

Suggestions for the cross-national measurement of educational attainment: refining the ISCED-97 and improving data collection and coding procedures

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This final chapter puts forward some ideas so as to overcome a number of problems raised by the country experts and synthesised in the introductory chapter. These were summarised as 1) difficulties in the application of the ISCED-97 to actual educational qualifications in different countries, 2) a restricted implementation of the ISCED-97 in cross-national surveys and 3) conceptual problems of the ISCED-97 itself. The first section deals with the measurement of educational attainment generally and presents some ideas on how the country-specific measurement instruments could be enhanced. The second section proposes a strategy for improving the implementation of the ISCED in cross-national surveys in order to obtain more relevant, more comparable and more flexible data. The third section finally shows how the ISCED-97 itself could be refined when it is next revised so that a number of conceptual and application-related problems could be solved.

1 Refinement of country-specific instruments

National and cross-national social surveys do not always employ state-of-the-art instruments for the country-specific measurement of educational attainment. Instead, a questionnaire item with only a restricted set of national education categories is often used, where different educational qualifications are combined already at the stage of data collection. As a consequence, there is not much flexibility as regards the possibilities for recoding country-specific variables into cross-nationally comparable variables, which consequently leads to very aggregated and heterogeneous international educational attainment categories.¹ This in turn hugely restricts the potential usage and cross-national comparability of the data: Even if the international categories are nominally comparable, the heterogeneity of the international categories can be expected to differ across countries.

¹ The probability of this happening increases if the comparable scheme is specified ex-ante and is not very detailed like e.g. the simplified version of the ISCED-97 in the ESS, because then apparently only the coding needs of a crude cross-national classification need to be satisfied by the country-specific instrument. Some countries used instruments that were supposed to *just* cover the ex-ante specified (levels-only) ISCED-97 (e.g. UK rounds 1 and 3, Slovenia and Finland), which therefore comes close to input-harmonisation. The instruments used in some countries or ESS rounds do not even allow coding into simplified ISCED (e.g. Austria, UK in round 2).

It therefore cannot be stressed enough that all countries should collect their data on educational attainment in a highly detailed way, covering all educational qualifications occurring among the adult population in a country, as only this ensures that categories that are comparable cross-nationally *and* over time can be constructed. Moreover, if the original data do not distinguish between all categories, it is impossible to empirically test if there is any difference between them in terms of e.g. labour market outcomes. It must be made sure that, whenever the OECD/Eurostat mappings assign different ISCED (sub-) categories to different qualifications, *at least these* are distinguished in the country-specific variables.² This holds even if some distinctions would not make sense from a national point of view: They could become important on an international scale, as what is conceived as equivalent in one country might not be in another country, or even less so in the ISCED framework (see e.g. the problems with distinguishing ISCED level 4 from level 3). Data collection instruments used in censuses and national labour force surveys would possibly be a good starting point, as they tend to be relatively differentiated and well-tested (but even these might still be sub-optimal, as a number of authors show in their country chapters).

Additionally, it would be valuable if all countries also collected information on non-certified education in a standardised way. 'Uncertified education' means attendance or completion of an educational programme without attaining a formal certificate (i.e. dropouts and failures, e.g. incomplete university studies, common in many countries). Non-certified education *can* make a difference in terms of educational attainment, but the difference between those who drop out and those who complete a specific educational programme in terms of e.g. labour market prospects can be expected to differ across countries (but failing appropriate data, this remains to be analysed).

Furthermore, changes in educational systems should be reflected in the country-specific measures from their implementation onwards. For example, Bachelor's degrees have recently been introduced in many continental European countries that, before the Bologna reforms, only had long university programmes (and slightly shorter programmes at polytechnic universities). The Bachelor's degree requires its own response category in country-specific variables, even if the number of cases affected is still low. The same applies to the new Master's degrees: although they are supposed to be equivalent with the previous long university programmes, it is desirable to cover them in separate response categories. Otherwise it is not possible to empirically test potential differences between the 'old' and 'new' degrees. In a similar manner, past changes in educational systems and 'outdated' qualifications should also be covered in separate categories.

² Bearing in mind that the ISCED will probably be revised in the future, this is only a minimal condition. More detail is preferable.

Finally, a more specific disadvantage of most common approaches to measuring educational attainment is that information on individual pathways taken through the educational system is usually neglected. This is important information for assessing the *cumulative* amount of education an individual has achieved, and without such information, ISCED level 4 cannot be differentiated from level 3 in many countries. The lack of information on educational careers also requires researchers who analyse educational *transitions* to infer these from the highest level of education attained, which relies on strong assumptions and ignores non-standard paths.

There are some ways to improve the information available by refining the data collection procedures: Firstly, instead of asking respondents for their highest level of educational attainment only, they could be asked for *all* qualifications they hold. Respondents would thus not tick *one* response category of the questionnaire item, but *all that apply*. Secondly, the same procedure could be applied to all educational programmes respondents attended without achieving the respective certificate so as to identify *uncertified education*. Thirdly, a further layer of information on educational *careers* could be gained if the temporal order in which qualifications were attained was recorded. As educational careers become less standardised and multiple training episodes are quite common (for Germany: Hillmert and Jacob, 2003), and the analysis of educational transitions (Mare, 1980) is a very valuable and paradigmatic approach in the analysis of educational opportunity, it would be desirable to collect such information by default.³ Fourthly, the coverage of very low levels of education (i.e. individuals without certificate, but differing levels of general education) could be improved and standardised using a separate questionnaire item for respondents who report not to have any formal certificates. Many countries do not currently differentiate enough below ISCED level 2 (see first chapter, section 3.2.2). Finally, in countries with no between-school tracking at ISCED level 2 (that thus only use ISCED 2A currently), it would be useful to still distinguish between ability groups or final marks that strongly influence the transition to upper secondary education in the country-specific instrument.

Figure 1 shows an example of how such a questionnaire item could look like. The example respondent went to the highest track of lower secondary schooling, then completed upper secondary vocational training, obtained a second-chance higher education entrance qualification and finally completed a Bachelor's degree. He/she did not drop out or fail at any level.

³ This however works only if educational attainment is measured with a single questionnaire item. If general education and vocational and higher education are covered by two separate questionnaire items, as e.g. in Germany, it is hard to come up with understandable interviewing instructions that enable the respondent to give the order in which he or she obtained the qualifications, particularly when he or she followed a non-standard path. The information could however be collected with one item in Germany, too.

Figure 1. Proposed template for country-specific data collection on educational attainment

A1: Which of the following educational qualifications do you hold? Please number all that apply in the order in which you completed them (column A).

	A		B
None	<input type="checkbox"/>	→ Go to 'A2' below	X
[Qualification corresponding to ISCED 2C]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 2B]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 2A]	1		<input type="checkbox"/>
[Qualification corresponding to ISCED 3C]	2		<input type="checkbox"/>
[Another qualification corresponding to ISCED 3C]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 3B]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 3A]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 4C]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 4B]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 4A]	3		<input type="checkbox"/>
[An outdated qualification corresponding to ISCED 4A]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 5B]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 5A 1 st and medium]	4		<input type="checkbox"/>
[Qualification corresponding to ISCED 5A 2 nd and medium]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 5A 1 st /2 nd and long]	<input type="checkbox"/>		<input type="checkbox"/>
[Qualification corresponding to ISCED 6]	<input type="checkbox"/>		<input type="checkbox"/>

A2: If "none" at item A1: Did you complete...

[Primary education/the first stage of basic education]?	<input type="checkbox"/>
[Lower secondary education/the second stage of basic education]?	<input type="checkbox"/>

B: Which qualifications did you study for, without acquiring the final certificate? Please tick all that apply (column B above).

Note: The response categories in brackets have to be replaced by the denotation of the country-specific educational qualifications. If there are several national qualifications corresponding to a specific ISCED sub-category, they should be covered in separate response categories (shown for 3C here).

The additional costs of this procedure in terms of interviewing time would be justifiable in light of the increased richness of information. The initial data would of course have to be coded using dichotomous variables, which would make later re-coding slightly more complicated. These procedures would however increase the scope of research questions that could be tackled enormously, for which otherwise quite specialised data sets are currently required, none of which are cross-national.

2 Suggestions for measuring educational attainment in cross-national survey research

The common approach to measuring educational attainment in cross-national surveys consists in collecting the data using country specific instruments. The resulting variables are then harmonised by being recoded into a cross-nationally comparable scheme (output-harmonisation), which can then be used in statistical analyses or further recoded (Statistisches Bundesamt Deutschland, 2004). At present, country-specific variables are however only recoded into simplified versions of the ISCED-97. For example, the version of the ISCED-97 used in the EU-LFS ignores the distinctions between ISCED 3A and 3B, between '3A (gen)' and '3A (voc)' and between '5A 1st and medium', '5A 2nd and medium', '5A 1st and long' and '5A 2nd and long'. The comparable education variable in the ESS is even less detailed, because it only uses the seven main ISCED levels, resulting in a high degree of heterogeneity within ISCED levels 3 and 5.⁴ In addition, in the case of the EU-LFS and PISA, the original country-specific variables are neither included in the data sets nor otherwise easily available. This again results in a lack of flexibility and detail with respect to later usage of the data.

The full ISCED-97 however has very many categories, which is probably the reason why it is not implemented as is: Researchers would not like to include 15+ dummy variables for educational attainment in their statistical analyses. The analysis of such data would also be difficult since some categories would be empty or only sparsely populated in some countries, but not others. How can a satisfactory degree of differentiation be maintained without excessively increasing the number of categories to be used in actual statistical analyses?

It is proposed to add another step to the measurement procedure in order to improve the quality and relevance of cross-national educational attainment data: The first step, as usual, consists in collecting data on educational attainment in the national format. Detailed country-specific measures are probably the most important prerequisite for the adequate cross-national measurement of educational attainment, and some proposals on how to achieve this were made in section 1. In a second step, which covers the harmonisation process, the country-specific variables are translated into the *most detailed* ISCED categories. This is preferably performed in a centrally coordinated way, in order to ensure consistency across countries in the coding process. In a *third* step only, the number of categories in the harmonised variable is reduced by aggregating specific ISCED sub-categories in a way that firstly makes the data more usable in statistical analyses, and secondly ensures that only unnecessary detail, but no essential distinctions are lost (one proposal of such

⁴ Researchers can however go through the lengthy process of deriving the desired variable from the country-specific variables (if these are sufficient, which they are often not).

a simplified classification was made in Schneider, 2007, and will be further developed). This last step could be adapted to the kind of research question and the scope of countries covered.

This procedure would allow the provision of very detailed cross-nationally comparable data on educational attainment for later recoding *alongside* simplified data that are usable and meaningful in many statistical analyses. It would be far easier to derive more specific education variables from the detailed harmonised variable than from the country-specific variables. The only drawback would be the additional (initial) coding effort. Considering how many researchers use educational attainment variables in cross-national surveys in their daily work and would like to use high-quality and maybe also purpose-built educational attainment variables, this should not be a major obstacle though.

3 Suggestions for the next revision of the ISCED

The ISCED was not specifically developed for social survey research and facilitating comparative sociological investigations, but rather for statistical reporting, monitoring and information of national educational policy. It is therefore not surprising that it does not always perfectly fit the needs of social scientists doing empirical research, who have different and possibly more demanding data requirements than policy makers.⁵ The ISCED nevertheless has a number of advantages over alternative ways of measuring educational attainment cross-nationally: It is centrally developed, documented and maintained by the UNESCO and OECD, so that a considerable degree of organisational continuity is guaranteed. Moreover, it is more systematically and comprehensively documented than any other cross-national classification of educational attainment, including basic definitions, numerous examples and detailed mapping tables linking country-specific qualifications to ISCED-categories for a large number of countries. Finally, if the data is coded with sufficient detail, it is a very flexible tool that can be adapted to the analysis of many sociological research questions by further recoding.

Therefore, in addition to the proposed changes in data collection and coding procedures, we would like to propose some areas where the ISCED-97 framework itself could be improved to make it more useful for cross-national survey research: Firstly, the ISCED-97 focuses on cross-national comparability only. Its definitions however can be applied to comparability across time just as well. Secondly, the

⁵ The political relevance of the ISCED furthermore entails some danger of manipulation: some programme characteristics (e.g. entry requirements) can be formally changed through educational reforms, which could then lead to a politically welcome upgrading of the respective or preceding educational programmes, and consequently of the distribution of education within that country as reflected by the ISCED.

classification of uncertified education (dropouts and programme completers without certificates) should be made explicit. Thirdly, many country experts judged the degree of differentiation within tertiary education in ISCED-coded data insufficient. Lastly, the use of programme destination as the dominant sub-dimension at ISCED levels 2 to 4 can be contested, and it is suggested to construct sub-categories within these ISCED levels that do not supersede each other and are less vulnerable to manipulation. In order to avoid confusion between the ISCED-97 and the proposed revisions, the latter will be referred to in lower case rather than upper case letters (e.g. 2a instead of 2A).

3.1 Coverage of outdated qualifications and comparability across time

The ISCED-97 in its present form is not well suited for over-time or cohort-comparisons, as educational programmes not awarded in 1997 are not covered by the OECD/Eurostat mappings (see first chapter, section 3.2.1). Any sample of the current population in a country however includes many individuals who hold educational qualifications that were not awarded in 1997. It would thus be desirable that a historical dimension is added to the ISCED-97, by assigning ISCED codes to outdated educational qualifications.

There are two approaches to classifying outdated educational qualifications in the ISCED-97: Either the ISCED criteria are applied to outdated qualifications in the same way as to current qualifications, or outdated qualifications are assigned to the same ISCED category as current qualifications that are regarded as equivalent from a national point of view. Whereas the former solution might result in qualifications which are seen as equivalent in a country being classified in different ISCED categories, the latter might lead to inconsistencies with the ISCED framework and bears the risk of hiding actual differences and thus change over time. Official equivalence rules are sometimes doubtful and incompatible with the ISCED framework, as 'equivalence' can be understood in a number of ways: Whereas in the ISCED 'equivalence' refers to comparable programme destination, duration, entry conditions and complexity of the educational content, it may nationally be understood as 'equivalent content' or 'equivalent functions for the labour market'. It is therefore advisable to follow the first procedure and treat variation over time in the same way as variation across countries: If the ISCED criteria are indeed universally applicable, the ISCED framework can be used for harmonisation over time just as well as across countries. If a national educational programme were up- or downgraded in the national educational system in terms of entry requirements, programme duration and the like, this would be adequately reflected in the ISCED. This of course requires that outdated and current qualifications be differentiated by the country-specific instrument (see section 1), which is currently not always the case (see e.g. the chapter on Spain by Luis Ortiz).

3.2 Coverage of uncertified education

With respect to the classification of uncertified education, this is ‘only’ important for the measurement of educational attainment in contrast to educational enrolment. In the current ISCED, it is unclear how uncertified education should be dealt with. Country-specific education variables often include specific categories for dropouts. It would be highly desirable if the ISCED specified explicitly how to classify them, so that this can be resolved in an equal way in all countries in order to reach comparability. The prerequisite for this is that information on educational programmes *attended without graduating* is collected in all countries (see section 1 for more details on how this could be achieved).

To illustrate, in France, failure rates at the level of *baccalauréat* or vocational upper secondary education (BEP and CAP) are comparatively high. Nevertheless, the individuals’ ‘educational biography’ matters a lot (Brauns and Steinmann, 1999: 34f). In the contribution by Annick Kieffer it is therefore proposed to use ISCED 2C for classifying dropouts from upper secondary education. In the UK, there are many individuals without any formal qualification who nevertheless completed compulsory education. In the current implementation of the ISCED-97, these are classified as ISCED 2A, which is not comparable to category 2A in other countries (see the chapter on the UK). If they were classified as ISCED 1 however, this would be substantively inadequate, and it would mean that these cases could not be distinguished from dropouts from lower secondary school, who would also be coded as ISCED 1. The author therefore suggests classifying such cases as 2C.

Although both proposals for the use of ISCED 2C are equally plausible in terms of the ISCED, as both groups of cases have finished lower secondary education and practically access to the labour market only, they are incompatible: Dropouts from upper secondary education have a higher level of attainment than lower secondary school completers without certificate, so that they should not end up in the same category. Another problem with both suggestions is that cross-national surveys usually do not differentiate between A, B and C at ISCED level 2 (see first chapter, section 3.3, and section 2 in this chapter).

There are three ways of dealing with country-specific dropout categories: Firstly, dropouts could be consistently coded upward or downward or in a category between the two categories in question. The most common solution is to revert to the highest *completed* level of education. This however often has to be inferred on theoretical grounds (e.g. dropouts from university will most probably – but not necessarily – have a general university entrance qualification as their highest completed level of education). Downgrading dropouts to their last completed level of education may also introduce heterogeneity in that lower category. Upgrading would have the same effect in the higher category, and choosing a category ‘in the middle’ (assuming ordinality between the categories in question) may lead to a

muddle of very different educational qualifications in that category. Secondly, another variable closely related to educational attainment could be used for determining which educational attainment category comes closest to the dropout category with respect this variable. The dropout category would then be merged with that one. Although this is a pragmatic solution, it is always relative to the chosen outcome and can again lead to a mix of very different country-specific categories in one international one. Lastly, specific sub-categories for non-certified education could be introduced into the classification. For example, ISCED 1 could remain the category for dropouts from lower secondary education, '2d' could be used for those who completed lower secondary education without formal certificate, and '3d', '4d', '5d', '6d', '7d' and '8d' for dropouts from the respective ISCED levels. Researchers could then later decide on theoretical grounds, depending on their research questions, with which categories to merge them. Obviously none of these options is really satisfactory, but the last one would probably be most flexible and transparent.

3.3 Differentiation within tertiary education

In the first chapter (section 3.1.3) it was observed that there is some heterogeneity within ISCED level 5A even if the available sub-dimensions are used, as there are no separate categories for different tiers in higher education (i.e. technical colleges/polytechnics and traditional universities), and 'theoretical programme duration' does not always differentiate between them either. As lower tier 5A qualifications are not perceived to *really* belong to ISCED 5A, some country experts tended to include lower tier 5A programmes in ISCED 5B (e.g. Italy, Hungary).⁶ However, there are also substantial differences between those 5A and 5B qualifications. The authors thus suggest using an additional sub-category C at ISCED level 5. Then, 5a programmes, restricted to traditional university degrees, would ultimately prepare for ISCED level 6, whereas 5b programmes, from where it is usually difficult to go to 5a programmes and even more so to ISCED 6, would lead to high skill professions. 5c finally (i.e. the former 5b) would prepare for direct labour market entry, and might give access to 5b in some cases, but not to 5a. With this amount of differentiation, the classification of tertiary education programmes and qualifications should be easier and more meaningful in many countries.

Moreover, it would be advantageous to exclude vocational tertiary education (ISCED 5B/5c) entirely from ISCED level 5. This would mean to reinstate one feature of the ISCED-76, namely the strict differentiation of sub-degree and degree level programmes in post-secondary/tertiary education. Using the ISCED-97, there is a

⁶ In France, licence professionnelle is in fact classified as '5B (medium)' by the OECD, which is somewhat inconsistent with the way similar qualifications are classified in other countries (e.g. HBO Bachelor in the Netherlands, classified as 5A).

danger that if only the main ISCED levels are used, vocational sub-degree level tertiary qualifications are merged with university degrees, which absolutely needs to be avoided. This could have happened in the ESS, with the consequence that some (but not all) national teams decided to code 5B qualifications in ISCED level 4, which in turn leads to non-comparability across countries.

The exclusion of ISCED 5B from degree-level qualifications would be achieved by splitting ISCED level 4 into two levels, the lower one (level 4) being used for second-cycle and second chance upper secondary programmes only, and the new higher one (level 5, labelled 'sub-degree level tertiary education') being used for the remaining ISCED 4 programmes as well as ISCED 5B. As a side effect, the new levels 4 and 5 would also be more clearly defined than ISCED 4 is in the ISCED-97. Degree-level and higher programmes would be shifted up one level to form the new categories '6a' and '6b'. The new level 5 could be internally differentiated into 'b' programmes giving access to '6b' (and, in rare occasions, '6a'), and 'c' programmes giving access to the labour market only. In France for example, this would allow a distinction between DUT (5b) and BTS (5c), and the *Licence professionnelle* created in 1999 would then be classified as '6b'.

Lastly, it was emphasised many times that the sub-dimensions 'programme duration' and 'position in the national degree structure', despite being formally defined, are under-reflected in data coded using the ISCED-97 (see first chapter, section 3.3). Therefore it is suggested to turn the different stages of higher education into distinct ISCED levels, one for first degrees of up to four years duration (Bachelor's level), and another for first degrees of more than four years duration and second degrees (Master's level). This proposal is also motivated by the increasing differentiation of higher education in Europe along these lines due to the Bologna process. Sub-degree intermediate academic qualifications (*DEUG* in France or *Vordiplom* in Germany) that only exist in a small number of countries and do not constitute full qualifications could be included in the new level 5 as '5a' (otherwise empty, as advanced vocational programmes do not prepare for '6a').

Table 1 gives an overview over the changes suggested for ISCED-97 levels 4, 5 and 6, which are supposed to more adequately reflect the internal hierarchy of educational programmes and qualifications.

A problem with this proposal is that the national data often do not sufficiently differentiate between the suggested levels 6 and 7 yet. With the introduction of the European Higher Education Area (EHEA), the difference between medium and long or first and second degrees can however be expected to become even more important and should certainly be reflected in future surveys.

The difference between traditional academic and modern polytechnic institutions in turn might become more and more difficult to record in interviews, as the dividing lines between these types of institutions are already blurred in some countries, and they sometimes award the same types of degrees. In the UK for example, all

Table 1. Proposed new structure of the ISCED at the post-secondary level

Proposed ISCED level	a	b	c	d
4: Second-cycle upper secondary, previously ISCED 4	Second chance programmes preparing for 6a, previously 4A (gen)	Second chance programme preparing for 6b, vocational upper secondary after general upper secondary, previously 4A (gen) and 4A (voc)	Second cycle vocational training (vocational re-orientation), previously second cycle 4B programmes	Dropouts and failures from level 4
5: Sub-degree level tertiary, previously ISCED 4 and 5	Intermediate university qualifications, previously 5A intermediate	Advanced vocational programmes giving access to 6b (and exceptionally 6a), previously 5B	Advanced vocational programmes preparing for labour market entry and 5b only, previously 4B, 4C and 5B	... from level 5
6: Lower tertiary degree (BA level), previously 5A first if ≤4 years	University/academic, upper tier higher education	Polytechnic/professional, lower tier higher education	—	... from level 6
7: Higher tertiary degree (MA level), previously 5A second or >4 years	University/academic, upper tier higher education	Polytechnic/professional, lower tier higher education	—	... from level 7
8: Advanced research (PhD level), previously ISCED 6	University/academic, upper tier higher education	—	—	... from level 8

polytechnics formally became regular universities in 1992, and whenever the same degrees are awarded (e.g. Bachelor's degree), it is impossible to tell from the current data which kind of institution a graduate attended. In Germany, the Bachelor's degree awarded by universities and *Fachhochschulen* will not be easily differenti-

ated either, unless the data collection procedures are adapted to accommodate this. Due to the enormous expansion the university sector experienced in most countries in the last 50 years, it has become very diversified (Shavit et al., 2007), making it necessary to introduce some criteria for distinguishing between different kinds of higher education in the long run (e.g. research-oriented vs. teaching-oriented).

Finally, in some countries, a small number of very specific institutions whose graduates differ in terms of origins and destinations from mass-university graduates are not identified by the ISCED-97. This is particularly the case in countries with a significant sector of elite institutions, like the *Grandes Écoles* in France or “Oxbridge” or the Russell Group universities in the UK. It would be desirable to have additional information on graduation from elite universities in such countries. As this would be difficult to implement in the ISCED framework, it is suggested to take this dimension into account using a separate variable in the respective countries. In other countries, reputation rather varies along departmental than university lines, which is even more difficult to assess in a questionnaire and thus probably beyond the scope of a general educational attainment variable.

3.4 Programme destination redefined

A central criterion for the differentiation between educational programmes in the ISCED-97 is the distinction between programmes that are designed to prepare for education of a certain type at a higher level and those that do not. In a rather high number of countries, category 3A was judged too heterogeneous, including traditional university-preparatory educational programmes, general programmes that give access to a limited set of higher education institutions, as well as vocational upper secondary programmes that in theory give access to university. Therefore, the effective dominance of ‘programme destination’ over ‘programme orientation’ was challenged (see first chapter, section 3.1.2), and thus calls for a solution whereby the distinction between vocational and general education is less blurred.

This can be achieved by more strictly applying the OECD’s recommendation with respect to ‘programme destination’. In fact, the sub-categories A, B and C representing the sub-dimension ‘programme destination’ are defined somewhat differently at different levels of education (see first chapter, section 2.2.1) and even in different pieces of documentation (see first chapter, section 3.1.1). The OECD manual tries to clarify the notion of a programme being ‘*designed to provide direct access to...*’ by noting that

“... direct access should not be interpreted as either a strict legal definition of the destination of programmes (which might be far from the reality) or by looking at the actual destination of students (which might be strongly influenced by the current labour market situation). Programmes

should be mapped to A, B, and C based on the orientation of the design of the curriculum, that is, what type of Level 5 programmes (A or B) does the curriculum of the Level 3 programme prepare students to attend or is the programme primarily designed to prepare students for direct labour market entry.” (OECD, 1999: 40)

However, it seems that the country mappings in most cases reflect theoretical or even legal rights of access rather than educational content in this regard. Therefore, in order to increase the comparability and relevance of the resulting data, it is suggested to more uniformly define ‘programme destination’ at ISCED levels 2 to 5 as the destination an educational programme is *‘designed to prepare students for in terms of its curricular content’*. The consequences of this, combined with the proposed changes of classifying higher education suggested above, for the specification of programme destination at ISCED levels 2, 3 and 4, are presented in the following.

With respect to ISCED level 3, it can be assumed that traditional general upper secondary education best prepares students for entry into traditional universities (6a), whereas vocational training programmes do not (even if, politically, it is intended that choice of the latter does not preclude university entry). The main reasons for this are that firstly, the kinds of skills imparted on students in general education give general education graduates higher chances of success in potential entrance examinations, and increase the probability of successfully graduating from university. Secondly, general university entrance qualifications have a better reputation and are probably more highly valued by universities than vocational certificates, which increases the selection probability for general education graduates (in cases where there are no entrance examinations). Therefore, only traditional university-preparatory upper secondary general education programmes and qualifications (currently coded as ‘ISCED 3A (gen)’, e.g. *A-Levels*, *Abitur*, *VWO-diploma*, *general maturity*, or *baccalauréat général*) should be considered to fulfil the requirements for being classified in the new sub-category ‘3a’. The new definition would thus be that ‘3a’ covers the highest general upper secondary education programmes that are, in terms of their curricular content, designed to prepare students for access to ‘6a’.

In countries with a two-tiered university system, lower tier institutions (6b) are usually less selective than traditional universities. Also, the fields of studies offered by polytechnics are more professionally or vocationally oriented than those at traditional universities. Therefore it could be argued that applicants with vocational university entrance qualifications (currently coded as ‘ISCED 3A (voc)’) are prepared for entry into such programmes rather than traditional universities. Furthermore, general upper secondary qualifications that either do not give access to ‘6a’ (e.g. *HAVO-diploma* in the Netherlands and *Fachhochschulreife* in Germany, currently ‘3A (gen)’) or qualifications that in principle do, but with lower chances of success

than the alternative qualification (e.g. *baccalauréat technologique* in France) would also fall in this new category, which is '3b'. Category '3b' is thus defined as educational programmes designed to prepare students for access to '6b' and non-traditional (often vocational) programmes giving access to (but not really preparing students for) '6a'.⁷ These will be called 'intermediate upper secondary programmes'.

So how are the previous ISCED 3B programmes classified? Category 3B is in fact not widely used, because in most countries, 3A qualifications are required to enter ISCED 5A as well as 5B programmes. In a few countries (e.g. Italy, Iceland and Portugal), ISCED 3B is almost exclusively used for upper secondary education in special music, dance and fine arts schools, i.e. rather marginal programmes that are probably included in 3A in other countries. Such 3B programmes would be classified as '3b' in the revised ISCED proposed here. In the German-speaking countries with their dual-system tradition of apprenticeships (i.e. Germany, Austria and Switzerland), initial vocational training is currently classified as 3B. These programmes are functionally equivalent with 3C programmes in other countries, apart from the fact that the former countries have advanced vocational training programmes, classified as ISCED 5B, which require the completion of initial vocational training. It is suggested here to classify these 3B qualifications together with the former ISCED 3C qualifications in a new category '3c'. This would then be redefined as programmes not preparing for '6a' or '6b', but for labour market entry *and* advanced vocational education classified 5b and 5c.

The differentiation of traditional academic, traditional vocational and intermediate education programmes at level 3 makes the ISCED more parsimonious and meaningful and the resulting data more comparable. The neglect of the sub-dimension 'programme orientation' would not pose a substantial problem any more at this level of education.⁸ Relying on 'programme orientation' alone is not an alternative, as in many countries there are two types of vocational upper secondary education, some of which give access to higher education, whereas the others do not. These thus need to be split into '3b' and '3c'. In other countries, there are two types of general upper secondary education, which are thus split into '3a' and '3b'.

As proposed above, the new level 4 would be reserved for second-cycle upper secondary programmes in order to facilitate the distinction between these and advanced ("truly post-secondary") vocational programmes (now level 5) on the one hand, and for accounting more adequately for differing 'cumulative' levels of education when people complete two upper secondary education programmes, on the

⁷ Many graduates with a vocational university entrance qualification might indeed choose to enter the labour market rather than higher education.

⁸ The intermediate category however still contains a mix of vocational and general programmes, usually however not for the same country. To avoid this, a fourth sub-category at level 3 would have to be implemented.

other. For differentiating between levels 3 and 4, some information on educational careers needs to be collected. Currently, if an individual holds two upper secondary qualifications, it largely depends on national idiosyncrasies in the data collection process if the vocational or general qualification is recorded as the 'highest' level of educational attainment (although the ISCED-97 actually already requires a clear distinction here, see first chapter, section 3.2.2). '4a' would cover second chance or second cycle upper secondary general programmes preparing for '6a' (the path 3b/c + 3a, e.g. *Access qualifications* in the UK, *Abitur at Abendgymnasium* in Germany), '4b' a mix of vocational and general programmes not preparing specifically for '6a' (3a/b/c + 3b/c, e.g. *baccalauréat professionnel* in France, *Fachhochschulreife* from *Berufsoberschule* or vocational training after *Abitur* or *Fachhochschulreife* in Germany and *MBO-plus* in the Netherlands) and '4c' second cycle vocational upper secondary programmes for vocational upper secondary graduates, i.e. vocational reorientation (3b/c + 3b/c, e.g. *berufliche Zweitausbildung* in Germany).

With respect to ISCED level 2, it was mentioned by several authors that the amount of tracking effective in some European countries at the lower secondary level is currently not well reflected in the ISCED-97. It is therefore suggested, in line with the proposed changes at levels 3 and 5, to reserve '2a' for educational programmes preparing for '3a' (rather than 3A and 3B, as in the current ISCED-97). Then, '2b' would prepare for '3b' (rather than 3C), and '2c' for '3c' and access to the labour market (rather than the latter only). As a consequence, some crucial differences between lower secondary education programmes would become visible in a number of countries: For example, between the first years of *Gymnasium* or *Realschulabschluss* with qualification for general upper secondary (2a) on the one hand and *Realschulabschluss* without qualification for general upper secondary and *Hauptschulabschluss* (2c) on the other hand in Germany; between the first years of *VWO* (2a), the first years of *HAVO* (2b) and *VMBO* (2c) in the Netherlands; and between *GCSEs (A to C)* (2a), *NVQ 2* (2b) and *GCSEs (D to G)* and *NVQ 1* (2c) in the UK.

Moreover, as actual access to '3a' is often conditional on level 2 graduation marks, graduates with results that usually impede access to '3a' could be classified as '2b'. Thereby it would be possible to reflect the results of streaming or internal tracking within comprehensive schools, particularly in countries that only have one type of lower secondary education certificate (classified as ISCED 2A). Again, this is usually not yet reflected in the country-specific data.

3.5 Summary of the proposals for the next revision of the ISCED

To sum up, it is suggested that the structure of ISCED levels for post-secondary education be changed and the distinctiveness of the sub-dimension 'programme destination' be increased at all levels. In order to more clearly differentiate between degree- and sub-degree post-secondary/tertiary education, a separate level

(the new level 5) is introduced. It covers advanced vocational education, previously classified as 4B and 4C (if less than two years) and 5B (if two years and longer) as well as intermediate university qualifications. Second cycle and second chance upper secondary programmes, also included in the current ISCED level 4, would remain there. Qualifications classified as ISCED 5A previously would shift to the new levels 6 (for Bachelor's level degrees) and 7 (for Master's level degrees). The previous ISCED 6 is moved to a new level 8. As a consequence of these changes, the collapsing of sub-categories within levels, if still not desirable, would be less consequential for data quality at the higher education level.

With respect to 'programme destination' at levels 2, 3, 6 and 7, sub-category 'a' is proposed to be reserved entirely for the most academically selective general education and academic programmes, ultimately leading to level 8 in a series of direct steps (2a, 3a, 6a, 7a). '4a' would continue to be used for second chance upper secondary general programmes. '5a' does not exist in most countries, as advanced vocational education is never 'designed to prepare for' traditional academic university studies. '5a' could however be used for two-year (intermediate) university programmes that are part of a first-degree programme in some countries.

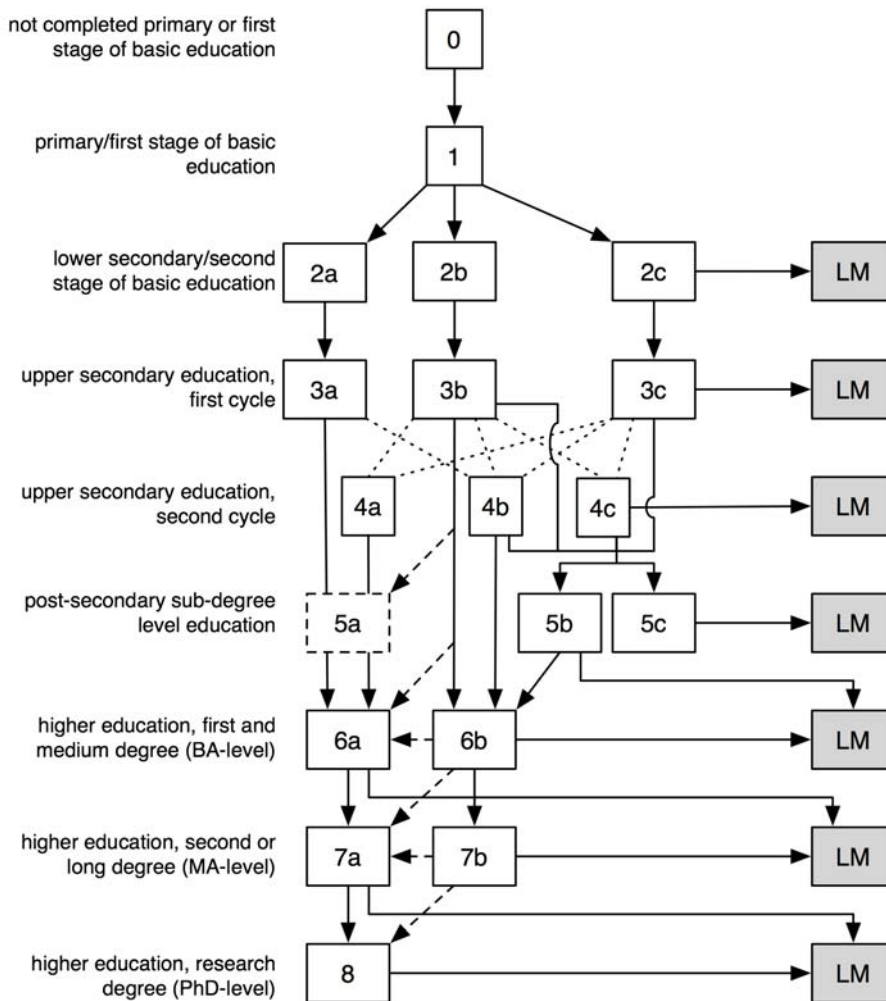
Sub-category 'c' would be reserved for vocational training preparing for direct labour market entry, but in contrast to vocational 'b' programmes, not give access to higher education. Unlike in the ISCED-97, these programmes *do* allow enrolment in subsequent vocational programmes at a higher level, and entry into level 5 is sometimes preceded by a few years of work experience. The typical vocational education path would consist of the steps '2c', '3c' and '5b' or '5c'.

The proposed sub-category 'b' programmes at levels 2, 3, 4, 6 and 7 are less selective than 'a' programmes, and were often introduced in order to open up the educational system for non-traditional students. Sub-category 'b' at levels 3 and 4 would thus be used for programmes preparing students for lower tier (but still university-like) higher education (i.e. at polytechnics and similar institutions), denoted as '6b', but not the highest level university programmes, denoted as '6a' (without attending a second chance programme, 4a). Vocational upper secondary programmes that in theory give access to '6a' should, because of the kind of skills they convey, also be coded as '3b'. These are all intermediate programmes between the traditional academic and the traditional vocational programmes. Finally, a new sub-category 'd' is proposed for classifying dropouts from the respective level of education.

Figure 2 gives a graphical overview over the proposed revision of the ISCED (for simplicity excluding the proposed dropout-category 'd' at levels 2 to 8). Like in the original transition pattern (see first chapter, Figure 1), not all possible paths between educational programmes and qualifications are shown (e.g. it would often be possible to go from '3a' to '5b'), and some paths might not be possible in specific countries. Dashed lines are used to illustrate more rare or more difficult transi-

tions, and dotted lines for showing possible combinations of first- and second-cycle upper secondary programmes.

Figure 2. Transition pattern of the proposed revised ISCED



Note: LM = Labour Market.

4 Conclusions and outlook

Much progress has been made in the area of cross-national measurement of education since the first version of the ISCED, ISCED-76, was designed. Despite this fact, the current procedures and classifications available are not yet optimal, and the resulting education variables in cross-national surveys are neither as comparable as they could be, nor sufficiently detailed to allow research into many of the

topics survey researchers would like to tackle. The main improvement in the revision of the ISCED in 1997, the introduction of sub-dimensions at a number of levels of education is in fact ignored or inadequately reflected in cross-national surveys. This book presents an attempt to clarify some of the remaining problems, and this chapter more specifically puts forward a number of ideas on how to improve the situation in the long term: refining instruments for the country-specific measurement of educational attainment, improving the implementation of comparable measures of educational attainment in cross-national surveys, and revising a number of aspects of the ISCED-97 itself.

There are a couple of issues that could not be resolved in a satisfactory way. Firstly, the measurement of uncertified education, and secondly, changing standards of educational qualifications. This latter point cannot be solved in the framework of a classification of educational attainment. Academic achievement and skills measures however might in the future allow us to test differences in general skill levels between individuals with cross-nationally 'equivalent' formal qualifications, which is an interesting question in itself.⁹ Skill measures however cannot replace educational attainment measures, since not skills but formal certificates are the individuals' admission ticket to more advanced educational programmes and a signal for productivity that employers look for (e.g. Spence, 1973).

The most urgent task is to provide more detailed educational attainment variables in cross-national surveys, firstly by improving national measurement instruments for educational attainment and publishing the original national education variables (like in the ESS), and secondly by providing a *detailed* harmonised variable like the full ISCED-97 (taking 'programme orientation', 'programme duration' and 'position in the national degree structure' into account) which can then be individually re-coded according to the researcher's needs. So far, simplified versions of the ISCED-97 have often been used in cross-national surveys, severely reducing the analytic potential of the data, especially when the country-specific variables are not published, like in the EU-LFS.

The improvement of country-specific instruments can be performed by 1) national teams of researchers preparing questionnaire items for country-specific variables to be used in cross-national surveys, and 2) the national statistical offices. Ideally, all involved parties in a specific country would co-operate in the development of the state-of-the-art country-specific instrument. National data archives or centres for survey research methods could participate in or even co-ordinate this process

⁹ It is hoped that literacy and numeracy measures like those employed in the PISA studies will be administered to upper secondary education graduates or even the general population on a regular basis at some point. The International Adult Literacy Survey (IALS) from the mid-1990s and the Adult Literacy and Lifeskills (ALL) Survey (2003) are going into this direction, but in the IALS, the ISCED-76 is used, and in the ALL, only six countries, three of which European, participated.

and make the resulting instruments available to the scientific community. This of course does not only apply to the measurement of educational attainment, but also other standardised instruments for demographic background information.

The provision of better cross-national measures for educational attainment in comparative surveys is primarily the survey organisers' responsibility. Nevertheless, it would be helpful to accumulate the expertise from different cross-national surveys through joint workshops or conferences, and include the expertise from OECD, survey research methods centres and other institutions. The ultimate goal could be a supra-national infrastructure serving as a central contact point for developing and documenting harmonised demographic background variables for cross-national research to be derived from the country-specific 'state-of-the-art' instruments. It would also consult cross-national survey organisers and national teams taking part in cross-national surveys on implementing such measures in surveys and researchers on how to use them. One prospect for this mission is the Council of European Social Science Data Archives (CESSDA), which is currently investigating requirements and priorities for a social science data harmonisation infrastructure.

A revision of the ISCED-97 is also a difficult and long-term task, which the UNESCO and OECD have to tackle together with the national statistical agencies and other interested parties like Eurostat. The authors of this book and this chapter give some input from survey researchers' perspective on how the next revision of the ISCED could look. Among the proposals made, the most important issue is the differentiation of higher education.

What next for survey researchers as users of cross-national educational attainment data, like the authors of this book? We plan to further study the criterion-related validity of the ISCED-97 (and simplified versions of it) by comparing the explanatory power of these and other measures of educational attainment (e.g. country-specific variables and years of education) within countries in order to come to a more definite assessment of which level of detail is required in the *analysis* of educational attainment data. Large nationally representative data sets with detailed country-specific education variables will be used in this endeavour. The criterion variables used for validation will most likely be labour force participation, social class attainment, and occupational status.

For survey researchers who use data on educational attainment in their research (cross-national or not), it is recommended not to neglect questions of data and measurement quality. Researchers should use the best (most detailed) measures of educational attainment available to them and test their validity for their purpose if at all feasible, or at least check their results for robustness using different measures of educational attainment (e.g. more and less detailed ones). Lastly they can hope (and of course lobby) for future improvements in data collection and coding.

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