



WHO MEASURES DISTANCE EDUCATION? A COMPARATIVE ANALYSIS OF INTERNATIONAL EDUCATIONAL DATA PLATFORMS

QUEM MEDE A EDUCAÇÃO A DISTÂNCIA? UMA ANÁLISE COMPARATIVA DE PLATAFORMAS INTERNACIONAIS DE DADOS EDUCACIONAIS

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ABSTRACT

The growing importance of online, blended, and distance education has heightened the need for reliable and accessible data to support research, policymaking, and institutional decision-making. Despite the expansion of these educational modalities, few organizations systematically collect and disseminate indicators specifically focused on distance education. This study compares seven educational data initiatives and platforms operating at national, regional, and international levels: the UNESCO Institute for Statistics (UIS); the Organization for Economic Co-operation and Development (OECD); Statistical Office of the European Union (Eurostat); the Ibero-American Network of Higher Education Indicators (Red INDICES); the National Student Clearinghouse Research Center (NSCRC); the National Center for Education Statistics (NCES) / Integrated Postsecondary Education Data System (IPEDS); and Distance Learning in Data (ABED). Using a document-based benchmarking

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methodology, the study compares the platforms according to their institutional profile, data content, technical quality, and strategic value for the analysis of distance education. The results show that although all platforms provide valuable educational indicators, explicit data on distance education remain limited in most platforms. Most systems focus on general and higher education indicators, while some also include information related to digital skills and labor-market outcomes. The findings reveal a paradox: distance education has become a central component of higher education worldwide, yet remains only partially visible in most educational data systems. The study highlights the complementary roles of general statistical agencies and specialized observatories and discusses the strategic importance of dedicated platforms for improving visibility, comparability, and governance of distance education.

Keywords: benchmarking; distance education; educational data ecosystems; educational data platforms; educational indicators; higher education.

RESUMO

A crescente importância da educação online, híbrida e a distância tem ampliado a necessidade de dados confiáveis e acessíveis para apoiar a pesquisa, a formulação de políticas públicas e a tomada de decisão institucional. Apesar da expansão dessas modalidades educacionais, poucas organizações coletam e disseminam sistematicamente indicadores voltados especificamente à educação a distância. Este estudo compara sete iniciativas de dados educacionais que operam em níveis nacional, regional e global: o Instituto de Estatística da UNESCO (UIS); a Organização para a Cooperação e Desenvolvimento Econômico (OCDE); o Serviço Estatístico da União Europeia (Eurostat); a Rede Ibero-Americana de Indicadores de Educação Superior (Red INDICES); o Centro de Pesquisa do National Student Clearinghouse (NSCRC); o Centro Nacional de Estatísticas da Educação (NCES) / Sistema Integrado de Dados da Educação Pós-Secundária (IPEDS); e o Projeto EaD em Dados (ABED). Utilizando uma metodologia de benchmarking baseada em análise documental, o estudo compara essas iniciativas de acordo com seu perfil institucional, conteúdo dos dados, qualidade técnica e valor estratégico para a análise da educação a distância. Os resultados mostram que, embora todas as iniciativas forneçam indicadores educacionais relevantes, os dados explícitos sobre educação a distância permanecem limitados na maioria delas. A maior parte dos sistemas concentra-se em indicadores gerais e de educação superior, enquanto alguns também incluem informações sobre competências digitais e resultados no mercado de trabalho. Os achados revelam um paradoxo: a educação a distância tornou-se um componente central da educação superior em todo o mundo, mas permanece apenas parcialmente visível na maioria dos sistemas de dados educacionais. O estudo destaca os papéis complementares dos sistemas estatísticos gerais e dos observatórios especializados e discute a importância estratégica de iniciativas dedicadas ao aumento da visibilidade, da comparabilidade e da governança da educação a distância.

Palavras-chave: benchmarking; educação a distância; ecossistemas de dados educacionais; plataformas de dados educacionais; indicadores educacionais; educação superior.





1. INTRODUCTION

Distance education (DE), online learning, and, more recently, digital and blended education have become central components of higher education systems worldwide. Advances in information and communication technologies, expanded internet access, and growing demand for flexible learning opportunities have transformed the scale and reach of educational provision (Bozkurt et al., 2020; Zawacki-Richter & Anderson, 2014). In many countries, these modalities now account for a substantial share of enrollments and play a strategic role in expanding access, promoting lifelong learning, and serving geographically dispersed and non-traditional student populations.

These trends are reflected in many national contexts. In Brazil, for example, distance education has experienced particularly rapid growth over the past two decades. Data from the Brazilian Higher Education Census (INEP, 2025) and the Censo EAD.BR (ABED, 2025) indicate that enrollments in distance education have increased consistently, surpassing face-to-face enrollments and becoming a major driver of higher education expansion. Similar trends can be observed in other countries, where online and blended learning have become permanent features of educational systems rather than temporary alternatives.

The growing relevance of distance education has heightened the need for reliable, accessible data to support decision-making by governments, higher education institutions, researchers, investors, and society at large. Educational data are essential for monitoring access, equity, quality, costs, student trajectories, labor-market outcomes, and the broader social and economic impacts of educational systems (OECD, 2024; UNESCO, 2024). The increasing emphasis on evidence-based policymaking has underscored the importance of statistical systems that transform raw data into meaningful, actionable information.

Several organizations produce educational indicators at global, regional, and national levels. International organizations such as the UNESCO Institute for Statistics (UIS), the Organization for Economic Co-operation and Development (OECD), and Eurostat, the statistical office of the European Union, provide extensive databases and comparative





indicators. Regional initiatives such as Red INDICES compile harmonized indicators for Ibero-American higher education systems. National agencies, such as the United States' National Center for Education Statistics (NCES), provide highly detailed institutional data. Together, these international agencies, regional initiatives, national statistical systems, and specialized observatories form a complex ecosystem of educational data platforms.

Despite the availability of rich educational datasets, few organizations systematically collect and disseminate indicators specifically focused on distance education. In many statistical systems, distance education appears only indirectly, embedded within broader higher education indicators or digital skills datasets. Even though online learning has become a major component of higher education, its statistical visibility remains limited.

This situation reveals an important paradox. Distance education has become one of the most significant transformations in contemporary higher education, yet it remains underrepresented in many of the official statistical systems used to monitor educational development. As a result, policymakers and researchers often lack comprehensive and comparable data to evaluate the expansion, quality, and outcomes of online and distance education.

The objective of this study is to compare major national and international educational data initiatives and platforms and assess the extent to which they provide information relevant to the analysis of distance education. Specifically, the study seeks to: (a) identify organizations that compile and disseminate educational data; (b) analyze the types of indicators they provide; (c) evaluate their technical and methodological characteristics; (d) determine the availability of explicit or implicit data on distance education; and (e) identify lessons for the development of specialized data platforms dedicated to online and distance education.

By mapping and comparing these systems, this article contributes to the literature on educational indicators and data ecosystems in higher education. It also highlights the strategic importance of specialized observatories that can make distance education more visible, measurable, and comparable across contexts.



The remainder of the article is organized as follows. Section 2 presents the theoretical background on educational indicators, educational data ecosystems, and the statistical visibility of distance education. Section 3 briefly reviews the literature on educational data platforms and distance education indicators. Section 4 describes the methodology used to select and analyze the organizations included in the study. Section 5 presents the results of the comparative analysis. Section 6 discusses the main findings and their implications. Finally, Section 7 concludes the article by summarizing the contributions, limitations, and directions for future research.

2. THEORETICAL BACKGROUND

2.1 Educational indicators and evidence-based decision-making

Educational indicators play a central role in the governance of contemporary education systems. By transforming complex educational phenomena into measurable variables, indicators support monitoring, evaluation, accountability, and policy formulation. They enable governments, institutions, and researchers to assess trends in access, equity, quality, efficiency, and outcomes, thereby informing evidence-based decision-making (Scheerens et al., 2003; UNESCO, 2024).

The growing emphasis on evidence-based policymaking reflects the idea that public decisions should be informed by systematically collected and rigorously analyzed data rather than by intuition or isolated experiences (Davies, 1999; Nutley et al., 2007). In education, this perspective has spurred the development of increasingly sophisticated statistical systems capable of producing comparable, timely indicators.

Organizations such as the UNESCO Institute for Statistics (UIS), the Organization for Economic Co-operation and Development (OECD), and national statistical agencies have played a decisive role in consolidating global standards for educational measurement. Their datasets and methodological frameworks support both cross-national comparisons and





national planning efforts. Reports such as *Education at a Glance* and the monitoring of Sustainable Development Goal 4 (SDG 4) have reinforced the strategic value of educational statistics for policy and research (OECD, 2024; UNESCO, 2024).

2.2 Educational data ecosystems and digital platforms

The expansion of digital technologies has transformed not only teaching and learning processes but also the ways educational data are collected, organized, and disseminated. Educational data are increasingly made available through interactive dashboards, online repositories, and open-data platforms that allow users to explore indicators, generate visualizations, and download datasets.

These interconnected infrastructures can be understood as educational data ecosystems: networks of institutions, technologies, standards, and practices that produce and circulate educational information (Williamson, 2017). Such ecosystems encompass statistical agencies, governments, universities, international organizations, and technology providers, all of which contribute to shaping how educational realities are represented and interpreted.

The growing reliance on digital platforms has expanded access to data while also raising questions about methodological transparency, usability, interoperability, and the assumptions embedded in indicator construction (Selwyn, 2015; Williamson, 2017). The effectiveness of a data platform depends not only on the quantity of information provided but also on the clarity of metadata, ease of navigation, frequency of updates, and capacity to transform data into meaningful insights.

Educational data ecosystems increasingly include not only governmental and intergovernmental statistical agencies, but also specialized observatories maintained by professional associations, research networks, and other sectoral organizations. These initiatives often complement large-scale statistical systems by focusing on specific educational domains and producing indicators that may not be systematically captured by official databases. In the context of distance education, such specialized observatories can





play an important role in increasing the visibility of online and blended learning and in supporting evidence-based decision-making within the field.

2.3 Distance education and the challenge of statistical visibility

Distance education has evolved from a peripheral modality to a central component of higher education systems worldwide (Bozkurt et al., 2020; Zawacki-Richter & Anderson, 2014). In many countries, online and blended programs now enroll millions of students and play a key role in widening participation, reducing geographic barriers, and promoting lifelong learning.

Despite this growth, distance education remains only partially visible in most official statistical systems. Traditional educational indicators were designed primarily for face-to-face provision and often fail to capture dimensions specific to digital learning environments, such as online course participation, use of learning platforms, distributed learning centers, and patterns of student engagement (Williamson, 2017).

As a result, data about distance education are frequently fragmented, inconsistent, or unavailable. This limits researchers' and policymakers' ability to evaluate the expansion, quality, and outcomes of online learning and hinders comparisons across institutions and countries. Similar challenges related to data availability, interoperability, and reusability have been identified in studies of educational data infrastructures (Soto Ruidias et al., 2025).

Specialized observatories and thematic data platforms can help address this gap by collecting indicators tailored to the specific characteristics of distance and digital education. Such initiatives enhance the field's visibility and provide a stronger empirical basis for decision-making, regulation, and academic research (Williamson, 2017). The present study is grounded in this perspective, examining how existing educational data platforms capture—or fail to capture—the realities of distance education.





3. LITERATURE REVIEW

Although a substantial body of research has examined educational indicators, learning analytics, and open educational data, relatively few studies have specifically investigated the organizations and platforms that collect, organize, and disseminate educational information for use by researchers, policymakers, and institutions. Even fewer studies have examined the extent to which these systems provide information relevant to distance education (Soto Ruidias et al., 2025).

The literature on educational indicators has traditionally emphasized large-scale assessment systems, international comparisons, and the use of statistical evidence to guide educational policy (OECD, 2024; Scheerens et al., 2003; UNESCO, 2024). Parallel to this development, research on learning analytics and academic analytics has highlighted the growing importance of data infrastructures that support both institutional management and the improvement of teaching and learning (Ferguson, 2012; Siemens & Long, 2011).

More recently, scholars have begun examining educational data observatories, open data repositories, and digital platforms as key components of educational data ecosystems. These studies emphasize issues such as data accessibility, interoperability, metadata quality, transparency, and usability, while also highlighting the growing importance of data infrastructures in shaping educational governance and decision-making (Mandinach & Schildkamp, 2021; Selwyn, 2015; Williamson, 2017).

One of the most relevant recent contributions is the study by Soto Ruidias et al. (2025), which analyzed 112 educational data sources from Brazil, Colombia, and Peru to assess their alignment with the FAIR principles—findability, accessibility, interoperability, and reusability. The authors found that most datasets were suitable for academic analytics but lacked the granularity required for learning analytics. They also identified significant limitations in metadata quality, interoperability, and reusability, concluding that educational data infrastructures in Latin America still pose important barriers to broader and more effective use.





The study by Soto Ruidias et al. (2025) is particularly relevant because it demonstrates the value of systematically analyzing educational data landscapes rather than focusing exclusively on the substantive indicators contained in datasets. Their work also highlights that data platforms themselves can be the subject of scholarly inquiry, evaluated along dimensions such as data coverage, technical quality, accessibility, interoperability, and compliance with recognized standards.

Despite the growing importance of online and distance education worldwide (Bozkurt et al., 2020; Zawacki-Richter & Anderson, 2014), relatively little attention has been devoted to examining how educational data platforms represent these modalities. Most studies focus either on educational indicators in general or on the use of existing datasets, without investigating whether distance education is systematically measured, reported, and made visible within broader educational data ecosystems.

This study seeks to address this gap by comparing major national and international educational data platforms with a specific focus on their relevance for distance education. Unlike studies that evaluate datasets according to FAIR principles or other data quality criteria, the present research adopts a broader benchmarking perspective, examining institutional missions, data content, technical characteristics, and strategic contributions. In doing so, it provides a systematic overview of organizations that measure education and assesses the extent to which distance education is visible within contemporary educational data ecosystems.

4. METHODOLOGY

4.1 Research design and benchmarking approach

This study adopted a qualitative, exploratory-descriptive design to analyze and compare publicly accessible educational data platforms relevant to distance education. The





research was based on documentary analysis of websites, dashboards, methodological reports, metadata, and downloadable datasets.

The study employed benchmarking as a comparative approach. Benchmarking is a systematic process of comparing organizations, practices, and processes to identify strengths, limitations, and opportunities for improvement (Camp, 1989; Spendolini, 1992). In this study, benchmarking was used to compare educational data platforms using a common analytical framework, with the goal of identifying practices that may inform the development and enhancement of specialized data platforms for online and distance education.

Rather than ranking the selected organizations, the study sought to identify complementary strengths and weaknesses across different institutional contexts, examining how each platform structures, presents, and disseminates educational data relevant to higher education and distance education.

4.2 Selection of organizations

The study was developed in the context of a graduate course on educational technologies in the Graduate Program in Technologies of Intelligence and Digital Design (TIDD) at the Pontifical Catholic University of São Paulo (PUC-SP), Brazil.

The selection of platforms and organizations was guided by the following criteria:

- a) recognized institutional relevance at the national, regional, or international level in the field of education or educational statistics;
- b) public availability of data related to higher education or distance education;
- c) existence of online platforms, dashboards, or data repositories;
- d) potential relevance for the analysis of distance education.

The initial identification of organizations combined two complementary strategies. First, a purposive search was conducted based on organizations widely recognized in the literature and by multilateral agencies, such as UNESCO, OECD, Eurostat, Red INDICES, NCES, and ABED. Second, exploratory queries using the Claude large language model





(Anthropic) were employed as a supplementary search strategy to identify additional organizations and platforms potentially relevant to the study. The model's results were subsequently reviewed and validated by the researchers before inclusion in the analysis.

During the initial scoping stage, additional organizations closely associated with online and distance education were considered, including the International Council for Open and Distance Education (ICDE), Commonwealth of Learning (COL), Online Learning Consortium (OLC), European Distance and E-Learning Network (EDEN), European Association of Distance Teaching Universities (EADTU), and EDUCAUSE. Although these organizations produce reports, guidelines, and strategic analyses relevant to digital education, they were not included in the final sample because they do not primarily operate as structured statistical platforms that offer standardized, comparable educational indicators.

Based on these criteria, seven organizations and platforms were selected for analysis:

- a) UNESCO Institute for Statistics (UIS);
- b) Organization for Economic Co-operation and Development (OECD);
- c) The statistical office of the European Union (Eurostat);
- d) La Red Iberoamericana de Indicadores de Educación Superior (Red INDICES);
- e) National Student Clearinghouse Research Center (NSCRC);
- f) National Center for Education Statistics (NCES) / Integrated Postsecondary Education Data System (NCES/IPEDS);
- g) Distance Education in Data, maintained by the Brazilian Association for Distance Education (ABED).

4.3 Analytical framework

Each platform was analyzed using a four-dimensional framework developed for this study.

Identification. This dimension included the organization's name, institutional mission, geographic scope, and website.

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Data content. This dimension examined the types of indicators available, the presence of explicit or implicit data related to distance education, the focus on higher education, and the availability of historical series.

Technical quality. This dimension evaluated usability, dashboards, visualizations, data download options, methodological transparency, and update frequency.

Strategic value. This dimension assessed the comparative strengths and limitations of each platform and identified lessons that could inform the development and improvement of specialized observatories and data platforms focused on distance education.

4.4 Data collection and analysis procedures

Data collection was conducted in April and May 2026. Initial analyses were conducted by members of the research team, each of whom examined one platform and prepared an individual report based on the common analytical framework.

The resulting reports were subsequently presented and discussed collectively to identify convergences, inconsistencies, and analytical gaps.

The authors then reviewed, refined, and consolidated the individual analyses into the comparative synthesis presented in this article. The study combined a detailed qualitative examination of each platform with cross-case comparison, with particular attention to the extent to which each system provides information relevant to distance education.

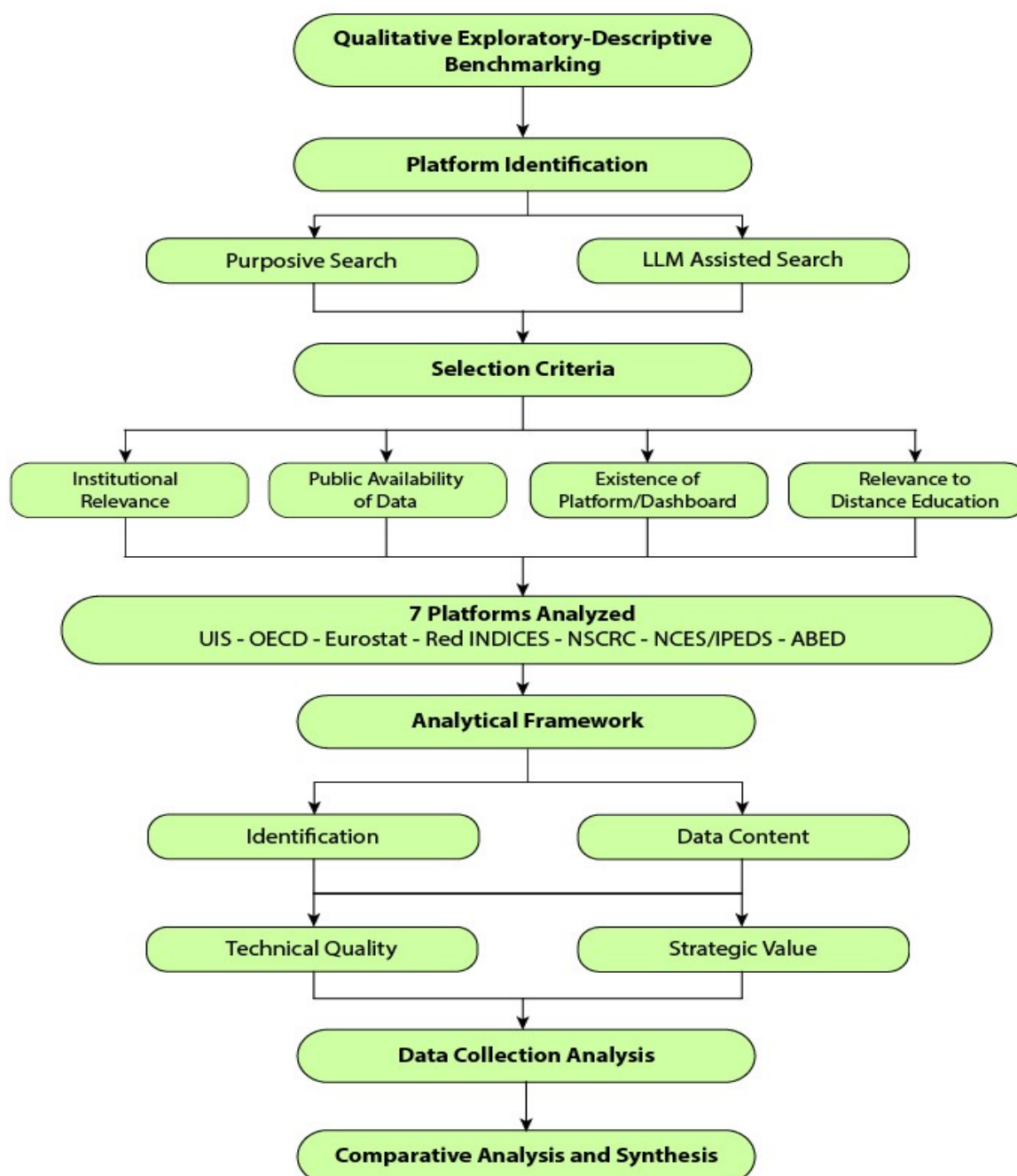
Because the study relied exclusively on publicly available information and did not involve human participants, ethics committee approval was not required.

Figure 1 presents the overall research design, including the procedures used for platform identification and selection, the analytical framework adopted, and the stages of comparative analysis and synthesis.





Figure 1. Research methodology flowchart





5. RESULTS

5.1 UNESCO Institute for Statistics (UIS)

The UNESCO Institute for Statistics (UIS) is UNESCO's official statistical agency and serves as a central source of internationally comparable data on education, science, culture, and communication. As the global repository for cross-national education statistics, UIS collaborates with UNESCO Member States to produce and validate high-quality indicators covering more than 200 countries and territories worldwide.

In education, UIS plays a key role in monitoring Sustainable Development Goal 4 (SDG 4), providing indicators on enrollment, completion, literacy, educational expenditure, and digital skills. Its data are disseminated through the UIS Data Browser, an interactive platform that allows users to search, visualize, filter, and download data and metadata in multiple formats while supporting historical series and cross-national comparisons. The platform also provides complementary resources, such as SDG 4 Country Profiles and the annual World Education Statistics publication.

Although UIS does not focus specifically on distance education, it is closely connected to broader UNESCO initiatives that are highly relevant to digital education. These include the *Global Framework of Reference on Digital Literacy Skills* (UNESCO Institute for Statistics, 2018), developed by UIS, and the *UNESCO ICT Competency Framework for Teachers* (UNESCO, 2018). Although UNESCO has produced numerous publications, initiatives, and resources related to distance education, these activities are not systematically translated into dedicated indicators within the UIS statistical framework. Distance education, therefore, is not treated as a distinct analytical category within the UIS indicator system. Online and blended learning appear only indirectly, embedded within broader higher education and digital skills datasets. This limits the platform's utility for researchers and policymakers seeking specific, comparable data on the scale and outcomes of distance education across countries.

The platform's principal strategic contribution lies in articulating statistical indicators with global policy agendas, enabling researchers and policymakers to situate national data





within broader international frameworks. In this sense, UIS functions not only as a data repository but also as a mechanism for connecting educational measurement, international comparisons, and global educational priorities.

5.2 Organization for Economic Co-operation and Development (OECD)

The Organization for Economic Co-operation and Development (OECD) is one of the most influential international organizations in the production and dissemination of educational statistics and policy indicators. Through initiatives such as *Education at a Glance* and the Program for International Student Assessment (PISA), the OECD has played a central role in shaping international debates on educational quality, effectiveness, equity, and outcomes.

Its data ecosystem, currently accessible through the OECD Data Explorer, provides extensive comparative information for member countries and partner economies. The platform offers historical series and downloadable datasets covering educational attainment, participation, completion, financing, student performance, labor-market outcomes, lifelong learning, and skills development. More broadly, educational indicators are integrated into a wider ecosystem that connects education to areas such as employment, economic development, governance, social inclusion, and innovation. These indicators support both academic research and evidence-based policymaking at national and international levels.

Distance education is not treated as a distinct analytical category within the OECD statistical system. Nevertheless, the organization provides highly relevant conceptual and methodological resources related to the digital transformation of education, including analyses of digital skills, technological infrastructure, innovation, artificial intelligence, and the future of learning. These themes are generally addressed within broader educational and socioeconomic frameworks rather than through dedicated indicators on online or distance education.

The principal strength of the OECD lies in its ability to connect educational statistics with policy analysis. Rather than merely presenting data, OECD publications interpret





educational indicators within broader economic, social, technological, and skills-development contexts, facilitating cross-national learning and policy benchmarking. As a result, the organization serves as an important reference for understanding how educational data can be transformed into strategic knowledge for decision-making, even though its capacity to support analyses specifically focused on distance education remains limited.

5.3 Statistical Office of the European Union (Eurostat)

The Statistical Office of the European Union (Eurostat) is responsible for producing and coordinating high-quality, internationally comparable statistics across the European Union. As part of the European Commission, Eurostat works closely with national statistical institutes through the European Statistical System (ESS) to harmonize data collection and ensure that European statistics are reliable, comparable, and produced in accordance with common standards.

Eurostat provides one of the most comprehensive collections of socioeconomic and educational data available worldwide. Its databases cover all European Union Member States and include indicators related to education, employment, digital skills, demographic trends, economic development, science and technology, and social conditions. The platform supports both cross-national comparisons and longitudinal analyses through extensive historical series and standardized statistical classifications.

In the field of education, Eurostat offers a wide range of indicators on participation, attainment, mobility, lifelong learning, and digital competencies. These data are largely derived from the UOE data collection program, a collaborative initiative involving UNESCO-UIS, OECD, and Eurostat that serves as a major international framework to produce comparable educational statistics.

Despite its extensive educational coverage, Eurostat does not provide a dedicated or systematic set of indicators on participation in distance or online learning. References to distance education appear only occasionally within broader datasets, reports, or explanatory





materials, rather than as a distinct analytical category. Information on tertiary education is available through detailed datasets organized by level of education, field of study, and demographic characteristics, but enrollments are not systematically classified according to mode of delivery. As a result, distance education remains largely invisible within the platform's statistical structure.

The principal strength of Eurostat lies in its methodological transparency and standardization. The platform provides extensive metadata, detailed methodological documentation, and clear descriptions of data collection procedures, classifications, and statistical models, all guided by the European Statistics Code of Practice. These features facilitate data interpretation and enhance the comparability and reliability of indicators across countries.

All datasets are publicly accessible and downloadable, allowing researchers, policymakers, and institutions to conduct independent analyses. Among the platforms examined in this study, Eurostat stands out as a benchmark for metadata quality, methodological rigor, and transparency, although its capacity to support analyses specifically focused on distance education remains limited.

5.4 Ibero-American Network of Higher Education Indicators (Red INDICES)

The Ibero-American Network of Higher Education Indicators (Red INDICES) is a regional collaborative initiative coordinated by the Ibero-American Observatory of Science, Technology and Society of the Organization of Ibero-American States (OCTS-OEI), in partnership with the UNESCO Institute for Statistics (UIS) and supported by other regional organizations. Its objective is to develop comparable statistics on higher education across Latin America, Spain, and Portugal by consolidating a regional system of standardized indicators.

The platform compiles information on enrollment, graduates, academic staff, financing, governance, research activities, and internationalization. Unlike global databases





that aggregate countries from diverse educational contexts, Red INDICES focuses on nations that share historical, linguistic, cultural, and institutional characteristics, making regional comparisons particularly meaningful. The platform also provides historical series, comparative dashboards, downloadable data, and visualizations that support longitudinal analyses across countries.

A distinctive feature of Red INDICES is its collaborative governance model. The network brings together higher education data producers, academics, experts from regional cooperation agencies, and policymakers to develop common methodologies and strengthen statistical capacities across the region. This effort resulted in the creation of the Lima Manual, which establishes shared concepts and methodological guidelines for the comparative measurement of higher education indicators. Regular technical workshops further support the continuous refinement of indicators and data collection procedures.

Although the platform does not provide explicit indicators for distance education, its focus on higher education and regional orientation makes it especially relevant for analyses of Ibero-American countries. The absence of dedicated indicators for online and distance learning is notable, given the significant expansion of these modalities across the Ibero-American region in recent decades.

The principal strength of Red INDICES lies in its capacity to support regional benchmarking through a context-sensitive approach. By offering standardized indicators specifically designed for Ibero-American higher education systems, the platform enables comparisons that may be more meaningful than those typically available through global statistical databases. Its principal strategic contribution is therefore to provide an Ibero-American perspective that combines regional cooperation, methodological harmonization, and comparative analysis of higher education systems.





5.5 National Student Clearinghouse Research Center (NSCRC)

The National Student Clearinghouse Research Center (NSCRC) is a U.S.-based research organization that produces reports and analyses based on postsecondary education data collected by the National Student Clearinghouse. It serves as an important source of information on student enrollment, persistence, retention, transfer, completion, and re-enrollment in higher education. Its findings are disseminated through recurring reports, public dashboards, methodological notes, and analytical series that provide timely insights into trends affecting higher education.

Unlike traditional statistical agencies that primarily focus on institutional characteristics and aggregate enrollment statistics, the NSCRC emphasizes student trajectories over time. By following cohorts through different stages of the educational journey, the platform enables analyses of patterns in entry, persistence, transfer, completion, and return to higher education. This longitudinal perspective provides valuable insights into student success and educational pathways.

The NSCRC is also distinguished by its broad national coverage and its role within the U.S. postsecondary data infrastructure. Drawing on data provided by nearly 3,600 participating institutions, the Center produces evidence intended to support educational leaders and policymakers in developing more effective strategies to improve student outcomes.

A notable feature of the platform is its extensive portfolio of recurring publications, including Clearinghouse Enrollment Insights, Tracking Transfer, Persistence and Retention, Yearly Progress and Completion, High School Benchmarks, and Some College, No Credential. Together, these reports provide a multidimensional view of student pathways, from entry into higher education to degree completion and re-engagement after interruption.

Distance education is not treated as a distinct analytical category within the NSCRC's public reporting structure. Online learning appears only indirectly, particularly in analyses that



differentiate institutional sectors, including primarily online institutions. Consequently, the platform offers limited direct evidence on the scale and outcomes of distance education.

The principal strength of the NSCRC lies in its capacity to generate timely, policy-relevant analyses of student trajectories. Its emphasis on persistence, retention, transfer, and completion complements the institution-level indicators commonly found in other educational data systems. This longitudinal approach offers valuable lessons for the development of specialized educational observatories, particularly those seeking to move beyond enrollment statistics and incorporate indicators of student progression and success.

5.6 National Center for Education Statistics (NCES) / Integrated Postsecondary Education Data System (IPEDS)

The National Center for Education Statistics (NCES), established in 1867, is the primary federal entity responsible for collecting, analyzing, and disseminating education statistics in the United States. As part of the U.S. Department of Education, NCES emphasizes the production of objective, impartial, and policy-relevant data to support evidence-based decision-making while maintaining strict standards of data confidentiality and methodological transparency.

The Integrated Postsecondary Education Data System (IPEDS) is the most comprehensive source of information on postsecondary education in the United States. It consists of interrelated survey components conducted annually that gather data from every college, university, and technical and vocational institution participating in federal student financial aid programs. The system encompasses a broad range of areas, including institutional characteristics, admissions, enrollment, completions, tuition and fees, student financial aid, finance, human resources, academic libraries, and student outcomes.

Among the platforms analyzed in this study, IPEDS stands out for systematically integrating distance education into a national higher education statistics system. Distance education is systematically integrated into IPEDS through a formal operational definition and





multiple interconnected survey components. IPEDS collects distance education information through four interconnected surveys: Institutional Characteristics (IC), 12-month Enrollment (E12), Fall Enrollment (EF), and Completions (C). These components capture institutional offerings, student enrollments, program availability, and geographic distributions, while internal consistency checks ensure coherence across datasets.

IPEDS also provides extensive historical series, downloadable datasets, customizable data files, statistical tables, institutional comparisons, and interactive analytical tools such as the IPEDS Trend Generator. Distance education data are further incorporated into products such as the Digest of Education Statistics, College Navigator, and institutional Data Feedback Reports, thereby extending their value to researchers, policymakers, institutions, and prospective students.

NCES has also maintained a longstanding commitment to studying distance education, producing dedicated reports since the early 2000s on topics such as enrollments, instructional technologies, accessibility, institutional goals, and barriers to expansion.

Among the platforms analyzed, IPEDS represents a highly institutionalized approach to measuring distance education within a national higher education system. Its principal strategic contribution lies in demonstrating how distance education can be systematically integrated into official higher education statistics.

5.7 Distance Learning in Data (ABED)

Distance Learning in Data (*EaD em Dados*) is a strategic initiative of the Brazilian Association for Distance Education (ABED) to collect, systematize, analyze, and disseminate quantitative and qualitative data on distance education. Rather than a single platform, the initiative constitutes a specialized ecosystem dedicated to increasing the visibility of distance education through data-driven research, analytical products, and public dissemination.

The project integrates multiple sources of information, including the Brazilian Higher Education Census, the Censo EAD.BR, and other official educational datasets, with the





objective of producing accessible and policy-relevant evidence about the development of distance education in Brazil.

One of its main products is the ABED Distance Education Panel, an interactive business intelligence dashboard that currently compiles Higher Education Census data from 2010 to 2024. The Panel provides indicators related to enrollments, institutions, programs, geographic distribution, organizational characteristics, and other dimensions of distance education in Brazil. Through dashboards and visualizations, it provides researchers, policymakers, institutional leaders, journalists, and the broader educational community with access to information.

Unlike most national and international statistical systems examined in this study, Distance Learning in Data places distance education at the center of its analytical framework. Its mission extends beyond statistical reporting and includes supporting evidence-based policymaking, informing institutional decision-making, fostering qualified public debate, and promoting a broader understanding of the role of distance education in contemporary educational systems.

The initiative also adopts a multidimensional perspective, seeking to investigate not only enrollment trends but also student profiles, pedagogical practices, tutoring models, digital technologies, emerging technologies, and regulatory frameworks. Findings are disseminated through reports, interactive dashboards, infographics, presentations at national and international events, and publications such as Censo EAD.BR.

The comparative analysis suggests opportunities for further development. Lessons derived from platforms such as OECD, Eurostat, Red INDICES, NSCRC, and NCES/IPEDS indicate the potential value of expanding longitudinal indicators, strengthening metadata and methodological documentation, increasing international comparability, and incorporating additional measures related to student trajectories, persistence, completion, and educational outcomes.

The principal strength of Distance Learning in Data lies in its thematic specialization and its ability to connect data production, analysis, and dissemination within a single





ecosystem. While most educational statistical systems treat distance education as a secondary component of broader educational statistics, EaD em Dados positions distance education as its primary analytical object, thereby increasing the sector's visibility and complementing official educational statistics.

5.8 Cross-platform comparison

Although all seven initiatives analyzed in this study provide valuable educational information, they differ substantially in terms of geographic scope, educational focus, treatment of distance education, technical characteristics, and strategic contributions. Some emphasize global comparability and policy monitoring, whereas others focus on regional benchmarking, institutional statistics, student trajectories, or specialized educational domains.

The comparative analysis reveals that explicit indicators on distance education remain relatively uncommon across educational data systems. Most initiatives address online and digital learning only indirectly, embedding them within broader educational, technological, or skills-related datasets. IPEDS and Distance Learning in Data stand out as notable exceptions by systematically incorporating distance education into their analytical structures, albeit with different purposes and scopes.

The analysis also highlights the complementary nature of these initiatives. Rather than competing approaches, they represent different models of educational data infrastructures that operate at global, regional, national, and thematic levels. Together, they illustrate how educational data ecosystems can support policymaking, institutional decision-making, research, and public debate.

Table 1 summarizes the main characteristics of the seven initiatives analyzed in this study.





Table 1. Comparative overview of the educational data platforms and initiatives analyzed in the study

Platform	Geographic Scope	Higher Education Focus	Distance Education Indicators	Data Access & Technical Features	Primary Strategic Contribution
UIS	Global	Moderate	Indirect	UIS Data Browser; downloadable data and metadata; historical series; cross-national comparisons	Links educational statistics to global policy agendas and SDG 4 monitoring and international digital literacy frameworks
OECD	Global	Moderate	Indirect	OECD Data Explorer; downloadable comparative datasets; historical series; policy reports	Connects educational indicators to policy analysis and international benchmarking
Eurostat	European Union	Moderate	Indirect	Extensive metadata; standardized classifications; downloadable datasets; methodological documentation	Benchmark for methodological transparency, comparability, and statistical standardization
Red INDICES	Ibero-America	Strong	Absent	Comparative dashboards; historical series; downloadable data; Lima Manual	Supports regional benchmarking through Ibero-American cooperation and methodological harmonization
NSCRC	United States	Strong	Indirect	Recurring reports; dashboards; methodological notes; longitudinal student data	Tracks student trajectories, persistence, transfer, completion, and re-enrollment
NCES/IPEDS	United States	Strong	Integrated	Detailed institutional datasets; historical series; downloadable data; Trend Generator; institutional comparisons	Demonstrates how distance education can be integrated into official higher education statistics
ABED	Brazil	Strong	Explicit	Interactive dashboards; indicators from the Brazilian Higher Education Census, Censo EAD.BR, and other official sources	Provides a specialized ecosystem for the visibility, analysis, and dissemination of distance education data

Overall, all seven initiatives provide publicly accessible educational data, methodological documentation, and opportunities for comparative analysis. However, substantial differences were observed in geographic scope, educational focus, technical sophistication, and the treatment of distance education.

UIS, OECD, and Eurostat stand out for their global and regional comparability and broad thematic coverage, supporting cross-national analyses and policy monitoring. NCES/IPEDS provides the most detailed institutional data and remains the only official



higher education statistics system in the sample to systematically report explicit indicators on online enrollment and participation. Red INDICES contributes a valuable Ibero-American perspective through regionally harmonized higher education indicators, while the National Student Clearinghouse Research Center offers a distinctive longitudinal approach centered on student trajectories, persistence, transfer, and completion. In contrast to these broad statistical systems, Distance Learning in Data (ABED) represents a specialized ecosystem dedicated to distance education, placing online and distance learning at the center of its analytical framework.

A common pattern across the initiatives is the limited statistical visibility of distance education. With the exception of NCES/IPEDS and EaD em Dados (ABED), most systems do not include explicit indicators on online or distance learning. Instead, distance education appears indirectly, when at all, within broader higher education, digital skills, or institutional datasets. This finding reinforces the paradox identified throughout this study: although distance education has become a central component of contemporary higher education systems, it remains only partially visible within most educational data infrastructures.

Differences were also observed in technical and methodological characteristics. While Eurostat stands out for its metadata quality and statistical standardization, OECD excels in connecting educational indicators to policy analysis. NSCRC demonstrates the value of longitudinal student-level perspectives, whereas NCES/IPEDS illustrates the benefits of detailed institutional reporting. Distance Learning in Data (ABED), in turn, highlights the potential of specialized observatories to address thematic gaps not adequately covered by general-purpose statistical systems.

These findings suggest that no single initiative fully addresses all dimensions relevant to the analysis of distance education. Rather, the organizations display complementary strengths, suggesting that future educational observatories and data platforms may benefit from integrating practices in comparability, methodological transparency, longitudinal analysis, and thematic specialization.



6. DISCUSSION

The findings of this study reveal a significant paradox in contemporary higher education. Although distance education has become a central component of educational systems worldwide, it remains only partially visible in most of the educational data infrastructures analyzed. With the exception of NCES/IPEDS, which provides explicit indicators on students enrolled exclusively or partially in online courses, and Distance Learning in Data (ABED), which places distance education at the center of a specialized data ecosystem, the organizations examined tend to address distance education only indirectly through broader indicators related to higher education participation, digital skills, or institutional characteristics.

This result is particularly noteworthy given the rapid expansion of online and blended education documented in recent years. Bozkurt et al. (2020) argue that digital learning has moved from the margins to the mainstream of educational provision, while Zawacki-Richter and Anderson (2014) emphasize the consolidation of online and distance education as a major field of research and practice. The present study suggests that this transformation has not yet been fully reflected in the statistical systems used to monitor higher education.

From the perspective of educational indicators, the results reinforce the importance of robust statistical systems for evidence-based decision-making. As noted by Scheerens et al. (2003), educational indicators translate complex realities into structured information that supports policy formulation, institutional planning, and academic research. The organizations analyzed illustrate different approaches to this task, ranging from the global comparative frameworks of UNESCO and OECD to the highly granular institutional data provided by NCES/IPEDS.

The findings also support the argument that educational data infrastructures are not neutral repositories of information, but socio-technical systems that shape what can be measured, compared, and governed (Selwyn, 2015; Williamson, 2017). The limited presence of explicit indicators on distance education suggests that statistical visibility depends on





institutional priorities, methodological traditions, and historical choices. When a phenomenon is not systematically measured, it tends to receive less attention in research, policy, and public debate.

At the same time, the comparative analysis highlights the complementary strengths of the organizations examined. UNESCO stands out for its alignment with global agendas, such as Sustainable Development Goal 4, and for the articulation among conceptual frameworks, indicators, and policy objectives. OECD offers globally comparable datasets and influential analytical reports that connect educational statistics to public policy. Eurostat excels in methodological transparency and metadata documentation. NCES/IPEDS provides detailed and systematic higher education data, including explicit indicators of online enrollment. Red INDICES contributes a valuable Ibero-American perspective, and the National Student Clearinghouse Research Center offers timely analyses of student trajectories and outcomes.

Distance Learning in Data (ABED) differs from the other initiatives by placing distance education at the center of a specialized ecosystem for data production, analysis, and dissemination.

These findings are consistent with the study by Soto Ruidias et al. (2025), which identified both the richness and the limitations of educational data ecosystems in Latin America. Their analysis showed that available datasets are generally well suited to academic analytics but pose significant challenges in terms of accessibility, interoperability, and reusability. Although the present study did not formally assess FAIR compliance, it similarly identified substantial variation in data accessibility, metadata quality, methodological transparency, and technical usability. This observation also reinforces the argument that the value of educational data depends not only on their availability but also on their accessibility, interpretability, and usability for decision-making and research (Mandinach & Schildkamp, 2021).

Another important finding concerns the trade-off between breadth and specialization. Large global and regional organizations provide broad thematic coverage and strong comparability, but tend to devote limited attention to distance education as a distinct





phenomenon. Specialized initiatives, in contrast, can offer richer and more granular indicators tailored to the specific characteristics of online and blended learning. This suggests that general educational statistics and thematic observatories should be understood as complementary rather than competing approaches.

The case of Distance Learning in Data (ABED) illustrates how specialized educational data ecosystems can complement official statistical systems. While large-scale databases provide comparability, methodological rigor, and broad coverage, specialized initiatives can focus on specific educational phenomena and develop indicators that would otherwise remain absent from mainstream statistical infrastructures. Rather than representing alternative approaches, general statistical systems and thematic observatories should be viewed as mutually reinforcing components of educational data ecosystems.

The results also underscore the strategic importance of specialized observatories and data platforms dedicated to distance education. As online and blended learning continue to expand, the systematic collection and dissemination of relevant indicators become increasingly important for informing regulation, institutional management, and academic research. Platforms focused on distance education can complement official statistical systems by providing indicators designed to capture the pedagogical, technological, organizational, student-related, and regulatory dimensions of digital learning environments.

7. CONCLUSION

This study compared seven educational data initiatives—UIS, OECD, Eurostat, Red INDICES, NCES/IPEDS, NSCRC, and ABED—to assess the extent to which they provide data relevant to the analysis of distance education. Using a benchmarking approach based on documentary analysis, the study examined each initiative across four dimensions: institutional profile, data content, technical quality, and strategic value.

The results show that all initiatives analyzed provide valuable educational information, including indicators on enrollment, institutional characteristics, faculty, financing, student





outcomes, and, in some cases, digital skills. However, explicit indicators related to distance education remain limited. With the notable exceptions of NCES/IPEDS and Distance Learning in Data, most systems address online and distance learning only indirectly, if at all. This finding reveals a central paradox: although distance education has become a major component of contemporary higher education, it remains underrepresented in many of the statistical systems used to monitor educational development.

This study makes several contributions. First, it provides a systematic mapping of educational data initiatives relevant to researchers, policymakers, and institutional leaders. Second, it proposes a comparative analytical framework for evaluating educational data systems across multiple dimensions. Third, it highlights the limited statistical visibility of distance education within broader educational data ecosystems. Fourth, it demonstrates the complementary role that specialized observatories can play in increasing the visibility of distance education and addressing thematic gaps not fully covered by large-scale statistical systems. Finally, it identifies practices and features that may inform the design and improvement of educational observatories, dashboards, and data platforms dedicated to online and distance education.

The findings also have practical implications. They suggest that specialized initiatives focused on distance education can play an important complementary role to large-scale statistical systems by providing more detailed and targeted indicators on the pedagogical, technological, organizational, student-related, and regulatory dimensions of digital learning.

The case of Distance Learning in Data (ABED) illustrates how specialized educational data ecosystems can complement official statistical systems by focusing on educational phenomena that are often only partially represented in broader databases. At the same time, the findings indicate that general educational data infrastructures could benefit from adopting more explicit and standardized measures for online and blended education.

This study has some limitations. First, the analysis was restricted to seven initiatives and relied exclusively on publicly available information collected in April and May 2026; subsequent updates may have altered some characteristics. Second, the evaluation emphasized



publicly available features and indicators rather than a comprehensive examination of all datasets, metadata structures, and underlying databases. Third, the comparative assessments involved an interpretive component and did not include usability testing with end users or automated performance metrics. Finally, the initial identification of organizations was supported in part by a large language model used as a supplementary search tool, although the final selection and analysis were based on the authors' judgment.

Future research may expand the number of organizations analyzed and include additional entities involved in the production and dissemination of educational data, such as the International Council for Open and Distance Education (ICDE), Commonwealth of Learning (COL), Online Learning Consortium (OLC), European Distance and E-Learning Network (EDEN), European Association of Distance Teaching Universities (EADTU), and EDUCAUSE. Other studies may apply formal FAIR assessments, investigate how educational data infrastructures are used by different stakeholders, examine longitudinal indicators related to student trajectories and outcomes, or explore the development of standardized international indicators specifically focused on distance education.

As online, blended, and distance education continue to expand worldwide, improving the availability, quality, and comparability of educational data becomes increasingly important. Making distance education more statistically visible is essential for strengthening research, supporting evidence-based policymaking, informing institutional decision-making, and ensuring that one of the most significant transformations in contemporary education is adequately represented within educational data ecosystems.

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