Data and knowledge production
**UNESCO - a global leader in education**

Education is UNESCO’s top priority because it is a basic human right and the foundation for peace and sustainable development. UNESCO is the United Nations’ specialized agency for education, providing global and regional leadership to drive progress, strengthening the resilience and capacity of national systems to serve all learners. UNESCO also leads efforts to respond to contemporary global challenges through transformative learning, with special focus on gender equality and Africa across all actions.

**The Global Education 2030 Agenda**

UNESCO, as the United Nations’ specialized agency for education, is entrusted to lead and coordinate the Education 2030 Agenda, which is part of a global movement to eradicate poverty through 17 Sustainable Development goals by 2030. Education, essential to achieve all of these goals, has its own dedicated Goal 4, which aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. The Education 2030 Framework for Action provides guidance for the implementation of this ambitious goal and commitments.

This paper was commissioned by UNESCO and is part of 3rd World Higher Education Conference organized by UNESCO on May 18-20, 2022, with the purpose of enhancing the contribution of higher education institutions and systems world-wide, under the 2030 Agenda for Sustainable Development, its pledge to leave no one behind, and looking at the Futures of Education. The views and opinions expressed in this paper are those of the author and should not be attributed to UNESCO.


© UNESCO 2022

This work is available under the Creative Commons Attribution-ShareAlike 3.0 IGO licence (CC BY-SA 3.0 IGO; https://creativecommons.org/licenses/by-sa/3.0/igo).

For further information, please contact: hed@unesco.org
Summary

This document details a framework on the collection and use of relevant, comparable and quality data to support effective policymaking in higher education. It starts by providing a summary account of the availability of international data and indicators based on official sources, and then considering other sources of data as well. In doing so it identifies that international data on Higher Education (HE) is a particularly weak area both in terms of the most basic elements we might consider (enrolments, graduated, financing, etc.), and as compared to the availability of data for compulsory schooling. The weakness of international official statistics becomes more evident given the expansion of other sources of data (mainly rankings of institutions) that constitute, by themselves, a controversial area.

If we consider the current transformations experienced by HE, it is possible to suggest that the main issue regarding data is not, ineludibly, to fix the current data gaps, but rather to address the potential consequences those transformations might entail for data and knowledge production. Thus, the document suggests that the WHEC2022 addresses this topic and produces some recommendations that are, primarily, forward-looking.

These recommendations could be focused on how the following issues might be factored into how international data on HED is generated:

- Understanding HED from a lifelong perspective (and, therefore, not assuming HED is mainly directed towards people who are 18-25 years of age).
- The increasing importance of flexibility in programme organization (micro-credentials, modular programmes) and how it impacts how to account for enrolments and graduates.
- International mobility and recognition of studies.
- The balance between disciplinariness and interdisciplinariness, given the demands coming from the world of labour as well as from developing well-rounded individuals who can become fully-fledged citizens contributing to democratic societies. How this issue impacts the way we classify fields of study also needs to be addressed.

In addition to those topics, it is also important to critically address the way the field of educational data is framed at the international level and the ways data and indicators are mobilized by specific agents led by their agendas and views. Thus, a debate led by democratic values and concerns should be the foundation of addressing data-related issues in HE.
Acknowledgements

With the purpose of producing updated analysis and recommendations for the 3rd World Higher Education Conference (WHEC2022), UNESCO organized the Technical Expert Group (TEG), whose members were tasked with preparing background documents on each of the main themes of the Conference. Experts participating in the TEG included César Guadalupe, Dag Olav Hessen, Susanna Karakhanyan, Achim Hopbach, Mpine Makoe, David Mills, Ka Ho Mok, Kilemi Mwiria, Jamil Salmi, Sylvia Schmelkes, Francesc Pedró, Damtew Teferra. This is one of the TEG’s background documents, which respectively approached the following themes:

- Impact of COVID-19 on higher education
- Higher education and the SDGs
- Equity, inclusion, and pluralism
- Quality and relevance of programmes
- Academic mobility in higher education
- Governance in higher education
- Financing higher education
- Data and knowledge production
- International cooperation to enhance synergies
- The futures of higher education

The following UNESCO focal points participated in or provided support, at different moments, to the TEG’s activities: Dana Abdrasheva, Daniele Viera, Phoebe Kirkup, Paz Portales, Victoria Galán, Huong Nguyen, Hassmik Tortian, Qingling Kong, Peter Wells, Harold Mera, Takudzwa Mutize, Talal El Hourani, José Antonio Quinteiro, Keith Holmes and Emma Sabzalieva. The TEG’s activities were directly coordinated by José Luis Guzmán.

The TEG met online four times throughout 2021 (March 24, May 19, July 21, and September 8) and held an in-person meeting in Barcelona on 29-30 November 2021. Besides extensive literature review, the process of elaborating the documents included 24 online consultation meetings facilitated by the TEG members. These meetings involved more than 180 experts or stakeholders from all regions of the world. In addition, the TEG members considered comments provided by diverse reviewers for each theme and a technical team of UNESCO specialists reviewed the final versions.

Four consultations (held in June 2021) were conducted to inform this document on data and knowledge production. Participants provided honest, insightful, and significant clues for drafting it. I am deeply grateful to all of them: Roberta Malee Bassett, Bilal Barakat, Duncan Ross, Said Ould Ahmedou Voffal, Akemi Yonemura (Group 1); Ana Capilla, Martí Casadesús, Edgar Cateriano, Francesc Pedró (Group 2); Carl Gombrich, Sonia Ilie, Monika Jungbauer-Gans, Michaela Martin, Susan Robertson (Group 3); Daniel Edwards, Nguyen Huu Duc, S. Selvabhaskar, Miki Sugimura (Group 4).

I would like to express my thankfulness to the colleagues in the WHEC2022 Technical Expert Group (TEG) since our meetings were a significant source of insight that allowed me to identify the bridges between data-related issues and the substantive challenges currently experienced by HE.

UNESCO’s Education Sector staff provided continuous guidance and support for the overall activities conducted by the TEG and were always receptive and helpful every time I had to contact them about the crafting of this document. In particular, the above-mentioned consultations were possible only because of the major role the UNESCO team played in organizing them.

My former colleagues at the UNESCO Institute for Statistics were extremely helpful in producing the data I used for drafting this document, and for providing positive, valuable, and respectful feedback to an earlier draft. I am also deeply indebted to the colleagues that read an earlier draft and provided comments and suggestions that allowed me to improve the text. It goes without saying that they are not responsible for any of the shortcomings that can be identified in this report.
Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERIF</td>
<td>Common European Research Information Format</td>
</tr>
<tr>
<td>CRIS</td>
<td>Current Research Information System</td>
</tr>
<tr>
<td>Eurostat</td>
<td>European Union's Statistical Office</td>
</tr>
<tr>
<td>HED</td>
<td>Higher education</td>
</tr>
<tr>
<td>IALS</td>
<td>International Adult Literacy Survey</td>
</tr>
<tr>
<td>IAU</td>
<td>International Association of Universities</td>
</tr>
<tr>
<td>INES</td>
<td>Indicators of Education Systems Programme</td>
</tr>
<tr>
<td>ISCED</td>
<td>International Standard Classification of Education</td>
</tr>
<tr>
<td>LAC</td>
<td>Latin America and the Caribbean</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PISA</td>
<td>Programme for International Student Assessment</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and development</td>
</tr>
<tr>
<td>UIS</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>WHEC2022</td>
<td>World Higher Education Conference 2022</td>
</tr>
<tr>
<td>UNESCO</td>
<td>World Higher Education Conference 2022</td>
</tr>
<tr>
<td>WHED</td>
<td>World Higher Education Database</td>
</tr>
</tbody>
</table>
Presentation

Data and knowledge production may be a dull subject for some, and a technicality for others. However, as is being extensively shown by an increasing body of research in the field of education (Addey & Gorur, 2020; Bieber, Martens, Newmann, & Teltemann, 2015; Gorur, 2015; Grek, 2009, 2015; Grek, Maroy, & Verger, 2020; Hamilton, 2012; Hamilton, Maddox, & Addey, 2015; Vincent, 2014), data and knowledge are far from being unproblematic technical devices.

A basic understanding of the relational nature of knowledge provides us with an awareness that data are never ‘collected’ as if they were wild berries. Rather, data and indicators are produced by human beings in given contexts, from particular viewpoints, with some interests and purposes, and based on some explicit or assumed conceptions of the problems to be addressed, all of which transfer into definitions and instruments used to produce said data. Thus, issues that might seem as innocuous as a table on data availability for a given variable, might be a leading thread to unveil the existence of major underlying political and/or institutional issues. At the same time, the way data producers make data ‘speak for itself’ is also illustrative of what they regard as valuable issues (for instance, a ranking of countries expresses concern with international competition) or veils other components of reality. Moving from data and indicators to knowledge (structured accounts of the reality) adds another layer of human agency that makes this situation even more evident.

Accordingly, this report has been crafted in a way that attempts to link data-related issues to complex problems. This is especially important because the field of HED is facing major challenges that might transform it in rather substantive terms.

Data and knowledge on HED appear as a weak realm, vis-à-vis what we know about data and knowledge focused on compulsory schooling. That statement could, however, be misleading in two ways: (i) what internationally available data show do not express the situation of every country in a similar fashion; and (ii) it is probably much more important today to face the challenges that lay ahead, than attempting to fix issues pertaining to ways we understood data requirements in the past (even if it is a recent past).

Thus, this report is an attempt to identify some data-related (but not data-constrained) issues that the WHEC2022 could address to better inform policy which is, at the end of the day, what matters for addressing public issues. This report is organized as follows: In a rather summarized manner, the first section describes the current status of international official statistics on HE, and then identifies other sources of data that are playing an increasing role at the international level as of today. The second section is devoted to identifying some current challenges that should be addressed to improve the pertinence of the data and knowledge we produce at the global level. A brief third section focused on describing some good practices on data and knowledge production that might shed light on the paths to follow. Finally, a brief set of recommendations concerning issues to be addressed by the WHEC2022 are provided.
# Content

Summary  2

Acknowledgements  3

Acronyms  5

Presentation  6

## 01. Data on higher education: Status  8

1.1. UIS data: Enrolment in higher education  10
1.2. UIS data: Graduates from tertiary education  11
1.3. UIS data: International mobility  13
1.4. UIS data: Financing  15
1.5. UIS data: Research and development  16
1.6. UIS data: Additional background  17
1.7. Other data sources  18

## 02. Beyond current data: Identifying major challenges  20

2.1. Who are the HED students?  22
2.2. Academic and professional orientation  23
2.3. Disciplinarity and interdisciplinarity  23
2.4. Beyond HED: Sustainable development and the international agenda  24
2.5. Final remarks on major challenges  25

## 03. Good practices  26

Policy recommendations  28

References  29
01.

Data on higher education: Status
In this section, we briefly describe the status of international data and indicators on Higher Education (HED) produced and compiled primarily by official sources. Using data presupposes that data are available and, to some extent, match users’ needs. Thus, we need to start this review by referring to the current availability of official data at the UIS Data Centre and then, identify some other sources that are relevant for addressing the problems this report identifies.

Focusing on official data that are compiled at the international level entails that this report does not make any specific claim about the situation experienced by any national entity. Even if the international database relies on what each country reports, the status of the former is not a clear indication of what happens with each of the latter.

It is also important to consider that UIS data are compiled and reported according to the International Standard Classification of Education (ISCED), 2011 revision (UNESCO/UIS, 2013), as well as its taxonomy of fields of study (UNESCO/UIS, 2014). As per the ISCED, **Higher Education** comprises the following levels:

- **ISCED level 5**: Short-cycle tertiary education (mainly, but not exclusively, professionally oriented programmes). See UNESCO/UIS, 2013 § 207ff.
- **ISCED level 6**: Bachelor or equivalent level. See UNESCO/UIS, 2013 § 224ff.
- **ISCED level 7**: Master or equivalent level. See UNESCO/UIS, 2013 § 241ff.
- **ISCED level 8**: Doctoral or equivalent level. See UNESCO/UIS, 2013 § 259ff.

To describe the current situation, the following sub-sections will focus on enrolment, graduates, international mobility, financing, and research and development data. Then, some overarching considerations will be presented, and a final subsection will discuss sources apart from UIS and official statistics. We will refer to data for the school years ending in the 2016-2019 period, since those are the most recent ones where coverage is stable (international compilation for the school year ending in 2020, for example, is still in progress).
The more basic data on HED compiled by the UIS pertain to enrolment and are usually broken down by sex. Table 1 presents the availability of these data by country (aggregated by the regional division used by the UIS).

**Table 1. Availability of enrolment figures on tertiary education (2016-2019)**

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of countries</th>
<th>Number of countries with data for x (0, 1, 2, 3, 4) out of four years in the 2016-2019 period</th>
<th>(A)</th>
<th>(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Arab States</td>
<td>20</td>
<td>20</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>21</td>
<td>21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Central Asia</td>
<td>9</td>
<td>9</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>East Asia and the Pacific</td>
<td>34</td>
<td>34</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>43</td>
<td>43</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>North America and</td>
<td>31</td>
<td>31</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Western Europe</td>
<td>9</td>
<td>9</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>South and West Asia</td>
<td>46</td>
<td>46</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>World total</td>
<td>213</td>
<td>213</td>
<td>64</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: This table was prepared for this report based on a detailed dataset provided by the UIS on May 2021. Column (A) is the proportion of countries with data for four out of four years; column (B) is the proportion of countries with data for three out of four years. In all cases enrolment data are broken down by sex (with the exception of one country in Latin America and the Caribbean that reported data in two out of four years).

2. The difference between ‘data’ and ‘indicators’ can be a complex issue. Eurostat ([https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Statistical_indicator](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Statistical_indicator)) defines a statistical indicator is a representation of statistical data resulting from use of a correction procedure. Thus, when divided by enrolment data, data on expenditure allows to have an indicator (expenditure per pupil). This indicator is used for making comparisons across time or units (such us educational levels, administrative units, countries, etc). Thus, indicators are crafted with a purpose of making them ‘more than data’, which is a tricky statement since data are also crafted. If we understand the abovementioned ‘correction procedure’ as a mathematical operation, we might preclude having qualitative indicators. In any case, an indicator is useful to have a clue to appraise a situation; thus, diverse pieces of data can operate as indicators without any ‘correction procedure’. Finally, indicators are usually conceived as parts in a set that can operate as a dashboard (exactly like the one in a car which is, precisely, filled with those indicators that are considered necessary, in a given moment, for driving).

3. Note that when talking about ‘countries’, we are not making any statement about the legal status of any territory. The UIS lists a total of 213 ‘countries’ which are entities that do not have necessarily the same legal status as per international law.
As shown in Table 1, less than half of the countries (99) reported complete enrolment data in every higher education level in the four years hereby considered. At the same time, over the same period many countries (64) have not reported these data in any year. If we look at column (B) in the table, we can notice that no region achieves full coverage for at least three out of four years, with higher coverage rates in Central and Eastern Europe and North America and Western Europe, and prominently low rates in Sub-Saharan Africa and Latin America and The Caribbean. Thus, coverage for this basic set of data is rather limited which gives a first clear indication of how weak data compilation for tertiary education is.

1.2. UIS data: Graduates from tertiary education

Two datasets are produced regarding graduation: (i) gross graduation ratios from first degree programmes at ISCED 6 & 7 (that is, excluding ISCED levels 5 and 8), and (ii) percentual distribution of those graduates by field of study. The coverage corresponding to the first dataset is presented in Table 2.

Table 2: Availability of gross graduation ratios on tertiary education (2016-2019)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of countries</th>
<th>Number of countries with data for x (0, 1, 2, 3, 4) out of four years in the 2016-2019 period</th>
<th>(A)</th>
<th>(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab States</td>
<td>20</td>
<td>0 1 2 3 4</td>
<td>0,25</td>
<td>0,40</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>21</td>
<td>0 1 2 3 4</td>
<td>0,43</td>
<td>0,57</td>
</tr>
<tr>
<td>Central Asia</td>
<td>9</td>
<td>0 1 2 3 4</td>
<td>0,44</td>
<td>0,67</td>
</tr>
<tr>
<td>East Asia and the Pacific</td>
<td>34</td>
<td>0 1 2 3 4</td>
<td>0,21</td>
<td>0,32</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>43</td>
<td>0 1 2 3 4</td>
<td>0,05</td>
<td>0,09</td>
</tr>
<tr>
<td>North America and Western Europe</td>
<td>31</td>
<td>0 1 2 3 4</td>
<td>0,23</td>
<td>0,55</td>
</tr>
<tr>
<td>South and West Asia</td>
<td>9</td>
<td>0 1 2 3 4</td>
<td>0,22</td>
<td>0,33</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>46</td>
<td>0 1 2 3 4</td>
<td>0,07</td>
<td>0,15</td>
</tr>
<tr>
<td>World total</td>
<td>213</td>
<td>0 1 2 3 4</td>
<td>0,18</td>
<td>0,46</td>
</tr>
</tbody>
</table>

Note: This table was prepared for this report based on a detailed dataset provided by the UIS on May 2021. Column (A) is the proportion of countries with data for four out of four years; column (B) is the proportion of countries with data for at least three out of four years.

4. It should be noted that 16 out of the 21 LAC countries with no data are small insular Caribbean countries; however, 5 Latin American countries (Bolivia, Guatemala, Nicaragua, Paraguay, & Venezuela) are in a similar situation.

5. It should be noted that these data refer to headcounts, thus, computing enrolment in full-time-equivalents (to adjust for the difference between full-time and part-time enrolments) yields a more limited dataset since not all countries compile or report enough information to make this calculation.

6. Gross graduation ratios result from dividing the number of graduates by the total population of the ‘theoretical graduation age of the most common first-degree programme’ and the result is multiplied by 100 (taken from the metadata panel at the UIS Data Centre). Since the population in the numerator is independent from the one in the denominator, the result is a ratio, not a rate or share. So defined, these ratios provide a relative measure of the size of enrolments or, in this case, the graduation’s magnitude (relative to the size of the reference population used as denominator).

7. The ISCED field of study classification is organized in ten groups (and then, subgroupings): (i) Education; (ii) Arts & Humanities; (iii) Social Sciences, Journalism, and Information; (iv) Business, Administration and Law; (v) Natural Sciences, Mathematics and Statistics; (vi) Information and Communication Technologies; (vi) Engineering, Manufacturing and Construction; (viii) Agriculture, Forestry, Fisheries and Veterinary; (ix) Health and Welfare; and (x) Services.
Levels of data coverage for this indicator are markedly lower than for enrolment. The UIS compiled enough data to compute this ratio from only 39 countries for the four years hereby considered, and from 68 countries for at least three years in the same period. Again, the situation is more challenging in Latin America and the Caribbean as well as in Sub-Saharan Africa.

At the same time, as already noted (see footnote 6) enrolment and graduation gross ratios are calculated assuming a ‘theoretical’ reference age. This entails several limitations in general, if the intention is to measure something related to coverage or access (Guadalupe, 2015, pp. 136–143) that are even more problematic in non-compulsory education levels that are open to participants of any age. This attribute becomes even more disputable when a lifelong learning approach translates into a greater number of adults re-entering the education system at different stages in their lives.

Additionally, international student mobility is an important phenomenon in higher education that makes it potentially problematic to compute rates or ratios that refer to a nationally defined population. Thus, absolute figures are sometimes considered instead of ratios or rates. Given this situation, these indicators might be difficult to interpret without a significant number of qualifiers in addition to the issues stemming from their low coverage. The second dataset shows the distribution of graduates by field of study. Thus, coverage cannot be higher than what is shown in Table 2. At the same time, as we will discuss below, the current classification of fields of study (the main groups in this classification are shown in footnote 7) always deserves scrutiny, especially given some changes in the configuration of study programmes we will approach below.
Data on the international mobility of HED students are reported by hosting countries. Thus, in this case, the availability of data cannot be seen as in the previous cases, since the number of countries with a large share of international enrolment is limited and some countries may not have nationals studying abroad each year. The situation regarding the dataset on international mobility is summarized in Table 3.

Table 3. Data availability on tertiary education’s internationally mobility (number of students who regularly reside in a country different from the one where they are enrolled) by country/region of origin (2016-2019)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of countries</th>
<th>Number of countries with data for x (0, 1, 2, 3, 4) out of four years in the 2016-2019 period</th>
<th>(A)</th>
<th>(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Arab States</td>
<td>20</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>21</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Central Asia</td>
<td>9</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>East Asia and the Pacific</td>
<td>34</td>
<td>17</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>43</td>
<td>25</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>North America and Western Europe</td>
<td>31</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>South and West Asia</td>
<td>9</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>46</td>
<td>26</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>World total</strong></td>
<td><strong>213</strong></td>
<td><strong>88</strong></td>
<td><strong>18</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Note: This table was prepared for this report based on a detailed dataset provided by the UIS on May 2021. Column (A) is the proportion of countries with data for four out of four years; column (B) is the proportion of countries with data for at least three out of four years.

As shown above, data for at least two out of the four years considered are available for only 113 countries, 45 of which are European (Central, Eastern and Western Europe) or North American. At the same time, the figures available for these 113 countries do not always provide a consistent pattern, as shown in Figure 1.

**Figure 1. Range and variability in the number of internationally mobile students by country of origin. Only countries with at least two data points (2016-2019)**

As shown in Figure 1, the magnitude of internationally mobile students by country markedly varies by year for most of the 113 countries with at least two data points. Relative variations lower than 10 percentual points are observed only in 10 countries, lower than 20 percentual points in 31 (including the 10 previously mentioned). That means this dataset should be treated with utmost care.
Information on economic resources devoted to education is of crucial importance to gain an initial perspective of several issues that are related to it: funding per pupil (that, ultimately, explains the educational services that are provided), level of government commitment to education (usually proxied by the share of public expenditure devoted to education in general and each level in particular), and financial effort (usually proxied comparing the levels of investment to the total value produced by a country in a given period).

Table 4 shows the availability of data on public spending on HED. In this case, we had to modify the reference period (starting a year earlier: 2015) since authorities reporting these data require more time to compile the corresponding source data. Moreover, these data are usually calculated using reference periods (fiscal years) that may or may not correspond to calendar years which, in turn, do not necessarily match school years.

Table 4. Data availability on public expenditure on higher education (2015-2018)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of countries</th>
<th>Number of countries with data for x (0, 1, 2, 3, 4) out of four years in the 2016-2019 period</th>
<th>(A)</th>
<th>(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab States</td>
<td>20</td>
<td>16 2 1 1 - -</td>
<td>0,05</td>
<td></td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>21</td>
<td>2 3 1 4 11</td>
<td>0,52</td>
<td>0,71</td>
</tr>
<tr>
<td>Central Asia</td>
<td>9</td>
<td>1 2 1 3 2</td>
<td>0,22</td>
<td>0,56</td>
</tr>
<tr>
<td>East Asia and the Pacific</td>
<td>34</td>
<td>22 3 1 3 5</td>
<td>0,15</td>
<td>0,24</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>43</td>
<td>20 7 4 1 11</td>
<td>0,26</td>
<td>0,28</td>
</tr>
<tr>
<td>North America and Western Europe</td>
<td>31</td>
<td>7 - 3 5 16</td>
<td>0,52</td>
<td>0,68</td>
</tr>
<tr>
<td>South and West Asia</td>
<td>9</td>
<td>1 3 2 1 2</td>
<td>0,22</td>
<td>0,30</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>46</td>
<td>22 9 4 6 5</td>
<td>0,11</td>
<td>0,24</td>
</tr>
<tr>
<td><strong>World total</strong></td>
<td><strong>213</strong></td>
<td><strong>91 29 17 24 52</strong></td>
<td><strong>0,24</strong></td>
<td><strong>0,36</strong></td>
</tr>
</tbody>
</table>

Note: This table was prepared for this report based on a detailed dataset provided by the UIS on May 2021. Column (A) is the proportion of countries with data for four out of four years; column (B) is the proportion of countries with data for at least three to four out of four years.

As with the previously seen data, we have a situation where substantive gaps in data compilation exist. European and North American countries as well as those in Central Asia are the ones with relatively higher, even if limited, reporting rates.

However, the situation becomes even more challenging if we consider that non-public financing (expenditure by households or from other sources) reaches substantive levels in several countries, especially in HED, regardless of who provides those services (be it public or private institutions). The UIS requests this information from countries, however, the number of countries able to report is so limited that this information is not published on the public website (data.uis.unesco.org).
1.5. UIS data: Research and development

Regarding research and development (R&D), the UIS carries out a specific effort (different from the compilation focused on education statistics) including data on: (i) R&D financing and (ii) R&D personnel.

Regarding financing, the UIS asks countries to report on national expenditure per year including both public and private sources, and how those resources are distributed according to (i) source (governmental or not); (ii) agencies using the funds (public or not); (iii) field of study; and (iv) type of activity (basic, applied, experimental research).

Data requests on personnel include both headcounts (people involved in R&D activities) as well as full-time equivalents and is organized by: (i) type (researchers, technicians, supporting); (ii) institution type (Government, business, HED, private non-profit, other); (iii) qualification; and (iv) field of study.

If we look at the available data, it is found that data coverage issues are also important in this field and the following concerns can be identified:

- The datasets for R&D include 163 ‘countries’ (while the Education datasets include 213 units).
- As in a previous case, we needed to work on the 2015-2018 period (since data for 2019 and 2020 are still being compiled).
- If we take the most basic data on financing (total amount for a given year) it is found that the number of countries reporting these data ranges from 82 (in 2018) to 102 (in 2015).
- If we take the most basic data on personnel (total, headcounts) we found that the number of countries reporting these data ranges from 49 (in 2018) to 95 (in 2015).
UNESCO has developed substantive work in the field of education statistics since its inception (and before that, since 1932 the International Bureau of Education contributed some foundational work on international education statistics). UNESCO has produced recommendations on this topic at least since the 1950s and has also cooperated with agencies like Eurostat and the OECD to strengthen their data compilation efforts. These three organizations jointly created and administer (in the EU, OECD and some countries that voluntarily joined the effort since the late 1990s) a set of education questionnaires that are more detailed than those regularly administered by the UIS in most countries. Thus, for these countries, there is a more detailed dataset including information on entrants, enrolment, financing, graduates, and staff. However, the basic common ground for the whole world is what has been depicted in the previous pages. The UIS also cooperates with different agencies to compile data corresponding to areas different from education including, but not restricted to, R&D.

Even if, taken into consideration what we just mentioned, OECD data has been included under the overall effort carried out by the UIS, it is also important to notice the OECD has played a significant role in the field on its own. And that role has not been restricted to activities conducted with their member states but has had a more global scope. In particular, we can note that the OECD started its work on education statistics in the 1960s (Ydelsen & Grek, 2019) but its Indicators of Education Systems programme (INES) was established in 1987. The late 1980s were a time when UNESCO’s work in the field was deeply criticized by different agents (Guthrie & Hansen, 1995; Heyneman, 1999), a process that led UNESCO to shut down its previous statistical operations and to establish a new Institute (the UIS) in 1999. With the creation of INES, the OECD started publishing Education at a Glance, as a sort of annotated compendium of comparable data and indicators. Right from the 1960s, OECD’s work on education has been deeply influenced by Human Capital Theory (Becker, 1993; Mincer, 1958; Schultz, 1961, 1963) as the approach followed to grasp not only the performance of education systems (OECD, 2004, 2012, p. 17) but to define what education is about (Spring, 2015). In the 1980s some US initiatives regarding adult literacy assessment were conducted and they eventually led to the International Adult Literacy Survey (IALS) being administered in some OECD countries in the 1990s (Hamilton, 2001; Kirsch & Jungeblut, 1986; Kirsch & Mosenthal, 1990; Murray, Kirsh, & Jenkinks, 1997; St. Clair, 2012). IALS was, to a significant extent, the basis for the OECD to launch, in 1997, its currently notorious Programme for International Student Assessment (PISA). The increasing influence of the OECD both internally and beyond its member states is deeply linked to the way its data and indicators work is mobilized and how it interacts with other relevant agents (Auld, Rappleye, & Morris, 2018; Grek, 2009).

8. IALS (and today its sequel, the OECD Programme for the International Assessment of Adult Competencies - PIAAC) was designed to yield information on the 16 to 65-year-old population (that is, not adults, but only those who are considered – potentially – economically active). Thus, its focus was to report on the existing stock of basic skills. Since this stock does not change dramatically over short periods of time, it would not be sensible to conduct assessments of this ilk very frequently. However, it might make sense to measure what happens with the population cohort that enters that population segment (those who are 15). That was the foundation of PISA as a ‘forward looking’ study (OECD, 2001, p. 14), so it is conducted in educational institutions not because of a particular (‘backward looking’) interest in student’s educational trajectories, but because it is a practical sampling strategy. Thus, PISA’s original conception contributes to explain why it has difficulties to yield information that is relevant for educational policy (Loveless, 2013).

9. It should be noted that international large-scale assessments of students’ learning is a field established in the late 1950s by the International Association for the Evaluation of Educational Achievement (IEA). However, IEA operates primarily as a research consortium and its studies do not have the media coverage that is devoted to (and pursued by) the OECD and its programmes. Demonstrating a major difference with OECD studies, IEA studies are curriculum-based and as such they are specifically intended to measure what students achieve given their school experience (thus, their target populations are defined according to the school grade they are enrolled in, not their age).
At the same time, countries and other international organizations might have their own reasons to define things in diverse manners. For instance, while the UIS reports on international students – individuals who are enrolled in a country different from the one where they usually reside (the expansion of the remote provision of education creates a problem in this regard) – the OECD uses a slightly different criterion (they study previously in a different country and are not permanent residents in the country where they study) and if these data are not available, information on citizenship ‘can be used as a proxy’ (https://data.oecd.org/students/international-student-mobility.htm)\textsuperscript{10}.

It should also be noted, that the UIS has devoted a large share of its work over the past twenty years (the UIS was established in 1999 and relocated to Montreal in 2001) to the education statistics’ field and other areas, including the one responsible for data on R&D, which are resourced to a lower degree.

\section*{1.7. Other data sources}

The most conspicuous non-official data sources pertaining to tertiary education include rankings of higher education institutions and, less notoriously, institutional repositories of their intellectual production and Current Research Information Systems (CRIS). Specialized surveys (including household surveys) also provide relevant information that is used on different occasions.

It is important to note that rankings are based on institutional-level data reported by each institution and not aggregated at the national level, as is the case for official statistics. This difference obeys to the different purposes different agencies might have. While official statistics are produced to provide information for policy analysis and research, HED rankings are produced to showcase what individual institutions are doing in relative terms (relative to other institutions), that is, they are more related to reputational issues and to a global setting where competition among institutions is seen as particularly important. Usually, people using rankings rely on them to identify desirable institutions (to study, to pursue job opportunities) vis-à-vis institutions that would be seen as less attractive given their lower rank position or because they are not part of them at all (in this case, the institution can even become invisible to some users).

As in other areas related to education, rankings are subject to an important controversy that goes beyond the technical issues – how they measure what they intend to measure (Hosier & Ashley Hoolash, 2019) including issues on data normalization, or the likelihood of being manipulated by institutions themselves (Johnes, 2018) – spanning over their purposes (is the promotion of competition among institutions a proper way to promote their improvement?) and their consequences, whether intended or unintended (Hazelkorn, 2017; Naidoo, 2018). However, regardless of this debate, it is important to notice that many institutions are willing to report individual and detailed data for rankings, while they do not fulfil their public responsibilities concerning the provision of, usually less detailed, data for public purposes (official statistics). This situation suggests there is something to be noted around the current governance of university institutions that allows for particular interests (tied to the institutions themselves) to be better served than public needs.

\textsuperscript{10} However, for a given measure to be a proxy of something else, the two should covariate and that covariation must be established.
One important component of these rankings is the information on scientific production usually measured relying on indexes of academic publications ranked by citation data. Thus, an institution gets a higher rank position if its faculty publishes their research results in journals (and/or books) that are included in said indexes. Given that indexes are not run by institutions that are independent of publishing companies, and that they are focused on showcasing journals (not articles, book sections, or books), their value as an indicator of research activities conducted by a given institution is something that cannot be taken at its face value. Moreover, as could be anticipated based on Campbell’s laws (Campbell, 1979), overstressing the importance of these indexes for institutional reputation leads to undesirable results.

Another main source of international HED data is the World Higher Education Database (WHED) jointly managed by the International Association of Universities (IAU) and UNESCO. This dataset compiles system-level data (types of institutions) and institutional-level data (general data, officers, divisions, degrees offered) and periodicals produced, as well as figures on staff and students. However, the latter two sets of data show a limited coverage, and the overall structure of the data one can retrieve is limited as the website only shows the latest available information and no time series.

At the same time, systematic access to research products has become a major concern for institutions and governments alike. The long-established model based on publishing research results in printed academic journals is being challenged by two elements: (i) digital publishing, rapidly adopted by publishing companies, and (ii) the expansion of open access platforms and policies intended to ensure research and knowledge (especially when funded by public resources) are widely available. This is an area where the European Union has played a major role given its policies regarding open access to research as well as the development of corresponding standards. In particular, the 40-year-old Common European Research Information Format (CERIF) is widely used to develop institutional repositories (whereby access to publications is granted) and Current Research Information Systems (CRIS). Given that CERIF allows for interoperability, it is being adopted beyond the European space and not only by official organizations (mainly, national authorities for science), but also by private companies associated with the publishing business that offer services to institutions. CERIF-based CRIS and repositories have also allowed for the development of research metrics of varied sorts.

Finally, household or specialized surveys are sources usually mobilized for analysis that require linking HED-related data with other variables (like the socio-economic background of students) that are not compiled by institutions or aggregated in official statistics. Thus, well beyond indicators that provide aggregated national-level images of the overall operation of the sector, or institutional-level data that help in portraying institution-specific information, these surveys are particularly useful for policy. This is because of their analytical possibilities that are, at the end of the day, contingent upon the soundness of the procedures used for data production and the willingness and readiness of conducting them. Thus, these data sources are particularly important at the national level (since different countries might conduct their surveys according to different definitions and technical standards) in those countries that produce them.

---

11. It should, therefore, be assumed that fictional literature might be regarded as not relevant in university life, despite its role in defining HED contributions to cultural production in general that, moreover, have an impact on science as such.
02.
Beyond current data: Identifying major challenges
As stated in the 1950 Constitution of the IAU, these institutions understood their main tasks as linked to the production of knowledge (research), professional development (teaching) and, based on those pillars, to provide a service to society promoting freedom and justice, human dignity, and solidarity. A recent publication celebrating the 70 years of that Constitution states ‘the university’ (in singular) ‘… in its corporate structure and mission, is one of the very few institutions in global history that has survived the passing of time despite profound political, economic, and cultural transformations.’ Thus, the pursuit of the previously mentioned ends ‘is an idea that has remained remarkably stable over time … (proven to be) simultaneously resilient and adaptable.’ (van’t Land, Corcoran, & Iancu, 2021, p. 17).

However, this vision might be too optimistic, too conservative, or too self-serving. Even without taking into consideration the challenges triggered by the COVID-19 pandemic (linked to the need to rely on remote provision), HED has to face major challenges related to admission expectations (given how limited and inequitable access remains), recognition of qualifications – given the increasing levels of international mobility, knowledge sharing, quality assurance, open educational resources and science, and the linkage between HED and sustainable development (Gianini, 2021).

But those are not the only potentially critical areas that might shake the resilient ‘university idea.’ To begin with, university education is not the only form of tertiary education and building a coherent and integrated HED system with a diverse set of educational tracks remains a challenge.

Among the different challenges that appear today concerning HED and university education, we can identify a number that can have major implications for the topic addressed in this document (data and knowledge generation). The following subsections will address some of these topics.
2.1. Who are the HED students?

To a significant extent, data on HED has been compiled and indicators computed assuming that HED or tertiary education is an education stage that follows secondary education programmes, not only since the latter is a prerequisite for the former, but also concerning the age of students. There is an underlying assumption stating that formal education is a ladder (this is the actual term used in ISCED) that starts in pre-school and ends in HED when a person is about 25 years of age.

This assumption might have been empirically appropriate for a long time, but today we have two main reasons to wonder about the need to modify it. First, compulsory education has been widened as to include, in many places, four ISCED levels (from pre-school up to the end of upper secondary) so that thinking about primary and lower/upper secondary education (leaving aside pre-school) becomes less relevant vis-à-vis the trend to see the whole of compulsory education as an integrated educational experience primarily intended for children. Secondly, we are increasingly aware that education is a lifelong process and so, we should pay due attention to the fact that increasing numbers of people enter and re-enter HED programmes at different moments in their lives and, more importantly, factoring this element into policy is of paramount importance to address how universities can make education systems more inclusive, equitable and flexible (Atchorena, 2021). Thus, this ‘step on the ladder’ is much more complex than that, and assuming a given age group as the target population for HED programmes is becoming increasingly problematic and restrictive.

Additionally, international mobility (regardless of the different elements that can be discussed about it) has changed the way a given institution can identify its target population. Thus, some institutions might see their role more attached to a local population, others to a national one and, finally, some might understand their role as global. Given that situation, it is difficult to assume that a HED national system is homogeneously devoted to the national population, and that affects the qualifiers we need to factor in the data analysis that is produced according to national entities. At the same time, international mobility (of people in general) translates into the need to create mechanisms to record relevant data concerning individuals’ educational trajectories (and the programmes they have pursued) to allow for recognition mechanisms to operate smoothly.

Finally, flexibility –in the way educational services are provided– can translate into the way people organize how they become engaged with their studies (for example, whether they enrol on a full time or part-time basis). This is critical for calculating enrolment-related data and other variables that are linked to it (like investment per pupil, etc.) and in an increasing demand for modular programmes that lead to micro-credentials that can, eventually, be combined to become equivalent to a traditional degree. This situation has a huge potential impact on how enrolment and graduation figures are produced.

14. The remote provision of educational services was designed to allow participation without space-time co-presence. Digital communication media allow the time-space distanciation process (Giddens, 1984, 1985, 1990, 2003) to become deeper and more extended, and the pandemic response has relied on that. In any case, remote provision will only increase in the coming years and, therefore, we need to reconsider some of our ideas, for instance, on international mobility, since it might not require being physically mobile at all.
2.2. Academic and professional orientation

One issue that is not always clearly defined in HED policy has to do with the balance between research and teaching. It is widely accepted that research has value on its own (as related to producing new knowledge) and that it matters for teaching. However, the proper balance is something that can be defined only in relation to specific programmes since, in some cases (undergraduate studies, some more practically oriented careers), the professional component might be significantly high. At the same time, research, and the logic of scientific discovery (not only as methods, but especially as epistemological awareness and how that relates to the different ways cultures frame the knowledge production task) is important for promoting the development of higher-order skills that are needed for most occupational activities, but especially to contribute to generating citizenship and dialogue-related skills.

The balance between academic and professional (or applied) orientation might have profound implications on the ways to assess ‘quality’ (provided a clear definition of it is given) and, consequently, on the demands of data and knowledge generation related to the operation of quality assurance mechanisms.

2.3. Disciplinarity and interdisciplinarity

Even if universities claim to rest on a tradition spanning over several centuries, they have changed in character on several occasions. They have moved away from the medieval studies focused on the elite’s intentions to pursue ‘higher’ activities (detached from practical urges) and, therefore, make deeds that correspond to their character as ‘free men’ (that is the literal sense of ars liberalis) to the professional ‘careers’ that are the rule today and that are intentionally focused on a particular disciplinary body. While nobody will dispute the importance of disciplinary activities, it is also evident that university education, as an educational activity, should also pay attention to activities that contribute to foster the development of well-rounded people.

Thus, over the past decades, a trend towards claiming the importance of the humanities in the education of every individual has gained momentum (Nussbaum, 1997, 2010). In the same direction, employers are increasingly asserting that early specialization might not be advisable in a dynamic world where several curricular contents can quickly become obsolete, and where professional careers are prone to be adjusted and recrafted regularly. Thus, several agents stress the importance of emphasizing what are casually call soft skills or twentieth-first century skills; that is, habits, capabilities, and attitudes regarding how we engage with others, develop the flexibility to adapt and adjust our professional trajectories, critically reflect on what we do and how we situate ourselves in the world, etc15. Finally, dialogue among people with different perspectives (mainly disciplinary ones, but there is no reason to be restrictive and not include cultural diversity and the ways our professional and academic work is

15. Most of these so called ‘twentieth-first skills’ are what pedagogical thinkers have always suggested as the main components of the educational task at least since Socrates. Obviously, there are two elements that cannot be traced back to classical pedagogy: competence in dealing with digital communication (and its different ramifications), and universal or global citizenship.
grounded) is not only deeply valued in the world of labour, but also to address complex issues and, at the end of the day, to interact with others that are diverse in a way that strengthens a sense of community and democratic values.

Thus, interdisciplinarity in programmes and the presence of non-disciplinary elements within disciplinary programmes are becoming a major concern for HED programmes. This trend poses a potential challenge in the way we record data per ‘field of study’ since the disciplinary boundaries are, increasingly, crossed in many ways.

2.4. Beyond HED: Sustainable development and the international agenda

The role of HED in relation to promoting sustainable development is manifold. Firstly, knowledge production is of paramount importance for understanding the climate change process, perils, and how to address them. Secondly, applied knowledge can be critical for local agents to become actively involved in practices that promote sustainability. Thirdly, academic contributions to public debates can be instrumental in promoting better policies and public awareness. As such, we can find other ways in which HED can be seen from a sustainable development perspective. Given the vital importance of sustainability-related issues in contemporary affairs, having data on how HED institutions and systems honour their social responsibility in this area can be critically important.

At the same time, adopted in 2015, the international policy framework, known as the Sustainable Development Goals (SDGs), includes educational targets narrowly related to HED. Specifically, out of the seven targets and three implementation levers under the education-related goal16, the following are somehow related to HED:

- Target 4.3 deals with equal access for all women to technical, vocational, and tertiary studies, being focused on equal access, irrespective of access levels).
- Target 4.4 is focused on acquiring labour-related skills which are somehow related to the professional side of HED, but it is not limited to it.
- Target 4.5 addresses issues related to unequal access for population groups other than women without being explicit about access levels.
- Target 4.7 deals with educational contents that are desirable irrespective of the education level we address.
- Target 4.b is referred to the number of scholarships offered to developing countries citizens to allow them to pursue studies abroad.

Thus, the international SDG agenda (to which the production of international data should be aligned) does not provide much room for addressing most of the HED-specific issues that have been addressed in this document, and others that are expected to be key in the WHEC2022 proceedings. At the same time, the issues on data availability that we identified before impact the international monitoring of progress towards the SDGs as they are.

16. For more information, see https://sdgs.un.org/goals/goal4
2.5. Final remarks on major challenges

We have tried to summarily present some key elements arising from the current practice and debates in HED that might have a direct impact on the way we produce HED-related data. However, these issues appear in a setting where the most elementary components of the traditional ways we produce and compile data are far from being a consolidated realm.

As we have seen in the first section on data availability, international official data on HED shows many limitations at the most basic level: coverage and availability. Thus, it is feasible to reach a point where some substantive efforts are devoted to fixing current problems without taking into consideration that if those problems are fixed, we might end up having nice datasets that are outdated in relation to the problems we need to address moving forward.

Thus, it seems apparent that the WHEC2022 should have some specific debates that draw conclusions and recommendations on data and knowledge production that stem from the analysis of major trends affecting the futures of HED and not only the current challenges. This section has attempted to organize some of the most salient topics based on the discussions presented in other background papers drafted in parallel to this one.
03.

Good practices
The world of data and knowledge generation on HED is not a homogenous one and it is, therefore, difficult to assert some practices that can be highlighted as potential exemplars to be followed, since the settings are as diverse as the institutions. However, there are some topical areas where we can identify potentially interesting practices for suggesting avenues to address current and expected challenges.

It is possible to start from the most elementary component: why international data coming from official sources seems to be easily compiled and produced for compulsory education and not for HED? The answer to this question is deeply connected to the governance of compulsory education and HED. While national authorities have a clear role regarding compulsory education institutions, the autonomous character of HED makes that situation less clear, at least in some countries. While academic autonomy is of paramount importance for creating an environment that is conducive to good scientific practice, a system without checks and balances always entails a risk of becoming self-serving and, so, the public interest might become compromised. In this regard, clear national policies on HED and the operation of independent overseeing bodies help not only regarding substantive issues pertaining to the provision of educational services but also for ensuring proper information systems are in place.

The dissemination of research results is an area where good practices have emerged over the recent past. Policies regarding open access to what is funded with public resources should become non-negotiable. Promoting free access through interoperable information systems and repositories is a promising avenue to be expanded.

The use of household or specialized survey data to provide a rich analysis of issues on HED (like issues on equity and inclusion) is a major contribution to having a sound way of identifying and addressing HED issues.

Finally, new information and communication technologies are being mobilized for conducting research, recording and analysing data (including data on HED itself), and facilitating the exchange of information and knowledge. Thus, having better information systems at the global level (with high levels of coverage) should not be such a difficult task. For instance, even in the most demanding contexts, HED institutions have in place some sort of administrative systems where enrolments are properly recorded. If that is not the case, the reason might be found in the institutional arrangements, including governance, competition, lack of transparency, etc., and not in technicalities. The potential associated with new technologies is mobilized when some material and institutional conditions are met.
Policy recommendations

This document has presented a summary overview of the existing international data on HED produced by official sources. The situation it portrays can be described as a mix of two problems: (i) data on HED lags what we have in the compulsory education milieu, and (ii) we need to address issues that go well beyond filling the current gaps.

In line with this, we can suggest that the WHEC2022 devotes a specific effort to the problems on the production of data and knowledge on HED, but that said effort should be tightly connected to the substantive topics on the transformations and challenges HED should face. Hence, data issues should not be addressed solely by data specialists, but also by those who can properly frame the questions that require data and knowledge generation to be addressed.

Accordingly, the debates on data generation are better framed if seen as the consequences of substantive issues. Thus, the WHEC2022 can become an opportunity to deeply reflect on a set of substantive topics that can be addressed (from the point of view of data generation) according to the following questions and could aim at producing clear statements that could guide public action on them.

- What are the consequences for data production of understanding HED from a lifelong learning perspective? Is it meaningful to continue producing enrolment ratios based on a supposedly ‘theoretical age’ range?
- What are the consequences for data production of having an increasing number of short programmes based on part-time studies?
- What are the consequences for data production of having more flexibility in the provision of educational services including, but not restricted to, using digital media for it?
- What are the institutional mechanisms that are needed to ensure HED institutions honour the public interest regarding data and knowledge generation to a significant degree?
- What are the consequences of increasing HED internationalization in relation to the international mobility of students and graduates?
- How can States ensure coordinated action to ensure open access to research production funded with public resources, and how can that be tied to Research Information Systems in a way that data on knowledge production is recorded more effectively?
- What role, if any, should the existing rankings of institutions play and which are the mechanisms that are needed to ensure that reputational pressure does not distort the institutional efforts, and the utilization of public resources?
- To what extent are HED institutions providing relevant educational services that contribute to educating well-rounded citizens capable of fully participating in the construction of societies where human rights, justice, and freedom are actualized? Contributing to society cannot be seen as only related to developing instrumental skills or enabling people to be economically productive.
- At the same time, how do we ensure that HED institutions recruit their students paying full attention to equity-related issues, including inclusion and multiculturality? Are these criteria (equity and inclusion) a concern that goes beyond recruitment and permeates the whole knowledge production and dissemination endeavours?
References


Data and knowledge production

Organized by UNESCO in collaboration with the Government of Spain, the 3rd World Higher Education Conference (WHEC2022) aims at breaking away from the traditional models of higher education and opening doors to new, innovative, creative, and visionary conceptions that not only serve current agendas for sustainable development, but also pave the way for future learning communities that overcome barriers, speak to all and are inclusive of all lifelong learners.

The WHEC2022 promotes a global conversation nurtured by diverse narratives on higher education through various activities: generation and dissemination of knowledge; formulation of updated policy recommendations; identification and sharing of innovative practices; networking and strengthening of partnerships; broad participation of stakeholders at local and international levels (within and outside higher education systems: professors, researchers, youth, managers, authorities, policy makers, experts, entrepreneurs, social leaders, etc.); and development of renewed paths framed by the 2030 Agenda for Sustainable Development and looking at the Futures of Education.

Section of Higher Education

https://en.unesco.org/themes/higher-education

cum di audae sunt.@CUNEsco.com

@UNESCO