Methodological and theoretical cultivation in cross-European research on ageing

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The article “Comparative ageing research: a flourishing field in need of theoretical cultivation” by Tesch Römer and von Kondratowitz (2006) discusses the theoretical aims and ambitions of comparative ageing research in general, and both describe general theories tested through comparative research and provide examples of the importance of subjecting ageing theories to comparative research and how they can be modified for comparative research. Finally, all of these theoretical ingredients are expressed through examples showing how theoretical sophistication can improve European research. In sum, the article is a thorough review of the importance of theoretical progress in ageing research, as well as providing an outstanding synthesis of how to improve ageing research on the basis of its theoretical foundations, not only in Europe but also, according to the authors, in general.

Moreover, although this is a conceptual paper, the authors do not neglect the importance of methodological problems in comparative research on ageing, even though less than 10% of the article is actually devoted to method. This is not the right place to discuss the role of method for scientific development or the relative importance of theoretical and methodological issues in science. Without doubt, within scientific work any construct or a set of related constructs (a theory), as theoretical entities, are operationalised and manipulated through a set of methods, instruments, indicators, and methodological procedures. Expanding the section devoted to methodological problematic issues in comparative ageing research let examine some of the most important threat for the European context.

Without doubt, cross-European research on ageing involves some specific methodological difficulties because different age groups from different cultures and different languages have to be assessed using standardized measures or instruments in a set of constructs. This condition maximizes the level of difficulty for developing, translating and adapting the procedures for data collection. Let us summarize some of the problematic issues discussed when EXCELSA (European Longitudinal Study on Ageing) was planned (Fernández-Ballesteros et al. 1999; Rudinger and Rietz 1999; Schroots et al. 1999) and when EXCELSA-Pilot was implemented and reported in Fernández-Ballesteros et al. (2004).

Problematic issues of comparability

One of the commonest purposes in cross-cultural research is to study the generalizability of theories, constructs, methods, instruments or measures and/or empirical findings across cultures (countries, groups of individuals, etc.). All of these conditions are potential sources of bias that can render results non-comparable across cultures, countries, groups, etc. Let examine some of these biases.

When a set of constructs is under study, a first problematic issue refers to their conceptual equivalence. Construct bias refers to an incomplete overlap of theoretical constructs across cultural groups. A good example is given by Ho (1996), who found that in China, children have more and different obligations toward their parents than children from Western cultures. Therefore, comparisons of filial piety across different cultures can be biased.

Comparability of constructs (or construct equivalence) is improved when the construct is triangulated using several instruments or observations for operationalizing the same

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constructs, and multi-trait/multi-method analyses and factorial structure equivalences are carried out. However, as Rudinger and Rietz (1999) stress, these theoretical problems cannot be solved in a satisfying manner by the application of statistical models, since measurement comparability and conceptual equivalence are confused.

A second source of bias comes from the method. Following Van de Vijver (1995), bias from method can be subdivided into sample, instrument, administration, and item bias, which we briefly review here.

First of all, *sampling bias* refers essentially to the (in)comparability of samples. But sampling bias can arise from several sources. For example, five aspects were taken into consideration in planning EXCELSA (Rudinger et al. 1996). Let examine briefly these five aspects.

1. *Target population* refers to the definition as homogeneous or heterogeneous. For example, for EXCELSA, populations from seven countries (Austria, Finland, Germany, Italy, Poland, Portugal, and Spain) were defined as “homogeneous” because the eligibility criterion was “citizen speaking the Country (Protocol) language”.
2. *Sampling frame* Of course, it is required that all countries/cultures implement an identical sampling frame, but countries may have different type of socio-political structures (regions, provinces, counties, municipalities) which can introduce a new bias into the comparability of the sample.
3. *Sampling scheme* In the planning of EXCELSA, the best recommendation from experts: was “keep it as simple as possible.” In order to maximize subjects’ variability for testing our Protocol (the main objective of the pilot study), EXCELSA-Pilot participants were recruited through quota sampling by age (4 age groups), gender (2), education (2) and living conditions (2). It is important to emphasize that this scheme is not planned for the main study. Nevertheless, from our pilot study we learned the importance of the operationalization of educational background not only through educational level but through years of education, because in different European countries the same level can be attained with more or fewer years’ of education. EXCELSA-Pilot also shows that educational background may be more important than age for individual differences in some of the tested constructs. The macro-construct “competence” (physical and cognitive competence) is strongly affected by education, so that country differences in competence can be attributed to educational background. We learnt this through statistical analysis, but this issue should be examined much more carefully through European cross-cultural research.

4. *Response rate and statistical mortality* As it is well-known, response rate decrease from northern to southern European countries; this fact is been discussed as an important threat for cross-European research (Van de Vijver and Leung 1997). Moreover, in longitudinal studies, these differences in response rate affect attrition, which becomes the most important threat to the validity of this type of study.
5. *Operationalization of complex contextual variables* Tesch-Römer and von Kondratowitz include a careful discussion of the importance of “culture” as a macro-independent variable in comparative studies, the difficulties involved in specifying the culture, and the problematic epistemological issues. The authors recommend examining culture in the framework of multi-level analysis (Rudinger and Rietz 1999). Nevertheless, among the issues pending in cross-cultural research is the operational definition of this macro-construct.

Instrument is another methodological source of bias in cross-cultural comparisons. “Instruments” is a broad methodological category including observation methods, objective procedures for collecting data (anthropometric, bio-behavioural, biological or biochemical determinations, etc.), interviews and self-reports (assessing any type of subjective or observable event). All of them give rise to specific types of error in collected data.

It should be recognized that, in the field of behavioural and social science, in most cross-European studies data-collection methods are reduced to self-reports. In other words, the self-report is one of the commonest types of method used in comparative ageing research when subjective events (well-being, life satisfaction) or other health-related responses (lifestyles, everyday life activity, etc.) are the target events. Response styles, or response sets, such as social desirability, faking, impression management or acquiescence, represent a potentially devastating threat to comparative research since, as is well known, scores differ across European countries for most response styles—social desirability, impression management, faking and so on (e.g. Baer et al. 2003).

A separate assessment of response styles and the use of triangulation through the multi-method approach may help in the identification and analysis of instrument bias.

Administration is a fourth source of bias within the method category. Administration refers to any procedure for data collection, including interviewing, instrument application, testing or any other procedure relevant to data collection. In relation to maximizing quality in data collection, the following five aspects are of the utmost importance: Protocol development, Manual of Operation (including administration checking), Interviewing/testing

training, Code book and SPSS Protocol (including procedures for data entry checking). Such standard research requirements become more complex when several investigators are working together but without cross-European specificity.

Finally, *item* is taken to be biased if persons from different groups with the same score on the construct, commonly operationalized as the total score on the instrument, do not have the same expected score on the item. As Van de Vijver and Leung (1997) pointed out, the source of such bias refers to items translations or the applicability of particular items to a given population.

Protocol adaptation

One of the most important problematic issues in comparative ageing research within the European context refers to the fact that European countries not only have different cultures, but also different languages. Although English can be considered as the “lingua franca” for European science, there is as yet no “Esperanto” to be shared on an equal basis as a communication tool by the general European population, and English cannot serve as a communication tool for behavioural, health and social inquiry through Europe. Protocol translation/adaptation can indeed be considered the Achilles’ heel of cross-European research on ageing.

A Protocol can be defined as a set of interviewing guidelines, instructions for instrument administration and/or procedures for data collection. The development of a Protocol in a source language is an important step in any cross-cultural research. In the context of EXCELSA, five steps were followed in order to develop the European Survey on Ageing Protocol (ESAP): (1) Questionnaire pre-development in the domain language (English) using certain criteria for selection of instruments and measures, after discussion of theoretical, methodological and instrumental issues within comparative longitudinal research on ageing, health and competence (Fernández-Ballesteros 1996). (2) Administration guidelines in the domain language; (3) Translation/adaptation guidelines into the target languages. (4) Interviewer requirement and training procedures; and (5) Countries/languages testing. Let us look in more detail at the step related to translation and adaptation from a source language (the accepted language for the first developed Protocol version) to all target languages of the seven participating cultures/countries.

The International Test Commission supported by several international organizations¹) has developed 22 Guidelines

for Adapting Educational and Psychological Tests (GAEPT), organized in four sections: Context; instrument development and adaptation; test administration; and documentation/scores interpretation (Hambleton 1994). These guidelines are based on the best research and developments in the field of test translation in cross-cultural research (e.g., Brislin 1990, Irvine and Berry 1983).

Based on GAEPT, a set of guidelines was developed in order to adapt the ESAP (European Survey on Ageing Protocol) developed in English to the most important six languages in the seven participating countries (Italian, Finnish, German, Polish, Portuguese, and Spanish), in two steps: first, developing the ESAP translation manual of operation, and second, conducting EXCELSA-Pilot for testing the ESAP.

The ESAP translation operation manual has four main sections: (1) Identification of translators; (2) Identification of the target languages; (3) Translators’ guidelines, and (4) Translation review. Briefly, the ESAP translation system has a *forward translation/adaptation design*. This requires that judgements of equivalence be made by two independent teams of translators who at the end of the translation process compare the source and target language versions of the protocol and look in depth at all (potential) deviations within the two translations. In case of non-agreement between the two translator teams, a translation review session with the national project leaders should decide the most suitable translation. Any deviation and final decision should be reported to the project coordinator (by means of the “Translation/Adaptation Deviation Form”).

It is important to stress that we decided on a *forward translation/adaptation design* rather than the *back-translation* procedure commonly used (Brislin, 1990). Back-translation emphasizes the original source language, and this criterion can be perverse when the meaning of the construct shows no grammatical equivalence between domain and target languages. When a given statement is translated literally from the domain to the target language, back-translation is likely to appear successful even if the two sentences do not have the same conceptual meaning. But test adaptation requires attaining in the target language the same conceptual meaning as in the source language (not the same wording or the same grammatical structure). Of course, afterwards the new versions should be tested, and empirical data will show whether instruments, scales, and items can be considered equivalent in all target versions.

It is important to note that southern European languages, by comparison with those from central and northern Europe, gave rise to many more inconsistencies between translator teams in relation to source and target languages.

¹ The European Association of Psychological Assessment (EAPA), the International Association of Applied Psychology (IAAP), etc.

Concluding remarks

Concepts and methods are strongly interconnected. While it is true that theoretical cultivation can advance comparative ageing research in Europe, it is no less true that there are specific problematic methodological issues, due to the highly complex circumstances of the European context, which require much more attention. Overcoming these methodological issues would contribute to maximizing research quality and permit more thorough conceptual research on ageing. It is extremely important to promote interchange on this issue; in fact, problematic methodological issues (e.g.: protocol translations) and their corresponding decisions during the research process are not usually described or even reported in cross-European research papers. This prevents us learning from one another—and there is so much to learn!

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