



Evaluating State Performance In Fulfilling The Right To Education: a Comparative Analysis Of Unesco Sdg 4 Indicators Within a Human Rights Framework

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Abstract

This study assesses state performance in fulfilling the right to education through a comparative analysis of UNESCO Sustainable Development Goal 4 (SDG 4) indicators. Using cross-national data, the research examines key dimensions of education systems, including access, progression, learning outcomes, and equity. The findings indicate that while significant global progress has been achieved in areas such as primary completion and youth literacy, substantial disparities persist across countries, particularly in lower secondary completion, early childhood education, and out-of-school rates. The analysis further reveals strong relationships among education indicators, suggesting that performance patterns are systemic rather than isolated. Although SDG 4 indicators provide a robust empirical framework for evaluating education outcomes, they primarily capture outcome-based dimensions and do not directly reflect legal and institutional aspects of the right to education. The study concludes that a comprehensive assessment of state performance requires the integration of quantitative indicators with broader policy and governance perspectives to better understand the fulfillment of education as a fundamental human right.

Keywords: Right to Education, SDG 4, State Performance, Comparative Education, UNESCO Indicators

Introduction

It is a universal fact that the right to education is a key human right, and a pillar of sustainable development, and in this context, Sustainable Development Goal 4 (SDG 4) aims at providing inclusive and equitable quality education to all people (Soomro et al., 2025). Over the past few decades, the discourse of global policies has been more focused on the necessity to reconcile normative human rights promises with quantifiable results, thus connecting legal duties with empirical measurements of educational access, equity, and quality (Bantekas, 2023). The international bodies like UNESCO, the World Bank, and the OECD have been at the forefront in influencing the governance of education in different countries in the world through the creation of standardized models and monitoring systems that allow evaluation of the performance of different states in various national settings (Souza, 2024).

Comparative and international studies have now become a necessity in the interpretation and application of their promises to education in diverse institutional, legal, and socio-economic contexts (Tatto, 2021). The development of the global education indices and performance-based measurement tools has enabled the systematic cross-national comparison and, therefore, helped scholars to assess the differences and progress in meeting SDG 4 targets (Clark et al., 2023). Nonetheless, there are still critical arguments of whether SDG 4 is a true human rights-based solution or whether it is becoming more and more biased towards human capital concerns, which pose significant questions of how the state should be held accountable, as well as how education should be conceptualized as successful (Pellanda, 2024).

To track the progress on SDG 4, it is necessary to have a complex system of indicators that can reflect various aspects of education, such as access, participation, completion, and learning outcomes (Benavot and Williams, 2023). The development of quantitative methods has allowed the use of more complex forms of analysis of these indicators, such as clustering methods and computational models that demonstrate trends in educational outcomes among countries (Oliveira-Melo et al., 2026). Moreover, analytical methods have been used to study the correlation between SDG 4 indicators, which offer more in-depth information on the dynamics of the structure of education systems and policy outcomes (Saini et al., 2023).

The manner in which education is governed and implemented is very dissimilar in different regions, which depends on institutional structures, regulatory systems as well as socio-economic statuses (Ştefanachi & Grecu, 2025). The comparative studies of strategic approaches to international education, such as UNESCO and European Union approaches to international education, reveal both similarities and differences in priorities and strategies of attaining the educational goals (Kravvaris, 2024). On the national level, research shows how global priorities like SDG 4 are localised and incorporated into national education systems, based on local policy contexts and reform agendas (Farokhinia et al., 2022).

Global governance goes beyond policy making to monitoring, assessment and capacity building procedures that determines the results of national education (Salazar et al., 2025). Regional monitoring reports present empirical data on the progress and the ongoing issues in fulfilling SDG 4 goals, especially in areas where the disparities in access and quality are still high (UNICEF, 2022). Moreover, the creation of monitoring and evaluation systems on the national level has been listed among the most important mechanisms to enhance accountability and increase the performance of the education system (Gichuhi et al., 2022).

Attempts to operationalize SDG 4 indicators have been oriented on particular dimensions like education in sustainable development, where the intricacy of gauging policy execution and learning results in a variety of contexts is highlighted (Holst et al., 2024). Empirical studies that explore the connection between the investment in education and its results, especially in low- and middle-income nations, emphasize the importance of finances and structures in determining educational performance (Abbasi, 2025). Expansive comparative studies of education systems and methods in child development add to the knowledge of the impact of various policy and pedagogical systems on the learning outcomes provided throughout the world (Parvin, 2025).

Classical contributions to education evaluation systems have laid the groundwork to evaluate education systems through a standardized measure and a comparative method (Msezane, 2020). The creation of indicator systems by UNESCO also enhances the application of structured datasets in measuring SDG 4 indicator targets achievement and learning about cross-national differences in education achievement (Sung, 2024). Together, these views offer a multi-dimensional basis of the analysis of the performance of the states in meeting the right to education by conducting a comparative analysis based on UNESCO SDG 4 indicators.

- To assess state performance in fulfilling the right to education using UNESCO SDG 4 indicators
- To conduct a comparative analysis of cross-national variations in education outcomes and policy implementation
- To examine the relationship between education indicators and broader governance and policy frameworks influencing educational performance

Methodology

Research Design

This paper is a quantitative, comparative research to assess the performance of the states in meeting the right to education based on UNESCO SDG 4 indicators. The study is based on the analytical framework of cross-national, which will allow the systematic comparison of outcomes of education in countries. The research aims to combine normative frameworks with quantifiable performance indicators by incorporating a human rights approach with an empirical analysis of indicators. The design is both descriptive and analytical oriented and aims at determining patterns, disparities, and trends in global education performance.

Data Source

The research is based on published secondary data, the UNESCO Sustainable Development Goal (SDG) 4 database, which offers internationally comparable education indicators (Pham, 2025). The dataset provides country-based data on the important dimensions like access to education, participation rates, completion levels, literacy, and equity indicators. These indicators are consistent with the global SDG 4 monitoring framework, and they are common in determining the progress toward inclusive and equitable quality education.

This dataset has time-series data in various countries and can be cross-sectional and longitudinal. Variables are standardized, which allows their use in the global comparative research, as they can be compared across the contexts of various countries.

Variable Selection

The research concentrates on the chosen SDG 4 indicators indicating the fundamental dimensions of the right to education. These indicators cover such key areas as access and participation, including enrollment rates; progression and completion, including primary and secondary completion rates; learning outcomes, including literacy levels; and equity and inclusion, including gender parity indices. These variables are collectively taken as proxies of state performance, which implies how well the countries can meet their commitments related to education. These indicators are selected based on their relevance to the normative aspects of the right to education, i.e. availability, accessibility, acceptability and adaptability, which ensures that the analysis is focused on both empirical measurement and human rights principles.

Data Analysis Techniques

The combination of descriptive and comparative statistical methods is used in the analysis. In the first step, descriptive statistics are used to generalize on the important trends and distributions among countries. This involves values like standard deviations, mean values and the trends of performance over time to capture the overall performance patterns. A comparative analysis is then done to determine the differences in performance between countries and regions. The level of performance is used to group the countries to make meaningful comparisons. In cases where needed, countries are grouped using clustering methods to form specific performance groups using various indicators. Moreover, correlational analysis is used to investigate the associations between the chosen SDG 4 indicators that can shed light on the interaction between various aspects of education performance. This can be used to learn more about the structural dynamics of education systems, and the major sources of performance variation.

Analytical Framework

A performance assessment framework based on indicators, in which SDG 4 indicators are considered measurable proxies that assess the right to education satisfaction, guides the research. Although the right to education is more of a normative and legal concept, this paper operationalizes this concept using the observable education outcomes. This would allow the abstract rights to be converted into

measurable state performance. The framework focuses on the evaluation of outcomes, and the emphasis is not on the legal commitments and declarations of the policies but on what states accomplish. Nevertheless, the results interpretation is placed in a wider context of governance and policies, taking into account that the results of the educational process are dependent on institutional, economic, and social aspects.

Results and Analysis

Access and Participation

The pre-primary net enrolment rates analysis shows that the countries have a high variation. The average enrolment rate is 58.22, with the median rate of 65.18, indicating that many of the countries are doing better than the world average. The interquartile range lies between 30.68% and 84.94 indicating a broad distribution of the level of participation. The lowest figure is 1.32% and the highest is 99.73 meaning that there are rather substantial differences between nations. These data indicate that there is indeed a difference in the levels of participation in early childhood education between national systems, with certain countries nearing the universal access and others being relatively low.

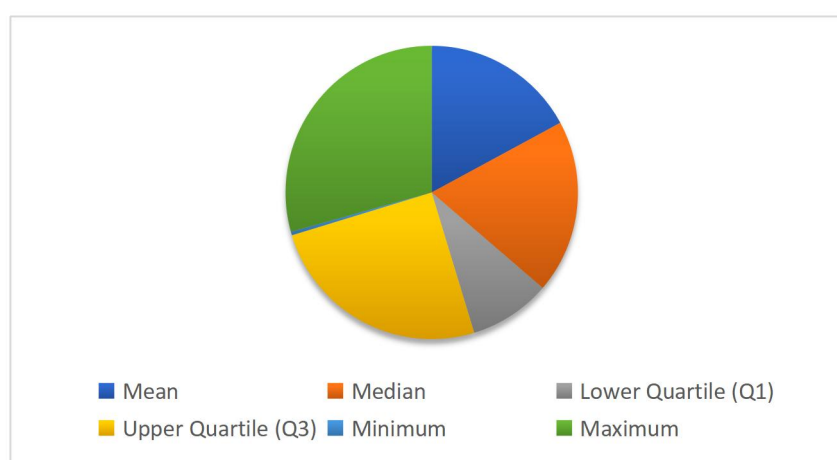


Figure 1. Distribution of Pre-Primary Net Enrolment Rates Across Countries

Progression and Completion

Primary completion rates demonstrate quite high values in comparison with other indicators. The average completion rate is 85.36, the median is 96.55. The lowest quartile is 74.83, the lowest value is 24.64 and the highest is 100. A total of 62.26% of countries report primary completion rates of at least 90%. The rate of completion is lower in lower secondary. The mean is 73.96%, and the median is 86.97%. The 50.50% lower quartile has a minimum of 12.31 and the maximum of 100. At this level, only 45.34% of the countries have 90% or higher completion rates.

Table 1. Progression Indicators: Primary and Lower Secondary Completion Rates

Indicator	Mean (%)	Median (%)	Lower Quartile (%)	Upper Quartile (%)	Minimum (%)	Maximum (%)	Benchmark Achievement
Primary Completion Rate	85.36	96.55	74.83	—	24.64	100.00	62.26% ≥ 90%
Lower Secondary Completion Rate	73.96	86.97	50.50	—	12.31	100.00	45.34% ≥ 90%

Learning Outcomes

The levels of youth literacy are relatively high in the countries. The mean literacy rate is 91.90%, and the median is 98.05%. The range of the interquartile is between 85.38% and 99.34%. The lowest value is 37.00% and the highest is 100. The literacy rate is at least 95% in about 64.77% of the countries.

Table 2. Learning Outcomes: Youth Literacy Rate Distribution

Indicator	Mean (%)	Median (%)	Lower Quartile (%)	Upper Quartile (%)	Minimum (%)	Maximum (%)	Benchmark Achievement
Youth Literacy Rate	91.90	98.05	85.38	99.34	37.00	100.00	64.77% ≥ 95%

Table 3. Learning Outcomes Summary Statistics

Measure	Value (%)
Mean	91.90
Median	98.05
Lower Quartile	85.38
Upper Quartile	99.34
Minimum	37.00
Maximum	100.00
Countries ≥ 95%	64.77%

Equity and Inclusion

The adjusted gender parity index of primary completion has a mean and median of approximately 1.01 indicating that on average, gender parity in the completion rates between men and women has been met in most countries. Value lies between 0.58 and 1.50 with interquartile range between 0.97-1.04 indicating that the majority of countries tend to be around parity, a few are lower and few are higher in the distribution. In the completion of lower secondary, the gender parity index has a means of 0.99 and a median of 1.01 and indicates a more or less equal distribution across the board. The values are between 0.44 and 1.39 with interquartile range of 0.93 to 1.05 showing slightly wider distribution as compared to primary completion. Although the central tendency is not too far off parity, the wider range illustrates more variation between countries at the lower secondary level.



Figure 2. Distribution of Gender Parity Index for Primary and Lower Secondary Completion Across Countries

Out-of-School Rates

The average value of the out-of-school rate of children, adolescents, and youth is 15.18% with a median value of 9.05, which means that the values of the out-of-school rate are relatively low in most countries, but some countries have higher rates, which contribute to the overall average. The interquartile range is between 4.05 percent and 21.23 with moderate variation among the countries. The lowest value is 0.00%, and the highest is 83.78, with a high level of dissimilarity. Moreover, 55.22% of countries indicate out-of-school rates of 10% or less, indicating that over half of the countries have comparatively low levels of exclusion.

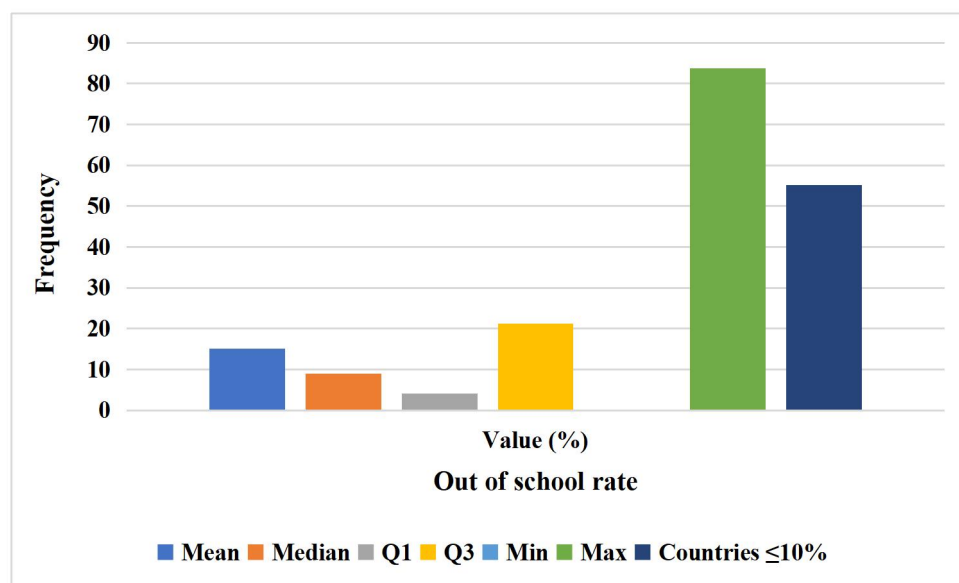


Figure 3. Distribution of Out-of-School Rates Among Children, Adolescents, and Youth Across Countries

Correlation Analysis

There is a strong positive relationship between the levels of progression at various levels of education as the correlation between the primary and lower secondary completion rates is 0.94. Youth literacy also has positive relationship with primary completion (0.85) and lower secondary completion (0.77). Primary completion (-0.79), lower secondary completion (-0.76) and youth literacy (-0.72) are found to have negative relationships with the out-of-school rate, hence the inverse relationship. There are moderate positive relationships between pre-primary enrolment and primary completion (0.63) and lower secondary completion (0.69), and a negative relationship with out-of-school rates (-0.67).

Table 4. Correlation Matrix of Key Education Indicators

Indicators	Primary Completion	Lower Secondary Completion	Youth Literacy	Out-of-School Rate	Pre-Primary Enrolment
Primary Completion	1.00	0.94	0.85	-0.79	0.63
Lower Secondary Completion	0.94	1.00	0.77	-0.76	0.69
Youth Literacy	0.85	0.77	1.00	-0.72	—
Out-of-School Rate	-0.79	-0.76	-0.72	1.00	-0.67
Pre-Primary Enrolment	0.63	0.69	—	-0.67	1.00

Discussion

The results indicate the relevance of SDG 4 indicators as a systematic guide to the measurement of state performance in the education systems, especially regarding quantifiable results, like enrolment, completion, and literacy. Standardized global indicators would allow making a systematic comparison among countries and can thus be used to evaluate the education systems on a large scale in a consistent manner (Clark et al., 2023). Nevertheless, a dependency on the use of indicators to measure also prompts significant questions about the degree to which the indicators comprehensively reflect the larger normative aspects of the right to education.

The differences in the completion rates and out-of-school populations observed lead to the importance of the governance structures and the realisation of policies in the determination of the outcomes of education. The existence of differences between countries does not only indicate disparities in the allocation of resources but also differences in institutional capacity and effectiveness of the regulations that determine the delivery of education services (Ştefanachi and Grecu, 2025). This implies that the differences in performance are institutionalized in the wider governance and policy contexts and not necessarily restricted to the education sector.

The correlation of the indicators of education is also a manifestation of systemic trends of national education systems. The close correlation between the completion rate and the literacy outcomes suggests that the extended engagement in education is closely related to the learning achievement. This is in line with the past studies that highlight the need to have integrated education systems in realizing the need to have consistent and long-term results in various aspects of education (Oliveira-Melo et al., 2026).

Simultaneously, the fact that the variation in gender parity indices still continues to be different in different countries shows that equity is indeed a context-related issue. Even though aggregate values indicate a direction towards parity, country-specific disparities indicate that there is no even inclusion. This emphasizes the need to implement policy interventions to reduce structural inequalities in education systems, as opposed to using aggregate performance indicators alone (Saini et al., 2023).

The results also support the influence of international observation systems on the education priorities of countries. International reporting systems and assessments based on indicators help to align and standardize policies between countries, but can also affect the definition and priority of educational success (Benavot & Williams, 2023). This brings about a dynamic where national reforms are guided by global standards but at the same time, influence the analysis of performance results.

Last but not least, the findings point to the ongoing conflict between outcome-based measurement and the human rights approach to education as a whole. Though SDG 4 indicators offer an empirical solid ground to gauge the progress, they lack direct insight to legal requirements, enforcement strategies, and institutional responsibility (Zancajo et al., 2021). Consequently, state performance measurement using indicators ought to be considered as a partial picture of the right to education that needs to be accompanied by legal and policy analysis to give a more complete picture (Pellanda, 2024).

Conclusion

In this paper, the indicators of UNESCO SDG 4 were compared to analyze the state performance in meeting the right to education. Through internationally standardized data, the research was an effort to offer a systematic assessment of the major dimensions of education systems, such as access, progression, learning outcomes, and equity. The results show that although great strides have been achieved across the world especially in primary completion and youth literacy, there are still massive gaps that exist both among nations and among various educational stages. This analysis shows that there is an uneven and multidimensional performance between the states. Countries have reached rather high percentages in the completion of primary education, but lower secondary education completion is relatively lower, which indicates the inability to continue the educational process. In the same vein, even though literacy outcomes are good in most countries, there are still discrepancies in terms of the realization of learning outcomes in all circumstances. The difference in pre-primary enrolment and out-of-school rates also indicates the persistent disparity in access and participation to education systems, specifically, at the early and transitional levels. The research also highlights the need to look at the right to education in empirical way that captures quantifiable results. Indicators of UNESCO SDG 4 offer a solid framework of performance measurement of countries in comparison with each other and allowing to identify systemic trends. The high correlations seen between indicators of completion rates, literacy and out-of-school populations indicate that education systems are clustered in their performance, whereby the strong and weak areas are linked and not isolated. Simultaneously, the results demonstrate intrinsic shortcomings of assessing solely based on indicators. Although the SDG 4 indicators are applicable in measuring outcomes, they fail to directly address the legal, institutional and the policy means by which states fulfill their mandates. Consequently, the measurement of state performance on the basis of such indicators is the outcome-based approach that needs to be supplemented with the wider legal and governance review so as to gain a complete picture of the achievement of the right to education. Policy-wise, the paper highlights the importance of more integrated approach to education reform, which does not only cover the access but also retention, the quality of learning, and the inclusion. The need to strengthen early childhood education, enhance the rate of transition between educational levels, and decrease the number of out-of-school populations continue to be important priorities towards more equitable and comprehensive education systems. Moreover, gender disparities and other types of inequality need special interventions which are sensitive to national and regional contexts. To sum it up, the paper proves that UNESCO SDG 4 indicators can be used as a useful empirical instrument to gauge the performance of a state concerning the right to education

and provide significant information about the global development and the existing challenges. Nevertheless, the realization of the right to education in its entirety needs to be a long-term process that involves data-based analysis along with legal obligations, policy changes, and institutional responsibility. Future studies can enhance this method through the integration of the indicator approach with legal and qualitative theory to offer a better insight into how states meet their educational demands under various situations.

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