

Developing and Testing Tools to Measure Youth Capabilities: Theoretical Rationales and Empirical Procedures within a Cross-National Pilot Survey Project

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1 Introduction

In the last decade there has been an increasing production of literature on how to measure and operationalize the capability approach (CA) (Robeyns, 2005, 2006; Comim et al. 2008). The quantitative operationalization moves from relatively simple indicators to more complex statistical analyses such as the fuzzy-set analysis (Chiappero Martinetti, 2000) to latent variable models (Di Tommaso, 2007; Krishnakumar, 2007; Krishnakumar and Ballon, 2008). For a review of the methods see Kuklys (2005) while Chiappero Martinetti and Roche (2009) provide an overview of the recent empirical literature on the operationalization of the CA.

However, in the practical and empirical steps of survey life cycle the literature still seems limited (Bakhshi et al. 2006; Anand et al 2009; Biggeri et al. 2011) and several elements which are not fully consolidated, and deserve greater attention, remain.

The EduWel project study was aimed at investigating some of these features by developing a pilot survey that could help foster a full scale survey. The objective of this paper is to present the main challenges and results of this project.

The goal is thus twofold: Firstly, to presents the procedure we have applied to create and test a survey design which could generate comparative data on autonomy, voice and work, and pilot it in a number of diverse European countries. Secondly, it is to present the training processes that have been implemented towards Marie Curie Early Stage Researchers (ESR), who were provided a strong grounding in both qualitative and quantitative methods for conceptualising and measuring different aspects of the CA.

The paper is structured into four main sections. After an introduction, the second section brings together some theoretical elements of the CA, illustrates the rationale behind the entire project, and describes some of the issues concerning the measurement of the dimensions of interest. In the third section, we describe the empirical investigation process, focusing on the main steps of the pilot survey lifecycle and we present some descriptive results. In the conclusion the main results are given along with the lessons learned.

2 The conceptual framework and the analysis of the dimensions of interests

According to the CA, if the aim of development is to let people flourish - i.e. to live a life they have reason to value (Sen, 1999) - facilitating social and economic arrangements should be produced and several personal competences and faculties should be developed to create capable agents.

If human and sustainable development relies on people's freedom to make decisions and to advance key objectives as agents of change, then children and the youth will need the freedom to be educated, to be loved and cared for, to participate in community life, to be respected and to have freedom of expression and association (amongst many other capabilities and basic functionings). Thus, it is also by being capable agents that children and young adults can contribute to the environment in which they are educated.

There are numerous reasons why policy makers should place higher priority on children's and young adult's capabilities. As Sen points out, "What opportunities children have today and will have tomorrow, in line with what they can be reasonably expected to want, is a matter of public policy and social programmes, involving a great many agencies" (Sen, 2007; p. 10). Furthermore, Sen (2009) argues that democracy involves participation in public deliberation.

In this study, we aim at investigating some of these features on young people. In line with the Marie Curie program objectives and the need to reconcile both the training and research purposes illustrated above, and under the constraints of time and budget, it seemed more valuable to concentrate on a few domains rather than trying to capture too many dimensions. A participatory process took place from January 2011 on, and was carried out in several places in Europe, involving all the ESRs. Meetings took place in London (UK), Bielefeld (Germany), The Hague (The Netherlands), Poznan (Poland) and Umea (Sweden) between 2011 and 2013, see Mauro (2014) for a detailed description of the approaches and the achievements of each meeting.

As a result of a participatory process, two main topics of interests (dimensions) were identified, namely "embeddedness and critical thinking", defined as follows.

Embeddedness is defined as a multidimensional condition centred on the concept of being a "member". The status of such membership is referred to as the concepts of society, institutions, environment and other relevant dimensions. In this study, the embeddedness concept was analysed both from an objective (to be recognized by others as a member of the group) and a subjective point of view (self-perception of being a member).

Critical thinking is defined as a process that includes the use of knowledge, experience and education, as well as emotions and imagination, to create one's own opinions and judgements, by which the person is able to reach decisions and a positioning in the society.

The first dimension – embeddedness - can be described for young people along the lines of "social relations" in the broad sense that young people maintain with other people and institutions. Social embeddedness was chosen for its importance in social choice processes, as the decision for a certain educational pathway or vocation may not be based on the information on what later financial outcomes one can expect but rather in how far one can still socialize with their friends or if one can expect support from the family for a certain decision. Thus linking the social embeddedness of "actors" to such questions of decision-making could be an area of great interest.

The second dimension - critical thinking – comprises different aspects. This topic entails a kind of self-reflection or self-monitoring, which is closely interrelated to domains like expectations, attitudes and feelings. Furthermore, and in a more generalised manner, critical thinking seems to entail a healthy distance to the values of the larger society. There seems therefore to be a relation between wanting to participate in society, decision making processes

and the general attitude one has towards the larger society. Critical thinking and participatory involvement is to a certain extent dependent on to what extent a particular individual cares about what is going on in their environment.

Critical thinking and a relatively strong social embeddedness are thus not contradictory but constitutive for each other. Indeed, the research group regard these two elements among the most relevant in the process of creating and evolving capabilities as well as forming capable agents and exercise agency.

Promoting and measuring critical thinking have for decades been a topic in literature and research since Watson and Glaser (1980) first attempted to operationalise the measurement of this dimension introducing the “Critical Thinking Appraisal”, a measure based on item-response theory methods. Theoretical and operational definitions as well as an exhaustive literature review on the topic can be found in Jacobs et al. (1997). Although social interconnection is a central concept in many fields, the definition of embeddedness remains vague and difficult to operationalize. Moody and White (2003) try to identify the dimension of embeddedness through the hierarchical nesting of cohesive structures of people. Nonetheless, their approach is based on the concept of cohesion, defined as a field of forces that act on members to remain in the group. Although our approach is still centred on the concept of being a member, the embeddedness concept is also analysed here from subjective point of view (self-perception of being a member). Under a CA framework, Boni et al (2010) and Chiappero Martinetti and Roche (2009) discuss some central issues related to the operationalisation of various dimensions, including the critical thinking.

2.1 Capable agent and evolving capabilities and the role of critical thinking and embeddedness

In the literature on children and young adults and the CA, two relevant and complementary aspects are emerging: the idea of capable agents, introduced by Bonvin, amongst others (Bonvin and Galster, 2010; Andresen et al., 2011; Biggeri et al., 2011; Leßmann et al., 2011; Nussbaum, 2011) and the process of evolving capabilities, introduced by Ballet et al. (2011).

The first element underlines how democratic societies should therefore aim to produce capable agents (Bonvin and Galster, 2010; Nussbaum, 2011) and communities. “Hence, the process of acquiring communicative competences (Habermas, 1981), and complex thinking (Lipman, 2003), including dialogical attitudes and argumentative practice, becomes central” (Biggeri and Santi, 2012, p.382). The development of a democratic society implies the promotion of critical, creative and caring thinking in its citizens. This will enhance their autonomy and, at the same time, open their minds to consider different perspectives and points of view (Santi, 2007; Nussbaum, 2011). In particular, Martha Nussbaum (2006), in her view of “education for freedom” (i.e. for democratic citizenship), points out that it is essential to develop at least three education capabilities: critical examination (or critical thinking), cosmopolitan ability and narrative imagination. These three capabilities are not the result of spontaneous development, but emerge from the interaction of personal talents with contextual enhancing factors.

The second element is related to the evolving capabilities process that tries to capture the dynamics among three components that underlie capabilities: the capacity/ability concept, the opportunity concept and the agency concept. Following Biggeri and Santi (2012), the child or youth is conceived at the centre of the development process (as in ecological and new social theories), interacting with other peers, teachers, family and community members and drawing

on and using entitlements. Indeed, as Sen pointed out both for children and adults “while exercising your own choices may be important enough for some types of freedoms, there are a great many other freedoms that depend on the assistance and actions of others and the nature of social arrangements” (Sen 2007, p. 9). Thus, the range of “possible functionings” for children may be restricted by their capacity and/or by their social and physical environment. Indeed, the ability to convert resources into capabilities and functionings depends on individual and social conversion factors (Sen, 1985; 2009), which act mainly through the education system (Otto and Ziegler, 2006), their parents or caregivers, and friend’s capabilities.

The first domain chosen, “critical thinking” and its sub-dimensions (knowledge, experience, opinions, judgements, decisions, positioning) is central to children and young adults being capable agents and exercising agency freedom.

The second domain, “embeddedness”, and its sub-dimensions (social relations, environment, trust, participation, access, safety) are at the core of public participation for public reasoning and deliberative process as well as collective actions.

Therefore, the two domains explored via the survey analysis are central to the dynamic core of the evolving capabilities process, expressed by the feedback loops that re-shape the potential capability set of the child and youth which enhance or reduce agency.

As these two dimensions are broad and multifaceted, one of the challenges of this study was to detect and analyse the different aspects that are ingrained in these main topics, and try to develop tools to measure them in a consistent way.

2.2 The main dimensions studied

According to Comim (2001) the operationalization of a theoretical framework is a process of sequential steps that translate the theoretical inquiry into practice. Although there are increasing initiatives to operationalise the CA (Robeyns, 2006; Chiappero and Roche, 2009) the literature on children and youth still seems limited (Biggeri et al. 2006; Biggeri et al. 2011b; Biggeri and Anich, 2009; Trani et al, 2013).

From a theoretical and practical perspective, following Alkire (2008) and Biggeri and Mehrotra (2011), there are two very relevant phases at the beginning of the operationalization of the CA: the selection of the dimensions to be analysed and the selection of the variables of interests for each dimension. In this study, these two phases represent a key part of the training and are preconditions to develop the questionnaire and to conduct the pilot surveys in the four EU countries.

These relevant phases can be carried out according to five different - and potentially combinable – methods (Alkire, 2008). In this study it was decided to follow two combined modes: theoretical assumptions and participatory process.

After a debate with the ERS, two main criteria were defined to select the meaningful dimensions. The first was the relevance for the overall project. We aimed to collect information for 16 year olds in different EU countries on the relevant capability dimensions and also on other components of the CA such as achievements, conversion factors, choice and behaviour formation and agency.

The second criterion was the relevance of the dimension in an academic perspective. This was defined in terms of: a) the significance of the dimension on a young person's life and, in particular, to facilitate the transition from youth as capable agent b) original ideas/dimensions usually overlooked in standard empirical research/analyses c) complexity of the dimension in order to challenge/test the tool for research and training purposes. This second criteria was inspired by the works of Sen (1999, 2009) and Nussbaum (1997, 2000, 2006, 2011) but also from the research undertaken by Walker and Unterhalter (2007), Leßmann et al. (2011), Bonvin and Galster (2010), Burchard and Vizard (2011), Biggeri and Santi (2012) and Hart (2012).

As Biggeri and Santi (2012) suggest, if according to Sen (1999; 2009) democracy involves the capability to be able to take part to public deliberation, democratic societies should aim to produce capable agents (Bonvin and Galster, 2010; Nussbaum, 2011) and communities. Hence, "The development of a democratic society implies the promotion of critical, creative and caring thinking in its citizens" (Biggeri and Santi, 2012, p.383). The aim was thus to start to open the black box and to explore the elements and the processes behind the idea of "capable agents" by examining the main elements that enable or disable critical thinking, consciousness and responsibility formation as well as active and committed participation in society.

Hereafter, we are going to briefly point out the theoretical rationale and the practical meaning of the sub-dimensions of enquiry that were chosen among the two macro-dimensions selected, as well as a brief description of some of the questions used to measure them.

2.2.1 Dimension Experience

Experience is a dimension within the wider enquiry domain of critical thinking and agency formation. We decided to explore this dimension following the points made by Nussbaum (1997) and Gunderson (2005) indicating that experiences can be considered as a relevant source of nourishment for critical thinking. During the training we decided to concentrate our attention on experience seen as knowledge or practical wisdom gained from what one has observed, encountered, or undergone (Mauro, 2014). In this direction, experience can be considered, as indicated by some ERS, as a pre-condition (a pre-capability). We can add that experiences are the overall process to achieved functionings in the context where a young person lives and interacts. Therefore, they represent a key element in the feedback-loops, becoming part of the personal history and possibly transforming personal characteristics, attitudes and personal psychology (Biggeri and Ferrannini, 2014). According to Clark (2005), experience is a necessary occurrence in order to make informed value judgements about alternative lifestyles.

We attempted to investigate people's main experiences in terms of: a) achieved functionings (asking if the respondent went through one or more of a certain list of experiences) b) lack of experiences from an opportunity perspective (both positive and negative) and c) the level and type of impact of the experience. Since the respondent might not be willing to share some experiences, we structured the study to allow participants to indicate the existence of a meaningful experience without specifying which type.

2.2.2 Dimension Access

Access can be considered an “entitlement characteristic” within the strong link to the CA dimension of affiliation and embeddedness (Nussbaum, 2000), and such membership is therefore strongly linked to conversion factors such as societal characteristics, institutions and environmental characteristics.

The capability to be recognized by others as well as perceived him/herself as a member of a group (including virtual reality) entails the capacity of being able to move freely from place to place, to interact with others and to have access to resources. Therefore, it depends critically upon an individual’s ability to be informed (including information technology) and to communicate (Biggeri et al 2011; Burchard and Vizard, 2011) and to have access to spaces of social interaction both public and private (Mauro, 2014).

Therefore, this capability has several sub-dimensions which are instrumental and pre-conditions to participation and knowledge.

We attempted to examine access in terms of: a) opportunity to access; b) barriers in conversion factors encountered in accessing c) level of satisfaction of the opportunity to access and d) points and spaces of access which are always conversion factors.

2.2.3 Dimension Opinions / Judgments

The ability to form judgements is a central feature in critical, creative and caring thinking in Sen’s CA (1999), and it is a requisite for capable agents according to their age and maturity.

This dimension is strongly related to our area of investigation since it is central in the process of critical thinking. Sen’s conception of “to appear in public without shame” is, therefore, a precondition (it can also be defined as formal or informal entitlement to “voice”) to participate in public deliberative processes and expressing values (Sen, 2006, quoting Smith writings on the Theory of moral sentiments). The concepts of agency and agency process in Sen (1999) are central (Ibrahim, 2009). These are fundamental to participation in decisions concerning young people’s lives and are part of the democracy and public reasoning expressing one’s judgement and positioning on individual and social alternatives (Davis, 2011).

As resources and goods (i.e. means to achieve), conversion factors and personal abilities are given, the process of choice links the capabilities or freedom to achieve (the capability set or opportunity set of achievable functionings) to the achieved functionings (achievements or outcomes) (Robeyns, 2005). This process is dynamic and linked to the contextual informal and formal norms, and linked to the cognitive capacities, to the personal behaviours and personal psychology with feedbacks loops both at individual and collective level (Biggeri and Ferrannini, 2014).

This dimension is also strongly linked to the capability dimension of senses, imagination, and thought in Nussbaum’s central list of capabilities (2000). It refers to the ability to imagine, think, and reason in a way informed and cultivated by an adequate education, but also being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech. Two other capabilities highlights in Nussbaum’s list underline the relevance of opinion and judgement formation: a) practical reason refers to the

ability to “form a conception of the good and to engage in critical reflection about the planning of one's life” and b) control over one's environment recalls the importance of “being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association”.

We decided to analyse people's opinions/judgements from different perspectives. Starting with how much they feel that their opinion matters in the family when it comes to certain sensitive topics, and moving to questions related to the participation and engagement young people show in societal and political issues.

2.2.4 Dimension Knowledge

The idea of knowledge was formulated in the meetings within the working groups as a crucial part of critical thinking. The idea was derived directly from the definition of this main dimension. Considering that the CA literature is quite rich in this dimension (Walker and Unterhalter, 2007) the focus was decided to be only on the process of gaining information as an indicator of critical thinking; the possibilities were to evaluate sources of knowledge, access to information and evaluation of information. The questions formulated in the EduWel survey allow for choosing more than one source of knowledge and reveal if the individual is used to cross-checking information.

2.2.5 Dimensions Safety/Trust

Safety and trust were chosen as they are relevant in the CA debate as both a condition and a precondition to human development and a sensitive gender issue. They are also connected with Sen's instrumental freedoms (Sen, 1999) contributing to the overall enhancement of individual opportunities. The concept of trust is generally linked with social capital approach but it can be broadened to trust in institutions and general environment. While some authors provide a more communitarian view of the matter (Fukuyama, 1995; Putnam, 2000) others follow a more critical approach (Portes, 2010). Feeling safe in one's environment (such as their school, neighbourhood or family) is seen as a precondition to being embedded and then fundamental to the co-production of public safety and effective child socialization (Piquero and Lawton 2002). This is even more true for vulnerable groups.

The intrinsic value is well captured by Nussbaum describing among the central capabilities bodily integrity: “Being able to move freely from place to place; having one's bodily boundaries treated as sovereign, i.e. being able to be secure against assault, including sexual assault, child sexual abuse, and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction” (Nussbaum, 2000, p. 78).

It is crucial to scrutinize the safety issues from the CA perspective as a capability (the real freedom from physical and psychological threat) which is linked to the conversion factors based on the context. Settersten and Andersson (2002, p.34) argue that “Psychological factors also enter the nexus of factors that influence where young adults – indeed, adults of any age – reside. For many of us, it is not the physical dwelling that matters so much as it is the place we call home. It is about the people with whom we share that roof and those walls: home is where the heart is, so they say. It is a place of great security, of safety from the outside world”

Another issue related to the ethical aspects of some potential questions related to violence and, hence, to sensitiveness of this sub-dimension therefore the questions should be kept quite

open in order for the respondents to give an adequate answer to a situation that is not easily answered by fixed items.

2.2.6 Dimensions of Social Relations and Participation

The opportunity of being able to have good social relations and to participate in societal processes and decision making are important elements in people's lives. Following Walker (2006) "Sen attaches importance to the relations a person has with others, to the social role of education and generally to the capability to be a full participant in society, so a capability for social relations is arguably important, embedded in social networks of care and support" (Walker, 2006, p.171).

Although the individual has a central role in the CA, it is not intended as either ontological or methodological individualism that reduce the role of any aggregate to that of the individual but rather takes the normative position of "ethical individualism" (Robeyns, 2005): "the view that what ultimately matters is what happens to every single individual in society" (Alkire and Deneulin, 2009, p.46). Nussbaum captures this throughout the notions of emotions and affiliations and she states that capabilities are not just "abilities residing inside a person but also the freedoms and opportunities created by a combination of personal abilities and the political, social, and economic environment" (Nussbaum 2011; p.20).

Although the social aspect of well-being has been emphasised by several CA scholars, this approach is still relatively quiet on the social aspects and on the way young people, in particular, relate to each other (there are very few exceptions, see Hart et al 2014; Iervese and Tuttolomondo, 2014).

Mauro (2014) argues that that the social dimension of individual well-being has close links to trust and belonging. Trust is seen as "one of the most important synthetic forces within society" (Simmel 1950; p. 326) and as "a form of social capital, one of the building blocks of a civil society" (Ulsaner 2000, p. 589). In particular, there is a lot of evidence pointing to the importance of social resources when it comes to the individual's life chances (Matthews, Pendakur, and Young 2009; Monden et al. 2003; Vandervoort 1999).

Given the complexity of this dimension, we found inspiration from the literature and questionnaires from European National statistical bureaus. When trying to measure the strong dimension of youth social resources we decided pose the main question: "If you have a personal problem, do you usually share it?", and then complementing it with two supplemental questions on who they share it with or why they don't share.

2.2.7 Dimension Environment

The CA is increasingly operationalized within conceptions of intergenerational justice. In this perspective the environment dimension is central to the human development perspective and adds important elements to the CA. This is acknowledged in the literature (UNDP, 2011; Scholtes, 2011).

It is possible to operationalise this dimension in different ways. From a standard CA perspective this capability dimension is the opportunity to be able to enjoy a good and sustainable environment, or from a more active citizen perspective in terms of agency towards environment (i.e. to be able to contribute to a sustainable environment). According to

Holland, this “ecological capacity” can be seen as a “Meta-Capability” (2008). In distinguishing between actions and attitudes (such as “how important recycling is?”, “do you have access to facilities?”) we tried to analyse the relationship between attitudes and effective actions in relation to personal environmental behaviour. The questions proposed were quite direct on conversion factors: “Are there sorted waste containers near your house?” In terms of achieved functionings: “how often do you use them?” and in terms of the value that the young person attributes to the opportunity of recycling as a proxy for commitment and positive behaviour towards sustainable development: “how important do you think recycling is?”.

3 Results EduWel survey training and pilot project

In this last section we provide a description of the practical steps of the survey process. It must be noted that the main goal was not to perform a miniature of a full-scale survey, but rather to focus on the features that can be crucial for the development of specific tools that could be applied to a main survey.

3.1 Ethical approval

After the analysis and the selection of the dimensions of interest, as well as the questions chosen to measure them, a pilot questionnaire was completed. Once the questionnaire was tested, it was required to undergo an ethics review by the University of London’s Institute of Education Research Ethics Faculty. The main goal of the process was to understand what ethical issues may arise in the course of the research, and how they could eventually be addressed.

The committee required details of what steps were taken to ensure that only sensitive data essential to the research were collected, how the data would be anonymised and how the safety and security of the data was ensured. As this survey involved young people, particular attention was paid to the possible risks to research participants, as well as the way they were informed about the research and all their rights.

After the review process, the ethical committee issued approval for the research. The committee noted that the information sheet was clear and the questionnaire appeared sound. As the committee required that if participants younger than 16 would be sampled, then provision for also gaining parental consent should be included, only people older than 16 were included in the data collection.

3.2 Cross-cultural context issues – problems and solutions

Since the characteristics of social relations and forms of participation differ across cultures and customs, one of the main challenges of this project was to take into account country diversity. This aspect was crucial, as the cross-cultural aspect of the survey could introduce measurement issues, as well as threaten comparability, reliability and validity of data.

A basic distinction of the main errors that could be generated by the cross-national setting includes the method(s) used to measure across countries, the differences in social and political systems studied, and the translation from one language to another and from one culture to another.

The first issue is usually a nuisance in studies based on existing datasets, so that it can be considered reasonably under control in our setting: since data were gathered through a specifically designed pilot, the methods used for measurements are the same.

The second issue had an impact on many practical aspects of the survey. For example, it was noted that it was very difficult to get reliable lists of the population studied. At the beginning, the survey project planned to use a CATI (computer assisted telephonic interviewing) as a method to collect information on the respondents. Successively, it was noted that available directories of telephone numbers were not harmonizable between the four countries, as they were coming from different providers, each with its own rules and characteristics. This could have introduced a bias in the sampling list that couldn't be easily taken into account. It was then decided to collect the data directly in schools. Even if the CATI method was better to reach people in different areas, the method chosen allowed us to better control the bias mentioned, assuming that the variables of the schools chosen (e.g. size, kind of school, geographical location etc.) should be easier to collect than the (possibly unknown) criteria that lies under the construction of a phone directory in different countries. Other issues like the permission to collect information on 16 year old people in the classes were not the same across countries. The ethics approval described above was very useful to guarantee the principals of the schools that all possible efforts were made to meet the ethical requirements, but in some countries there still were some problems about one or more questions considered too sensitive.

The literature on cross-cultural survey instrument development mostly focused on the problem of translation, but many other factors could affect measurement. Different conversational standards could affect the interpretation of concepts beyond the literal meaning of the words (Grice, 1989), and the way questions are ordered may have a different effect from one culture to another (Schwarz, 2003), as well as the understanding of the general intent of a survey, planned use of the data, certainty of confidentiality, and also certain aspects of cognition affecting response behaviours can be different across cultures (Johnson et al., 1997).

The common aspect of these issues is the possible difference between intended meaning of questions and perceived meaning of questions. Given this, since questions are perceived in different context, the same different contexts in which translated questions are processed could have an effect on the perceived meaning of a well-translated question (Braun, 2003; Harkness, 2004).

Indeed, throughout debates over the role of diverse cultures and the CA, it has been emphasized that one needs to understand the diverse processes of socialization inherent to cultures. Two approaches are most known in the literature studying cross-national differences in interpersonal relationships and communications customs: the emic approach and etic approach. The prior unveils how members of a culture understand their own communication, the latter compares specific aspects of interpersonal relations and communication across cultures (Gudykunst et al., 1996). If we found marked correlations between answers in the social relations and participatory dimensions and the youngsters' nationality, it might have been wise to unveil that link further and consider including specific questions related to social customs and peers' behaviours. However, we also have reasons to believe, also based on our initial research of diverse questionnaires, that the kind of questions we posed relating to social relations can be universally applicable although the interpretations of specific responses may differ.

The translation of the questionnaires into Swedish, Italian and German (generally referred to as the target languages) was performed through a back-translation process (McDermott and Palchanes, 1994; Van de Vijver, and Hambleton, 1996). The questionnaires were first

translated into a foreign language and then translated back to the original language by an independent translator. This process allowed the comparison of two questionnaires written in the same language, improving significantly the internal validity of the research.

Due to its high cost, this technique is not very common, but as this was a research project involving more than one country, it was decided that it was a worth investment. Even if the sample size was small (see table 1 for details), the data were analysed in order to check for the consistency of the back translations. The distribution of the options throughout the questionnaire suggests that there were no particular issues for most of the questions. Nonetheless, for a few sensitive questions, the distribution of responses in the four countries appears to be significantly different. It remains difficult to decide whether these differences are due to real country-specific dissimilarities or whether they only reflect a systematic bias due to problems in the process of data collection, and this remains hard to test with a pilot survey. A vignette proposed at the end of the questionnaire was used to perform some tests to detect inconsistencies due to the cross-cultural context. No evidence of bias was detected, so that it can be reasonably assumed that the instruments in the four countries were measuring approximately the same items. A full-scale survey with a larger sample size is needed in order to test these issues with a greater degree of significance.

3.3 Data collection

The data collection took place in Germany, Italy, Sweden and the UK. In each of the four countries one or more high schools (ISCED level 3: Upper secondary education) were selected, and in each school one or more classes of students aged at least 16 year old were selected (see Table 1 for details). During this phase of the research a real sample design was not taken, as schools were chosen for reasons of convenience. In the table below there is a brief summary of the completed questionnaires. Although the questionnaire had already been through an ethical process and received a green light by an ethics committee, the bureaucratic procedures to obtain consent from the schools to undertake the collection of data directly in the classroom differed in each of the countries. During the pilot phase this was not considered a major problem, but it is clear that this issue could be an important source of selection bias in the sampling design of a large-scale investigation.

Country	Schools	Classes	Students
Germany	3	5	148
Italy	2	4	88
UK	1	2	40
Sweden	1	2	29
Total	7	13	305

Table 1 – Distribution of respondents in the four countries

Once the school had granted authorization, the questionnaires were delivered to the classroom. The questionnaires were briefly presented to the students, who had their rights explained to them in accordance with the standard procedures of a survey, and finally the students were allowed some time to complete the questionnaires. It took an average of 15 minutes for the respondents to fill in and complete the questionnaire. Despite the fact that the instrument had been thoroughly tested and contained information on how to fill it in, all the

comments that were made by the students themselves were carefully noted and transcribed in order to improve the understanding of the questionnaire and fix any issue about it.

3.4 Data entry and cleaning

Once gathered, the data were transferred into electronic format. The gold standard for this kind of data transfer is the double entry, which guarantees a very high accuracy. Since this process is very time-consuming and expensive, we tested an alternative method that could reduce the impact on time and burden. The double entry was performed only for a subsample of the questionnaires (98 questionnaires; about 32% of the total), and the results were used to get an estimate of the total number of errors. As a result, a 95% confidence interval for the total number of wrong entries was between 0.5% and 1.3% of the total answers, a range that can be considered widely acceptable.

Missing data and inconsistencies

After the data entry process was completed, the data were analysed to check for inconsistencies and errors. The validity of the data was partially achieved in the data entry phase by allowing numbers being entered only within a certain range. Moreover, the final dataset was examined with the analysis of means, standard deviation and range of all the variables to detect values that were unexpected and potentially erroneous. The correction of such erroneous data is not straightforward, since the true value is unknown, but it was resolved by setting the values to an average or other statistical values. Statistical methods were also used to handle missing values that were replaced by values obtained by data algorithms.

The process of data cleaning was useful in obtaining an estimate of the total number of errors and inconsistencies. A 95% confidence interval for the total number of inconsistencies was between 0.2% and 0.8% of the total answers, a range that, similarly to what was measured for the data entry errors, can be considered acceptable.

3.5 Focus on the questionnaire

During the process of the questionnaire design, the back translation, the data collection, and the data cleaning/analysis, the goal was to test the instrument and make sure some basic requirements were fulfilled. The following is a brief list of the issues that were checked:

1. The understanding of the questionnaire by the respondents. This is an issue that could have been further complicated by the cross-national nature of the pilot. During the data collection, every doubt raised by the respondents was taken note of and it didn't seem that anything was unclear.
2. Common interpretation of the questions. This is a very difficult aspect to test given the small size of the sample, especially because most of the questions were based on closed questions. However, there was no evidence of questions that were misinterpreted in one or more country.
3. Appropriate response options. The data analysis seemed to prove that the options were well suited to the questions, as the rate of responses provided in the category "Other, specify" was quite low. In addition some of the answers that were given in this category will be used to integrate the options for some of the questions in the full scale survey.

4. Range of the scales completely used. All the questions measuring latent continuous variables were organised on a scale with only four items. This choice helped by forcing a choice by the respondents (as there were no neutral options available). All the answers were properly distributed throughout the entire range of options.
5. Correct filters questions. This aspect of the questionnaire seemed to be clear, as in the data collection and the data cleaning, the rate of this kind of mistakes was negligible.
6. Questionnaire motivating people to respond. This is another goal that seems to be achieved by the instrument chosen. The straightforward questions, the limited length and the wide use of closed questions made the questionnaire more appealing and easy to fill. Moreover, in more than one class, the students seemed to be interested in the project asking questions and explanations that showed a certain degree of motivations.
7. Time needed to complete the questionnaire. The duration of the questionnaire was meant to be around 15 minutes. The average time measured on the respondents was satisfying and slightly better than that target, with little variance. The range of the time lengths was approximately between 10 and 17 minutes, and the interviews rarely lasted more than 20 minutes.

3.6 A brief look at the results

As mentioned above, the goal of this pilot was not to perform a full analysis of the data, but rather to check for the feasibility of the survey, and in particular of the instrument.

Nonetheless, we still performed a basic analysis of the variables studied, in order to provide a rough idea of what could be the confounding factors that could introduce spurious relationships. Due to the small sample size (especially for Sweden, where only 29 interviews were completed), and the non-probability sampling design, all the results provided have no statistical significance, and must be interpreted only as a description of what was observed in the sample.

Some interesting results regard the attitude of the respondent towards some controversial topics of the “critical thinking” dimension. In particular, we analysed the attitude of respondents about sensitive issues like abortion, homosexual marriage, different cultures and religions, disability, etc.

Table 2 reports the outcome of a question about abortion (“All women should have the right to choose an abortion in the first part of their pregnancy if they wish”). In total, only 27% of the respondents declare they disagree with the fact that all women should have the right to choose an abortion in the first part of their pregnancy if they wish. Still, there is some heterogeneity between groups, as only 10% of the respondents declare to disagree in Sweden, while this percentage rises to more than 30% in Germany and the UK.

	GER	ITA	SWE	UK	Total
Strongly Disagree	14.9%	9.1%	3.7%	18.0%	12.5%
Disagree	15.6%	14.8%	7.4%	12.8%	14.2%
Agree	25.5%	27.3%	25.9%	23.1%	25.8%
Strongly Agree	44.0%	48.9%	63.0%	46.2%	47.5%
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2 – “All women should have the right to choose an abortion in the first part of their pregnancy if they wish”

When it comes to having a family from another culture moving in next door (table 3), the Italians seem to be more tolerant, as less than 14% of them declare they would mind, while people from the UK have this percentage set at 23%. Table 4 shows the response to the question “The creation of religious buildings or spaces should be open to any kind of religion”, where similarly Swedish and Italian (respectively 77% and 74%) seem to agree more than Germans and British (60% and 62%).

	GER	ITA	SWE	UK	Total
Strongly Disagree	67.9%	75.0%	77.8%	61.5%	70.1%
Disagree	13.1%	11.4%	3.7%	15.4%	12.0%
Agree	8.0%	4.6%	11.1%	15.4%	8.3%
Strongly Agree	11.0%	9.1%	7.4%	7.7%	9.6%
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3 – “I would mind if a family from another culture/religion moved in next door to me”

	GER	ITA	SWE	UK	Total
Strongly Disagree	15.6%	10.6%	3.9%	20.5%	13.7%
Disagree	23.7%	15.3%	19.2%	18.0%	20.0%
Agree	14.1%	29.4%	38.5%	28.2%	22.8%
Strongly Agree	46.7%	44.7%	38.5%	33.3%	43.5%
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4 – “The creation of religious buildings or spaces should be open to any kind of religion”

When it comes to attitude towards homosexuality, the gap seems to be even wider: In Sweden, UK and Italy more than 72% of the respondents agree with same gender marriages, while the percentage decreases to 56% in Germany (table 5). Sweden remains very extreme also on the statement about homosexual parents to be as suited as heterosexuals to be parents (85% of the sample agrees), while the percentage decreases between 48% and 55% for the remaining three countries (table 6).

	GER	ITA	SWE	UK	Total
Strongly Disagree	49.0%	50.6%	70.4%	56.4%	52.4%
Disagree	7.7%	21.8%	3.7%	15.4%	12.5%
Agree	10.5%	13.8%	11.1%	18.0%	12.5%
Strongly Agree	32.9%	13.8%	14.8%	10.3%	22.6%
	100.0%	100.0%	100.0%	100.0%	100.0%

Table5 – “I believe that marriage is only meant for heterosexuals”

	GER	ITA	SWE	UK	Total
Strongly Disagree	31.4%	27.3%	0.0%	23.7%	26.3%
Disagree	20.0%	27.3%	14.8%	21.1%	21.8%
Agree	15.7%	18.2%	22.2%	13.2%	16.7%
Strongly Agree	32.9%	27.3%	63.0%	42.1%	35.2%
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6 – “I think that homosexuals are as suited to be parents as heterosexuals”

What can be observed in these tables, and in other tables on sensitive issues that are not reported, is that in general the students interviewed in Sweden and Italy appear to be more tolerant towards different cultures, abortion, homosexuality and disability, while Germans and British respondents seem to be more anchored to conservative values. Although the data analysed refer to a small sample, the conclusions are different if we introduce the variable “religion” in the analysis. For all the statements, the variable religion seems to be associated with the outcomes. As a consequence, differences in the distributions of religion between countries can be the real cause of the observed differences of the outcome variables, introducing a spurious relationships that may lead to biased interpretation of the results. An analysis of the data taking into account this possible source of bias showed how the differences between countries were mitigated if calculated after conditioning on groups of people sharing the same religion.

4 Conclusions

As stated in the introduction, this project had two main purposes: to design and test a pilot survey for the detection and study of various dimensions to be analysed under a CA framework and to provide the EduWel Early Stage Researchers with practical complete training on the various stages of a field survey during their PhD. Both goals were achieved by directly involving the ERSs in the design and testing of the survey and by carrying out the piloting in four European countries.

The didactic part of the project can be divided into two main priorities that are partially overlapping. The first goal was to offer the ERSs a strong grounding in both qualitative and quantitative methods for conceptualising and measuring different aspects of the CA with statistical instruments, while the second was to teach the ERSs how to practically carry out a survey.

The idea was then to give the ERSs the opportunity to follow a pilot survey from the very beginning until the production of the outcomes. Every single part of the main phases of a lifecycle survey was in fact carried out involving the ERSs as much as the circumstances were permitting. This allowed the ERSs to actively participate in all the steps of the survey while at

the same time being supervised and coordinated by experienced researchers with a background in both CA-based surveys and survey design. Parts of the methodological approaches developed for the pilot survey were also applicable to the single research project of the ESRs, fostering their capacity to deal with quantitative and qualitative measurement of the CA even more.

The second goal of the project was to understand the specific dynamics that may arise when dealing with CA-based research applied to young people in a cross-national context.

Bringing together these three dimensions (CA, measurement of variables on young people and cross-national framework) led to a plethora of issues and many possible sources of bias that had to be carefully taken into account. For a more detailed discussion about these issues see Mauro (2014).

The pilot design can be considered somehow atypical as its main goal was more to focus on these various issues rather than performing a miniature design of a well-defined full-scale survey. For these reasons, the pilot design was not limited to testing the instruments used to gather the data, but it was a full-range pilot study aiming to understand the feasibility, the cost/time of the study, as well as the unfavourable events that cannot be easily predicted during the standard development of a survey. The dimensions chosen for the analysis were also tested through the examination of the interactions and the overlapping between various variables, both during the conceptual phase and the data analysis.

Of course, the work done cannot be considered exhaustive enough in order to overcome all the issues that were arising throughout the many steps of the survey life-cycle. Budget and time constraints, for example, didn't allow a large sample size of respondents, in turn, some key questions remained open. Moreover, the choice of the four countries where the survey was carried out was mainly due to contingency reasons, so that it may be hard to extend the results and the lessons learned to countries that are significantly different to the ones selected (e.g. countries in east Europe or in other continents). In addition, some of the operationalisation features of the survey (e.g. the vignettes used to deal with adaptive preferences) are still to be conceptualised in a clear way, and probably require more data and more analysis to be fully developed.

Although all these problems cannot be fully solved with such a small-scale pilot survey, still the lessons learned represented a unique and invaluable starting point for a possible large-scale survey aiming to shed even more light on the dimensions of analysis and the best way to measure them. In particular, the instrument chosen to gather the data in such a complex study dealing with different cultures, seemed overall consistent, so that it can represent important groundwork that can be integrated and improved.

Finally, one of the most peculiar characteristics of this survey project was the fact that it was being carried out through the years by a group of people (mainly the ESRs and the survey project coordinator) that were physically spread all around Europe. Due to this constraint, the work was organized over one-day meetings, as well as using a web-based forum where the ERSs could interact, share their ideas and deliver the tasks proposed by the coordinators. During the period of activity, the web forum hosted several different discussions and hundreds of posts by the ESRs, who were allowed to actively follow the development of the survey stages. Although on one hand this could be considered a weakness of the project (because of the difficulties of being able to work face-to-face), on the flip side it allowed the

development of new pioneering ways of approaching the survey process through the use of web-based technology. From this perspective, the work carried out by ESRs residing in different parts of Europe seems in fact to be a natural consequence of an academic world increasingly focused on the analysis and comparison of different cultures in different countries and can be seen as representing further added value to the entire project.

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