Ketvirta, sunku gauti išsamius duomenis apie EBPO ir ES nepriklausančių posocialistinių šalių švietimą. Viena iš egzistuojančių galimybių – pasinaudoti didelės apimties tarptautinių mokinių pasiekimų tyrimų duomenimis. Be naujų ES narių, šiuose tyrimuose dalyvauja ir kai kurios ES nepriklausančios posocialistinės šalys. Šiame straipsnyje, remiantis TIMSS 2015 ir PIRLS 2016 metų tyrimų duomenimis, buvo palyginta dviejų posocialistinių šalių – Lietuvos ir Kazachijos – mokyklų vadovų vadybinė patirtis ir išsilavinimas. Rezultatai parodė esminius skirtumus tarp lyginamų šalių: Lietuvoje moksleivių, kurių mokyklų vadovai turi magistro išsilavinimą, skaičius 4–5 kartus viršija Kazachijos rodiklį. Lietuvos mokyklų vadovai taip pat turi vidutiniškai 1,5 metų ilgesnį vadybinio darbo stažą negu Kazachijos mokyklų vadovai. Kita vertus, TIMSS 2015 ir PIRLS 2016 tyrimų rezultatai nerodo tiesioginio mokyklų vadovų vadybinės patirties ir išsilavinimo bei mokinių pasiekimų ryšio. Moksliniai tyrimai rodo, kad ugdymo kokybę vadovų veikla labiau veikia netiesiogiai. Didesnė mokyklų vadovų vadybinė patirtis ir aukštesnis išsilavinimo lygis gali nulemti našesnį mokyklos valdymą – labiau kompetentingi vadovai sugeba racionaliau naudoti išteklius, tinkamiau formuoti pedagogų komandą, sėkmingiau plėtoti ryšius su mokinių tėvais, socialiniais partneriais ir kt., tačiau moksleivių mokymosi efektyvumą nulemia daugybė kitų veiksnių.

Pagrindiniai žodžiai: posocialistinis švietimas, TIMSS 2015, PIRLS 2016, Lietuvos ir Kazachijos mokyklų vadovų vadybinė patirtis ir universitetinės magistrantūros studijos.

Introduction

The group of post-socialist countries occupies a vast geographical area from the Baltic sea to the Pacific and from the Arctic Sea to the Mediterranean. It is natural to assume that following the three decades of development of about thirty countries, which during the socialist times had almost identical (Soviet Union) or rather similar (Central and Southeast Europe) educational systems, should be interesting to researchers working in the field of comparative education. Huisman, Smolentseva, and Froumin (2018) note that the simultaneous start of the countries' own trajectories makes the observed period the field of a natural experiment. However, contemporary research on education policies and practices in post-socialist countries is not expansive (Chankseliani 2017). According to our understanding, there are at least several reasons for a rather limited interest of researchers in the educational development of the region. First of all, there is no single, universally accepted theoretical approach to the development of post-socialist societies. Different approaches, including modernization, dependency, world systems, and neo-colonial theories, can be used for the theoretical analysis of post-socialism. The influence of globalization, europeanization, educational borrowing, path-dependency, etc. is also relevant and should be addressed in research studies. Another uncertainty posing a problem for statistical analysis is territorial controversy. A number of post-socialist countries have territorial disputes with their neighbors; so, it is not always clear whether educational statistics provided by Russia, Ukraine, Moldova, Azerbaijan, or Armenia include the disputed territories or not. The third reason is the reliability of the data. Post-socialist countries, especially the ones with authoritarian regimes, sometimes tend to play with the data and improve the numbers in

order to boost their success in international rankings (Želvys, Stumbrienė, Jakaitienė 2018). The fourth one is that it is difficult to acquire comparable data from non-EU member states. One of the possibilities is the use of international large-scale assessments (ILSAs). However, not all post-socialist countries participate in large-scale international surveys. Western researchers and experts sometimes tend to apply simplified generalizations, assuming that educational systems in all post-socialist countries are developing more or less along the same lines. Bain (2010) notes that this belief of many researchers was based on the assumption that there is one Western educational model that needs to be replicated in post-socialist countries and that there is only one way of implementing this model. However, three decades of development in the region showed that the picture is not that simple. Silova (2010) observes that, notwithstanding the claims of global convergence, post-socialism remains a space for increasing divergence and difference. In our study, we tried to demonstrate just a small segment of the overall educational landscape – experience and university training at postgraduate level of school principals – in order to show the different state of being in two post-socialist countries, Kazakhstan and Lithuania. The aim of the study was to highlight the different attitudes toward the training of school principals in Lithuania and Kazakhstan on the basis of a secondary analysis of TIMSS 2015 and PISA 2016 data. Methods of the study are an analysis of theoretical models of post-socialist development and a secondary analysis of TIMSS 2016 and PISA 2015 data.

A Variety of Theoretical Approaches

Different theories can be used to explain the development of post-socialist education. Perhaps the most widespread theory used for describing post-socialist development is the modernization theory. The modernization theory assumes that the highly modernized societies of North America and Western Europe have set an example for less developed nations, which strive to reach economic prosperity and democratic stability. Modernization produces convergencies among societies, and the modernizing societies will eventually come to resemble one another. Once started, modernization cannot be stopped; it is a long-lasting but inevitable and desirable process. Modernization is also a transformative process; in order for a society to reach a higher level of economic and social development, its traditional structures and values must be totally replaced by a set of modern values (Reyes 2001). Assuming that the “underdeveloped” countries of the Eastern Bloc will inevitably strive to follow the path of their more “advanced” Western partners, researchers mainly applied the modernization theories in their writings regarding the development of post-socialist education. They assumed that the pace of reforms could differ, but that eventually all transition countries will create more or less the same “modern” educational model, promoted and suggested to their governments by international experts and consultants.

The key alternative theory, which emerged during the 1950s, is the dependency theory. According to Reyes (2001), the main hypothesis of the dependency theory is that the world is divided into two groups of nations: the core nations and the peripheral nations. In contrast to the development of the core nations, the development of the peripheral nations necessitates subordination to the core. The basis of dependency in peripheral nations is derived from industrial technological production. Dependency theory was even-

tually modified and transformed into the world systems theory. The world systems theory assumes that the unit of analysis should be not the national but the global level. Instead of a bimodal model – the core and the periphery – the world systems theory suggests a trimodal model: the core, the semiphery, and the periphery. Dependency theory treats the process of subordination as harmful to the peripheral nations, while world systems theory assumes that there is the possibility of upward and downward mobility in the world economy (Reyes 2001). From the perspective of world systems theory, the globalization of education is part of an effort to impose particular economic and political agendas that benefit wealthy and rich nations at the expense of the poor ones (Spring 2009). Education is one of the means of achieving the goals of the core countries; therefore, the aim of the reform “packages” offered to peripheral nations is to make their national education systems serve the interests of the global market. As a result, core nations are becoming richer, while peripheral nations are becoming poorer.

Some recent works on post-socialist development apply the framework of post-colonial theory. Chankseliani (2017) notes that the Russian Empire and the USSR that succeeded it can be treated as comparable to other European colonial empires. According to Silova, Millei, and Piattoeva (2017), we have recently witnessed a complex process of the re-colonization of a post-socialist space. Russia seeks to re-integrate parts of the post-socialist region through the unidirectional and hierarchical knowledge transfers that prevailed in the Soviet times, when Russia functioned as an imperial center that spreads its norms and models to the peripheries.

Are education systems converging or diverging? The convergence approach is based on modernization theory, while the divergence approach is mainly based on the world systems theory (Waitzberg 2007). Are education systems of the former socialist countries staying together, moving apart, or are they getting closer to some other educational models? Currently, we can divide the former Soviet republics into at least three distinct groups:

- the new EU member countries (the Baltic States);
- countries that foresee some possible future EU membership but are ideologically and politically divided (Moldova, Ukraine, Georgia);
- countries that are outside the orbit of the EU educational policy and have chosen their own trajectories of development (Russia, Belarus, Armenia, Azerbaijan, the and Central Asian republics).

Countries of the Central and Southeastern Europe can also be divided into separate groups of the new EU member states and those seeking for EU membership. Even among the first group of countries, which are inevitably following the mainstream of EU educational policy, we can observe different preferences of educational development (Želvys 2018). For example, the Baltic States, which are often perceived as a single region, are not choosing identical parts of educational transformation. Our research (Želvys, Jakaitienė, Stumbrienė 2017) demonstrates that, judging by a secondary analysis of the PISA 2012 data, they are not completely following the same pattern of development. Some characteristics of the secondary education system bring Lithuania and Latvia closer to the liberal Anglo-Saxon education model, while Estonia in certain aspects shows more similarity with Finland.

ILSAs as Resources for Comparative Research

Eight post-socialist countries (Estonia, Latvia, Lithuania, Poland, the Czech Republic, Hungary, Slovakia, and Slovenia) are OECD members. OECD publications, in particular *Education at a Glance*, as well as country reports, provide an abundance of material for comparative analysis. The abovementioned countries plus Bulgaria, Croatia, and Romania are also EU member states. *Eurostat* and a number of EU documents contain considerable amounts of educational data subject to comparison. However, there are significant difficulties in comparing the educational development of those post-socialist countries that are neither OECD nor EU member states, mainly due to a lack of relevant data. One of the few more or less reliable data sources are international large-scale assessments (ILSAs). Several post-socialist non-EU countries participated in studies like PISA (Programme for International Student Assessment), TIMSS (Trends in International Mathematics and Science Study), or PIRLS (Progress in International Reading Literacy Study). For example, Albania, Georgia, Kazakhstan, Kosovo, North Macedonia, Moldova, Montenegro, and Russia participated in the PISA 2015 study. Armenia, Georgia, Kazakhstan, Russia and Serbia participated in the TIMSS 2015 study. Azerbaijan, Georgia, Kazakhstan, and Russia participated in the PIRLS 2016 study. The level of student achievement is usually at the center of interest for authors involved in comparative studies; however, final reports also provide a bulk of data about the context of schooling: the social and economic status (SES) of students, the structure and management of education systems, the characteristics of teachers and principals, etc. In this respect, they can be considered as valid resources for comparing different aspects of education peculiar to the participating countries. Kazakhstan is one of the few post-socialist non-EU countries that had participated in all three of the abovementioned studies. Unfortunately, we could not use the PISA 2015 data for Kazakhstan, as the sample for the country appeared to be insufficient (NEC, 2016e).

The Formal Education and Experience of School Principals According TIMSS 2015 and PISA 2016 Data

Rado (2001), in his review of post-socialist transition in education, warned about the weakness of policy implementation capacity of education management systems in Central and Eastern European countries. He noted that the traditional “retraining” approach has proven to be ineffective and stressed the importance of the development of a long-term delivery system of training programs. However, one of the problems was that higher education was not or was slowly responding to the changing needs of education in the region. Almost twenty years have passed, and education management training remains one of the challenges to a number of countries in the post-socialist world. Education management training can serve as one of the examples of diverging trajectories of post-socialist development in education. A study of school governance policies in ten post-socialist countries (Gabršček 2016) revealed a wide variety of different approaches to school governance in countries that participated in the survey. The same applies to the

initial training of education managers. In most of the new EU member states, including Lithuania, universities provide master's studies in education management and leadership. However, it seems that many post-socialist countries, which are outside the orbit of the EU education policy, still remain at the initial phase of the process. A typical example is initial education management training in five Central Asian republics. Master's studies in education management are not provided in most Central Asian countries, and there are few opportunities to get a master's degree, as the only country in the region to join the Bologna process and introduce the Bachelor's-Master's-PhD model is Kazakhstan. Just like during the previous socialist times, school principals are mainly trained by providing the relatively short-termed in-service training courses. There are initiatives, mainly sponsored by international organizations, to launch long-term education postgraduate management studies in the region. For example, in order to facilitate the initiative of training education managers, a TEMPUS-EDUCA project "Modernization and Development of Curricula on Pedagogy and Educational Management in Central Asian Countries" was launched in 2012 (Nikitenko, Dzhanaliev 2014). In Kazakhstan, master's studies in education management, usually as a specialization of a more general course in pedagogics, were introduced in several Kazakhstani universities. However, some of them were later closed down, and some others underwent a series of transformations (Želvys, Aganina, Zhunusbekova 2014). Inconsistence in the training of education managers at a postgraduate level leads to a shortage of school principals with relevant education. Fragmented courses are not sufficient for the development of necessary managerial competencies, and the relatively short-term practical experience of school principals limits the possibilities of gaining the needed competencies at work. Data provided by TIMSS 2015 and PIRLS 2016 illustrate differences in education level and professional experience of school principals in Kazakhstan and Lithuania.

Table No. 1. *The Formal Education Level of Principals. The percent of students by the principals' education level. TIMSS 2015, 4th grade.*

Country	Completed postgraduate university degree	Acquired a bachelor's degree or equivalent but not a postgraduate degree	Did not complete a bachelor's degree
Kazakhstan	9	90	1
Lithuania	48	52	0

Table No. 2. *The Formal Education Level of Principals. The percent of students by the principals' education level. TIMSS 2015, 8th grade.*

Country	Completed postgraduate university degree	Acquired a bachelor's degree or equivalent but not a postgraduate degree	Did not acquire a bachelor's degree
Kazakhstan	14	86	0
Lithuania	54	46	0

Table No. 3. *The years of experience of principals. The percent of students by their years of experience as principals. TIMSS 2015, 4th grade.*

Country	20 years or more	At least 10 but less than 20 years	At least 5 but less than 10 years	Less than 5 years	Average years of experience as a principal
Kazakhstan	14	28	29	30	10
Lithuania	40	36	19	6	17

Table No. 4. *The years of experience of principals. The percent of students by their years of experience as principals. TIMSS 2015, 8th grade.*

Country	20 years or more	At least 10 but less than 20 years	At least 5 but less than 10 years	Less than 5 years	Average years of experience as a principal
Kazakhstan	11	28	32	29	10
Lithuania	33	36	18	13	15

Table No. 5. *The Formal Education Level of Principals. The percent of students by the principals' education level. PIRLS 2016, 4th grade.*

Country	Completed postgraduate university degree	Acquired a bachelor's degree or equivalent but not a postgraduate degree	Did not acquire a bachelor's degree
Kazakhstan	11	83	6
Lithuania	61	39	0

Table No. 6. *The years of experience of principals. The percent of students by their years of experience as principals. PIRLS 2016, 4th grade.*

Country	20 years or more	At least 10 but less than 20 years	At least 5 but less than 10 years	Less than 5 years	Average years of experience as a principal
Kazakhstan	11	21	27	41	9
Lithuania	41	34	10	15	16

In truth, there is no need for any sophisticated statistical analysis in order to note the essential differences between the two countries. The TIMSS 2015 and PIRLS 2016 data show that the percentage of students in schools where Lithuanian school principals have undergone postgraduate university training exceed the percentage of students in Kazakhstani schools 4 to 5 times. Several percent of the students study in schools where the Kazakhstani primary school principals do not hold even a bachelor's degree. Lithuanian school principals also have longer years of experience, which is, on average, 1.5 times longer than the experience of Kazakhstani school principals.

What are the possible implications of these differences in formal training and experience? The International Association for the Evaluation of Educational Achievement (IAE), the organization which administers both of the abovementioned studies, assumes that quality training of the school staff leads to quality teaching in schools (NEC, 2016a). However, the link between the two variables is not that straightforward. The postgraduate university degree of school principals seems to have no direct relationship with a higher level of student learning at school. On the one hand, a number of research studies show that successful leadership can contribute to the performance of a school and the outcomes achieved by students: school leaders are second only to classroom teachers in their influence upon student outcomes (Day, Sammons 2014). For example, a metanalysis conducted by Marzano, Waters, and McNulty (2005) found a moderately strong effect of school leadership on student outcomes. On the other hand, even though school leadership can be a facilitator of student achievement, especially in low socioeconomical status neighbourhood schools, the effect size is generally rather small (Želvys, Dukynaitė, Vaitekaitis, Jakaitienė, forthcoming). Relevant studies (e.g., Day et al. 2016; Mulford 2008) have concurred that school leaders do have a predominantly indirect influence on student outcomes. The effect of leadership is mainly manifested through the influence of leaders to the rest of the teaching staff (ŠMM, 2015). Results of TIMSS 2015 and PIRLS 2016 seem to support the assumption that there is no direct relationship between the level of education and professional experience of school principals and student achievement. In TIMSS 2015, the scores of Kazakhstani students in all study areas – mathematics in 4th and 8th grades and science in 4th and 8th grades – are higher than those of Lithuanian students, and in three cases out of four the differences are statistically significant (NEC, 2016a; 2016b; 2016c; 2016d). In PIRLS 2016, on the contrary, Lithuania's scores in the reading literacy of 4th grade students are higher than the Kazakhstani scores, and the differences between these countries are statistically significant (NEC, 2017). The same controversy applies to the length of experience of school principals. Lithuania has one of the oldest corps of school principals in Europe. Such a length of experience may contribute to the development of managerial competencies at a practical level; however, it can also lead to unproductive and outdated approaches to running the school and a stagnation of organizational development. The current Lithuanian government appears to take a critical stance toward long-lasting principalship and seeks to introduce a system of appraisal with a possibility of rotating secondary school principals every five years (ŠMM, 2018). We assume that formal education and the experience of school principals may lead to a better management of the learning environment – a rational allocation of resources, successful recruitment and retainment of the school staff, building productive relations with parents and the external environment – factors related to the efficient functioning of schools. However, even though the learning environment is important, the effectiveness of the learning process also depends on a number of other factors, and the professionalism of school principals may have a limited direct influence on the level of student achievement.

Conclusions

1. The development of post-socialist education provides an interesting range of topics for comparative studies; however, research in this field is not expansive.
2. There are several possible reasons for that: the lack of a commonly agreed-upon theoretical approach, territorial controversies, a shortage of comparable and reliable data, etc. One of the possibilities for comparative analysis is the usage of the data provided by international large-scale assessments (ILSAs).
3. A secondary analysis of TIMSS 2015 and PIRLS 2016 showed that two post-socialist countries – Lithuania and Kazakhstan – demonstrate different approaches toward the post-graduate studies of school principals. The percentage of students in schools where Lithuanian school principals have undergone postgraduate university training exceed the percentage of students in Kazakhstani schools 4 to 5 times. Lithuanian school principals also have, on average, 1.5 times longer professional experience than Kazakhstani school principals.
4. Before the collapse of the socialist regimes, both Lithuania and Kazakhstan had almost identical systems of education. Different approaches toward the postgraduate training of school principals show that we observe diverging trajectories of development at least in this respect.
5. On the other hand, the data of TIMSS 2015 and PIRLS 2016 show no direct relationship between the level of education of school principals and student achievement.
6. We assume that a higher level of education and experience of school principals may contribute to the efficiency of school management, while the effectiveness of student learning may be determined by a variety of other factors.

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