Chapter 5

Definition and classification of educational programmes: The practical implementation of ISCED 2011

This chapter covers the conceptual, definitional and classification issues concerning educational programmes. It begins with an overview of the latest International Standard Classification of Education (ISCED 2011) which provides the foundation for internationally comparative education statistics. It goes on to set out the definitions and classifications that apply to educational programmes within it. It then sets out the detail of how educational programmes are allocated within each ISCED level, considering the criteria that define the boundaries between educational levels.

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5.1 Overview of ISCED 2011

ISCED is at the heart of international statistics on education. As the structure and curricular content of national education systems vary, it can be difficult to benchmark performance across countries over time or monitor progress towards national and international goals. In order to understand and properly interpret the inputs, processes and outcomes of education systems from a global perspective, it is vital to ensure that data are comparable. This can be done by using ISCED, the standard framework used to categorise and report cross-nationally comparable education statistics.

The ISCED classification serves as an instrument to compile and present education statistics both nationally and internationally. The framework is occasionally updated in order to better capture new developments in education systems worldwide.

Initially developed by UNESCO in the 1970s, the first ISCED (hereafter referred to as ISCED-76) became operational from 1976 and was first revised in 1997 (ISCED-97). Over the years that followed, education systems became increasingly complex, often reflecting increased choices of types of programmes and modes of attendance. This imposed new difficulties for the international comparability of education statistics and many of these changes could no longer be adequately reflected in data collected under ISCED-97. The case for a revised ISCED was clear. Following a collaborative effort involving UNESCO, the OECD and Eurostat, the UNESCO General Conference adopted ISCED 2011 as the replacement for ISCED-97 at its 36th session in November 2011. The first presentation of UNESCO ISCED 2011 was published in December 2012 (UNESCO, 2012), followed by an operational manual (OECD, 2015). ISCED 2011 was first integrated into the joint OECD, Eurostat and UNESCO UOE data collection for the school year 2013, the indicators from which were published in the 2015 edition of OECD's *Education at a Glance*.

ISCED 2011 is designed to provide an integrated and consistent statistical framework for the collection and reporting of internationally comparable education statistics. It is a programme-based taxonomy which seeks to reduce complex national educational structures into defined international categories based on certain classification criteria. It helps to transform detailed national education statistics, compiled on the basis of national concepts and definitions, into aggregate categories that are deemed to be internationally comparable. The coverage of ISCED 2011 extends to all organised and sustained learning opportunities for children, young people and adults, including those with special educational needs, irrespective of the institutions or organisations providing them or the form in which they are delivered.

The educational programme is the basic unit of classification in ISCED 2011. Each programme should be allocated to a particular level of education on the basis of its educational content, which in practice is determined by applying classification criteria such as typical starting ages, entrance qualifications and type of qualification awarded. ISCED-97 introduced these multi-dimensional criteria to capture the complexities of modern education systems and represented a major shift from the uni-dimension ladder system on which ISCED-76 was based.

The ISCED 2011 classification is an important step forward in improving the comparability of international statistics on education. The major changes between ISCED 2011 and ISCED-97 are:

- The ISCED 2011 classification revises the ISCED-97 levels of education programmes (ISCED-P) and introduces for the first time a related classification of educational attainment levels (ISCED-A) based on recognised education qualifications.

- The ISCED 2011 classification includes improved definitions of formal and non-formal education, educational activities and programmes.

- Compared to ISCED-97, which had seven levels of education, ISCED 2011 now has nine levels to take into account changes in tertiary education, such as the Bologna structure. Programmes previously classified as level 5 in ISCED-97 will now be allocated to level 5, 6 or 7 in ISCED 2011. Moreover, while ISCED-97 mentioned the position in the national degree structure of tertiary programmes, ISCED 2011 introduces specific coding for this dimension for levels 6 and 7 (bachelor's or equivalent and master's or equivalent levels, respectively).

- ISCED 2011 expands level 0 to include a new category covering early childhood educational development programmes designed for children under the age of 3.

- The ISCED 2011 classification improves the use of general and vocational orientation categories within ISCED levels. Programmes not leading to labour-market relevant qualifications, classified as pre-vocational in ISCED-97, are now mainly classified as general education.

- ISCED-97 distinguished two categories of access to education at higher ISCED levels, depending on the type of subsequent education, while ISCED 2011 identifies only one. The ISCED 2011 sub-category "level completion with access to higher ISCED levels" corresponds to the combined destination categories A and B in ISCED-97. ISCED 2011 further sub-classifies programmes that do not provide access to higher ISCED levels into the sub-categories "no level completion", "partial level completion" and "level completion". These three sub-categories in ISCED 2011 correspond to destination category C in ISCED-97.

5.2 Definition and classification of educational programmes

The educational programme is the basic unit of classification within ISCED 2011 and as such is the main building block for international statistical comparisons in education. This section first defines an educational programme and then describes the various ways in which such programmes can be classified: by level, outcomes and destinations, vocational/general orientation, and field of study.

5.2.1 Definition of an educational programme

The basic units of classification in ISCED are the national (and subnational) education programme and the related recognised educational qualification. An educational programme is defined as a collection of educational activities which are organised to accomplish a predetermined objective or the completion of a specified set of educational tasks.

The term "educational activities" has a broader meaning than terms such as "course" or "class". Educational activities can be courses (e.g. the study of individual subjects) organised into programmes or free-standing courses. They can also include a variety of components not normally characterised as courses, for example periods of work experience in enterprises, research projects and the preparation of dissertations. Objectives could include preparation for more advanced study, the achievement of a qualification, preparation for an occupation or range of occupations, or simply an increase in knowledge and understanding.

An educational programme could be the study of a single subject leading to a recognised qualification or it can be the study of a collection of subjects, along with perhaps a period of work experience, all of which contribute towards the same qualification aim.

5.2.2 Classification of educational programmes by level

Table 5.1 summarises the levels to which programmes are assigned within ISCED 2011 and ISCED-97.

Levels of education are an ordered set grouping education programmes together in relation to gradations of learning experiences, as well as the knowledge, skills and competencies which each programme is designed to impart. The ISCED level reflects the degree of complexity and specialisation of the content of an education programme, from foundational to complex.

From ISCED 2011, **early childhood education** (ISCED level 0) provides learning and educational activities with a holistic approach to support children's early cognitive, physical, social and emotional development and to introduce young children to organised instruction outside of the family context. It aims to develop some of the skills needed for academic readiness and to prepare them for entry into primary education.

■ Table 5.1 ■

ISCED 2011 and ISCED-97 levels compared

ISCED 2011		ISCED-97	
01	Early childhood educational development	0	Pre-primary education
02	Pre-primary education		
1	Primary education	1	Primary education or first stage of basic education
3	Upper secondary education	3	(Upper) secondary education
2	Lower secondary education	2	Lower secondary education or second stage of basic education
4	Post-secondary non-tertiary education	4	Post-secondary non-tertiary education
5	Short-cycle tertiary education	5	First stage of tertiary education not leading directly to an advanced research qualification (5A, 5B)
6	Bachelor's or equivalent level		
7	Master's or equivalent level		
8	Doctoral or equivalent level	6	Second stage of tertiary education leading to an advanced research qualification

Primary education (ISCED level 1) provides learning and educational activities typically designed to provide students with fundamental skills in reading, writing and mathematics (i.e. literacy and numeracy) and establish a solid foundation for learning and understanding core areas of knowledge and personal development, preparing for lower secondary education. It focuses on learning at a basic level of complexity with little, if any, specialisation.

Lower secondary education (ISCED level 2) is typically designed to build on the learning outcomes from ISCED level 1. Usually, the educational aim is to lay the foundation for lifelong learning and human development upon which education systems may then expand further educational opportunities. Programmes at this level are usually organised around a more subject-oriented curriculum, introducing theoretical concepts across a broad range of subjects.

Upper secondary education (ISCED level 3) is typically designed to complete secondary education in preparation for tertiary education, to provide skills relevant to employment, or both. Programmes at this level offer students more varied, specialised and in-depth instruction than in lower secondary education. They are more differentiated, with an increased range of options and streams available.

Post-secondary non-tertiary education (ISCED level 4) provides learning experiences building on secondary education, preparing for labour-market entry as well as tertiary education. It typically targets students who have completed upper secondary education (ISCED level 3), but who want to increase their opportunities to enter the labour market or progress to tertiary education. Programmes are often not significantly more advanced than those at upper secondary education as they typically serve to broaden – rather than deepen – knowledge, skills and competencies. They therefore aim at learning below the high level of complexity characteristic of tertiary education.

Tertiary education (ISCED levels 5 to 8) builds on secondary education, providing learning activities in specialised fields of education. It aims at learning at a high level of complexity and specialisation. Tertiary education includes what is commonly understood as academic education but also includes advanced vocational or professional education.

The level of an educational programme should be determined by its educational content. It is very difficult, however, to directly assess and compare the content of the educational programmes in a way that is internationally comparative. Curricula are too diverse, multi-faceted and complex to allow for clear judgements that one curriculum for students of given age or grade belongs to a higher level of education than another. Therefore, ISCED 2011 defines criteria which describe the characteristics of a programme used to allocate national programmes to ISCED levels (UNESCO-UIS / OECD / EUROSTAT, 2016a).

Categories of education programmes and qualifications

ISCED 2011 categorises education programmes and qualifications according to the outcomes and destinations to which successful completion of the programme (or the resulting qualification) can lead. It is necessary to distinguish between the successful completion of an education programme and the

completion of an ISCED level. At most ISCED levels, ISCED 2011 distinguishes between programmes which are sufficient for level completion and those which are not.

Successful completion of an education programme is the achievement of the learning objectives of the programme typically validated through the assessment of acquired knowledge, skills and competencies. Successful completion of a programme is usually documented by the award of an educational qualification.

Completion of an ISCED level is the successful completion of an education programme sufficient for level completion:

- At ISCED levels 1 and 4-8, the successful completion of a programme meeting the content and minimum duration criteria for the given level is considered as level completion.

- At ISCED levels 2 and 3 the successful completion of any programme granting access to programmes at higher ISCED levels (i.e. ISCED level 3 in the case of ISCED level 2 programmes and ISCED level 5, 6 or 7 in the case of ISCED level 3 programmes) is counted as level completion, as is the completion of any terminal programme meeting the content, minimum duration (2 years) and cumulative duration criteria for the respective ISCED level (i.e. 8 years since the start of ISCED level 1 in the case of ISCED level 2 programmes and 11 years in the case of ISCED level 3 programmes).

Every programme can, in theory, be successfully completed even if it does not lead to any formal qualifications but not all programmes are sufficient for completion of the ISCED level. This can occur where there is a sequence of short programmes within an ISCED level or where there are programmes which are substantially shorter than the typical duration of the given level.

The duration of the programme is one of the main criteria for completion of an ISCED level: programmes representing the normal duration of the ISCED level (see Table 5.2) will usually be sufficient for completion of the ISCED level.

■ Table 5.2 ■
Typical duration of ISCED 2011 levels

ISCED 2011 levels – Typical duration [most common duration]	
01 02	No duration criteria. However, a programme should account for at least the equivalent of 2 hours per day and 100 days a year of educational activities in order to be included
1	4-8 years [most common: 6 years]
2	2-6 years [most common: 3 years]
3	2-5 years [most common: 3 years]
4	6 months to 2 or 3 years
5	2-3 years
6	3-4 years when directly following ISCED level 3 1-2 years when following another ISCED level 6 programme
7	1-4 years when following ISCED level 6 5-7 years when directly following ISCED level 3
8	Minimum 3 years

At ISCED levels 2 and 3, ISCED 2011 provides for a third category of completion: programmes sufficient for partial level completion. In order to be classified as sufficient for partial level completion at ISCED levels 2 or 3, programmes need to represent:

- at least 2 years of study within the ISCED level

- at least the cumulative durations as described in Table 5.3.

■ Table 5.3 ■
Typical cumulative duration of primary and secondary education

ISCED 2011 levels – Typical cumulative duration in primary and secondary education	
1	4-8 years [most common: 6 years]
1+2	8-11 years [most common: 9 years]
1+2+3	11-13 years [most common: 12 years]

ISCED 2011 further categorises programmes which are sufficient for completion of ISCED levels 2-4 into those which give direct access to higher ISCED levels and those which do not. At ISCED level 3, a "higher ISCED level" means ISCED levels 5, 6 or 7. ISCED level 3 programmes which only give access to ISCED level 4 are classified as sufficient for level completion without access to higher ISCED levels.

Education programmes and corresponding qualifications can thus be classified into four categories:

- Insufficient for level completion (with no access to higher ISCED levels).
- Partial level completion (with no access to higher ISCED levels). This category applies only at ISCED levels 2 and 3.
- Level completion without access to higher ISCED levels.
- Level completion with access to higher ISCED levels (UNESCO-UIS / OECD / EUROSTAT, 2016a).

Orientation of education programmes

In ISCED 2011, the two categories of orientation of programmes at ISCED levels 2-5 are general and vocational. ISCED 2011 does not define academic and professional more precisely, but opens up the possibility of using any national definitions that exist.

General education programmes are designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher ISCED level and to lay the foundation for lifelong learning. Such programmes are typically school- or college-based. General education includes education programmes that are designed to prepare participants for entry into vocational education but do not prepare for employment in a particular occupation, trade or class of occupations or trades, nor lead directly to a labour-market relevant qualification.

Vocational education programmes are designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade or class of occupations or trades. Such programmes may have work-based components (for example apprenticeships or dual-system education programmes). Successful completion of such programmes leads to labour-market relevant, vocational qualifications acknowledged as occupationally oriented by the relevant national authorities and/or the labour market.

Both general and vocational programmes can contain some courses or subjects that are common to both programmes. For example, a vocational programme may contain courses on mathematics or the national language which are also taught to students in general programmes. When reporting data on certain statistical units, in particular education personnel, by programme orientation it is the classification of the programme that determines the orientation and not the subject being studied or taught (UNESCO-UIS / OECD / EUROSTAT, 2016a).

Field of education of programmes

Fields of education and training are defined as the subject matter taught in an education programme.

Programmes are classified into fields of education as defined in UNESCO's *ISCED Fields of Education and Training 2013* (UIS, 2014).

The same classification by field of education is used for all levels of education. The fields of education are not defined within levels, but are independent of levels. It is recognised, however, that not all fields appear at all levels.

In summary, the classification distinguishes the following fields:

00 Generic programmes and qualifications

    001 Basic programmes and qualifications

    002 Literacy and numeracy

    003 Personal skills and development

01 Education

    011 Education

02 Arts and humanities

    021 Arts

    022 Humanities (except languages)

    023 Languages

03 Social sciences, journalism and information

    031 Social and behavioural sciences

    032 Journalism and information

04 Business, administration and law

    041 Business and administration

    042 Law

05 Natural sciences, mathematics and statistics

    051 Biological and related sciences

    052 Environment

    053 Physical sciences

    054 Mathematics and statistics

06 Information and communication technologies

    061 Information and communication technologies

07 Engineering, manufacturing and construction

    071 Engineering and engineering trades

    072 Manufacturing and processing

    073 Architecture and construction

08 Agriculture, forestry, fisheries and veterinary

    081 Agriculture

    082 Forestry

    083 Fisheries

    084 Veterinary

09 Health and welfare

    091 Health

    092 Welfare

10 Services

    101 Personal services

    102 Hygiene and occupational health services

    103 Security services

    104 Transport services

5.3 Detailed description of ISCED levels and application of the classification criteria

There are several main and auxiliary criteria that act as proxy measures for educational content, which can help decide how to classify the level of any given educational programme. Table 5.4 outlines the criteria for each ISCED 2011.

■ Table 5.4 ■
Criteria for classifying educational programmes

ISCED level	Main criteria	Subsidiary criteria	Complementary dimensions
Level 0 **Early childhood education**	• educational properties of the programme • institutional context • typical target age of children for whom the programme is designed • programme intensity or duration	• staff qualifications • existence of a regulatory framework • typically not part of compulsory education	One dimension differentiates education programmes at ISCED level 0: target age group
Level 1 **Primary education**	• systematic instruction in fundamental knowledge, skills and competencies • typical entrance age and duration • instruction organised typically by one main class teacher	• part of compulsory education	None

Level 2
Lower secondary education
	• transition to more subject-oriented instruction
	• entry requirements
	• cumulative duration since the beginning of ISCED level 1
		• typical entry age
		• instruction by subject teachers and qualifications of teachers
		• part of compulsory education
			Two dimensions differentiate education programmes at ISCED level 2:
			• Two orientation categories: general and vocational.
			• Four level completion and access sub-categories:
			  1) no completion of ISCED level 2 (and thus without direct access to ISCED 3);
			  2) partial completion of ISCED level 2 without direct access to ISCED 3;
			  3) completion of ISCED level 2 without direct access to ISCED 3; and
			  4) completion of ISCED level 2 with direct access to ISCED 3.

Level 3
Upper secondary education
	• second/final stage of general and vocational secondary education
	• entry requirements
	• cumulative duration since the beginning of ISCED level 1
		• more differentiated programmes, with an increased range of options and streams
		• teachers' qualifications
			Two dimensions differentiate education programmes at ISCED level 3:
			• Two orientation categories: general and vocational.
			• Four level completion and access sub-categories:
			  1) no completion of ISCED level 3 (and thus without direct access to first tertiary programmes at ISCED level 5, 6 or 7);
			  2) partial completion of ISCED level 3 without direct access to first tertiary programmes at ISCED level 5, 6 or 7;
			  3) completion of ISCED level 3 without direct access to first tertiary programmes at ISCED level 5, 6 or 7; and
			  4) completion of ISCED level 3 with direct access to first tertiary programmes at ISCED level 5, 6 or 7.

Level 4
Post-secondary non-tertiary education
	• orientation
	• complexity of content higher than ISCED level 3 and below the level of tertiary education
	• entry requirements
		none	**Two dimensions differentiate education programmes at ISCED level 4:**
			• Two orientation categories: general and vocational.
			• Three level completion and access sub-categories:
			  1) no completion of ISCED level 4;
			  2) completion of ISCED level 4 without direct access to first tertiary programmes at ISCED level 5, 6 or 7; and
			  3) completion of ISCED level 4 with direct access to first tertiary programmes at ISCED level 5, 6 or 7.

Level 5
Short-cycle tertiary education
	• content of short-cycle tertiary education programmes
	• entry requirements
	• minimum duration of level
		• institutional transition point
		• typical duration of level
			Two dimensions differentiate education programmes at ISCED level 5:
			• Two orientation categories: general and vocational.
			• Two level completion and access sub-categories:
			  1) no completion of ISCED level 5, if the stage (or programme) is less than two years' duration and therefore insufficient for completion of the level; and
			  2) completion of ISCED level 5 if the programme has a duration of two or more years and is therefore sufficient for completion of the level.

■ Table 5.4 ■
Criteria for classifying educational programmes (continued)

ISCED level	Main criteria	Subsidiary criteria	Complementary dimensions

Level 6
Bachelor's or
equivalent level
	• theoretically and/or professionally based content
	• entry requirements
	• minimum cumulative duration of (first-degree) programme
	• position in the national degree and qualification structure
		• staff qualifications	**Two dimensions differentiate education programmes at ISCED level 6:**
			• Two orientation categories: general and vocational.
			• Four level completion and access sub-categories:
			  1) stage (or programme) within a first degree at bachelor's or equivalent level with a cumulative theoretical duration (at tertiary level) of less than three years, therefore insufficient for completion of the level;
			  2) first-degree programme at bachelor's or equivalent level with a cumulative theoretical duration (at tertiary level) of three to four years;
			  3) long first-degree programme at bachelor's or equivalent level with a cumulative theoretical duration (at tertiary level) of more than four years; and
			  4) second or further degree programme at bachelor's or equivalent level (following successful completion of a bachelor's or equivalent programme).

Level 7
Master's or
equivalent level
	• theoretically and/or professionally based content
	• position in the national degree and qualification structure
	• entry requirements
		• minimum cumulative duration of long first-degree programme
		• direct access to ISCED level 8 programmes
			Two dimensions differentiate education programmes at ISCED level 7:
			• Two orientation categories: general and vocational.
			• Four level completion and access sub-categories:
			  1) stage (or programme) within a first degree at master's or equivalent level with a cumulative theoretical duration (at tertiary level) of less than five years, therefore insufficient for completion of the level;
			  2) long first-degree programme at a master's or equivalent level with a cumulative theoretical duration (at tertiary level) of at least five years (that does not require prior tertiary education);
			  3) second or further degree programme at master's or equivalent level (following successful completion of a bachelor's or equivalent programme); and
			  4) second or further degree programme at master's or equivalent level (following successful completion of another master's or equivalent programme).

Level 8 **Doctoral or** **equivalent level**	• written work requirements • entry requirements • minimum duration of level	• doctoral degree/qualification required for specific occupations	**One dimension differentiate education programmes at ISCED level 8:** • Two orientation categories: academic and professional.

Source: UIS (2012).

5.4 Country ISCED mappings

From the initial implementation of ISCED, it has been crucial to accurately document how the ISCED classification maps onto national educational programmes.

Since the public release of the new ISCED classification, OECD member countries have invested great efforts into establishing new mappings of their national educational programmes to ISCED 2011. Making the mapping of countries transparent to data providers and users of educational data is one of the most important steps in implementing ISCED 2011. As educational systems and their programmes are not static, it is crucial that ISCED remain a flexible tool for classifying programmes. It is crucial that changes in educational systems are mirrored in the ISCED mapping of countries, and, equally important, that those changes remain transparent to other countries. The ISCED mappings are therefore kept up-to-date every year via a questionnaire as part of the regular UOE data collection.
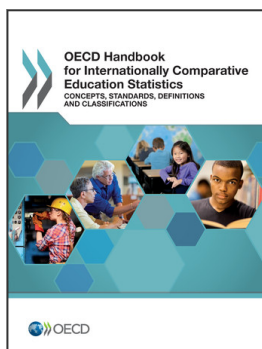
The link to the latest version of the country mappings at the time of publication is contained in Annex 2.

References

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