The International Standard Classification of Education (ISCED)

▶ **The original purpose of the International Standard Classification of Education (ISCED) was solely to facilitate standardised international comparisons of statistics across education systems. Over the course of decades it proved so useful that, more recently, it has also been invested with an evaluative function and treated as a reference standard which informs the development of new qualifications, qualification frameworks or entire education systems. Nevertheless, it only gives a limited reflection of the reality within education systems and the diversity of existing qualifications, and even the new version of ISCED approved at the end of 2011 in no way alters that fact. The aim of the article is therefore to understand the underlying basis of the ISCED classification and the comparative scales and values that may be used to map a qualification to a level. Ambiguities mainly arise at the point where a qualification's valence, in the sense of rigour and complexity of content, justifies the mapping of a qualification to a particular level.**

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Purpose and logic of classification schemata

UNESCO's International Standard Classification of Education (ISCED) plays a key role in the classification of vocational and general educational qualifications: it primarily serves as the basis for international statistics on education systems and qualifications, such as those found in the annual OECD publication "Education at a Glance". Furthermore, it is the foundation of numerous occupational classifications such as the International Standard Classification of Occupations (ISCO) or the German classification of occupations (Klassifikation der Berufe – KldB), used by the Federal Employment Agency (Bundesagentur für Arbeit – BA) and has even been the starting point for the development of numerous qualification frameworks; for example, the development of the European Qualifications Framework (EQF) was at least partly motivated by the desire to create an alternative system to ISCED which was better able to reflect qualifications and learning outcomes (cf. Coles/Oates 2006).

The classification of (occupational) qualifications is based on a relationship that seems simple at first glance: a classification scheme makes a clear statement about the criteria for assigning an occupational qualification, position or job to a particular level. These criteria are called "descriptors" and can be framed in the form of curricular-content criteria, personnel and financial resources or institutional and time parameters. The decisive factor is the mapping process, which is carried out by the involved actors from policy, practice and academic research. Integral to this process is a certain conception of the value of learning processes and qualifications. Thus, on closer examination, the "valence" of qualifications is based on a socially negotiated process of imputation which can take account of quite a number of factors:

- the degree of abstraction of learning processes and contents,
- the duration of a formal, institutionalised educational programme,

- the (monetary and non-monetary) benefit and/or the prestige of a qualification or an education provider,
- usability of the qualification for access to the labour market or more advanced educational programmes,
- the status of a qualification in a different education system, or relative to another qualification in the same education system,
- the subjective status, i.e. personal evaluation of qualifications, certificates and learning outcomes.

Once a qualification has been placed at a particular level, its valence becomes established as time passes, and the higher the level at which it was positioned in the classification scheme, the more highly the qualification, position or job is valued.

Development and structure of ISCED

The origins of systematic comparative educational reporting can be traced back to 1867 when the US National Center for Education Statistics began to collect annual data on the quality of school systems in each state of the USA. One of the core problems from the outset was the comparability of terminologies and structures. In 1933, an early pioneer of comparative education research named Nicholas Hans therefore proposed developing an "artificial terminology" that should be implemented by all the states for comparative purposes (cf. Hans 1933, p. IXXXVIII). In the years that followed, this idea was taken up repeatedly by institutions like the International Labour Bureau (the forerunner of the International Labour Office), but it was not until the founding of UNESCO in 1946 that an internationally recognised institution was mandated to develop a specific set of terminology and statistics for the worldwide domains of education, science and culture. Consequently the first version of a common terminology came into being in 1954. It provided specifications both for groups of persons (e.g. students, teachers, classes) and for educational levels (cf. UNESCO 1954; in detail: Smyth 2008). Further to this development, the first drafts in preparation for ISCED were produced in 1958 when UNESCO presented a conceptual framework for describing four core areas of education (institutions, educational finance, illiteracy, and the educational attainment of the population). Then in 1976, the first version of today's ISCED was produced; it was superseded by the 1997 version, which in turn would become one of the fundamental components of the other classification schemes mentioned above (ISCO, KldB, EQF etc.). On 10 November 2011 UNESCO's General Conference passed the latest revision of ISCED, which had become necessary due to the massive changes in the tertiary sector and in early childhood education in numerous countries worldwide.

Structural principles

ISCED is based on the mapping of educational programmes to various levels. Educational programmes are understood as a sequence of, for the most part, structured learning activities organised to accomplish a more or less clearly defined objective. In most cases the educational programmes are offered by recognised educational institutions and culminate in a certified qualification. In this way ISCED encompasses not only formal learning but also non-formal and informal learning, provided that this is recognised for the purposes of a formal qualification. In contrast, ISCED makes no provision for learning that does not lead to a recognised qualification, or for non-accredited qualifications. ISCED classifies educational programmes in terms of levels and fields of education. The system is subdivided into nine fields of education (cf. box).

In contrast to the fields of education the levels refer to the complexity of content. UNESCO defines this complexity of content as "the overall knowledge, skills and capabilities required of participants if they are to have a reasonable expectation of successfully completing the programmes in these categories" (UNESCO 2006, p. 15).

ISCED fields of education:

- general programmes,
- education (e.g. teacher training, education research),
- humanities and arts (e.g. languages, history),
- social sciences, business and law (e.g. sociology, journalism),
- science (e.g. biology, physics),
- engineering, manufacturing and construction (e.g. telecommunications, architecture),
- agriculture (e.g. farm management, veterinary medicine),
- health and welfare (e.g. medicine, childcare),
- services (e.g. tourism, logistics).

Source: UNESCO 2006, pp. 41 ff.

The 2011 revision of ISCED

Whereas the ISCED 1997 scale has seven levels, ISCED 2011 has nine.[1] The table (p. 25) shows the two classification instruments side by side, along with the mapping of German educational programmes to levels for ISCED 1997; the German mappings for ISCED 2011 are not yet available. ISCED 2011 has a number of innovations, principally concerning early childhood education and university education:

1 *Both versions also contain an extra level for qualifications that cannot be assigned to any other level. No further mention will be made here of this eighth or tenth level.*

Level 0 (early childhood education) renamed and extended: In addition to formal early childhood education for children from age three up to regular primary school enrolment age, this level now encompasses early childhood education for children up to age three.

Differentiation created between educational programme and attainment: In previous versions the assignment of educational levels was oriented to educational programmes only, which meant that the compilation of the statistics was of little help for reporting on programme attendance and completion. Following the introduction of an additional subcategory, extra data can now be obtained about programme completion; that is to say, a differentiation has been introduced between educational programmes (ISCED-P) and attainment (ISCED-A).

Orientation of an educational programme: Previously the classification made reference to three further criteria, i.e. general education, pre-vocational or pre-technical education, and vocational or technical education. This element has now been reduced in wording and content to two dimensions, i.e. general and vocational.

Diversification of levels in the tertiary sector: The introduction of new study structures has led to a differentiation between short-cycle, Bachelor's, Master's and doctoral degree programmes. Hence the scheme now differentiates between four instead of two levels in the higher education sector. The new classification will be implemented in 2013 at the earliest in order to give the countries sufficient time for the mapping of their national qualifications. In the medium term, a revision of the nine fields of education is envisaged; these will be further diversified so that better statements can be made on the supply and demand of qualifications.

Table **ISCED levels 2011 and 1997**

ISCED 2011		ISCED 1997		Extract from the mapping of German educational programmes (ISCED 1997 only)
0	Early childhood education	0	Preprimary	• Kindergarten, Vorklasse, Schulkindergarten (forms of pre-school)
1	Primary	1	Primary	• Grundschule (primary school)
2	Lower secundary	2	Lower secundary	• Hauptschule (lower secondary school), Realschule (intermediate secondary school), Gymnasium (grammar school), Integrierte Gesamtschule (integrated comprehensive), Abendschule (night school), Berufsaufbauschule (vocational extension school), BVJ (prevocational training)
3	Upper secondary	3	Upper secondary	• 3A: Allgemeinbildender Sekundarbereich II (secondary level II of general education) (e.g. gymnasiale Oberstufe (grammar school senior grades), Fachoberschule (specialised vocational upper secondary school), Fachgymnasium (technical upper secondary school) • 3B: beruflicher Sekundarbereich II (secondary level II of vocational education (e.g. Berufsfachschulen (full-time vocational schools), duales System (dual system)), BGJ (basic vocational training) • 3C: Beamtenausbildung (mittlerer Dienst) (intermediate grade civil servant training)
4	Post secondary non-tertiary	4	Post secondary non-tertiary	• 4A: Fachoberschulen (Klasse 13) (specialised upper secondary schools, 13th grade), Berufs-/Technische Oberschule (vocational/technical upper secondary school), Berufsfachschulen (full-time vocational schools) which award final vocational qualifications (second-tier training combined with higher education entrance qualification), duales System dual system (second-tier vocational training combined with higher education entrance qualification), Abendschulen (Sekundarbereich II) (night schools, secondary level II) • 4B: duales System (Zweitausbildung) dual system, second-tier vocational training
5 6 7	Short cycle tertiary Bachelor or equivalent Master or equivalent	5	First stage of tertiary	• 5A: Universität, Kunst-/Musik-/Fachhochschule (university, art school, music school, university of applied sciences) • 5B: Fachakademie (specialised academy), Verwaltungsfachhochschule (college of public administration), Fachschule (advanced technical school), Schulen des Gesundheitswesens (health sector vocational schools)
8	Doctoral or equivalent	6	Second stage of tertiary	• Promotion, Habilitation (doctoral degree, post-doctoral professorial qualification)

Source: UNESCO (2006; 2011)

Strengths and weaknesses of ISCED

Under the basic assumption that learning processes and their outcomes can be represented hierarchically, the central criterion for the mapping of a qualification to one of the levels listed above is the complexity of its content: "These categories represent broad steps of educational progression, in terms of the complexity of educational content. The more advanced the programme, the higher the level of education" (UNESCO 2011, p. 10). Yet on further investigation of how exactly the complexity of the programme is to be captured, all that is found is the following statement: "However, curricula are too diverse, multi-faceted and complex to directly assess and compare the content of programmes across education systems in a consistent way. Due to the absence of direct measures to classify educational content, ISCED employs proxy criteria that help to classify a given educational programme to the appropriate ISCED level" (UNESCO 2011, p. 10). For their part, though, the proxy criteria[2] specified here do not refer to complexity of content but are oriented solely to two criteria, namely a) whether a level has been completed successfully and b) whether it leads to a higher-level educational programme. In the tertiary sector, where criterion b) does not apply, the total duration of the programme is used in its place.

2 Proxy criteria can be understood as indirect criteria, but refer in this case to categories that are subordinate to the individual levels so that these can be defined more precisely.

The very abstract expression of the complexity of an educational programme or a qualification is found in all three versions of ISCED (1976, 1997 and 2011). The fact that UNESCO intentionally leaves this aspect very vague is both the greatest strength of ISCED and its greatest weakness: at this point it calls to mind the central aim of ISCED, which is to be a classification instrument for statistical purposes and for international comparisons. In this way, the responsibility and the freedom to define complexity of content are handed over to the individual countries. So its strength is that it states a very broad and abstract conception of education and only fixes the formal criteria that facilitate any kind of statistical comparisons between countries. Moreover, it is the only classification system that supplies regular, worldwide and publicly available data on education systems of such breadth, detail and acceptance that no other instrument is likely to match it in the foreseeable future.

Meanwhile, its weakness is that unless the national traditions, functions and structures of a given education system are also taken into consideration, statements on the concrete level of attainment and the actual competences of individuals are as close to impossible as a meaningful comparison of the data generated with the help of ISCED.

So on closer consideration, ISCED demonstrably does not assign either a value or a particular level to formal qualifications; in fact, this mapping takes place within a social negotiation process and is an estimation arrived at within the countries themselves and between countries and international actors. This explains why, for example, ISCED 1997 classifies Germany's two- or three-year educational programmes in health and social care occupations (at full-time vocational schools or health sector vocational schools) as belonging to the tertiary sector (level 5B), when according to the logic of the German education system the higher education sector is precisely where they do not belong. Another example of problems in the interpretation of ISCED-based statistics is the controversy currently being debated in Germany over the country's low graduate ratio by international comparison: critics of ISCED complain that the ratio only looks low because the dual system of initial vocational education and training, despite its very high standards of content, is located outside the tertiary sector (and thus – by the logic of the German system – assigned to an unduly low level); meanwhile ISCED's defenders claim that take-up of tertiary education is simply not high enough in Germany, and that the dual system cannot belong to the tertiary sector because it does not normally issue any higher education entrance qualification or impart any content of comparable complexity to the higher education sector.

Both examples make it clear that the mapping of national qualifications and the arguments from institutional versus content-based perspectives are the critical points in the application of ISCED. In other words, if no distinction is made between ISCED's intention and structure, on the one hand, and between its application and interpretation, on the other, there is a danger that ISCED and the data generated with it could be misinterpreted or misused for political (education policy) purposes. It is also evident that of the valence criteria mentioned above, the critical ones are the duration of institutionalised educational programmes, the prestige and influence of educational institutions (in relation to the mapping of educational programmes) and the usability of a qualification for accessing higher-level programmes, whereas valence aspects like monetary returns, labour-market usability or subjective status do not play any (direct) role. Therefore the main weakness of ISCED is that it cannot be used meaningfully without precise knowledge of its structure and the national context.

It follows that ISCED should only be an orientation aid in the mapping of qualifications; it cannot solve the core problems of capturing complexity of content and individual competences. For that reason, it should not be overvalued in the evaluation of (vocational) qualifications: "ISCED 2011 is not designed to directly assess the competencies of individuals because there is no direct relationship between educational programmes or qualifications and actual educational achievement. The educational programmes that an individual has participated in or has successfully completed are, at best, only an approximation of the skills, knowledge and competencies mastered at the time of completion" (UNESCO 2011, p. 5). ■

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