

DIFFERENT ASPECTS OF EDUCATION AND TEACHING SYSTEMS TO ENSURE HIGH ACHIEVEMENT FOR 4th GRADE STUDENTS AND 15-YEAR-OLDS

Agnese Mālere, Linda Mihno

University of Latvia, Latvia

ABSTRACT

Student high achievement in different countries are the main topic in every Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment's (PISA), International Association for the Evaluation of Educational Achievement (IEA) Progress in International Reading Literacy Study (PIRLS), IEA Trends in International Mathematics and Science Study (TIMSS) testing cycles. Increasingly relevant for many countries becomes the high achievement for their students in order to be able to provide high quality education and to be able to prepare students for their future studies in high-level competence. The aim of the research is to analyse national education and learning systems, standards and curriculums, teachers' recruitment, teachers' induction and the autonomy over classroom activities, including teaching methods teachers use in the classroom, how they plan and prepare lessons, in order to identify possible factors that could affect Latvian learners achievement by comparing countries who have higher student achievement than Latvian students or have the same achievement level or situation in OECD PISA, IEA TIMSS and IEA PIRLS surveys. In the analysis it is taken into account that in Latvia the approach of the competencies in the content of studies is only gradually introduced since 2021, it will be possible to fully compare results of Latvia with high-achieving countries only at the next research cycles.

Keywords: *the education system, IEA TIMSS, IEA PIRLS, high achievement, OECD PISA, students' achievement, students' assessment*

Introduction

Each country wants their education system to be at high quality. Countries which have participated in the studies to evaluate it and found ways how to improve it. That is most important that for small countries which think about development and investment. It is necessary that these small countries could compete with others bigger countries.

Education quality means that the students could show skills and knowledge that are defined in each stage and how well they can use these skills and knowledge in real life situations of education studies' view. Other countries try to find out the reasons why students from some countries can reach that others cannot.

The aim of the article is to analyse national education and learning systems, standards and curriculums, teachers' recruitment, teachers' induction and the autonomy over the classroom activities, including teaching methods teachers use in the classroom, how they plan and prepare lessons, in order to identify possible factors that could affect Latvian learners achievement by comparing countries who have higher student achievement than Latvian students or have the same achievement level or situation in Organisation for Economic Co-operation and Development the Programme for International Student Assessment (OECD PISA), International Association for the Evaluation of Educational Achievement Progress in International Reading Literacy Study (IEA PIRLS) and IEA Trends in International Mathematics and Science Study (TIMSS) surveys. In the analysis it is taken into account that in Latvia the approach of competencies in the content of studies is only gradually introduced since 2021, it will be possible to fully compare the results of Latvia with high-achieving countries only in the next research cycles.

Many countries who participates in OECD PISA, IEA TIMSS and IEA PIRLS surveys have national curriculum and other normative documents that describes the learning approach and besides required knowledge, core skills and values, have indicated competences that students should learn in order to finish primary education. The core of the education reforms, which were held over the past few years in many countries, is to develop students' competence in learning to learn and to develop 21st Century competencies and skills for their future life.

The primary school curriculum in the past few years has been overseen and changed according to students' needs for further life in order to teach in school not only the knowledge and core skills, but also life skills and values. The subject areas that the primary school curriculum includes are different among countries. For example, in France there are five subject areas – languages to think and communicate; methodologies and tools to learn; the training of the individual and the citizen; natural and technical systems; world representations and human activity (EURYDICE, 2021b). In Latvia there are seven subject areas – language; social and civic; cultural understanding and self-expression in art; natural sciences, mathematics; technology; health and physical activity (Regulations Regarding the State Basic Education Standard and Model Basic Education Programmes, 2018). In Lithuania there are seven subject areas – moral education; languages;

mathematics; natural sciences; social education; arts; information technologies; technologies; physical education (Centre for Quality Assessment in Higher Education, 2022). In Hong Kong there are eight subject areas – Chinese language education; English language education; mathematics education; science education; technology education; personal, social, and humanities education; arts education and physical education (Education Bureau, 2021). In Taiwan are eight learning areas – language arts; mathematics; social studies; natural sciences; arts; technology; health and physical education; and integrative activities (National Center on Education and the Economy, 2021b). In Australia there are eight subject areas – English; mathematics; science; health and physical education; humanities and social sciences; the arts; technologies and languages (Australian Curriculum, Assessment and Reporting Authority). In Czech Republic there are nine subject areas – language and language communication; mathematics and its application; information and communication technologies; man and the world; man and society; man and the nature; arts and culture; man and health; man and work (Vlčková, 2015). In Singapore there are ten subject areas – English; mother tongue language (available for Chinese-speaking, Malay-speaking and Tamil-speaking students); mathematics; science; art; music; physical education; social studies; and character and citizenship education, and from 2019 – coding class (National Center on Education and the Economy, 2021a).

Learning areas are different among countries, but progress can be seen in subject integration and a holistic approach to curriculum objectives. The learning approach and curriculum focus on students' ability to be successful in their life and would be better prepared for their future (Ministry of Education. Singapore, 2021).

High-achieving countries have different approaches to monitoring curriculum outcomes, teachers' education and professional development opportunities, teachers' teaching methods and approaches to curriculum outcomes, and working with students with special needs or different levels of skills and knowledge. Authors define hypothesis that higher students achievements was influenced by

- Teachers qualification;
- Work with students with low achievements and talented students;
- Students that enjoy to learn a specific field;
- Country well-being level.

Methodology

In the study there are used data from OECD PISA 2018, IEA PIRLS 2016 and IEA TIMSS 2019.

Data analyses were made between countries, which participated in all of these three studies. PISA samples are fifteen years-old students, but PIRLS and TIMSS the fourth graders.

Sample size: each country participating in these studies needs a plan for defining its national target population and applying the sampling methods to achieve a nationally representative sample of schools and students (OECD, 2019, IEA, 2017; IEA, 2020). For example: for most countries, the TIMSS precision requirements are met with a school sample of 150 schools and a student sample of 4,000 students for each target grade. Depending on the average class size in the country, one class from each sampled school may be sufficient to achieve the desired student sample size (IEA, 2020).

Country’s average scores were taken as a base data to find achievement’s differences between PISA reading average and PIRLS average, TIMSS maths average and PISA maths average, PISA science and TIMSS science average.

Afterwards, countries were divided in four groups for each field – reading, maths and science. High-High (HH) – all countries which have results above mean score in both studies in each field. Like reading in PISA and PIRLS, maths in PISA and TIMSS, science in PISA and TIMSS. High-Low (HL) – High in PIRLS or TIMSS, but low in PISA. Low-Low (LL) – Low in both PISA and PIRLS or TIMSS, and Low-High (LH) – Low in PIRLS or TIMSS, and High PISA (see in Fig. 1., Fig. 2 and Fig. 3.).

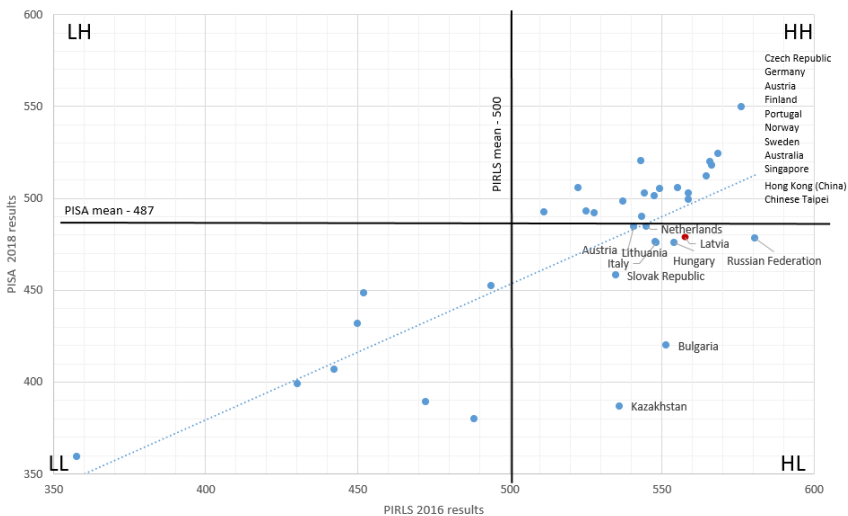


Figure 1. Reading Achievements in PISA 2018 and PIRLS 2016

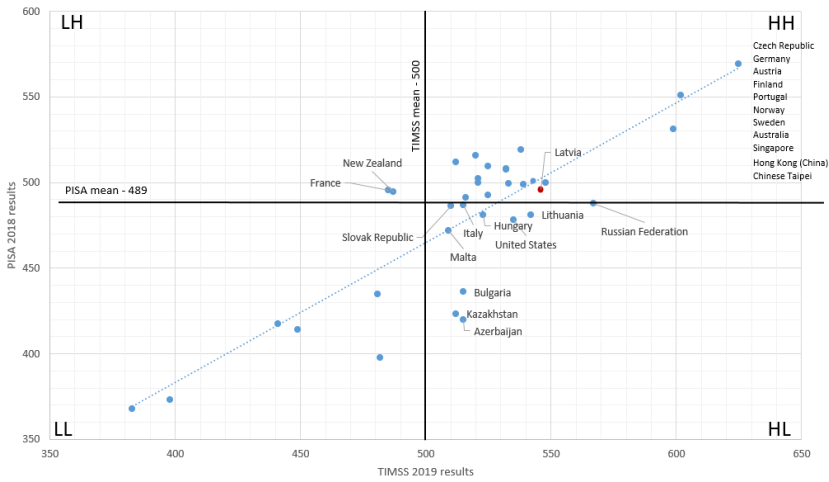


Figure 2. Maths Achievements in PISA 2018 and TIMSS 2019

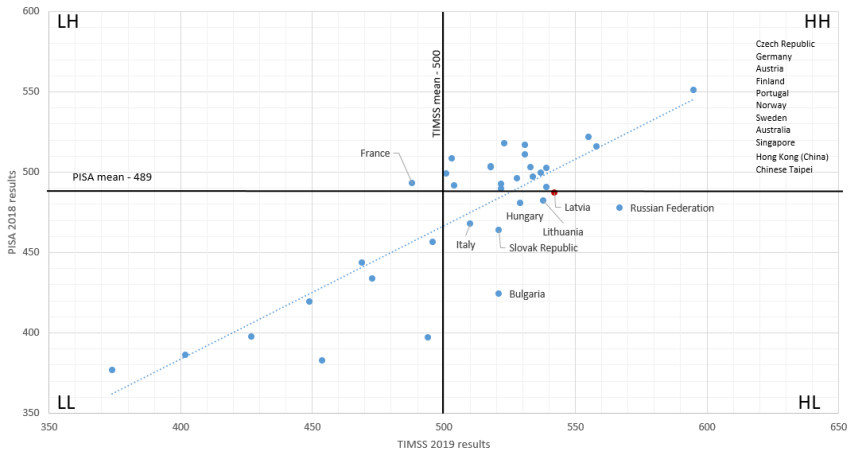


Figure 3. Science Achievements in PISA 2018 and TIMSS 2019

Then there were used just those countries which were in one of the three groups – HH, HL or LH. Factors that could be the reasons for students’ high or low achievements in some studies, were found between these countries.

Most countries have high scores in PISA and PIRLS or TIMSS as well and high scores in PIRLS or TIMSS and low scores in PISA. Just France has a high score in PISA, but low in TIMSS, the same situation is in New Zealand but just for Maths (see in Table 1).

Table 1. Countries achievement groups

Group	Country
HH	Australia
	Austria
	Chinese Taipei
	Czech Republic
	Finland
	Germany
	Hong Kong (China)
	Norway
	Portugal
	Singapore
Sweden	
HL	Russia
	Bulgaria
	Hungary
	Latvia
	Lithuania
	Slovak Republic
LH	France

Then researchers analysed information in literature based on these groups to find education development possibilities.

Results and Discussion

Globalisation, rapid technological development, demographics changes, the emergence of new professions in the labour market are only some of the key driving forces of the current times we are living in and which will shape our future. Education and curricula need to adapt to these changes to meet today's needs and equip students with skills and knowledge they need for the 21st century. Curricula defines the knowledge, skills and attitudes, which are often embodied in competences that students are expected to acquire. Latvia will introduce a competences-based approach to curriculum content from 2021, which will be phased by 2023 at all levels of the education system. Competences in the curriculum are also defined in Singapore (Ministry of Education. Singapore, 2021), Taiwan (Hung, 2019), Finland (EURYDICE, 2022c), the Czech Republic (Digital Community and

Innovation in Adult and Basic Skills, 2019), Austria (EURYDICE, 2021a) and Bulgaria (EURYDICE, 2022b), but their implementation varies. The education reforms in Austria develops education standards that focus on the subject-specific competences in order to develop individual competence assessment. The individual competence assessment is a set for academic diagnostics and it is outlined to survey subject-related and cross-curricular competencies of students (EURYDICE, 2021a). Australia has a different approach to students' achievement – there is a national Curriculum for schools, which has been developed by the Australian Curriculum, Assessment and Reporting Authority (ACARA). ACARA develops learning outcomes that are common across all schools from kindergarten to year 12 and as a result of the development of The National Assessment Program – Literacy and Numeracy (NAPLAN) as an annual assessment for students in Year 3, 5, 7 and 9. NAPLAN includes four areas: reading, writing, language conventions and numeracy (Australian Government Department of Foreign Affairs and Trade; Australian Curriculum, Assessment and Reporting, 2021).

Defining the competences required for the curriculum is an important step to help the students to develop the necessary skills, attitudes and knowledge. However, the preparedness of teachers to organise and manage the learning process is also important. For example, Australian professional standards for teachers help teachers to understand and develop their teaching practice and expertise across four career stages in order to bring a bigger impact on all students (Australian Institute for Teaching and School Leadership). Australian teachers can use different teaching practices to promote students' achievement and engagement. In addition, teachers use a particular teaching practice according to the year level of the student, school characteristics and class characteristics (Vassallo, Daraganova, Zhang, Homel, 2017). In the other countries, teachers uses different teaching practices to meet the learning outcomes of the curriculum, except the Slovak Republic where teaching methods can be chosen by themselves, but at the level of school methodological commissions elaborate methods for individual subjects in collaboration with teachers (EURYDICE, 2021d). In the countries where students achive high achievements, also teachers' profession is rated higher in the society. For example, the prestige of the teaching profession is high in Singapore and Hong Kong. In these countries only the best students become teachers and Taiwan future teachers need to pass qualification examinations before taking practical education training in schools (Ministry of Education Republic of China (Taiwan), 2021), but in Germany in-service teacher education remains underdeveloped and have many issues (Terhart, 2019) although German students show high scores in international surveys. Low prestige of the teacher's profession in society is in Latvia and Lithuania (EURYDICE, 2021c; OECD 2014).

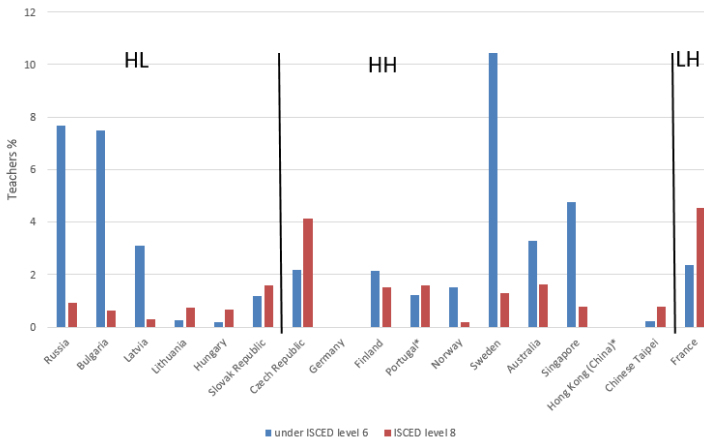


Figure 4. Achievement groups' countries' Teachers qualifications

One of the factors that can be used is **teacher qualification** and data shows that higher qualifications of teachers are in HH group and LH group. There are more teachers with education on ISCED level 8 (see in Fig. 4). It can be concluded that to become a teacher can be achieved through a bachelor's or master's degree and, in some countries (for example, Austria), teachers have mentors in their first year of service (EURYDICE, 2022a). Future teachers in Taiwan need to pass a qualification examination before undertaking practical education training in schools (Ministry of Education Republic of China (Taiwan), 2021). However, countries analysed and made changes in teachers' education approach. Rapid changes that happen in education are challenging and preparing the future teachers is not only about knowledge and core-skills. Some issues in teacher education that need to be addressed are also in countries with high students achievements, for example, in Singapore (Loh, Hu, 2019). Teachers' qualification and professional development have a big impact on students' achievements – that is one of the crucial factors. If a country frequently monitors students' achievements and offers teachers methods and instruments for improvement there are more chances that students and teachers will improve their performance as it is. For example, in Austria (EURYDICE, 2021a). Teachers' professional development is significant for everyday practice to achieve better results. In Latvia teachers need to spend 36 hours in three years in professional development activities (Regulations on the education and professional qualifications required of teachers and the procedure for developing teachers' professional competence, 2018). Comparing the time that teachers need to spend in the professional development activities, in Latvia teachers need to spend less time in these

activities compared to Singapore – 100 voluntary hours of professional development per year (Bautista, Wong, Gopinathan, 2015).

Data shows that most of the fourth graders in the most of the countries can reach the highest achievement level. The highest level at PISA reaches more students from HH countries. The same situation is with the lowest level. More students in the lowest level are in HL countries. That could mean that HH countries better **work with low-level students and provide more help to students to develop their talent**. When analysing education systems and curricula and teaching approaches, high-achieving countries pay more attention to the students who need extra help and to the gifted students. Hong Kong has a special approach (learning programmes) for the gifted students (Education Bureau, 2022a) and also Singapore has a gifted education programme to help the gifted students to realise their full potential (Ministry of Education. Singapore, 2022), but Finland has not only special programmes for the gifted students, but also special schools and camps (Tirri, Kuusisto, 2013). Hong Kong also has school-based after-school learning and support programmes for the students who needs additional help (Education Bureau, 2022b).

When looking at work with the gifted students and work with the students who need extra support, it is also important to look at the inclusive education. Class sizes are smaller for students with special needs and their needs are different. In Lithuania, from 1 September 2024, children with disabilities and special educational needs will be able to attend the nearest mainstream school to their place of residence and will be admitted on an equal basis with other students. The amendments to the Education Law strengthen equal participation in education for persons with different abilities and learning needs, implementing the principle of inclusion in education. Most students with special educational needs are educated in mainstream schools together with their peers through inclusive education (European Agency for Special needs and Inclusive Education, 2020). In France, a law of 28 July 2019 (Law No 2019-791 of 26 July 2019: Pour une école de la confiance), is specifically dedicated to strengthen inclusive education, establishes that inclusive education is part of initial teacher training (European Agency for Special Needs and Inclusive Education, 2019). Whereas in Germany special education teachers have to study special program for this qualification and need to choose two subject areas relating to special education (European Agency for Special Needs and Inclusive Education, 2020). Inclusive education and work with students who have special needs are more common nowadays and teachers and school leaders need to bring close attention to these students and how to help them achieve their potential.

TIMSS and PIRLS has shown that HH, HL and LH countries fourth graders more enjoy learning reading, maths and science (see in Fig. 5, Fig. 6,

Fig. 7), in PISA that kind of data was not. To analyse learning approaches and curricula, not widely countries focus on students enjoyment learn specific subject, although during Covid-19 pandemic, some of the countries analyse the data from students and the teachers about online learning and what have caused most of the stress during this time (for example, Law, Yee, Ng, Fong 2022; Tan, Chua, 2022; Lin, Chen, Liu, Chang, 2022).

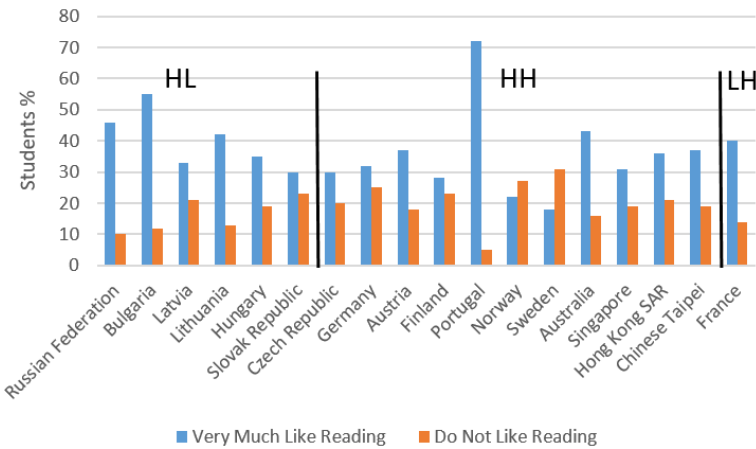


Figure 5. Students count % who very much like or do not like reading in PIRLS 2016

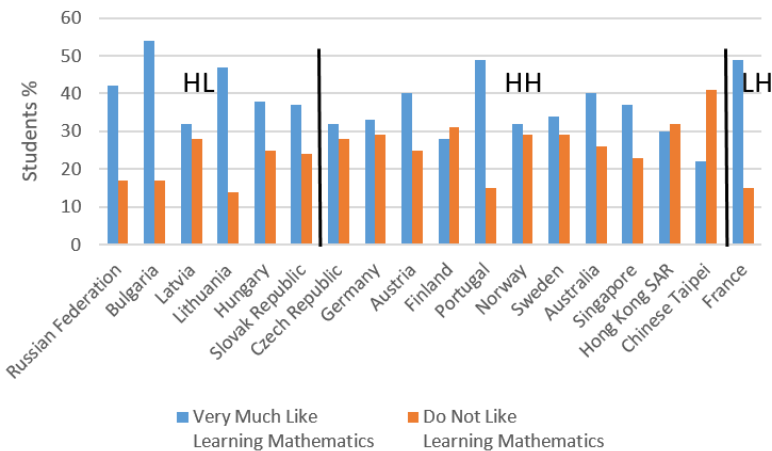


Figure 6. Students count % who very much like or do not like learning mathematics in TIMSS 2019

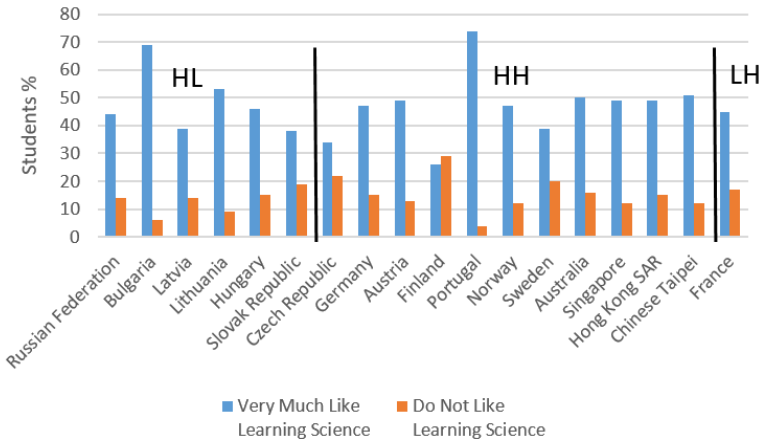


Figure 7. Students count % who very much like or do not like learning science in TIMSS 2019

Well-being is related to income. Data shown (see in Fig. 8) countries with higher GDP are countries from the HH group. That means that the countries can provide the education that develops students' skills in younger classes. It is harder to do in older classes. There is a need for motivated teachers to find out ways to motivate students. That is less possible in countries with lower GDP as data shows.

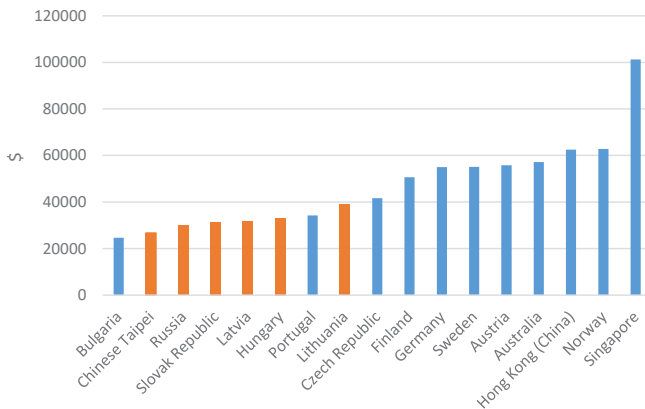


Figure 8. GDP per citizens

Note: Blue color – HH countries, Orange – HL countries

Conclusions

In the analysis national education systems, teaching approaches, teacher education and professional development opportunities, and student achievement, it is necessary to identify the factors that contribute to the students achievement at the national level, taking into account OECD PISA, IEA TIMSS and IEA PIRLS student achievement. The higher is the level of teachers' education, the higher the level of students' achievement. As countries are working hard to improve teachers' education and are constantly making changes to the curricula and competences that students are expected to acquire, there is also a positive impact of these reforms and changes on teachers' preparation and readiness for new approaches and curriculum outcomes. It should be indicated that the Australian NAPLAN test (Australian Government Department of Foreign Affairs and Trade) shows what students need to improve and helps teachers to achieve better results as they are prepared.

Comparing Latvia with others countries, another factor of high student achievement that needs to be addressed is working with talented students and those who needs extra support. Countries that pays extra attention to these students show higher results in international studies (e.g. Hong Kong, Singapore, Finland). It should be noted that not all countries have developed separate approaches or programmes for these students, but they still show high achievement. This can also be explained by the different teaching approaches, in which work with the gifted and the approach to each student is integrated into the daily lessons. In Norway, for example, formative assessment is used, which allows feedback to be given individually to each student and in communication to parents what needs to be worked on (EURYDICE, 2022d).

In conclusion, the hypothesis can be partially confirmed, as high student achievement is found in countries with high levels of teacher education (ISCED level 8). Also in these countries work with talented students and those in need of extra support, albeit implemented in different ways (as separate curricula or embedded in daily classroom work). Furthermore, more developed countries with higher gross domestic product (GDP) have higher student achievement. International research data also shows students' willingness to study particular subjects and its relationship with achievement, but this cannot currently be theorised, as there are not enough studies to ascertain students' views on this. In order to fully understand what influences students' high achievements in these countries, in the future we need to analyse more information about what teachers and students are doing in the class that gives an important impact on their achievements, because education systems, learning approaches, used methods in classes

are similar, but students' scores vary. That brings to the possibility that there are other relevant factors that could indicate these differences, apart from culture and prosperity, which were not indicated in this study.

References

- Australian Curriculum, Assessment and Reporting Authority (ACARA). *Learning areas (Version 8.4)*. <https://www.australiancurriculum.edu.au/f-10-curriculum/learning-areas/>
- Australian Curriculum, Assessment and Reporting Authority (ACARA) (2021). *NAPLAN Achievement in Reading, Writing, Labguage Conventions and Numeracy. National Report for 2021*. ACARA, Sydney.
- Australian Government Department of Foreign Affairs and Trade. *Education Learning and Development Module. The Australian Education System – Foundation level*. <https://www.dfat.gov.au/sites/default/files/australian-education-system-foundation.pdf>
- Australian Institute for Teaching and School Leadership (2017). *Australian professional Standards for teachers*. <https://www.aitsl.edu.au/standards>
- Bautista, A., Wong, J., Gopinathan, S. (2015). Teacher professional development in Singapore: Depicting the landscape. *Psychology, Society and Education*, 7(3), 311–326.
- Centre for Quality Assessment in Higher Education (2022). *General Education*. <https://www.skvc.lt/default/en/education-in-lithuania/general>
- Digital Community and Innovation in Adult and Basic Skills (2019). *Legal framework in Czech Republic. Key competences in Czech Education System*. <https://dilabs.eu/mod/book/view.php?chapterid=973&b=4>
- Education Bureau (2021). *Subjects under the Eight Key Learning Areas*. <https://www.edb.gov.hk/en/curriculum-development/8-key-area/index.html>
- Education Bureau (2022a). *Gifted education*. <https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/index.html#>
- Education Bureau (2022b). *School-based After-school Learning and Support Programmes*. <https://www.edb.gov.hk/en/student-parents/support-subsidies/after-sch-learning-support-program/index.html>
- European Agency for Special Needs and Inclusive Education (2019). *Country Information for France – Teacher Education for Inclusive Education*. <https://www.european-agency.org/country-information/france/teacher-education-for-inclusive-education>
- European Agency for Special Needs and Inclusive Education (2020a). *Country information for Germany – Teacher education for inclusive education* <https://www.european-agency.org/country-information/germany/teacher-education-for-inclusive-education>
- European Agency for Special needs and Inclusive Education (2020b). *Country information for Lithuania – Systems of support and specialist provision*. <https://www.european-agency.org/country-information/lithuania/systems-of-support-and-specialist-provision>
- EURYDICE (2021a). *Education Reforms in Austria: Individual competence assessment (iKMPLUS)*. https://eacea.ec.europa.eu/national-policies/EURYDICE/content/education-reforms-austria-individual-competence-assessment-ikmplus_en
- EURYDICE (2021b). *France. Teaching and Learning in Primary Education*. https://eacea.ec.europa.eu/national-policies/EURYDICE/france/teaching-and-learning-primary-education_en

EURYDICE (2021c). *Lithuania Overview*. https://eacea.ec.europa.eu/national-policies/EURYDICE/content/lithuania_en

EURYDICE (2021d). *Slovakia. Teaching and learning*. https://eacea.ec.europa.eu/national-policies/EURYDICE/content/teaching-and-learning-upper-secondary-education-11_en

EURYDICE (2022a). Austria. Initial education for teachers working in early childhood and school education. https://eacea.ec.europa.eu/national-policies/EURYDICE/content/initial-education-teachers-working-early-childhood-and-school-education-1_en

EURYDICE (2022b). *Bulgaria. Organisation of the education system and of its structure*. https://eacea.ec.europa.eu/national-policies/EURYDICE/bulgaria/organisation-education-system-and-its-structure_en

EURYDICE (2022c). *Finland. Single-structure primary and lower secondary education*. https://eacea.ec.europa.eu/national-policies/EURYDICE/finland/single-structure-primary-and-lower-secondary-education_en

EURYDICE (2022d). *Norway. Assessment in single-structure education*. https://eacea.ec.europa.eu/national-policies/EURYDICE/content/assessment-single-structure-education-20_en

Hung, Y. (2019). *Taiwan's (China) competency-based curriculum reforms to drive social progress*. <http://www.ibe.unesco.org/en/news/taiwans-china-competency-based-curriculum-reforms-drive-social-progress-0>

IEA (2017) *Methods and Procedures: PIRLS 2016*. TIMSS & PIRLS International Study Center, Lynch School of Education and Human Development, Boston College and International Association for the Evaluation of Educational Achievement (IEA)

IEA (2020) *Methods and Procedures: TIMSS 2019 Technical Report*. TIMSS & PIRLS International Study Center, Lynch School of Education and Human Development, Boston College and International Association for the Evaluation of Educational Achievement (IEA)

Law, V. T. S., Yee, H. H. L., Ng, T. K. C., Fong, B. Y. F. (2022). *Transition from Traditional to Online Learning in Hong Kong Tertiary Educational Institutions During COVID-19 Pandemic*. *Tech Know Learn*. <https://doi.org/10.1007/s10758-022-09603-z>

Lin, M. Ch., Chen, H. C., Liu, H. H., Chang Ch. Y. (2022). Implementation of E-Learning in New Taipei City During COVID-19. *EURASIA Journal of Mathematics, Science and Technology Education*, 18(4). <https://doi.org/10.29333/ejmste/11889>

Loh, J., Hu, G. (2019). *Teacher Education in Singapore*. Oxfors University Press, USA, p. 22. DOI: 10.1093/acrefore/9780190264093.013.293

Ministry of Education Republic of China (Taiwan) (2021). Educational System. <https://english.moe.gov.tw/cp-126-17722-3fb83-1.html>

Ministry of Education. Singapore (2021). 21st Century Competence. <https://www.moe.gov.sg/education-in-sg/21st-century-competencies>

Ministry of Education. Singapore (2022). Gifted Education Programme. <https://www.moe.gov.sg/education-in-sg/our-programmes/gifted-education>

National Center on Education and the Economy (2021a). Top-Performing Countries. Singapore. <https://ncee.org/country/singapore/>

National Center on Education and the Economy (2021b). Top-Performing Countries. Taiwan. <https://ncee.org/country/taiwan/>

OECD (2014). Teacher Remuneration in Latvia: An OECD Perspective. <https://www.izm.gov.lv/lv/media/4066/download>

Regulations on the education and professional qualifications required of teachers and the procedure for developing teachers' professional competence (2018). Cabinet of Ministers of Republic of Latvia. <https://likumi.lv/ta/id/301572>

OECD (2019). *PISA 2018 Results (Vol. I): What Students Know and Can Do*, PISA, OECD Publishing, Paris. <https://doi.org/10.1787/5f07c754-en>.

Regulations Regarding the State Basic Education Standard and Model Basic Education Programmes (2018). Cabinet of Ministers of Republic of Latvia, <https://likumi.lv/ta/en/en/id/303768>

Tan, O., Chua, J. (2022). Science, Social Responsibility, and Education: The Experience of Singapore During the COVID-19 Pandemic. In Reimers, F. M. (Eds.), *Primary and Secondary Education During Covid-19*. Springer, Cham. https://doi.org/10.1007/978-3-030-81500-4_10

Terhart, E. (2019). Critical Overview of Teacher Education in Germany. In *Oxford Research Encyclopedia of Education Publisher: Oxford University Press*. DOI: 10.1093/acrefore/9780190264093.013.377

Tirri, K., Kuusisto, E. (2013). How Finland Serves Gifted and Talented Pupils. *Journal for the Education of the Gifted*, 36(1), 84–96. DOI: 10.1177/0162353212468066

Vassallo, S., Daraganova, G. Zhang, G., Z., Homel, J. (2017). Teaching practices in Australian primary schools. In *Australian Institute of Family Studies. The Longitudinal Study of Australian Children. Annual statistical report 2016*. <https://growingupinaustralia.gov.au/research-findings/annual-statistical-report-2016/teaching-practices-australian-primary-schools>

Vlčková, K. (2015). Curriculum in the Czech Republic. *Literacy Information and Computer Education Journal (LICEJ)*, 6(2). https://is.muni.cz/el/ped/jaro2007/PdZZ_CES/um/CDROM_Curriculum_EN.pdf