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## **Socio-economic context of education in the light of selected indicators**

**Abstract:** The text touches upon some socio-economic problems of education, illustrated with selected indicators. Apart from the introduction, which presents components of HDI, the paper is divided into two main parts. The first one discusses expenditure on education in the context of student achievements and social development. The second presents new education contexts such as education in the context of COVID-19, inclusive education and desirable changes in the education structure.

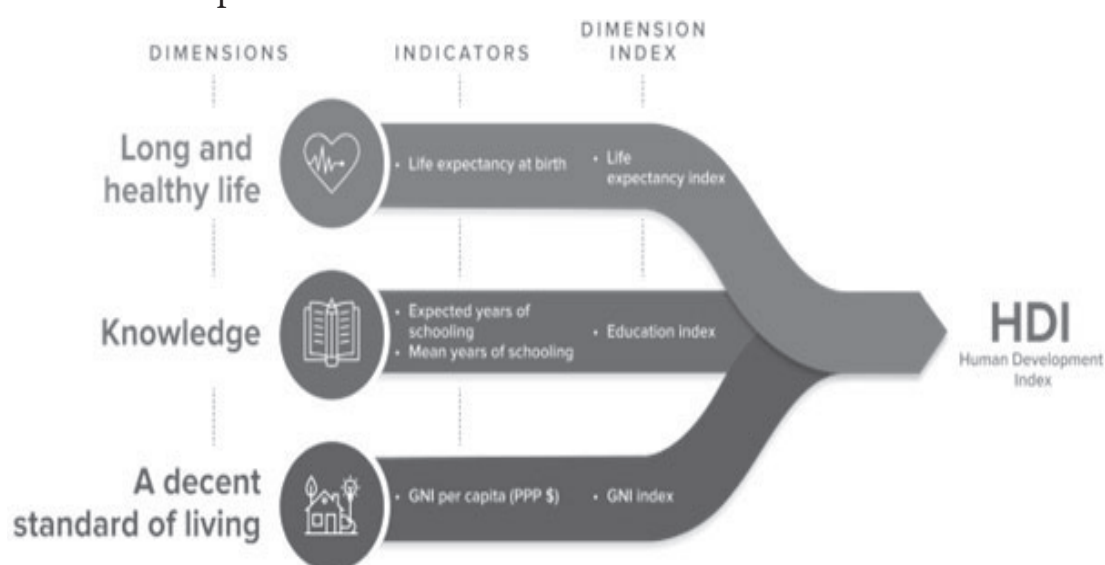
**Keywords:** human development, student achievements, expenditure on education, COVID-19, inclusive education.

### **Introduction**

As late as until a few decades ago, only one indicator was most often used to measure the standards of living, especially in international comparisons, i.e. gross national income (*GNI per capita*). It represented the value of what was produced, sold/purchased in a country (services, foreign trade balance) - per 'statistical' inhabitant - usually in US dollars according to the purchasing power in the country. However, after some time it was rightly recognised that the material standard of living is not enough to assess the overall conditions in which a person lives. The traditional division into wealth and poverty began to be extended to other measures which also determine the quality of human life.

A special place among analytical comparative indicators - due to the scope of information and the number of countries compared - is held by the Human Development Index (HDI). Since 1990, the UNDP (*United*

*Nations Development Programme*) has been preparing and publishing global, regional and national reports. Already at that time, it was emphasised that the ultimate criterion for assessing a country's development should be the people and their capabilities, not solely the economic growth. Among the reports published, the most important are the global ones, which currently take into account the level of human development in more than 190 countries. Poland has been ranked 32-35 in these rankings in recent years and is counted among the 66 countries with a 'very high level of human development'. The main objective of each report is a detailed analysis of the HDI, but dedicated to a given subject which is discussed in more detail. The main narrative in the vast majority of the reports is equality, justice and different contexts of human development.



**Figure 1.** Dimensions and indicators of the HDI. <https://hdr.undp.org/data-center/human-development-index#/indicities/HDI>. Accessed: February 2023.

The three dimensions of the *HDI* are health, knowledge and decent standard of living. The state of health, of the human body, is expressed in terms of life expectancy for a child born in a given year. This indicator can be interpreted as a synthesis of many influencing factors, such as health care, unpolluted environment (water, air, soil, food), but also as a consequence of social awareness of health, which is influenced, among others, by educational factors (education is also often positively correlated with earnings). In terms of life expectancy, the 'record holders' are Hong Kong, Japan and Australia (85.5-84.5 years). The average for Poland is 76.5 years and, although it is known that women generally live longer, the differences in our country are significant (women 80.4 and men 72.6 years) (UNDP, 2022, p. 286). It is also worth mentioning at this point that in the poorest African countries

this projection has recently been as low as 52-58 years (UNDP, 2022, p. 275), which is still an improvement on the situation from a dozen or so years ago, when this indicator did not exceed 30 years. The level of 'wealth' is influenced by a number of factors, with the record holder being Liechtenstein, where the GNI *per capita* was almost \$147 000. Some muslim countries, Singapore and most Western countries score well in this respect (\$60-90 thousand). Poland ranks 44 here with a value of \$33 000. Unfortunately, there are also countries in Africa with less than \$1 000 per capita annually (UNDP, 2022, p. 272, 275).

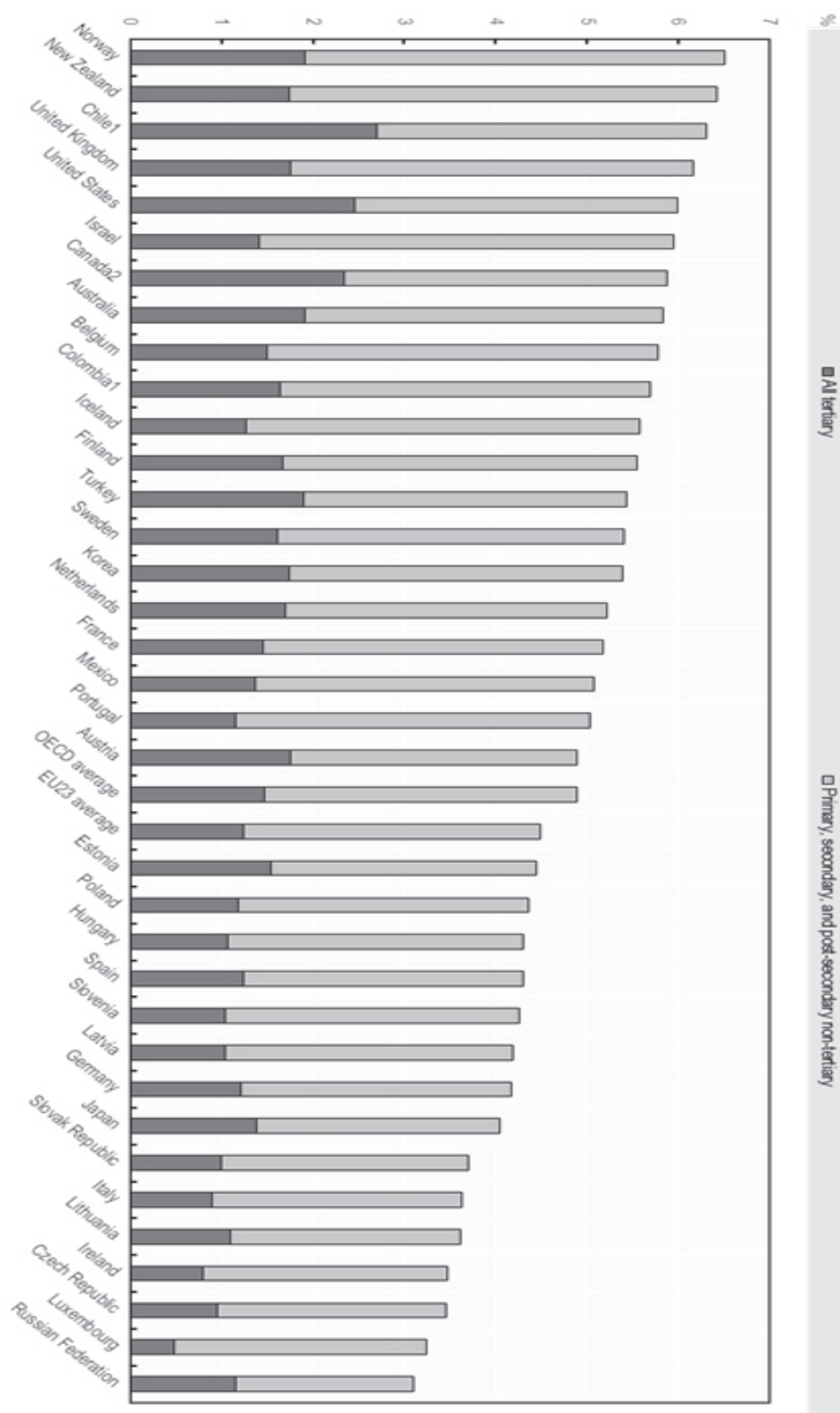
### **Education and social development**

Education plays a significant role in the assessment of the level of human development, since out of four components of the *HDI*, two represent synthetic educational characteristics. Until 2009, these were expressed in terms of literacy rates (the opposite of illiteracy) among those aged 15 and over, and total schooling rates (gross - the number of pupils, students irrespective of age in relation to the population at three levels of education). Both of these indicators were questionable, with missing data in many countries, and for these reasons it was considered that a better characterisation of the educational situation in a given year and country would be provided by the expected number of years of education for a child of school entry age and the average number of years of education received by people being at least 25 years old. In terms of expected years of education, for a long time the leaders have been Australia (21.1 years), New Zealand (20.3), the Scandinavian countries, Belgium, the Netherlands; for Poland this indicator amounts to 16 years (UNDP, 2022, p. 272). In terms of years of received education, Poland (13.2 years) is among 14 countries where that indicator ranges from 13 to 14.1 years (Germany) (UNDP 2022, p. 272). In the poorest countries (Africa), the first education indicator was 5-10 years, while the second, which speaks more about the past and the present of education, was only 2-4 years.

Comparing educational indicators (specified above and those measuring student achievement, educational expenditure) with the overall human development index and other 'non-educational' characteristics, it can be concluded that these indicators, characteristics often coexist. There are also deviations from this general rule (discussed later in the text), determined by yet other factors.

**Expenditure on education** (primary, secondary and post-secondary education) is not merely an effect of the importance attached to education in the broad sense of the term in each country's strategy, but also of their capabilities (due to their level of economic development, wealth). Total expenditure on schooling and tertiary education - as a % of gross domestic product (GDP) estimated by the OECD ranges from slightly over 3% (Russia 3.1%, Luxembourg 3.25%) - to 6-6.5% (Norway 6.5%). In Poland, this indicator has remained at the level of 4-4.5% for many years. Poland belongs to a group of countries with a similar educational 'effort', such as Estonia, Spain, Latvia, Germany and the Czech Republic, where total expenditure on education ranged from slightly over 4 to 4.4% (OECD 2022a, p. 254).

The issues related to the financing of schooling as well as post-secondary and higher education are supplemented by data on expenditure per primary and secondary pupil and per student/course participant, expressed after appropriate conversions to US dollars. Expenditure per student is generally much higher than per pupil. The former generally significantly exceeds \$20,000 in the richest countries (Luxembourg over 52,000, USA \$35,000), while the largest expenditure per pupil does not exceed several thousand US dollars (exception: Luxembourg \$22-25,000). Poland with its expenditure per 1 pupil and 1 student - ranks among the countries with the lowest individual expenditure (among several dozen OECD countries compared, and these are not the poorest countries - quite the opposite). Estimates for our country were as follows: per 1 pupil over \$8 000, per 1 student approximately \$13 000 (OECD, 2022a, p. 238).



**Figure 2.** Expenditure on education and higher education (in % of gross domestic product).

However, there is no simple correlation between expenditures, educational spending and **pupils' educational achievements**. It is not always the case with higher spending/expenditure being correlated with higher student performance (as measured by large international school achievement surveys). For example - until recently, Portugal spent considerably more money on 1 pupil's education than Korea, and in school achievement rankings of pupils it was, and still remains, behind Korea, which for many years has been in the world's top in terms of school achievement of 15-year-olds (PISA). Israel and Norway spend more than 6 % of GDP on education, and their students rank further down the list in PISA 2018. Similarly Luxembourg - its spending per student and pupil is the highest in the world, and its 15-year-olds rank in the fourth ten of PISA 2018 achievements (OECD, 2019 a, p. 17). Poland, in terms of the achievement of 15-year-olds (around 10th place) is much higher in this ranking than in terms of expenditure per pupil, percentage expenditure on education or, finally, in terms of the level of wealth (*income per capita*).

There are at times no clear correlations between pupils' achievements and the level of wealth in some countries - which is also confirmed by the results of SERCE (*Second Regional Comparative and Explanatory Study*) conducted in 2006 (they were not repeated at any later date) in 16 South and Central American countries and one state (Mexico) among more than 196,000 third and fourth grade students. It concerned the assessment of their proficiency in reading, writing, mathematics and scientific knowledge. It turned out that children from Cuba were the best achieving pupils, followed considerably further by pupils from Chile, Argentina, Uruguay, all of which were much richer than Cuba at the time. In Cuba, the favourable accompanying processes were the small variations in results due to gender and place of residence (generally the best results were/are in urban areas). It was emphasised that where there were large social and economic disparities in the other countries studied - there was a positive impact in bridging the inequalities of educational institutions (UNESCO, 2008), which should primarily be understood as the result of great effort made by teachers.

Indicators concerning the standard of pupils' educational conditions are already in line with the division: highly developed/poor countries. For example - the number of pupils per 1 teacher in primary schools in the most developed countries does not exceed a dozen or so; the leaders are Luxembourg, Liechtenstein - 8 pupils/1 teacher. Poland - 11; in the least developed countries - several dozen pupils per 1 teacher (Central African Republic - 83) (UNDP, 2022). In terms of school access to the Internet (primary and



secondary schools), dozens of countries have 100 % access in both types of schools (including Poland). At the bottom of this ranking are countries where only a few percent of schools enjoys this access (or none at all) (UNDP, 2022).

Large-scale, international surveys of pupils' educational achievements are to some extent related with politics and can be used for a variety of purposes. Perhaps their greatest significance is reflected, or should be - in education policy. What are the strengths and weaknesses of a particular education system? How can the results/experiences of other countries be used and how can they be implemented in the education system, teacher education, etc.? The announcement, publication of reports from such studies is always quite an event in the field of education, especially when students perform well in comparison to other countries. These reports also have an important scientific, cognitive significance - on the basis of detailed databases (publicly available) - researchers carry out a much more detailed research, well beyond the results achieved by the pupils. It has also happened, and still does, that politicians use such reports for their ad hoc political purposes - attributing a significant role to themselves if the students' achievements turn out to be a success.

Some projects already involve a large number of countries and the fact that the results of these international studies are reaching an ever wider audience makes them impossible to be ignored. They are not only used for further research by various research institutions and, above all, noticed by politicians (not only those specialised in education) which, of course, still does not always translate into specific action taken by individual countries. However, there have also been situations when, after the results of the PISA 2006 and 2009 surveys showed that Kyrgyzstan's 15-year-olds ranked last in both 'reading' and in mathematics, the priorities of state education policy were re-evaluated, emphasising the importance attached to measurable, practical skills (WCCES, 2010).

The project of the greatest scale, with more than 660,000 15-year-olds from 79 countries/regions taking part in its 2018 edition - solving tasks and answering questions - is PISA. The standardised tasks are divided into three blocks ('reading', mathematics and science) with at least 500 points representing the highest level in each of them. In 2018, there were six such countries in Europe (Estonia, Finland, Poland, Ireland, the UK and Sweden, respectively). These were Europe's top performers; outside Europe, very good results were also achieved by students from Canada, Korea, Japan, Taiwan, New Zealand, the United States, Australia. However, the world record holders were the 4 provinces of the PRC (maths and science 591 and 590 points), Singapore,

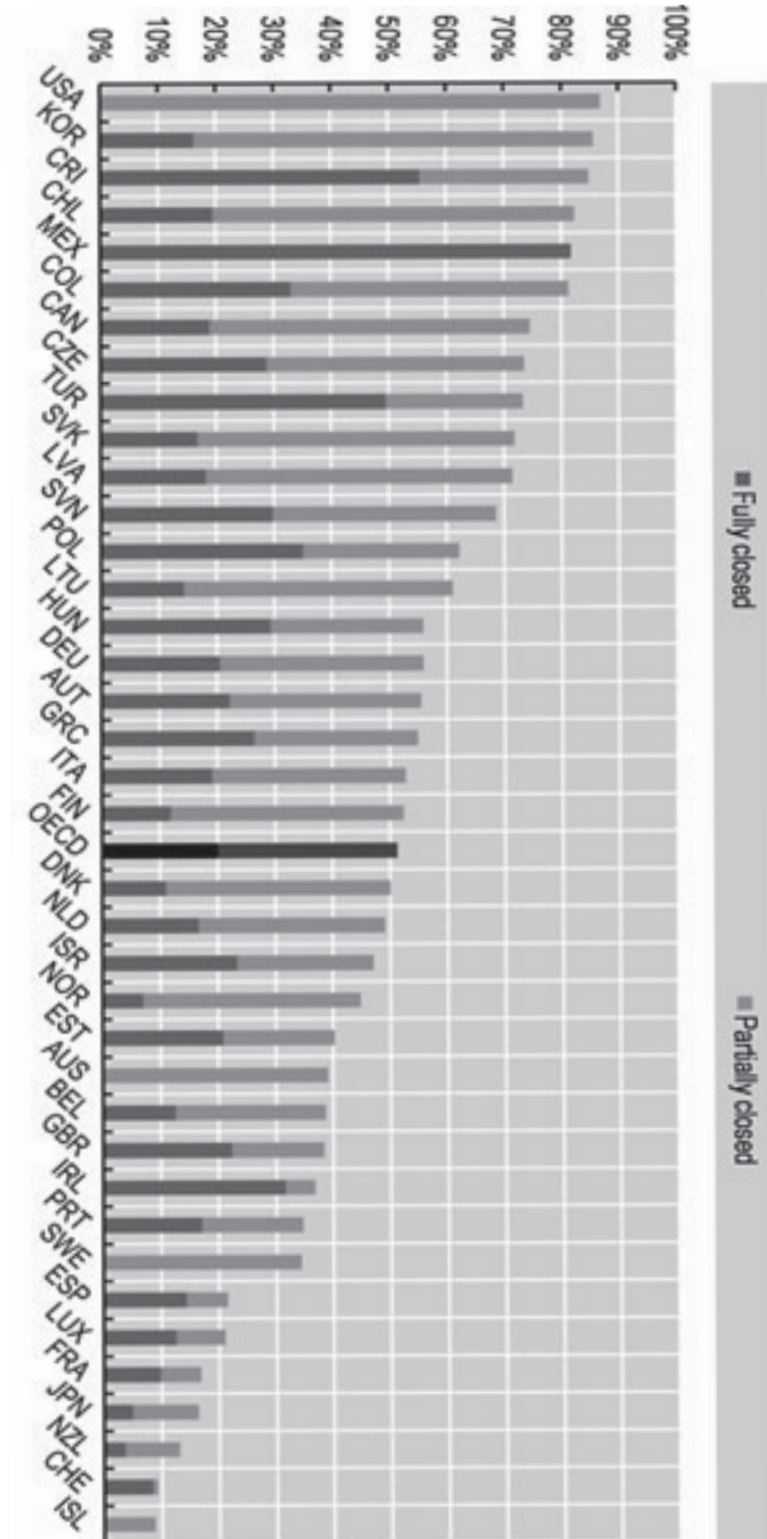
Macao, Hong Kong - so the dominance of China, and perhaps more broadly - of Southeast Asia, is apparent. There are also countries where students scored just over 400 or even below 400 (Philippines, Dominican Republic, Kosovo, Lebanon, Morocco), and it should be noted that the poorest, least developed countries - primarily from Africa - do not even participate in PISA surveys.

In 2021, the PISA survey was postponed due to COVID-19 until 2022 and included pupils from more than 90 countries (OECD, 2022 b), with a total of around 3 million pupils having already participated since the first survey in the year 2000.

### **Education and new contexts**

The world, most probably, has the peak of the **COVID-19 pandemic** behind it and approaches it with greater composure than before, but it is worth recalling some of the data and analyses related to this process - especially in the context of education. Moreover, they tend to be omitted in the pattern of their explanation from the position of economic disparities and pupil achievements. It seems that the pandemic, and the decisions that were not always justified in its aftermath (as we now know), apart from the negative effects in terms of health, economics, mental health, etc., has resulted in a certain increase in public health awareness. From a teaching point of view, it has contributed to an increase in the level of familiarity with the commonly used communication techniques or platforms, as well as with the functionalities of the devices themselves (computers, laptops, smartphones, etc.). This applies to pupils, students, teachers, lecturers and also parents. Due to the pandemic, not only teaching, but also the existing ways of conducting examinations, tests, etc., were disrupted in most countries, which made changes indispensable - first and foremost in terms of the form, but in some cases also in terms of the content, scope of the material, number of questions, etc. This applied, moreover, to the ongoing monitoring of pupils' achievements (Piwowarski, 2022).





**Figure 3.** Percentage of teaching days when educational institutions (kindergartens, primary schools, secondary schools) were fully and partially closed - excluding holiday breaks and summer vacations (March 2020 - June 2021).

According to OECD data, education policies varied widely in the face of the pandemic. On average, in 37 countries between March 2020 and June 2021, 20% of educational institutions were completely closed and 31% partially closed. In Poland during this period, 35% of institutions were completely closed and 27% partially closed. There were also countries where educational institutions were not closed completely (0% - Australia, Sweden, Iceland, USA) and those where the majority were completely closed (Mexico 82%) (OECD, 2021d). The greatest restrictions resulting in school closures occurred at the beginning of the pandemic. Overall, the higher the organisational level of the institution - the longer they were closed. On average, in the period between January 2020 and May 20th, 2021, the following were completely closed: kindergartens 55 days, primary schools 78 days, lower secondary schools 92 days and upper secondary schools 101 days (OECD, 2021d, p. 6). In the case of kindergartens, national governments have generally pursued policies in line with the fact that the preschool age is particularly important for the child's cognitive and emotional development, and for this age group providing effective ways of remote learning, remote play, etc. proves extremely difficult thus requiring the participation of parents/guardians. For these reasons, kindergartens were closed for a shorter period than schools, and 5 countries did not close them at all (January 2020 - 20th May 2021: Austria, Latvia, Estonia, Finland, Sweden). During the same period, Polish kindergartens were closed for 50 days, primary schools for 96 days, and secondary schools for over 190 days (this was one of the highest rates among the 30 countries surveyed - this type of school was closed longer only in Mexico). In most countries, the situation returned to 'normal' in 2022. Only the Netherlands (in all levels of education), Latvia (in secondary education) and Poland (in general secondary education) decided to close their schools completely for at least five days during the 2021/2022 school year (OECD, 2022). The pandemic has particularly negatively affected vocational education, where a significant part of learning consists of practical activities, often difficult or impossible to replace with *online* transmissions (OECD, 2021c).

An analysis of COVID-19 infection rates across countries shows they were not related to the number of days in which schools were completely closed, and that the number of days significantly varied among countries with similar infection rates (however, these differences may also be due to different amounts of tests done). Performance on the PISA 2018 reading and reading comprehension test was also found to explain 61% ( $R^2 = 0.6104$ ) of the variation in the number of days on which secondary schools were completely closed in 2020. (OECD, 2021d, p. 21). It is evident that in countries with

the longest school *lockdowns* (approximately 150-180 days - Brazil, Mexico, Colombia, Costa Rica), student achievements were the lowest among the 30 compared countries. In the group of countries whose 15-year-olds scored above 500 in the PISA test (including Estonia, Finland, Ireland, Korea, Poland - approximately 510-520 points), schools were closed for an average of several dozen days. Poland's position is slightly different in this respect: the aforementioned good PISA score is 511-516 points, and secondary schools in 2020 were closed for significantly longer (110 days). Naturally, different circumstances and different policy motivations in each country may have contributed to such a varied situation. However, where worse results were recorded - direct teaching was lost due to *lockdown* to a much greater extent than in countries with better educational results. Presumably also, in the 4 countries of the Americas mentioned previously - the provision of adequate conditions counteracting the effects of COVID-19 was more difficult than in the other countries surveyed and the school infrastructure, teachers were not fully prepared for hybrid teaching. This is partly confirmed by data regarding computer ownership and Internet access in the pupils' homes - in Colombia and Mexico, 50-55% of pupils had access to such amenities (in most countries studied, including Poland, the rate was 90-95%) (OECD, 2021d, p. 144). It is possible that the epidemic not only caused educational inequalities between countries, but also widened these gaps. The World Bank estimates indicate that the disruption in learning caused by the pandemic may have led to a 25% increase in the proportion of pupils scoring below Level 2 on the PISA test (Level 1 and 2 are defined as the worst performance, among 6 levels of achievement) (OECD, 2021b; Piwowarski, 2022).

Also presented are the results of the 2021 study on how respondents felt about loneliness-related several risk factors during the pandemic: financial hardship, unemployment and education level, among others. The data shows that higher education contributes to people feeling less lonely, especially in conditions of at least partial isolation. People with higher education were also significantly less affected by financial hardship and unemployment (OECD, 2021a, b).

**Inclusive education** (*inclusive teaching*) has an important place in pedagogical theory and practice, and its increasing role can be especially seen in recent years, as evidenced by publications, reports, or webinars (e.g.: UNESCO, 2020; UNESCO, 2022). The basis for inclusive education is to ensure that all teachers are prepared to teach all students (UNESCO, 2020, p. 137). This simple but not always easy principle is implemented in various ways - primarily due to the fact that teachers are not equally prepared for

such teaching. Standards, qualifications vary according to the national context, while a common problem in many countries is the gap between school systems and the identification of difficulties faced by learners. This primarily concerns barriers in access to teaching, participation in education and finding solutions to overcome such difficulties (ibid.). The practice of teaching shows that it often deviates from the declared postulates, principles. This is evidenced by the data of the quoted UNESCO report (citing OECD, 2019 sources): among the 43 countries surveyed (excluding Poland), many teachers failed to meet the challenge of diversity. In Norway, Finland, Slovenia, Korea and Japan, less than 50% of teachers indicated that they had adapted their teaching to the cultural diversity of their pupils (in Japan only 20 % - perhaps there is no need there), while in Portugal, Colombia and the United Arab Emirates, the rate exceeded 90% of teachers. (UNESCO, 2020, p. 140). It should also be added that very few countries run introductory courses for teachers (before they start work) on inclusive education. In Poland, inclusive education faces far fewer difficulties (still) than in racially, religiously and culturally diverse countries. However, many educational institutions have faced the challenge of the influx of children from Ukraine coming to Poland - generally with positive results.

Finally, the issue of the **structure of education** (especially at tertiary level) is becoming a global one and, similarly to inclusive education, is gaining increasingly more relevance. From the perspective of economic development, in the light of numerous data - the conviction shared by many governments, important organisations, economic associations (often international ones) that too little of young people (above the age of 16) choose studies and professions related to the so-called *STEM* conceptual block (*Science, Technology, Engineering, Mathematics*) is correct (Archer, 2015). Recruitment to certain fields of study in Poland in recent years, as well as expert opinions, show that the issue also concerns Poland. In recent years in Poland, students representing such groups of fields of study (according to ISCED'97 classification) as physical sciences, mathematics and statistics, biology, environmental protection constituted in total less than 6%; those from engineering faculties accounted for 8 - 9% of the total number of students. Students of pedagogical faculties, arts, humanities, social sciences, economics and administration, law and a few others (which cannot be included in STEM) - constituted about 60% of the total number of Polish students; the structure of graduates completing their studies is similar (calculations of the author based on: CSO, 2015, p. 32). However, the situation in Poland in

this respect is gradually improving, although the over-feminisation of some fields of study remains a problem.

Despite the fact that since 1970 congresses on **comparative pedagogy** have been organised by the WCCES (World Council for Comparative Education Societies), which bring together thousands of participants every three years - the results of these meetings have little comparative value and the only similarity with the data constructing, for example, the HDI index are the slogans of the individual congresses, which also refer to problems, educational fashions and oftentimes politics.

## **Conclusion**

Socio-cultural, economic circumstances often explain a country's position as measured by the educational achievements of its pupils, or other educational indicators (such as the duration of received and projected education in the HDI indicator). Less often, the educational situation explains to some extent a country's position in terms of the wealth/poverty of its population, but can positively influence a country's level of human development. This is the case, for example, of Poland - our position is adversely affected by income per capita, but we are 'pulled' upwards by good educational indicators. Poland's position in terms of the described measurement of social development would also be higher if men in our country lived longer.

In terms of pupils' educational achievements, a certain dominance of Southeast Asian countries/metropolises can be observed, which is probably determined not only by the curricula, education and social position of the teachers, but above all by the characteristics of people from the Far East (attitude to work, discipline, cultural tradition and probably other factors). This dominance is clearly visible by comparing the results of educational programmes such as PISA and TIMS-M. Certainly, there are also countries whose 'educational' and 'material and social' position and their correlation - and especially lack thereof - is difficult to explain, as it is influenced by other, poorly measurable (or unmeasured) indicators.

However, it is undoubtedly noticeable that there exists a civilisational gap, clear differences between the countries of the rich 'North' and the poor 'South', where social development, student achievements are positively correlated. The exception may be some Arab/muslim countries, where material wealth (oil) does not always go hand in hand with the performance and characteristics of students, education systems, which is probably in many cases conditioned by cultural or religious factors.



## References:

- Archer, L., Dawson, E., DeWitt, J., Seakins, A., Wong, B. (2015). Science Capital”: A Conceptual, Methodological, and Empirical Argument for Extending Bourdieusian Notions of Capital Beyond the Arts. *Journal of Research in Science Teaching*, 52(7), 922-948.
- OECD (2019a). *PISA 2018 Results (Volume I): What Students Know and Can Do*. Downloaded from: <https://www.oecd.org/pisa/publications/pisa-2018-results.htm> (accessed: 02.2023).
- OECD (2019b). *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. Paris: TALIS, OECD Publishing. Downloaded from : <https://doi.org/10.1787/1d0bc92a-en>. (accessed: 02.2023).
- OECD (2021a). *COVID-19 and Well-being: Life in the Pandemic*. OECD Publishing, Paris. Downloaded from: <https://doi.org/10.1787/1e1ecb53-en> (accessed: 02.2023).
- OECD (2021b). *COVID-19 and Well-being: Life in the Pandemic, (Highlights)*. Paris, November 2021: OECD, WISE Centre. Downloaded from: [https://www.oecd-ilibrary.org/sites/1e1ecb53en/1/2/2/index.html?itemId=/content/publication/1e1ecb53en&csp\\_=c628cf9bcf7362d2dc28c912508045f6&itemIGO=oecd&item-ContentType=book#section-d1e205https://www.oecd.org/wise/COVID-19-and-Well-being-Highlights.pdf](https://www.oecd-ilibrary.org/sites/1e1ecb53en/1/2/2/index.html?itemId=/content/publication/1e1ecb53en&csp_=c628cf9bcf7362d2dc28c912508045f6&itemIGO=oecd&item-ContentType=book#section-d1e205https://www.oecd.org/wise/COVID-19-and-Well-being-Highlights.pdf) (accessed: 02.2023).
- OECD (2021c). *Implications of the COVID - 19 pandemic for Vocational Education and Training*. Downloaded from: <https://doi.org/10.1787/55afeaoo-en> (accessed: 02.2023).
- OECD (2021d). *The State of Global Education: 18 Months into Pandemic*. Downloaded from: [https://read.oecd-ilibrary.org/education/the-state-of-global-education\\_1a23bb23-en#page1](https://read.oecd-ilibrary.org/education/the-state-of-global-education_1a23bb23-en#page1) (accessed: 02.2023).
- OECD (2022a). *Education at a Glance*. Downloaded from: <https://www.oecd.org/education/education-at-a-glance/> (accessed: 02.2023).
- OECD (2022b). *PISA 2022*. Downloaded from: <https://www.oecd.org/pisa/> (accessed: 02.2023).
- Piwowski, R. (2022). Życie, praca i edukacja w czasie pandemii (selected issues from an international perspective). (text in english) *Lubelski Rocznik Pedagogiczny*, 2, 7-23. DOI: <http://dx.doi.org/10.17951/lrp.2022.41.2.7-23>.
- UNDP (2009). *Human Development Report 2009*. Downloaded from: <https://hdr.undp.org/system/files/documents/human-development-report-2009-english.human-development-report-2009-english> (accessed: 02.2023).



- UNDP (2022). *Human Development Report 2021-22. Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World*. Downloaded from: <https://hdr.undp.org/content/human-development-report-2021-22> (accessed: 02.2023).
- UNESCO (2008). *Student achievement in Latin America and the Caribbean: results of the Second Regional Comparative and Explanatory Study (SERCE)*. Downloaded from: [Unesdoc.unesco.org/ark:/48223/pf0000161045](https://unesdoc.unesco.org/ark:/48223/pf0000161045) (accessed : 02.2023).
- UNESCO (2020). *Global Education Monitoring Report 2020: Inclusion and education: All means all*. Paris. Downloaded from: <https://gem-report-2020.unesco.org/> (accessed: 02.2023).
- UNESCO (2022). *Creating an inclusive school climate for refugee studies – OECD Education and skills webinar series*, Paris: 20 June 2022. Downloaded from: <https://oecd-edutoday.com/oecd-education-webinars/> (accessed: 02.2023).
- WCCES (World Council of Comparative Education Societies). Downloaded from: <https://wcces-online.org> (accessed: 02.2023).
- WCCES (2010). *XIV World Congress of Comparative Education Societies*, Istanbul 14-16.06.2010 (materials of the author from the congress).