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Francesca Gallo, Barbara Lorè

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Sommario

Nell'ambito delle attività messe in campo per l'implementazione dell'edizione nazionale della nuova classificazione delle professioni Isco08, sono state organizzate delle sessioni formative rivolte ai rilevatori che nell'ambito di diverse indagini sono coinvolti nella rilevazione e codifica della professione. L'esperienza formativa più completa è quella che è stata rivolta ai 400 rilevatori CAPI e CATI impegnati nell'indagine sulle Forze di Lavoro e che ha avuto luogo a ridosso dell'entrata in vigore della nuova classificazione. In questo lavoro riportiamo la metodologia e gli strumenti utilizzati per progettare, realizzare e valutare l'evento formativo.

Parole chiave: formazione dei rilevatori, classificazione delle professioni.

Abstract

In the framework of the implementation of the new International classification of occupations Isco08, training sessions devoted both to Istat staff and experts on occupations and to interviewers involved in data collection on occupations have been organized in order to get them confident of the new classification and the new tools provided to encode occupations. The most complete training experience has been the one devoted to both CAPI and CATI interviewers employed in the Labour Force Survey, in all 400 people, a soon as the classification came into force. In this work methods and tools for planning, delivering and evaluating this training are reported.

Keywords: training interviewers, classification of occupations.

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[1]   E-mail address: gallo@istat.it , lore@istat.it.
    The Italian classification of occupations is available at http://cp2011.istat.it/

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1. Introduction[2]

When, at the beginning of 2011, the new release of the Italian classification of occupations, the national implementation of Isco08, came into force it was necessary to deliver an extensive training to all the people expected to code occupations or to deal with occupational information.

Hence, training sessions on basics about occupations and classification's structure and contents have firstly been provided to interviewers employed in the surveys carried out by Istat, in which occupational information are collected.

Besides, all the offices who are centrally or locally involved in the forthcoming population census activities were taught about the classification's criteria, the major groups contents and the tools set up to help their coding process.

Table 1 gives a summary of all the Italian surveys that have so far introduced the new classification of occupations in their processes and have consequently required some training sessions for their interviewers.

Table 1 - Lists of Italian surveys that have introduced the new classification of occupations (October 2011)

DATE	Name of the survey
January 2011	Labour Force survey
February 2011	Survey on foreigners
April 2011	Graduates vocational integration
May 2011	Upper secondary school graduates' transitions to university and labour market
September 2011	Household budget survey (HBS)
September 2011	Eu-silc
September 2011	Structure of earnings survey (SES)
October 2011	Population Census
October 2011	Adult education survey (AES)
October 2011	Survey on occupations (2nd edition)

However, the most complete training experience has been the one devoted to LFS interviewers (Istat, 2006) as soon as the classification came into force. Hence, to this event we will make reference in the following.

About 400 interviewers were involved in the training session, 300 of which Capi interviewers and 100 Cati ones and each of them was addressed a one-day training. We organized them in classrooms of 20 people and each classroom was managed by two trainers.

The document aims at describing the details of the training activity performed, starting from the first important step, the identification of the training needs (par.2) and consequently the setting of the training objectives (par.3), going through the methods and tools used (par. 4). Moreover, we would like to briefly report (par. 4) the monitoring activity that has been carried out in order to control how the new classification has been understood by the interviewers. Finally, par. 5 aims to describe the follow-up activity organized to continue the quality improvement.

2. Identifying the training needs

As a first step in planning the training session, we had to clarify what interviewers needed to improve, in terms of knowledge of the classification's contents, management of the occupational information collection and encoding operations. This was a very important starting point as it was

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[2] This work comes from a common effort; paragraphs 1, 5 and 6 have been written by Francesca Gallo, paragraphs 2, 3, 4.1, 4.2 and 4.3 have been written by Barbara Lorè.

necessary to identify the topics that really needed to be stressed and to avoid putting emphasis on issues that were already well known (Castagna, 2004).

We got these hints from different sources of information (Quaglino e Carrozzi, 1998). One of them was the daily exchanges we have with interviewers by phone or by email in order to support them in difficult encoding cases. Moreover, we got information on critical areas during the periodical debriefing that we usually have with interviewers, face to face or through video conferencing.

But the best suggestions on the issues it was necessary to insist on came from a continuous monitoring activity aimed at checking and assessing the quality of the interviewers' encoding work.

This monitoring activity highlighted two main sources of inaccuracy:

a) information collected by interviewers is sometimes too generic or refers to something different from the occupation, so it is hard to properly identify the occupation and to attribute the right code. At the last assessment before the entry into force of the new classification, we found that 13% of the checked codes referred to inadequate information collection. Answers collected referred for instance to the economic activity the worker was employed in (e.g. cleaning, construction, an so on) or to their organizational role (e. g. supervisor, apprentice) or was too generic to identify the job performed (e.g. employee, workman, an so on). In these cases interviewers would have been expected to better investigate and collect data by asking respondents to explain into full details what their job consisted of, but they didn't do it either to save time or because they were careless, or just because they didn't immediately realize that the answers were lacking;

b) there were some topics of the classification that were not enough understood and needed to be explained better. 8% of the checked codes presented encoding mistakes due to a lacking knowledge of the classification structure. The most common mistakes referred to the distinction between entrepreneurs on the one hand and shopkeepers and craftsmen on the other hand, or to some complex job families such us personal and health care occupations.

Hence, the training should have surely faced these topics together with the main changes introduced by the new classification of occupations.

3. Setting the training objectives

The identification of the interviewers' needs helped us to set the training goals (Baldassarre, 2009), which can be traced to two targets:

1. give information on changes in the classification structure and contents;
2. improve the encoding outcomes quality.

To reach these objectives it was necessary to plan a training able to:

- widen knowledge;
- enhance skills;
- modify attitudes of the interviewers.

As far as point 1. is concerned, several detailed goals have been identified, such as give information on:

- the main changes in the classification criteria within some major groups;
- the most complex job families;
- occupational units which have been reclassified, removed or introduced for the first time;
- the new tool to look up a code on the new Classification of occupation (Navigator of the 2011 Classification);
- the consistencies rules introduced between occupation, professional status and economic activity.

As far as point 2. is concerned, we wanted interviewers to:

- get practice in applying knowledge (find the proper code based on the information provided by the respondent);

- get practice in using the Navigator of the 2011 Classification to find the right code;
- identify bad practices and share good practices in collecting and encoding occupational information.

4. Training methods and tools

A theoretical and practical training has been provided.

### 4.1 Widen the interviewers' knowledge

In order to widen the interviewers' knowledge of the classification, we delivered a lecture focusing on the major changes introduced with the new classification and organizing them into clusters of occupations.

Some reinforcement learning tools were used to recall the basic concepts; so, for instance, the classroom walls were filled with posters that reminded in a simple and appealing way the main issues; and to these posters we constantly referred during the lesson.

The lecture introduced the main job families and gave suggestions on the major boundary problems that interviewers have to face with in their encoding work. To give some examples, the following job families were discussed:

- Entrepreneurs of "small" and "big" enterprises. In the Italian classification, entrepreneurs are classified separately on the basis of the organizational structure's complexity. If there's no management between the entrepreneur and the workers then the organizational structure is considered "simple" and we talk about "entrepreneurs of small enterprises", otherwise we call them "entrepreneurs of big enterprises", regardless of the number of workers employed. As this is an important feature of the Italian labour market which is not straightforward to catch by our interviewers we spent some time to stress the point;
- Entrepreneurs, shopkeepers and self-employed craftsmen. Strictly related to the previous point, the distinction between entrepreneurs, shopkeepers and self-employed craftsmen has been a core topic in the training. The following flow chart, representing the process to get to a correct code, has been fully discussed with interviewers;

Figure 1- Flow chart to decide between Entrepreneurs, shopkeepers and self-employed craftsmen
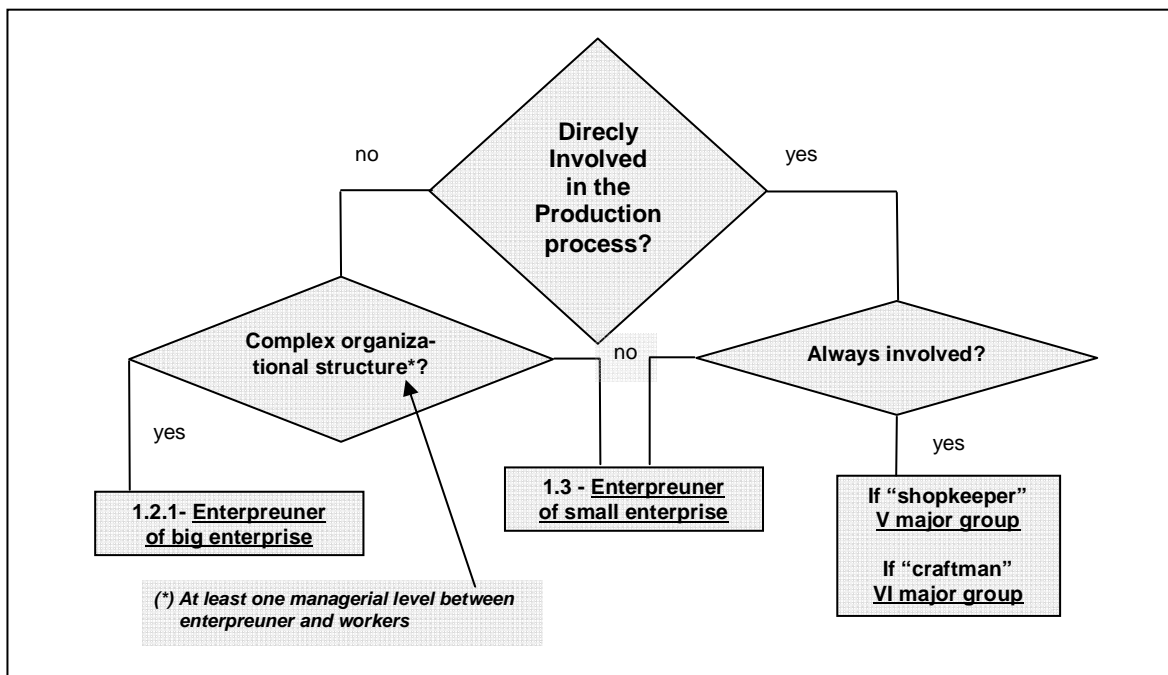
- Process control technicians (3rd major group) and plant and machine operators (8th major group). Another boundary problem we insisted on is the one which refers to the difference between plant and machine operators, who operate and monitor machinery and equipment on the spot, and higher qualified operators who make machinery work by remote control and require a higher skill level;
- Supervisors versus supervised. Particular attention has been devoted to the difference between workers whose job consists of managing, organizing and supervising the safety and the correct functioning of production processes and people who is involved in the production process and at the same time might sometimes coordinate and supervise other workers. In fact, the classification provides a dedicated code to the first type of supervisors, while the others should be classified under the same code of the colleagues they supervise;
- Personal care workers. It was important to stress that the new classification provides different codes to classify separately workers who assist people in social and heath care institutions under the official recognition of the Health Ministry and workers who provide more general personal assistance with no legal recognition;
- Teaching occupations. Another job family we needed to stress was the teaching one. In fact, teachers are classified separately on the basis of the subject taught and the school where they teach (both level and type of education). The two pieces of information are important to guarantee a good quality coding;
- Neighbouring major groups (the rationale). One of the most important topics we discussed, was the distinction between neighbouring major groups, such us professionals (2nd major group) versus technical occupations (3rd major group) or technical against clerical (4th major group) and so on. So, for instance, the different ICT occupations and the engineering ones were used as exemplification of the rationale that separate the second and the third major groups; the different kind of secretaries, that is administrative and specialized secretaries of minor group 334 versus the general secretaries of major group 412, let us highlight the criteria underlying the third and the fourth major group.

Hence, by the end of this module we expected trainees to have acquired the information needed to attribute the correct codes. figure 2 gives a sketch of the aims and tools of the theoretical training session.

Figure 2 - Theoretical training session: sketch of the aims and tools
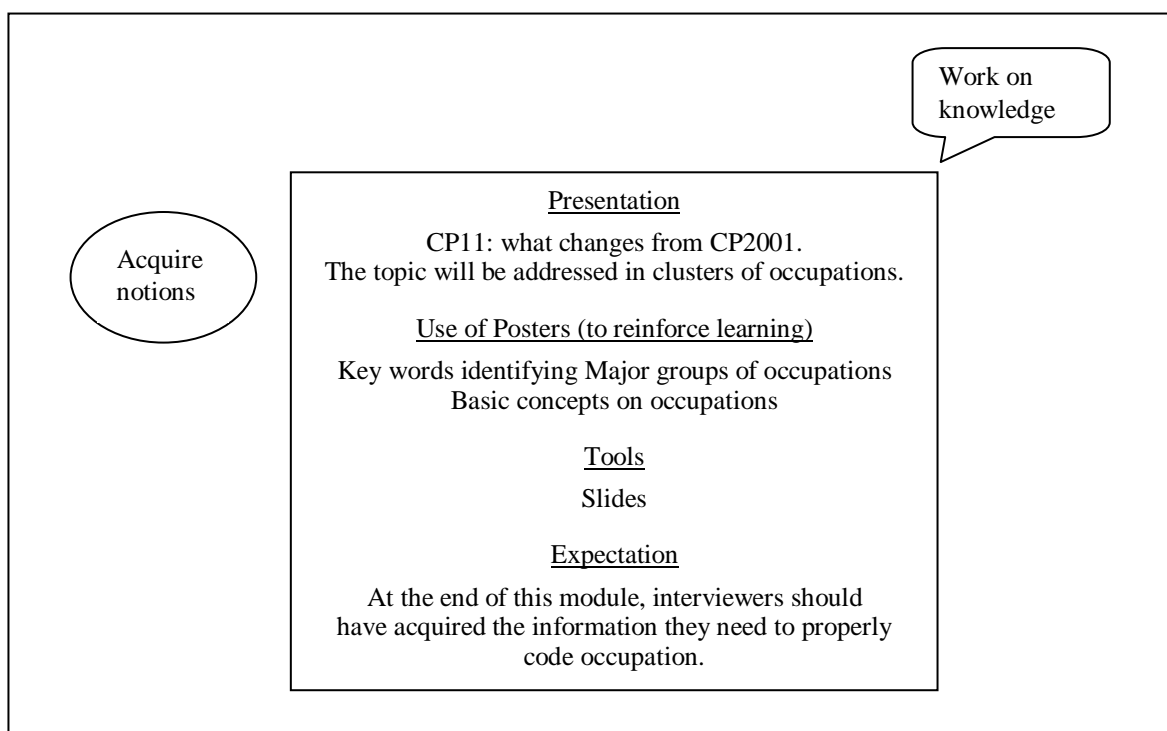
## 4.2 Improve the encoding quality- practical session

To improve the encoding outcomes quality it has been necessary to work both on interviewers' skills and attitudes (Cepollaro, 2001).

Interviewers have been given the possibility to practice in applying the acquired knowledge to develop or to improve their method for attributing codes to occupations. Two types of exercises have been proposed.

In the first one, trainees were asked to work in pairs and simulate the interview: one of them acting as the respondent and the other as the interviewer. The respondent was given a script containing pieces of information which could be relevant, irrelevant or misleading. The interviewer was expected to identify in the respondent's speech the key information needed to choose the right code. Once he/she has detected the key information, he/she had to search the code out using the Navigator of the 2011 Classification.

The aim of this exercise was twofold: on the one hand to select within a set of pieces of information the one that is relevant for the coding process; on the other hand to get practice with the tool Navigator of the 2011 Classification that, compared with the previous one, provides additional information (see Figure 3).

Figure 3 - Information provided by Navigator of the 2011 Classification at 5th digit level
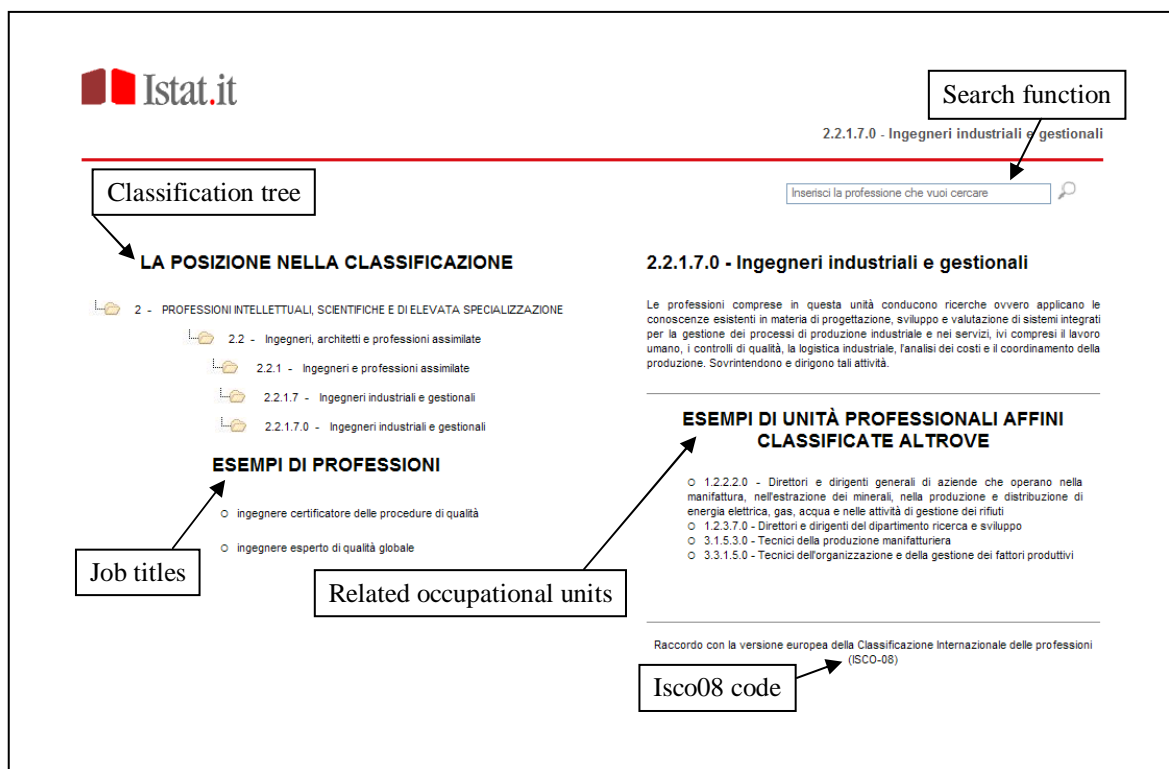
In the second exercise trainees were given generic answers to the question on occupation and were asked to identify the kind of questions they should have asked the respondent in order to get the necessary information to come up with the correct and unique code.

Just to make an example, a generic answer of occupation was "I deal with statistics". In this case the interviewer should have asked more details, like for instance 'where the job is performed', 'what is the role of the respondent', 'what are the activities and duties carried out'. For each of these questions the interviewer should have envisaged an answer; at the end it should be clear that the first generic answer could lead to different right codes depending on the type of answer collected (see Table 2).

Table 2 - Different paths starting from the generic answer "I deal with statistics" to the final code

FIRST QUESTION	First answer	Second question	Second answer	Final code (national classification)
Where do you work? At the university or elsewhere?	At the university	What role do you play?	I am a professor	2.6.1.6.0 - Professor
			I am a researcher	2.6.2.6.0- Researcher
	Elsewhere	Which are your tasks/duties?	Develop statistical concepts, theories, operational models and techniques	2.1.1.3.2 - Statistician
			Assist Statisticians in planning and performing statistical analysis	3.1.1.3.0 - Statistical associate professionals
			Collect data	3.3.1.3.2 - Survey and market research interviewers
			Clerical tasks	4.1.2.2.0 - Data entry clerks
				4.3.2.4.0 - Statistical clerks

At the end of the exercise a general discussion has given the chance to give hints, solve doubts and share solutions. As a result, it has been clear to everyone which information is necessary to collect to be able to attribute the right code, how they can obtain this information and how they should use them to select the proper code. Figure 4 give a sketch of the aims and tools of the practical session.

Figure 4 - Practical training session- sketch of the aims and tools
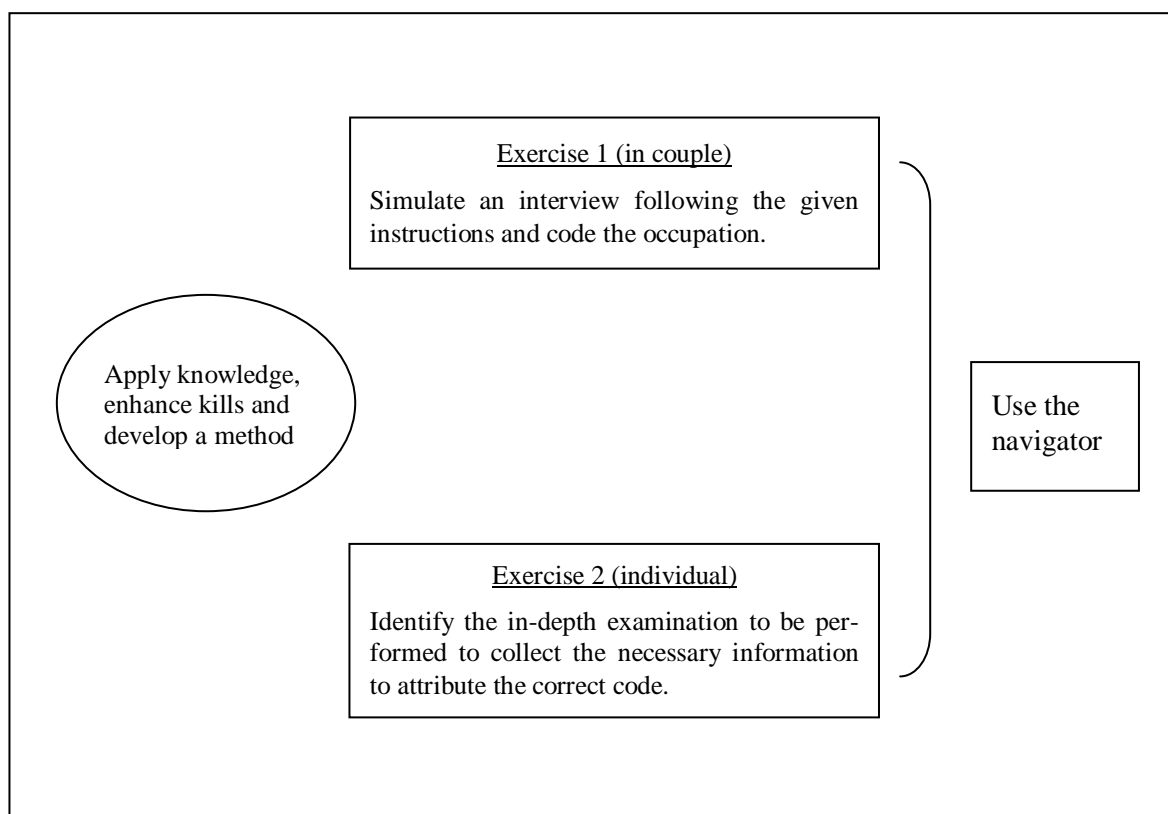
## 4.3 Improve the encoding quality- sharing best practices

To improve the encoding outcomes quality a guided sharing method has been used as well. We wanted our interviewers to get aware of the quality of their work and analyze the reason of their good/bad practices. Trainees have been asked to work in groups, to report their own best practices in collecting and encoding occupational information, detecting the key elements that make a coding tough rather than easy. Each group had to jot down on a poster a list of best/worst practices so that the trainer could make a summary (AIF, 1990).

The best practices stemming from the groups seem to converge to the following:
- Take the right time to get sufficient information;
- Motivate the respondent on the importance of his/her answers;
- Raise the right questions to incomplete information;
- Select the key information to match the classification criteria.

Figure 5 summarizes the aims and tools for sharing best practices.

Figure 5 Sharing best practices session- sketch of the aims and tools
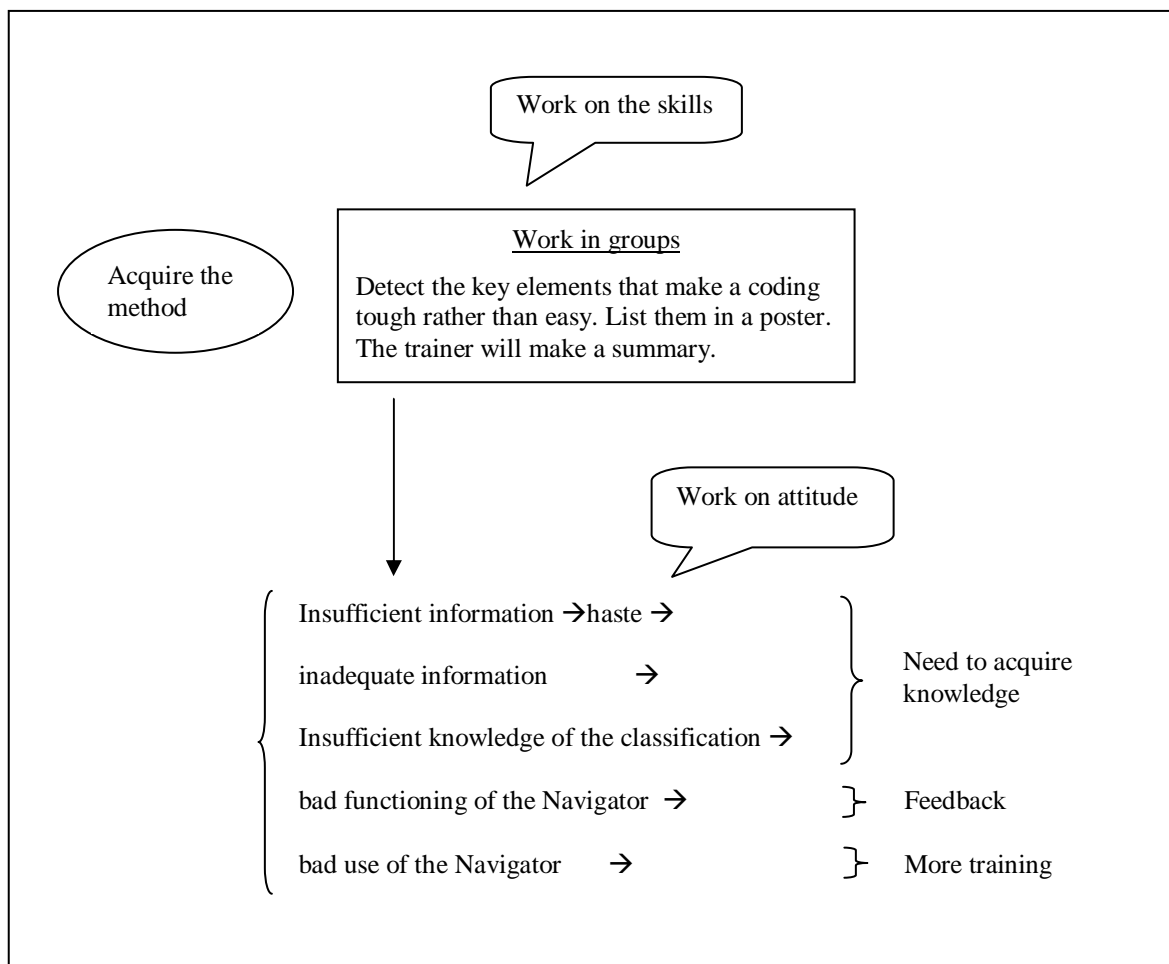
Before ending the training session interviewers were asked to fill in a questionnaire to collect their requests for supporting materials, tools or actions to help their coding duty in the future. The answers didn't ask for any particular or additional material, nevertheless we found it important to give them the chance to express their needs.

5. Monitoring interviewers' work

We found highly desirable to enhance the usual monitoring activity close to the entry into force of the new classification.

To assess data quality and get information on the collection and coding process we tested a semi-automatic monitoring process based on text mining techniques (Bolasco, 2007). Our aim was to identify a less time–consuming method to detect and eventually correct encoding mistakes (della Ratta, Gallo, Lorè, 2011).

Hence, we compared two languages: the one used by individuals interviewed in the 1st quarter 2011 labour forces survey when describing both their job title and their tasks and duties; the one used by the 2011 classification of occupations to describe just the job titles. We assessed the closeness of the two languages in terms of percentage of shared words even though we were aware that the individual language was much richer than the classification one. We were interested in the non-shared words and in understanding the reasons of non-overlapping. To this aim the software Tal-taC2 has been used. Comparing the two languages, we found that on average 63% of the classification's vocabulary overlapped the individuals' language.

As far as the individuals' language is concerned, almost 20% of its words were included in the classification with the same code attributed by the interviewers. The non overlapping words were analyzed and categorised into 3 types of mismatch: a "good", an 'irrelevant' and a 'bad' mismatch. We targeted as 'good' the mismatch that gives us information on the specific words used in the real world of occupations and not yet covered by the classification. We call it good as it can give us suggestions on job titles that need to be introduced to enrich the classification (e.g. 'musicotera-pista', 'sabbiatore di metalli', 'operaio idraulico forestale', etc.). The 'irrelevant' mismatch is made up of all those words used in the common language but useless for the aim of an official classification (e. g. the worker's nationality, such as 'Senegalese street vendor'). The "bad" mismatch identifies the inaccurate encoding work of the interviewers, since it highlights those words that the classification and the individual language have in common but that are associated with different codes (e. g. words like 'manager', 'workman' or 'soldier' associated to codes chosen from the major group IV, which is devoted to the clerical occupations).

The bad mismatch gives us hints on the critical areas where the interviewers need to be re-trained on. Figure 6 shows the consistency of the three type of mismatch in the first quarter of the LFS: 80% irrelevant; 5% bad; 15% good.

Figure 6 - Mismatch categorization and actions to be performed in order to improve data quality
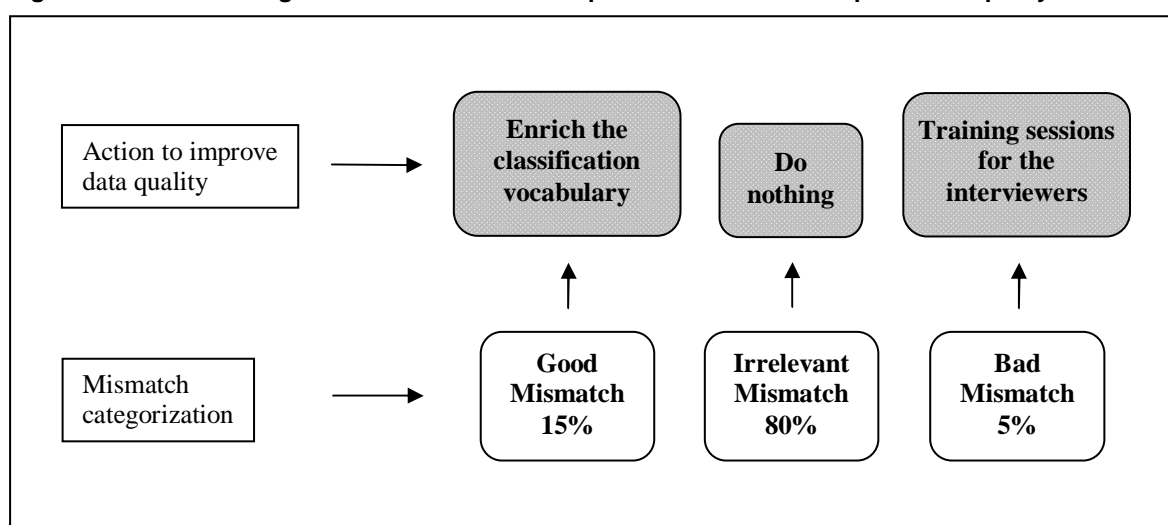
6. Follow-up activities

At the end of the first quarter 2011 LFS a debriefing took place to discuss with the interviewers the individual results of the monitoring activity and to get their feedback on their work with the new classification .

To get a more structured feedback we asked the interviewers to answer a short questionnaire aimed at collecting information on:

a) difficulties in understanding some specific classification criteria;

b) difficulties in searching out some particular occupational codes using the Navigator of the 2011 Classification;

c) whatever they wanted us to know about the changes introduced with the new classification.

The results didn't highlight any particular critical issue but just a limited number of job titles whose coding were not straightforward.

We continue to be in touch with the LFS interviewers and we keep on managing their questions and opinions through a dedicated telephone number and email address.

Moreover, to provide the interviewers some incentives to improve their coding, we periodically send them a test to self-evaluate their knowledge of the classification.

More precisely, we send them a set of occupations, selected from particular complex cases, and they have to code them. If their results are different from the right ones, they are requested to revise specific topics, going through the extra information we prepare to better understand the test contents.

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