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Methodological issues in cross-cultural sensory and consumer research

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ABSTRACT

Cross-cultural research is becoming increasingly relevant in sensory and consumer science. The design of cross-cultural studies involves several methodological challenges that are not commonly faced in studies involving a single culture. However, several of these challenges have not yet received enough attention in the field, which poses several limitations to the validity and generalizability of the findings of cross-cultural studies. In this context, the aim of the present work is to review some of the most relevant methodological issues that should be considered when designing cross-cultural studies. In particular, five topics are addressed: sampling procedures, conceptual equivalence, linguistic equivalence, data collection procedures and cultural differences in response style. Suggestions and recommendations are discussed for each of the topics, which are expected to encourage greater methodological rigor and contribute to more theoretical robust cross-cultural studies in the field.

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1. Introduction

Culture is one of the main factors underlying our food choices, influencing attitudes and beliefs about food, as well as the role food plays in our lives (Rozin, 1998). Differences in the food environment and dietary experiences across cultures have been reported to influence both chemosensory perception and preferences for sensory characteristics of food products (Prescott & Bell, 1995). Therefore, a thorough understanding of sensory perception and consumer behaviour requires taking into consideration cultural aspects.

Cross-cultural research is becoming increasingly relevant in the field (Meiselman, 2013). As food companies strive to survive in the global marketplace, understanding how consumers from different cultures perceive food products is one of the keys for success (Goldman, 2006). Cross-cultural product development can contribute to maximizing consumer acceptance while maintaining manufacturing costs (Moskowitz & Krieger, 1998). However, accurate information, collected using a rigorous experimental design, is needed to assist decision making.

The relevance of cross-cultural research transcends the growing economic significance of emerging markets. Most sensory and consumer research is conducted in Western developed countries with middle and high income populations and research on the food behaviour of consumers in developing countries, and particularly of low-income consumers, is still underrepresented in the

literature (Hough & Sosa, 2015). Most constructs and models to explain consumer food behaviour are developed in the USA or Europe and are then tested in other countries. Therefore, a strong need exists to consider consumer behaviour as a global issue and to consider the perception of consumers in different cultures in the development of models and theories.

The design of cross-cultural studies poses several challenges that are not commonly faced in studies involving a single culture. Therefore, evaluation methods should be adapted to cross-cultural research (Meiselman, 2013). In this context, the aim of the present work is to review some of the most relevant methodological issues that should be considered when designing cross-cultural studies. In particular, five topics are addressed: sampling procedures, conceptual differences, linguistic differences, data collection procedures and cultural differences in response style.

2. Sampling procedures

One of the most controversial issues in consumer research is the use of small convenience samples, many times composed of students and University staff, as it compromises the reliability, validity and generalizability of research results (Peterson & Merunka, 2014). For this reason, the use of large representative consumer samples has been recognized as one of the major needs for the future of the field (Meiselman, 2013).

Sampling deserves additional focus and attention in the case of cross-cultural research. The characteristics of samples and differences in sample composition across cultures can have a major

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impact on validity, which is many times not taken into account (Douglas & Craig, 1984). Sampling in cross-cultural research involves both the selection of cultures and sampling of participants within cultures (Reynolds, Simintiras, & Diamantopoulos, 2003). Some of the key aspects of these two levels of sampling that should be considered in the design of cross-cultural studies are discussed below and summarized in Table 1.

2.1. Definition of cultures

The first step in the design of any cross-cultural study is to define cultural groups (i.e. groups of people that belong to the same culture) as object of analysis (Sobal, 1998). Considering that culture can be identified at different levels, definition of cultural groups depends on the specific research questions of the study (Ferraro, 2001). However, country is frequently considered as proxy for culture, based on conceptual and empirical studies that have demonstrated the existence of within-country commonalities and between-country differences in cultural values and social norms (Sivakumar & Nakata, 2001).

However, it should be taken into account that several cultural groups can be identified within each country (Sobal, 1998). For example, several sub-cultures that retain their own identity can be identified in countries with high immigration rates, such as the USA. In this sense, differences in the eating patterns of

consumers from different cultural groups in the USA have received special attention in the literature (e.g. Eicher-Miller, Fulgoni, & Keast, 2015; Stenger, Ritter-Gooder, Perry, & Albrecht, 2014) but further research in this respect is still needed.

2.2. Selection of cultures

Culture selection has been identified as one of the most important aspects of sample design in cross-cultural research (Samiee & Jeong, 1994). In sensory and consumer cross-cultural research, cultures are usually selected using convenience sampling, i.e. they are selected based on their accessibility and ease of data collection (Sobal, 1998). For example, Markovina et al. (2015) considered nine European countries in their study about motives underlying food choice but motives for selection were not provided.

The main disadvantages of convenience selection of cultures are that results are not generalizable to other cultures and that the cultural determinants of similarities and differences among cultures cannot be identified. For this reason, systematic sampling, in which cultures are selected on a theory-driven continuum, has been recommended (Van de Vijver & Leung, 1997).

Several theories have been proposed for mapping and comparing cultures according to their values, Hofstede's and Schwartz's theories being the most popular (Ros, 2008). Hofstede argued that values are the core of culture and proposed six dimensions along which cultures can be located: power distance, uncertainty avoidance, individualism, masculinity, long term orientation and indulgence (Hofstede, 2011). Large differences among countries have been reported in the six dimensions of Hofstede's model, as shown in Table 2. Similarly, the theory proposed by Schwartz is based on seven cultural value orientations (harmony, embeddedness, hierarchy, mastery, affective autonomy, intellectual autonomy and egalitarianism) that form three cultural value dimensions (autonomy vs. embeddedness, egalitarianism vs. hierarchy, and harmony vs. mastery) (Schwartz, 2006). This theory enables a more detailed characterization of cultures and has been reported to explain relevant social phenomena (Schwartz, 2004).

Selection of cultures based on Hofstede's and Schwartz's theories is largely encouraged (Table 1). Algorithms to select countries based on their similarities and differences on the initial four dimensions of Hofstede's model (power distance, uncertainty avoidance, individualism and masculinity) have been developed to guide sampling of cultures in cross-cultural research (Sivakumar & Nakata, 2001). This type of approach can contribute to our understanding of the cultural determinants of differences in food-related behaviour (Sivakumar & Nakata, 2001; Sobal, 1998).

Random sampling of cultures is also possible, which implies to randomly select all the cultures from a pre-determined theory-driven cultural universe (Sobal, 1998). True random samples of cultures are non-existent in the literature due to the large resource requirement of such studies. However, some studies have achieved a good approximation to a random sample of cultures (Van de Vijver & Leung, 1997). For example, Schwartz (1994) included a sample of 36 cultures to study the structure of human values and develop his theory.

2.3. Sampling of participants within cultures

Selection of sampling procedures within each country involves a compromise between the need to obtain within-culture representativeness and between-culture comparability of samples and should be based on the specific aim of the study (Usunier, 1998). Table 1 summarizes the main recommendations for the selection of sampling procedures in cross-cultural research according to the specific aim of the study.

Table 1
Summary of methodological recommendations for cross-cultural sensory and consumer research, for each of the five main topics discussed in the present work.

Topic	Methodological recommendations
<i>Sampling procedures</i>	<ul style="list-style-type: none"> – Cultures should be selected based on differences in cultural dimensions. – Random sampling to assure representativeness is highly recommended when the aim of the study is to describe consumer perception of a focal stimulus within each culture. – Quota sampling is recommended for comparing consumer perception across cultures. – Convenience sampling without pre-determined quotas in each country should be avoided. – Cross-cultural research within countries deserves further exploration.
<i>Conceptual equivalence across cultures</i>	<ul style="list-style-type: none"> – Conceptual equivalence should be tested when applying constructs and models developed in one culture to other cultures. – Preliminary qualitative studies in each country are recommended to test the validity of the models.
<i>Linguistic equivalence</i>	<ul style="list-style-type: none"> – Back-translation approaches are recommended – Special care is needed when translating sensory and emotional terms. – Pilot work and preliminary qualitative studies are recommended to check equivalent understanding of the terms across cultures
<i>Data collection procedures</i>	<ul style="list-style-type: none"> – Data collection procedures should be as similar as possible in all cultures. – Preliminary research should be carried out to assure that different data collection procedures provide similar data. – Data should be collected within reasonable time-frames.
<i>Cultural differences in response style</i>	<ul style="list-style-type: none"> – Cultural differences in response style should be acknowledged. – Questionnaires should be designed to minimize differences in response style. – Standardization can contribute to a fair comparison of scores. – Alternative methodologies that do not rely on scaling, such as ranking and best-worst scaling, are recommended.

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