

## Editorial

In recent decades, the implementation of international large-scale assessment surveys (ILSAs) has become an integral part of educational reality in many countries. The average achievements of individual countries in particular assessment domains and their developments over time have been reviewed and reflected on by educators and discussed in public and political arenas. At times, some additional findings occupy the spotlight such as social disparities, gender differences, student attitudes and motivation, teachers' roles, the use of technologies, and parental involvement.

Academic and research communities have been excitedly debating the limitations of these findings. While some focus on the negative impacts of ILSAs on teaching and learning, others engage in sophisticated international analyses that use more and more advanced statistical methods in the exploitation of the available datasets. Many of these analyses, as well as general discussions, however, do not give sufficient consideration to the unique settings of each of the educational systems involved, including culturally diverse contexts and historical experience. In addition, apart from the average scores, seeing and appreciating the findings is not always straightforward, and even when these are recognized and interpreted, it cannot be taken for granted that their causes are revealed or understood correctly.

While the frameworks and instruments of ILSAs, as well as the procedures, can be tuned to a wide range of respondents, the findings and especially their interpretations need to be reflected on and validated at a national level. The lack of national analyses creates a barrier to the valorisation of investments in ILSAs and also hinders progress in learning about educational policy issues faced by individual countries and the ways in which ILSAs could be used to inform policy making in individual jurisdictions.

The aim of this special issue is to showcase examples of the useful and interesting national utilization of ILSAs and the results they have been providing at a national level. We were interested in examples of national analyses that seek to provide answers to important questions of national education policies that may be difficult to answer by other means, in attempts to relate international assessments to national ones, and in national extensions that countries add to ILSAs. The issue contains six research papers that show a variety of possible uses of data from international large-scale assessments for national purposes.

The first two papers provide analyses of national data obtained in PISA 2015. In the first paper, Francisco López Rupérez, Isabel García García, and Eva Expósito-Casas present a comparative efficiency analysis of public spending on education in 17 remarkably decentralized Spanish regions (Autonomous Communities). Their aim is to shed light on both the educational policies developed and the corrective state measures in favour of inter-territorial equity. The authors argue that the efficient use of resources is an essential factor in a good governance system, particularly in the area of public administration, where the needs are unlimited while the resources are always limited. In the analysis presented in the paper, educational outcomes are measured with an arithmetical average of scores obtained in the PISA 2015 tests in the main assessment domains, corrected for the socio-economic composition of the students in individual regions, and are related to educational expenditures. The authors categorize the regions according to their efficiency, effectiveness, and equity, and propose policy recommendations for both the regional and central government levels that are based on their findings.

The second paper exploiting the PISA 2015 data focuses on information and communication technologies in Czech schools. The authors, Libor Juhaňák, Jiří Zounek, Klára Záleská, Ondřej Bárta, and Kristýna Vlčková, begin with the notion that the implementation and the use of ICT in schools is one of the longstanding strategic objectives and priorities in education policy documents in the Czech Republic. Up to now, however, comparatively little attention has been paid to research on the relationship between the use of digital technologies and students' performance. The paper investigates the association of various ICT-related factors with the educational outcomes of students in Czech schools. It aims to determine the extent to which the availability and the use of ICT in school and at home affect students' educational achievements. The study shows that the relationships differ for different assessment domains and different student backgrounds and confirms the need for further exploration.

The following two papers relate IEA TIMSS studies to national assessments of the same age cohorts. In the Hungarian paper, Ildikó Balázs and Ildikó Szepesi carry out a comparative analysis of TIMSS 2015 and the National Assessment of Basic Competencies (NABC) 2015, which assesses all students' reading and mathematics performance in Grades 6, 8, and 10. The authors utilized the fact that both studies assessed Hungarian Grade 8 students' mathematical abilities at the same time (spring 2015) and that the data collected in the two studies could be linked on the student level using Student Measurement IDs. Their aim was to compare the constructs measured by both studies and to validate the results of TIMSS, which assessed a sample of students by the data collected in the whole population. The analysis confirms that the estimations of population parameters based on TIMSS samples are of good quality and reveals that although the two tests use similar content and cognitive categorizations, there are crucial differences between the two constructs.

Barbara Japelj Pavešič and Gašper Cankar analysed the data from international and national surveys in order to study gender differences in the Slovenian education

system in Grades 8 and 12. In both age cohorts, they have three different assessments of mathematics at their disposal: the TIMSS assessment, national assessment, and teacher grades. The main reason for the study was unexplained gender differences in mathematics achievement, which are not consistent across all assessments. The authors utilized the fact that Grade 8 students who participated in TIMSS took the national assessment (NA) one year later and that TIMSS Advanced Maths students took the 'matura' examination in mathematics two months after the TIMSS Advanced assessment and it was possible to link the data at the student level. Moreover, both TIMSS assessments included questions about school grades from mathematics together with a series of questions about the effort put into solving the TIMSS test. The analyses focused on differences between boys and girls with respect to their assessment results, grades, attitudes towards mathematics, and future plans. It was found that the gender differences in national exams as well as in school grades differ from the gender differences in TIMSS and TIMSS Advanced. The analyses reveal some characteristics of the national exams and grading that would not be evident otherwise, and the results of the study provide fresh insights and explanations of different gender differences, providing some room for improvement in grading to teachers and policy makers.

The fifth paper, by Eva Potužníková, demonstrates the use of a national extension of an international study. To study the interest of Czech students in reading and mathematics, the author used the data from PIRLS and TIMSS 2011 together with the data obtained in the Czech Longitudinal Study of Education, which followed students participating in PIRLS and TIMSS 2011 at the time of their transition to lower secondary education. The study presented in the paper compares the effect of engaging instruction with the effect of student-related characteristics, such as gender, family background, leisure time preferences, and the perceived difficulty of the subject and investigates the development of interest over time. Implications for instructional practice are discussed, as are the advantages of the longitudinal nature of the follow-up survey.

In the last paper, Gašper Cankar uses data from PISA 2015 to demonstrate Simpson's paradox. Simpson's paradox, a case of contradictory interpretations when results are analysed by groups or aggregated as a whole, is very relevant for analyses of data from large-scale assessments as it can cause confusion and misunderstanding in the interpretation of the results. The author explores the occurrences of Simpson's paradox and conditions leading to them using PISA 2015 gender differences in achievement data in five Central European countries – Austria, Croatia, Czechia, Slovakia, and Slovenia. In countries where the occurrence of Simpson's paradox can be demonstrated, a correct interpretation of the results is discussed. The author also emphasizes the implications of his findings for educational governance and demonstrates it through the case of the Slovenian educational system.

The analyses presented in the issue demonstrate some benefits of combining international data with national resources and its potential contribution to education policy and practice. In countries without overarching national assessment systems,

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8 international surveys are instrumental for studying regional or social disparities and providing opportunities to gain some insights into the relationships between student achievement, motivation and attitudes, and teaching practices within the structure and context of the respective educational system. A national extension of international studies increases the future value of data that has been collected, especially when it adds a longitudinal component that allows meaningful causal inferences to be drawn.

In countries with national assessments, a comparison between international and national assessments provides an opportunity for conceptual review and validation of both assessments and allows presumptions and biases hindering national practices to be disclosed that would otherwise remain as a blind spot of practitioners, administrators, and scholars at a national level. Interesting national features that deserve the attention of policy makers could also be explored by the comparative analysis of a smaller number of countries with similar cultural contexts, historical background, and educational traditions. The strong unifying aspect of all the articles presented here is their profound insider knowledge and detailed anchoring of the findings that are presented in the context of the education systems concerned and their current governance discourse.

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