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# Issues in cross-cultural studies of advertising audiovisual material

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## **Abstract**

*This article presents an approach to cross-cultural studies of advertising audiovisual material that departs from the typical rigid marketing models. It favours a more qualitative inductive approach to corpuses in which audiovisual texts are not approached or compared through the use of standardised American tools. After reviewing the usual marketing tools, the article focuses on the steps researchers can usefully take from the gathering of audiovisual texts from two different environments to their classification, two important steps that are critical in such studies.*

## **Introduction**

Cross-cultural empirical studies of advertising audiovisual material have been rare since the end of the 1990s, in part because they are notoriously difficult to conduct but also because research in this area has reached a methodological deadlock. Existing studies tend to follow quantitative marketing models and produce results that further fuel the standardisation/ localisation debate (see Taylor 2002). The delicate methodological steps that need to be taken in these studies are often skimmed over and not covered in any depth. Although a limited number of studies have addressed methodological issues in cross-cultural studies (Samiee & Jeong, 1994; Sivakumar & Nakata, 2001; Malhotra, Agarwal, & Peterson, 1996), they all take a marketing angle.

This article's aim is to help potential researchers in this area and also to advocate for a less quantitatively rigid, more inductive approach to empirical cross-cultural study of advertising audiovisual material. It supports an approach similar to the "combined semiological/ content analysis" recommended by

Leiss, Kline, and Jhally (1986, p. 175) which consists in blending specific, quantitatively oriented strategies with interpretive sensitivity (Leiss, Kline, & Jhally, 1986, p. 177). The suggested approach to conducting this type of research is qualitative methodology which, as Silverman (1993) described, is often concerned with determining hypotheses from field research. In addition, although the major emphasis advocated is qualitative and interpretive, it also suggests simple quantification techniques, which, as many researchers pointed out (Silverman, 1993; Bailey, 1994; Leiss, Kline, & Jhally, 1986; Muchielli, 1988; Samiee & Jeong, 1994; Cook, 1992) can be fruitfully combined with a qualitative approach.

After identifying the many hurdles that stand in the way of cross-cultural studies of advertising audiovisual material, this article will review the marketing tools typically used in those studies. It will then propose a more inductive approach to research, focusing on the steps researchers can usefully take, from the gathering of audiovisual material from two different environments to its classification. A sampling method will be proposed as well as a macro pre-analysis approach used to identify specificities in corpuses of commercials from two countries.

## **Defining matters: Cross-cultural/national empirical studies of advertising**

It has been noted that cross-cultural studies are rare because of the difficulties involved but that they are also invaluable in an increasingly globalising world (Macnamara, 2004). For instance, the process of decoding the imagery patterns that influence advertising in a culture not one's own can have practical implications for practitioners who work across cultures. Such knowledge of another culture's advertising idiosyncrasies can help them decide

whether to design their communication to fit inside the dominant advertising discourse of that country, or to challenge established conventions through risk taking.

Defining cross-cultural research itself has generated debates. In O'Sullivan, Hartley, Saunders, Montgomery, and Fiske's (1994) useful definition, cross-cultural analysis is "a kind of comparative analysis which prioritizes the relativity of cultural activities. Pioneered in social and cultural anthropology, the method compares whatever your particular object of study might be with perspectives from other cultures" (p. 67). In particular relation to advertising, Samiee and Jeong (1994) defined cross-cultural advertising research as any research that investigates advertising content or issues in more than one culture. Clark (1990) defined cross-cultural or comparative studies as studies that look for similarities and differences among nations in terms of a limited set of phenomena, although, as Samiee and Jeong (1994) observed, most cross-cultural studies of advertising tend to focus on cross-cultural similarities rather than differences.

Debate has been generated about what constitutes the boundaries of cross-cultural studies. According to Samiee and Jeong (1994), "within the context of cross-cultural studies, culture should serve as either the primary or a key unit of analysis" (p. 208). Authors such as Johnstone, Kaynak, and Sparkman (1987) or Øyen (1990) however, pointed out the difficulties of isolating cultural from national differences. Indeed, cultural differences can occur within nations as a result of differences in language or culturally determined values of certain groups of people (for example, Canada or Belgium). A country nevertheless constitutes an appropriate unit of analysis of advertising when the objective of the study is to establish national, rather than cultural, views toward some phenomenon (Clark 1990; Samiee & Jeong, 1994). And indeed, in most empirical studies, a country rather than a culture forms the basis of research. A researcher can therefore take the country or "nation" as the unit of study, focusing on exploring how advertising works as part of "national culture" and considering ad-

vertising as a national or cultural phenomenon working within the boundaries of the national media landscape.

### **Hurdles in the way of cross-cultural studies**

Many hurdles stand in the way of the cross-cultural researcher of advertising audiovisual material. Most cross-cultural empirical studies of advertising try to achieve a flawless comparison of the advertising of two or more countries but acknowledge that various factors stand in the way of comparability. One important element in the way of objective comparison of advertising audiovisual material from different countries is ethnocentrism. This idea that one cannot escape the ascendancy of culture has been noted by several authorities on culture for a long time (Weber, 1949; Hall, 1966; Bourdieu, 1979; Oliviéri, 1996). Hall's (1966) famous words particularly emphasise the inevitability of ethnocentrism:

No matter how hard man tries, it is impossible for him to divest himself of his own culture, for it has penetrated to the roots of his nervous system and determines how he perceives the world . . . people cannot act or interact in any meaningful way except through the medium of culture. (p. 177)

This pessimism about cultural objectivity was shared by Weber (1949) who noted, "there is no absolutely 'objective' analysis of culture or . . . of social phenomena" (p. 72) and "all knowledge of cultural reality, as may be seen, is always knowledge from particular points of view" (p. 81). In other words, there is no point from which to stand back and perceive the social world objectively. Any discourse is stamped with its own culture. There is therefore an immense challenge in talking about a culture when immersed within a culture of which one is the product. As Carroll (1990) puts it:

in cultural analysis, what I am demanding of myself is a very complex mental exercise: indeed, in order to understand the other through cultural analysis, I must at least temporarily, accept that my truth is precisely that, 'my' truth, that it is not the absolute truth, but a relative truth. (p. 125)

Therefore, acculturation in both cultures, and more precisely in several aspects of both cultures under study, is crucial. As Otterbein (1972) argues, cross-national enquiries into culture should inevitably involve the investigation into matters of social structure and politics. The legal, political, technological, and economic environments, which are expected to vary across nations and that are relevant to the study, have to be given careful consideration (Johnstone, Kaynak, & Sparkman, 1987). In addition, acculturation is also about mastering the languages of samples under study. Indeed, language has been shown to stand in the way of coders' proper understanding of figures of speech such as metaphors (see Graham, Kamins, & Oetomo, 1993). As Cho, Kwon, Gentry, Jun, and Kropp (1999) argue, these problems in the coding process "indicate that one's own cultural roots may inhibit the perception of stimuli coming from another cultural perspective" (p. 70). In order to avoid this, 'accultured' bilingual researchers are invaluable in the process of cross-cultural analysis.

Researchers also usually acknowledge that a perfect cross-cultural study is impossible to achieve simply because no two cultural environments are exactly similar. Nevett (1992), for example, showed how the cultural/national character of advertising depends on a number of sociocultural, legal, political, historical and mechanical factors that are all linked and that differ from one culture to another.

Because of the sheer range and diversity of variables that constitute a cultural environment, attempts to study two advertising cultural environments objectively and fairly and on the basis of "what is comparable", constitute an unworkable challenge. Following the advice of previous literature on what can be compared, would only result in unworkably narrow areas of consideration. Whitelock and Chung (1989) for example, argued that a perfect comparative study of advertising would have to choose two countries at a similar stage of economic development and with the same living standards. Other authors argue that the countries under study should use similar dominant advertising managerial tech-

niques and pre-testing techniques (Nevett, 1992) should focus on advertising messages from the same product category (Biswas, Olsen, & Carlet, 1992; Chan, 1995, 1999; Johnstone, Kaynak, & Sparkman, 1987; Katz & Lee, 1992), focus on environments with the same patterns of commercial breaks (Zandpour & Harich, 1996) or commercials of the same length (Nevett, 1992; Stanton & Burke, 1998), screened at the same time of the day during similar programmes targeted at similar target audiences. This selection might be possible to achieve; however, the possibility of isolating large enough corpuses for study would be quite remote.

### **Putting two advertising discourses in parallel**

Unlike other empirical approaches to comparative studies of advertising audiovisual material, whose tools and methods I will review in the next section, this approach does not advocate quantifying and comparing only what is comparable. After all, after taking into account all the elements that are in the way of fair comparability, there would be no data left in the corpuses. Instead, the approach proposes to gather corpuses that are representative of the whole prime-time advertising discourse and see what is proposed to viewers through the whole discourse and what is represented and signified in these corpuses through advertising communicators' practices.

Therefore the proposed approach is not to use exactly the same "orthodox" methodological tools as other studies in order to be able to make results comparable with others. The aim is not to isolate and "clinically" count and compare appeals or advertising formats in order to be able to tell firms which advertising format they should use in order to be successful in specific markets. Rather, the approach is exploratory, in which two whole advertising discourses are put in parallel in order to "denaturalise" cultural/national advertising conventions and communicational habits. The approach proposes that the researcher, in a cruder "anthropological" fashion, stands back and looks at the cultural imaginary of consumption presented by the television advertising discourse of two countries. The approach is similar to the way one might observe two tribes with their inter-

twined social and material preferences, their aspirations, rituals, regulations or taboos. In this endeavour, the contrastive framework, as Giaccardi (1995) noted, is particularly helpful as it makes possible the ‘denaturalisation’ of advertising representations that are usually taken for granted in a particular culture.

This kind of approach is advocated because, as Taylor, Grubbs and Haley (1996) and Samiee and Jeong (1994) suggested, there is a need for a more qualitative inductive approach to cultural/national advertising whereby each culture is seen as unique and not compared to another through the use of standardised American tools and values. It concurs with Taylor, Grubbs and Haley’s (1996) suggestion that “such research would begin with a qualitative investigation of the core characteristics of advertising and the advertising process, and comparisons across cultures would be made at the higher level of analysis” (p. 2).

### **Reviewing cross-cultural empirical studies of advertising environments**

Marketing models dominate the literature of cross-cultural empirical studies of advertising. Over the years, these empirical content analysis studies have been conducted with a view to assess whether advertising reflects or does not reflect the prevalent values of the culture in which it exists. Nearly all empirical studies that investigate advertising audiovisual texts and culture, whether it is within one single culture (Chan, 1999; Shao, Raymond, & Taylor, 1999) or several (Cheng & Schweitzer, 1996; Zandpour, Chang, & Catalano, 1992), whether they are based on audience research (Laroche, Toffoli, Zhang, & Pons, 2001; Tai & Chan, 2001; Zhang & Neelankavil, 1997) or coded content analysis of advertising messages (Koudelova & Whitelock, 2001; Wiles, Wiles, & Tjernlund, 1996), are predominantly descriptive and focus on what the content of print advertisements or television commercials reflects in terms of cultural values. They all use a range of tools that I will now review.

### **Value orientations and advertising appeals**

A common approach is to search for value orientations in advertisements and then try to

determine if these are consistent with the dominant orientation of the culture in which the advertisements appear. Such studies have, for instance, concentrated on investigating to what extent values, such as individualism/collectivism, masculinity/femininity, or materialism, are reflected in samples of commercials or print advertisements. Their aim is to give cultural insights to advertisers who wish to market products in different cultural environments. Accordingly, the value orientations investigated are typically formulated in terms of thematic binary oppositions such as individualism/collectivism, masculinity/femininity, or in terms of single notions such as time orientation, activity orientation, uncertainty avoidance, long-term orientation, and materialism (see McCarthy & Hattwick, 1992; Tai & Chan, 2001; Zhang & Shavitt, 2003).

Other studies that investigate advertising appeals engage in the same kind of exploration. They search for which appeals are used in advertisements of a specific country and to what extent advertising reflects them. Various appeals, usually based on Rokeach’s (1973) model, can be looked for in advertising messages. These range from appeals dealing with the “form” of advertising such as hard-sell or soft-sell, through more thematic appeals such as modernity and youth, status, group consensus, individual and independence, veneration of elderly and traditional, oneness with nature, manipulation of nature, to more product specific appeals such as product merit. Mueller (1987), for instance, investigated the extent to which these appeals were reflected in Japanese and American print advertisements. Appelbaum and Halliburton (1993), basing themselves on the work of Fieldhouse (1986), defined an appeal as “any message designed to motivate the consumer to purchase” or “the reason why” (p. 230). They also widened the range of appeals to 24, using loving care, health, friendship and togetherness, romance and sex, among others, and tried to identify them in food and beverage commercials from several countries. These appeals were all thematic, investigating the content rather than the form of an advertising message. Other studies have tested audiences’ response to fear appeals (Laroche, Toffoli, Zhang, & Pons, 2001) while others have inves-

tigated the number of advertisements using sex appeal (Biswas, Olsen, & Carlet, 1992), beauty (Frith, Shaw, & Cheng, 2005) or measured advertising appeals used by service marketers (Ha, 1998).

### **Information content**

While value orientations and advertising appeals have been used in studies, others have examined the information content of advertising messages from one country or several countries (Al-Olayan & Karande, 2000; Dowling, 1980; Ha, 1998; Johnstone, Kaynak, & Sparkman, 1987; Katz & Lee, 1992; Martenson, 1987; Renforth & Raveed, 1983; Tai & Chan, 2001; Weinberger & Spotts, 1989; Zandpour, Chang, & Catalano, 1992). These studies take inspiration from Resnik and Stern's (1977), or Stern, Krugman, & Resnick's (1981) studies of information content. They look for information cues about the product advertised. As a result they are useful in describing how much information advertising messages actually give about products. The cues considered with the information content framework are most often price-value, quality, performance, components or contents, availability, special offers, taste, nutrition, packaging or shape, guarantees and warranties, and safety.

### **Advertising form**

Another area of study in empirical studies of cultural/national advertising concerns advertising form, or execution. This aspect of research is important to consider in relation to advertising discourse. In the same fashion as other studies, such as Cho, Kwon, Gentry, Jun, and Kropp (1999), the aim is to examine "themes and executions separately" (p. 60). As Zandpour, Chang and Catalano (1992) pointed out, investigation into advertising form means looking at "the organisation and packaging of the advertising messages" (p. 27), or at, in the words of Appelbaum and Halliburton (1993), "how it is said" (p. 230).

Several methods of examining the form of advertising messages have been designed and applied. Wells (1989), and also Deighton, Romer, and McQueen (1989), classified advertising messages into lecture commercials, drama commercials, and lecture-drama com-

mercials. This classification was used by Zandpour, Chang, and Catalano (1992) in their comparative analysis of French, Taiwanese, and US television commercials. However, investigation into advertising form has been conducted using other advertising formats than those of Wells (1989). Caillat and Mueller (1996), for example, designed a division of rhetorical style, categorising direct speech and indirect speech, and Cutler, Javalgi, and Erramilli (1992) based their research on processes of visual appeal (description, comparison, association, and symbolic). Appelbaum and Halliburton (1993) also studied the format of advertising messages. They used a combination of ten advertisement formats, such as slice of life, little story about the product, testimonials, talking heads, demonstration, with an investigation of the tone used in advertising messages (direct or indirect, hard sell or soft sell, argumentative or narrative). Yet another model was used by Cormansky (1994), who based his approach on E. T. Hall's notion of high- and low-context, and designed a model for "measuring the 'amplitude' of the reference to context" (p. 149). His study concentrated on advertising messages' propensity to focus on contextual imagery, or to present straight information on the product. Cormansky's (1994) model can be likened to an investigation of a combination of hard-sell, lecture versus soft-sell, drama advertising strategies. Although all these models have strengths and weaknesses, Wells's (1989) model is the least ambiguous and easiest to use.

### **Studies of creative strategy models**

Empirical studies of advertising have also been conducted by applying Simon's (1971) creative strategy models. Zandpour, Chang, and Catalano (1992) defined creative strategy as "the policy or guiding principle determining the general nature and character of individual messages" (p. 25). They followed Simon's (1971) creative strategies, looking not only for the use of symbolic association in commercials from France, Taiwan, and the US, but also for repeated assertion, argument, motivation, command, and so on. Creative strategies are used to define guiding principles linked to rhetorical styles – direct speech, indirect speech – (see Frith & Wesson, 1991; Caillat & Mueller, 1996) but are also used more loosely to refer to

“what is said [in advertising messages] and how it is said” including appeals, tone and advertising format (Appelbaum & Halliburton, 1993, p. 229).

Some studies have investigated creative strategies through interviews with advertising professionals. In particular, Taylor, Grubbs, and Haley (1996) conducted a phenomenological research of emic descriptions of advertising by French creative directors. According to Taylor et al., the main problem with using creative strategy typologies is that they are too American and too constrictive. They argue that, as a result, “American researchers have tended to falsely characterise and typify aspects of French advertising, using American value standards and American typologies of creative strategies” (Taylor et al., 1996, p. 12).

Some empirical studies of cultural/national advertising have used other mixed methods. Katz and Lee (1992) explored whether there was a difference in the use of the social communication formats developed by Leiss, Kline, and Jhally (1986), the product information format, the product image format, the personalized format, and the lifestyle format. Caillat and Mueller (1996) used a combination of content analysis and semiotics, basing their work on Leiss, Kline, and Jhally’s (1986) model but did not give any example of how they used semiotics to interpret “the meaning buried deeper within the text” (Caillat & Mueller, 1996, p. 83). These studies, however, are purely quantitative in their approach.

#### **Other areas of investigation of cross-cultural empirical studies of advertising**

Cross-cultural investigations of advertising have focussed on other diverse areas such as the visual components of print advertising in the US, UK, France, Korea, and India (Cutler, Javalgi, & Erramilli, 1992), and humour (Biswas, Olsen, & Carlet, 1992; Toncar, 2001; Weinberger & Spotts, 1989). Whitelock and Rey (1998) investigated which products tend to favour a standardised advertising approach in France and the UK while Wiles, Wiles, and Tjernlund (1996) investigated such things as race/skin colour of models in magazine advertisements, body shape of ad-

vertising models, clothing depicted, in order to see to what extent certain values and ideals were foregrounded. Several empirical studies have also investigated the portrayal and use of gender in advertisements from several countries, including New Zealand.

#### **Bending and blending models**

Methodologically, these studies reveal that there is little harmony not only in the approaches used, but also in the use of terms that describe what is investigated in advertising. For instance, terminology such as cultural values or cultural themes is used interchangeably. As a result, studies that used cultural values (Caillat & Mueller, 1996; Chan, 1999; Cheng & Schweitzer, 1996), or cultural themes (Cormansky, 1994; Tansey, Hyman, & Zinkhan, 1990), as the basis of investigation of advertising messages are involved in making an inventory of very similar notions in their corpuses (such as adventure, beauty, collectivism, competition, individualism, patriotism, tradition, wisdom, sex, youth, wilderness, leisure), and examining which are the most dominant cultural values/themes reflected in advertising messages of one or several countries.

What is notable is that the vast majority of cross-cultural empirical studies of advertising use a diverse mix of these content categories or methods. They do so in order to create a picture of the cultural character of advertising in specific countries in terms of what imagery and what values are exploited, and what form of advertising is prevalent. Most studies combine lists of values close to Rokeach’s (1973) list of terminal and instrumental values, or Pollay and Gallagher’s (1990) cultural values, or adapt Resnik and Stern’s (1977) influential study of information content, or Wells’s (1989) advertising formats. For instance, Zandpour, Chang, and Catalano (1992) used Simon’s (1971) creative strategies in addition to Stern, Krugman, and Resnick’s (1981) information content and Wells’s (1989) advertising formats. Whitelock and Rey (1998) used Simon’s (1970) ten points classification system together with Cathelat and Egby’s (1988) advertising styles, and a model by Young and Rubicam New York simultaneously.

What is also notable is that these empirical studies of advertising adapt these models to

their own needs as they add or remove, bend and blend content analysis categories that can often overlap. More often than not, researchers adapt and upgrade the so-called proven research tools, even if only slightly, because they have found that so-called proven tools are not appropriate for their particular needs. For example Cho, Kwon, Gentry, Jun, and Kropp (1999) noted that “the seemingly sacred Hofstede dimensions do not generalise to Southeast and East Asian cultures, and that dimensions generated from a different cultural background diverge from those generated in the West” (p. 70), and therefore give less accurate results. Laskey, Day, and Crask (1989) expressed their total dissatisfaction with the existing classification schemes of creative strategies and developed their own new typology, while Appelbaum and Halliburton (1993) adapted to their own needs Kroeber-Riel’s (1990) four strategies of informative and emotional positioning. Other studies also point out the need for tools to be adapted to such elements as the size of the corpus, the capability of coders, and the specific product categories studied (Cheng & Schweitzer, 1996; Cho, Kwon, Gentry, Jun, & Kropp, 1999; Dallmann, 2000; Ramaprasad & Hasegawa, 1992; Zandpour, Chang, & Catalano, 1992).

This practice of adapting research tools to particular studies has been deplored by Becker (1998) who suggested that researchers should adopt old and, according to him, proven tools such as Rokeach’s (1973) or Khale’s (1983) list of values “in their ‘orthodox’ form, rather than in some truncated or hybrid form just to suit [their] convenience” (p. 4). Developing and using new tools, Becker (1998) argued, does not allow researchers to compare present with past results, thereby not advancing the practice of advertising research and failing to give firms “historically comparable” results. This position, however, can be disputed. If it were decided to standardise research tools just to be able to compare past and previous results that would be the end of the debate on researching new methods and refining old ones. More importantly, research would concentrate solely on obtaining results springing from quantifi-

able and comparable controlled variables across countries. The result would be measured recommendations that could be given to firms, but these would clearly be subject to the law of the market and would tend to eliminate critical as distinct from market-driven research. This article contends that rather than using an orthodox approach, studies can beneficially use a more inductive approach in which the two national/cultural advertising discourses are put in parallel and the discursive surface of the corpora are tackled inductively rather than guided by the choice of orthodox measurement tools.

Accordingly, the article will now explain how a more inductive approach can be designed. It will discuss a sampling method as well as a general approach of pre-analysis that can be used to identify specificities in corpora of commercials from two countries.

### **Sampling method: Selecting a corpus**

Authors such as Samiee and Jeong (1994) and Clark (1990) pointed out that because of their complexity, cross-cultural studies imply research methodology considerations that are not necessarily the same as for domestic studies. They emphasised the need for a multi-method approach to advertising research that would involve several data collection methods (qualitative interviews, surveys, experiments, participant observations) and analytical techniques. In a similar vein, Cook (1992) argued for a comprehensive approach to advertising discourse that would be qualitative and quantitative (see also Leiss, Kline, & Jhally, 1986). A multi-method approach is justified because, both conceptually and methodologically, research based on multiple methods leads to more reliable results than does research dependent on one method (Samiee & Jeong, 1994). As Clark (1990) suggested, for cross-cultural studies, “a marriage of methodologies that sometimes seem incompatible is often needed. The marriage is not expected to be without problems, though it is anticipated to be unusually fecund” (p. 77).

As Samiee and Jeong (1994) suggest, samples to be compared should ideally be taken during the same time period of day and year and come from reasonably similar regulatory or legal environments. They also argue that the comparative study of advertising should ideally

involve random samples of television advertisements from each country in order to enhance validity. However, in a cross-cultural study, as Giaccardi (1995) pointed out, a large number of commercials taped on television is needed to allow recognition of typical themes and typical patterns of social organisation. For these reasons, television material can be collected in the following way.

It is advisable to record commercials at random from television channels during the same time period in both countries. If conducting a cross-cultural study on countries from different hemispheres researchers should avoid the problem of seasonality raised by Johnstone, Kaynak, and Sparkman (1987) in the light of findings that information content varied with advertised product (e.g., Dowling, 1980; Resnick & Stern, 1977). It is logical to postulate that there could be differences between summer advertising and winter advertising or that time periods such as Christmas, Easter, Father or Mother's day for instance could influence the promotion of certain products and generate specific imagery. Accordingly, any study should take this into account. Such a significant factor could alter the content of the advertising discourse or foster the emergence of certain discourses disproportionately.

Following the existing models of random sampling advocated by Samiee and Jeong (1994) and used by Belk and Bryce (1986), Resnick and Stern (1977), Johnstone et al (1987) and Weinberger and Spotts (1989), television commercials should be recorded off the air during the same season from major – and similar in content – network television channels. Obviously, the fact of having to record audiovisual data during the same time period in different countries creates a major problem for cross-cultural studies: finding a reliable researcher who will be given the responsibility of recording commercials at random in the second country under study. Ideally, the researchers in each country should be free to record commercials at any time they wish between the hours agreed upon (for instance extended prime time 5pm-10.30pm and over two periods of three months). This approach should be used so that the re-

cordings do not reflect any of the researchers' agendas or timetables. Finally, in line with other studies (Cheng & Schweitzer, 1996; Zandpour, Chang, & Catalano, 1992), all duplicate commercials within one nation should be removed from the sample.

### **Tackling the sample: Pre-analysis**

This part of the approach is in effect inductive research (Kellehear, 1993; Lofland & Lofland, 1995), or what Krippendorff (1980, p. 170) calls a "fishing expedition". It uses grounded theory in that it does not start with any particular hypothesis except with a very broad one (Muchielli, 1988) that there might be differences between the two countries' television advertising discourse.

To do inductive analysis, or to engage in grounded theory, as Lofland and Lofland (1995) argued, "you begin with an open-ended and open-minded desire to know a social situation or setting; the data and yourself as an agent of induction guide you in the task of emergently formulating one or more propositions" (p. 185). It is proposed here that cross-cultural studies start with an open and somewhat customised "wide mesh net", fishing in randomly collected data "whose symbolic nature [is] then explore[d] to see what could possibly be inferred that might be of interest" (Krippendorff, 1980, p. 170). The first phase of the study is in effect a macro analysis of the manifest content of the corpuses. Its aim is to guide a finer analysis of salient particularities and differences between national environments. As Mangueneau (1976, p. 8) noted, this type of empirical analysis seeks to characterise a corpus in order to identify what makes its content specific or singular, especially in comparison to other corpuses or other parts of the same corpus. At this stage the functioning of discourse is not taken into account.

Depending on the size of the corpuses, the study can use a lengthy pre-analysis to see which specificities of each corpus could be identified. Bardin (1989, p. 126) identified "préanalyse" (pre-analysis) as a part of analysis that corresponds to a phase where a first reading of the sample is made, in which the researcher is open to all ideas and hypotheses. Pre-analysis is an exploration, a "floating reading" (lecture flottante), a kind of individual

brainstorming that allows the researcher to establish contact with the sample to be analysed. This contact is made by letting impressions and directions, “orientations”, come to the researcher. Gradually, after several floating readings, knowledge of the sample becomes more precise as specificities are revealed and hypotheses emerge.

The pre-analysis of both corpuses focuses on their manifest content in order to identify their main specificities. Manifest content is, according to Mucchielli (1988, p. 21) “the only real content available” (le seul réel disponible) to the researcher. It is the visible, directly apprehensible content of communication. When assessing manifest content the researcher identifies what is physically available without looking for influential underlying content (Mucchielli, 1988). In other words, the focus of pre-analysis is on “the explicit content of the act of language” (Charaudeau, 1983, p. 16 [author’s translation]). It concentrates on identifying the recurrent signifiers, linguistic or iconic, used in the commercial communication of each country. It considers the iconic and linguistic literal message of texts “cleared utopianically [and temporarily] of [their] connotations” (Barthes, 1977, p. 42). Kellehear (1993) described such a study using a large corpus in which the researcher was “interested in two levels of meaning, the level of obvious appearances and then the underlying level of meaning” (p. 47).

### **Using channel-specific readings in the pre-analysis**

Inductive analysis can be quite overwhelming, especially when dealing with large corpuses. Lofland and Lofland (1995) noted that “as an inherently open-ended process, the situation of emergent induction can produce frustration and anxiety – as well as exhilaration” (p. 185). Accordingly, researchers can use two limiting factors. The first is to restrict the investigation to outstanding recurrent signifiers because of the sheer amount of data. The second is to fix boundaries by focusing on two major and distinct features of commercials, the linguistic and visual aspects of commercials in order to isolate the cultural/national particularities of the advertising discourse. This approach of separating lin-

guistic and iconic elements in media texts is in line with other researchers. Fairclough (1995), for example, as part of his critical discourse analysis framework, suggested that the analysis of media texts should include attention to their language and “texture” and should also include analysis of visual images and sound effects. Similar processes were recommended by Fields (1988), Cook (1992), and Viallon (1996).

Both Viallon (1996) and Fields (1988) suggested that, in the analysis of television discourse, separating the two channels that carry meaning, sound and image, although artificial in theory, can be very fruitful in practice. Viallon (1996) suggested that, when analysing television texts, researchers should focus on the one hand on the sound channel, considering vocal and acoustic elements, such as the characteristics of voices, and linguistic elements, such as oral and written language, but also music, noises and silences. On the other hand Viallon (1996), following Metz (1968), argued that researchers should also focus on the image channel, not only on framing choices and editing involving notions of speed and movement, but, in addition, on casting choices that involve other static codes (codes statiques) (Viallon, 1996, p. 54) such as the use of type of dress of characters in commercials to indicate certain stereotypes.

Pre-analysis of a corpus of commercials therefore can usefully follow Viallon’s (1996) and Field’s (1988) method of separating audition and vision. As Viallon (1996) explained, with this technique:

a first contact with the document is made without the sound, a second without the image or vice versa. The artificial nature of the process is justified by the necessity to give each channel its full signifying potentiality. This kind of process allows the researcher to bring to light numerous latent elements and refine [. . .] the understanding of the sequence under study. (p. 88)

This technique can indeed be very effective and timesaving, allowing the researcher to concentrate clearly on one particular part of the discourse at a time, therefore eliminating the overwhelming feeling of having to use all senses at once. Several slow readings of each

channel are necessary to induct the particularities of each corpus.

However, as Cook (1992) pointed out, the effect of an ad is not to be found in any of the three major modes alone (music, pictures, and language), but only in their combination. Therefore, once this channel-specific reading is done and particularities noted, several other readings of the corpus should be made, taking into account both channels of image and sound together, focusing on notions of complementarity, redundancy and opposition (*complémentarité*, *redondance*, *opposition*) between image and sound (Viallon, 1996).

Viallon (1996) and Field's (1988) method provides interesting insights into the manifest content of each corpus, especially in terms of identifying recurrent types of voices and imagery in commercials. Nevertheless, in order to refine the readings, this technique of reading corpuses should be, after one channel specific reading, combined with the selection of categories that will be defined soon.

It is also necessary to mention that frequency is a very common guide in analysis of mass communication (Bardin, 1989; Kellehear, 1993; Krippendorff, 1980; Lofland & Lofland, 1995; Maingueneau, 1976; Muchielli, 1988) and serves as the basis of investigation. Analysts generally agree that "the frequency with which a symbol, idea, or subject matter occurs in a stream of messages tends to be interpreted as a measure of importance, attention, or emphasis" (Krippendorff, 1980, p. 40). According to Maingueneau (1976, p. 26) the frequency with which a unit such as a word appears can characterise the general repertoire of users of a certain period or characterise a certain situation of communication. Frequency of a word can also reveal a theme, a particular genre or register or, as Maingueneau (1996) pointed out, be representative of a discursive formation. Recurrence of chosen units, that is repetitions of the same unit in different contexts that are an indication of the importance of the recurring unit (Bardin, 1989), should be looked for in both corpuses. At the level of advertising discourse, it is indeed possible to postulate that recurrence of specific imagery or words makes it significant and possibly representa-

tive of important cultural discursive formations that then can be investigated in relation to their advertising context.

### Using categories

For a more precise reading of the corpuses the researcher can deploy broad categories (Bardin, 1989; Bailey, 1994; Krippendorff, 1980) selected through the first channel-specific findings. These categories designed for finer analysis will be comparable to what the field of content analysis provides as search limitation tools. The following categories can be selected to push the reading of the corpuses further.

In terms of linguistic content, key word and key phrase can be selected (Bardin, 1989). Bailey (1994) noted that single words, sentences or paragraphs are valid recording units in content analysis. Following Bardin (1989), a finer search for recurrent words can be made in the corpuses. The identification of recurrences involves transcribing the linguistic content of a sub-sample of commercials of each corpus as well as repeated careful readings and listenings over the whole of both corpuses. By means of this finer search, specific keywords can be identified as a central linguistic device in one or both advertising discourses and then investigated further as discursive tools.

Recurrent iconic imagery is another area that can be recorded. The idea here is to make an inventory of outstanding recurrent iconic imagery. As Bardin argued (1989) iconic imagery is part of the manifest content of communication and for that reason is, in a large corpus at the level of pre-analysis, more easily identifiable than themes. Themes are complex units of signification, of varying length, whose reality is not necessarily linguistic but psychological. As a result of the search for manifest recurrent iconic imagery, a specific kind of imagery (for instance sport imagery) could be identified as one key element of a specific advertising discourse. Accordingly this would be subsequently selected as an interesting specificity to explore further in contrast to the other cultural corpus where its recurrence is possibly insignificant.

Apart from key words, key phrases or key imagery, a common unit suggested by authors such as Bardin (1989), Muchielli, (1988), or Bailey (1994) for the coding of fiction works

such as films, novels, or television programs is that of the character (in this case, the individuals represented in commercials). Channel-specific readings can already suggest specificities in the use of characters and gender by each advertising discourse. The character can therefore be selected as an interesting unit to concentrate on for further investigation. Specificities, which cannot be precisely grasped at the level of pre-analysis, can be further studied in a more precise content analysis in which characters are identified and classified according to a specific grid of analysis designed to expose the attributes or characteristics of characters, such as their age, their role, and so on.

Pre-analysis can suggest other patterns within national corpuses and differences between nations that are not linked to the previous “recording units”. After several readings and as acquaintance with the sample deepens, other specificities of each national advertising environment in terms of communicative approach can emerge. For instance, pre-analysis of sound particularities in each corpus as recommended by Fields (1988), Cook (1992), and Viallon (1996) can suggest gender imbalance and differences in the ‘design’ of voice-overs for instance. An observation such as this, that could suggest an important cultural difference in the way commercial communication is designed in each national environment, would then need to be verified by more precise content analysis.

Finally, pre-analysis can suggest differences in the content of advertising discourse in respect of products advertised. Taking into account the differences in the legal and regulatory environments, an inventory of product categories should be made in order to verify whether there are major differences in the nature of the products advertised in each country. The product categories used can be pre-designed or identified following each corpus’s specificities. In the latter case all commercials from the corpuses are categorised as belonging to a product category; new product categories are added when needed, and some product categories are grouped together. These product categories are then compared to other studies’ classifications (Whitelock &

Rey, 1998; Zandpour, Chang, & Catalano, 1992) and, as a result, slightly modified and refined.

## Conclusion

This article has raised a number of issues concerning methods and proposed an approach to audiovisual material in a cross-cultural context. After reviewing the tools typically used in empirical studies of advertising audiovisual material the article proposed an approach that is more exploratory, in which two whole advertising discourses are put in parallel in order to “denaturalise” cultural/national advertising conventions and communicational habits. The aim is not to apply exactly the same ‘orthodox’ methodological tools to audiovisual data as other studies do in order to be able to make results comparable with others; rather, the approach is about letting the corpuses speak via a more inductive approach.

This technique is proposed in response to a need for a qualitative inductive approach to cultural/ national advertising whereby each culture is seen as unique and not compared to another through the use of standardised tools and values. The article therefore proposes a technique of validation of the perception of content but not an in-depth technique of analysis of the texts themselves as such is not the particular focus here. The steps proposed help to identify surface specificities and provide a crucial but delicate first step in a cross-cultural study of advertising audiovisual material, leading towards a more hermeneutic study of symbolic meaning of messages.

## References

- Al-Olayan, F. S., & Karande, K. (2000). A content analysis of magazine advertisements from the United States and the Arab world. *Journal of Advertising*, 29(3), 69-82.
- Appelbaum, U., & Halliburton, C. (1993). How to develop international advertising campaigns that work: The example of the European food and beverage sector. *International Journal of Advertising*, 12(3), 223-241.
- Bailey, K. D. (1994). *Methods of social research (4th ed.)*. New York: The Free Press.

- Bardin, L. (1989). *L'analyse de contenu* (5th ed.). Paris: PUF.
- Barthes, R. (1977). Rhetoric of the Image (S. Heath, Trans.) In S. Heath (Ed.), *Image-music-text* (pp. 32-51). London: Fontana.
- Becker, B. W. (1998). Values in advertising: A methodological caveat. *Journal of Advertising Research*, 38(4), 57-60.
- Belk, R. W., & Bryce, W. J. (1986). Materialism and individual determinism in US and Japanese television advertising. In R. J. Lutz (Ed.), *Advances in consumer research*, 13, (pp. 568-572). Provo, UT: Association for Consumer Research.
- Biswas, A., Olsen, J. E., & Carlet, V. (1992). A comparison of print advertisements from the United States and France. *Journal of Advertising*, 21(4), 73-81.
- Bourdieu, P. (1979). *La distinction*. Paris: Editions de Minuit.
- Caillat, Z., & Mueller, B. (1996). Observations: The influence of culture on American and British advertising: An exploratory comparison of beer advertising. *Journal of Advertising Research*, 36(3), 79-88.
- Carroll, R. (1990). *Cultural misunderstandings: The French-American experience* (C. Volk, Trans.). Chicago, IL: University of Chicago Press.
- Cathelat, B., & Egbuy, R. (1988). *Styles de Pub*. Paris: Les Editions d'Organisations.
- Chan, K. W. (1995). Information content of television advertising in Hong Kong and China. *Journal of Asian Pacific Communication*, 6(4), 213-244.
- Chan, K. W. (1999). Cultural values in Hong Kong's print advertising, 1946-96. *International Journal of Advertising*, 18(4), 537-553.
- Charaudeau, P. (1983). *Langage et discours: Éléments de sémiolinguistique (théorique et pratique)*. Paris: Hachette Université.
- Cheng, H., & Schweitzer J. C. (1996). Cultural values reflected in Chinese and US television commercials. *Journal of Advertising Research*, 26(3), 27-44.
- Cho, B., Kwon, U., Gentry, J. W., Jun, S., & Kropp, F. (1999). Cultural values reflected in theme and execution: A comparative study of U.S. and Korean television commercials. *Journal of Advertising*, 28(4), 59-73.
- Clark, T. (1990). International marketing and national character: A review and proposal for an integrative theory. *Journal of Marketing*, 54, 66-69.
- Cook, G. (1992). *The discourse of advertising*. London: Routledge.
- Cormansky, A. (1994). Mise en scène, mise en sens: Approche contrastive de publicités américaines et françaises. In T. Lancien (Ed.), *Le Français dans le monde* (pp. 143-149). Paris: Edicef.
- Cutler, B. D., Javalgi, R. G., & Erramilli, M. K. (1992). The visual components of print advertising: A five-country cross-cultural analysis. *European Journal of Marketing*, 26(4), 7-20.
- Dallmann, K. M. (2000). Targeting women in German and Japanese magazine advertising: A difference-in-differences approach. *European Journal of Marketing*, 35(11/12), 1320-1339.
- Deighton, J., Romer, D., & McQueen, J. (1989). Using drama to persuade. *Journal of Consumer Research*, 16(3), 335-343.
- Dowling, G. R. (1980). Information content in US and Australian television advertising. *Journal of Marketing*, 44(4), 34-37.
- Fairclough, N. (1995). *Media discourse*. London: Edward Arnold.
- Fieldhouse, P. (1986). *Food and nutrition, customs and culture*. London: Chapman & Hall.
- Fields, E. E. (1988). Qualitative content analysis of television news: Systematic techniques. *Qualitative Sociology*, 11(3), 183-93.
- Frith, K. T., & Wesson, D. (1991). A comparison of cultural values in British and American print advertising: A study of magazines. *Journalism Quarterly*, 68(1/2), 216-223.
- Frith, K., Shaw, P., & Cheng, H. (2005). The construction of beauty: A cross-cultural

- analysis of women's magazine advertising. *Journal of Communication*, 55(1), 56-70.
- Giaccardi, C. (1995). Television advertising and the representation of social reality: A comparative study. *Theory, Culture and Society*, 12, 109-131.
- Graham, J. L., Kamins, M. A., & Oetomo, D. S. (1993). Content analysis of German and Japanese advertising in print media from Indonesia, Spain, and the United States. *Journal of Advertising*, 22(2), 5-15.
- Ha, L. (1998). Advertising appeals used by service marketers: A comparison between Hong Kong and the United States. *The Journal of Services Marketing*, 12(2), 98-112.
- Hall, E. T. (1966). *The hidden dimension*. New York: Anchor Press/Doubleday.
- Johnstone, H., Kaynak, H., & Sparkman, R. H. (1987). A cross-cultural/cross-national study of the information content of television advertisements. *International Journal of Advertising*, 6(3), 223-236.
- Katz, H., & Lee, W. N. (1992). Oceans apart: An initial exploration of social communication differences in US and UK prime time television advertising. *International Journal of Advertising*, 11(1), 69-82.
- Kellehear, A. (1993). *The unobtrusive researcher: A guide to methods*. St Leonards, Australia: Allen & Unwin.
- Khale, L. (1983). *Social values and social change: Adaptation to life in America*. New York: Praeger.
- Koudelova, R., & Whitelock, J. (2001). A cross-cultural analysis of television advertising in the UK and the Czech Republic. *International Marketing Review*, 18 (3), 286-300.
- Krippendorff, K. (1980). *Content analysis: An introduction to its methodology*. London: Sage.
- Kroeber-Riel, W. (1990). *Strategie und technik der werbung: verhaltenswissenschaftliche ansatze*. Stuttgart, Germany: Auflage.
- Laroche, M., Toffoli, R., Zhang, Q., & Pons, F. (2001). A cross-cultural study of the persuasive effect of fear appeal messages in cigarette advertising: China and Canada. *International Journal of Advertising*, 20(3), 297-317.
- Laskey, H. A., Day, E., & Crask, M. R. (1989). Typology of main message strategies for television commercials. *Journal of Advertising*, 18(1), 36-41.
- Leiss, W., Kline, S., & Jhally, S. (1986). *Social communication in advertising: Persons, products, and images of well-being*. New York: Methuen.
- Lofland, J., & Lofland, L. H. (1995). *Analysing social settings: A guide to qualitative observation and analysis (3rd ed.)*. Belmont, CA: Wadsworth.
- Macnamara, J.R. (2004). The crucial role of research in multicultural and cross-cultural communication, *Journal of Communication Management*, 8 (3), 322-334.
- Maingueneau, D. (1976). *Initiation aux méthodes de l'analyse de discours*. Paris: Classiques Hachette.
- Maingueneau, D. (1996). *Les termes clés de l'analyse de discours*. Paris: Seuil.
- Malhotra, N. K., Agarwal, J., & Peterson, M. (1996). Methodological issues in cross-cultural marketing research: A state of the art review. *International Marketing Review*, 13(5), 7-43.
- Martenson, R. (1987). Advertising strategies and information content in American and Swedish advertising: A comparative content analysis in cross-cultural copy research. *International Journal of Advertising*, 6, 133-144.
- McCarthy, J. A., & Hattwick, P. M. (1992). Cultural value orientations: A comparison of magazine advertisements from the US and Mexico. *Advances in Consumer Research*, 19, 34-38.
- Metz, C. (1968). *Essais sur la signification au cinéma*. Paris: Klincksieck.

- Muchielli, R. (1988). *L'analyse de contenu des documents et des communications (6th ed.)*. Paris: Les éditions ESF.
- Mueller, B. (1987). Reflections of culture: An analysis of Japanese and American advertising appeals. *Journal of Advertising Research*, 27(3), 51-59.
- Nevett, T. (1992). Differences between American and British television advertising: Explanations and implications. *Journal of Advertising*, 21(4), 61-71.
- Olivieri, C. (1996). La culture cultivée et ses métamorphoses. *Le Français dans le Monde*. January, 8-18.
- O'Sullivan, T., Hartley, J., Saunders, D., Montgomery, M., & Fiske, J. (1994). *Key concepts in communication and cultural studies*. London: Routledge.
- Otterbein, K. F. (1972). *Comparative cultural analysis: An introduction to anthropology*. New York: Holt, Rinehart & Winston.
- Øyen, E. (1990). The imperfection of comparisons. In E. Øyen (Ed.), *Comparative methodology: Theory and practice in international social research* (pp. 1-18). London: Sage.
- Pollay, R. W., & Gallagher, K. (1990). Advertising and cultural values: Reflections in the distorted mirror. *International Journal of Advertising*, 9, 359-372.
- Ramaprasad, J., & Hasegawa, K. (1992). Creative strategies in American and Japanese TV commercials: A comparison. *Journal of Advertising Research*, 32(1), 59-67.
- Renforth, W., & Raveed, S. (1983). Consumer information cues in television advertising: A cross-country analysis. *Journal of the Academy of Marketing Science*, 11, 216-225.
- Resnik, A., & Stern, B. L. (1977). An analysis of the information content of television advertising. *Journal of Marketing*, 41(January), 50-53.
- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Samiee, S., & Jeong, I. (1994). Cross-cultural research in advertising: An assessment of methodologies. *Journal of the Academy of Marketing Science*, 22(3), 205-217.
- Shao, A. T., Raymond, M. N., & Taylor, C. (1999). Shifting advertising appeals in Taiwan. *Journal of Advertising Research*, 39(6), 61-69.
- Silverman, D. (1993). *Interpreting qualitative data: Methods for analysing talk, text and interaction*. London: Sage Publications.
- Simon, J. L. (1970). *Issues in the economics of advertising*. Chicago, IL: University of Illinois.
- Simon, J. L. (1971). *The management of advertising*. Englewood Cliffs, NJ: Prentice Hall.
- Sivakumar, K., & Nakata, C. (2001). The stam-pede toward Hofstede's framework: Avoiding the sample design pit in cross-cultural research. *Journal of International Business Studies*, 32(3), 555-574.
- Stanton, J. L., & Burke, J. (1998). Comparative effectiveness of executional elements in TV advertising: 15- versus 30-second commercials. *Journal of Advertising Research*, 38(6), 7-14.
- Stern, B. L., Krugman, D. L., Resnick, A. J. (1981). Magazine advertising: An analysis of its information content. *Journal of Advertising Research*, 21(2), 39-44.
- Tai, S. H. C., & Chan, R. Y. K. (2001). Cross-cultural studies on the information content of service advertising. *Journal of Services Marketing*, 15(7), 547-564.
- Tansey, R., Hyman, M. R., & Zinkhan, G. M., (1990). Cultural themes in Brazilian and US Auto ads: A cross-cultural comparison. *Journal of Advertising*, 19(2), 30-39.
- Taylor, C. R. (2002). What is wrong with international advertising research? *Journal of Advertising Research*, 42(6), 48-54.
- Taylor, R. E., Grubbs, H. M., & Haley, E., (1996). How French advertising professionals develop creative strategy. *Journal of Advertising*, 25(1), 1-14.

Toncar, M. F. (2001). The use of humour in television advertising: Revisiting the US-UK comparison. *International Journal of Advertising*, 20(4), 521-539.

Viallon, P. (1996). *L'analyse du discours de la télévision*. Paris: PUF.

Weber, M. (1949). *The methodology of the social sciences* (E. A. Shils, & H. A. Finch, Trans.). New York: Free Press.

Weinberger, M. G., & Spotts, H. E. (1989). A situational view of information content in TV advertising in the US and UK. *Journal of Marketing*, 53(1), 89-94.

Wells, W. D. (1989). Lectures and dramas. In P. Cafferata, & A. Tybout (Eds.), *Cognitive and affective responses to advertising* (pp. 13-21). Lexington, MA: D.C. Heath.

Whitelock, J., & Chung, D. (1989). Cross-cultural advertising: An empirical study. *International Journal of Advertising*, 8, 291-310.

Whitelock, J., & Rey, J. C. (1998). Cross-cultural advertising in Europe: An empirical survey of television advertising in France and the UK. *International Marketing Review*, 15(4), 257-276.

Wiles, C. A., Wiles, J. A., & Tjernlund, A. (1996). The ideology of advertising: The United States and Sweden. *Journal of Advertising Research*, 36(3), 57-66.

Zandpour, F., Chang, C., & Catalano, J. (1992). Stories, symbols, and straight talk: A comparative analysis of French, Taiwanese, and US TV commercials. *Journal of Advertising Research*, 32, 25-38.

Zandpour, F., & Harich, K. R. (1996). Think and feel country clusters: A new approach to international advertising standardization. *International Journal of Advertising*, 15(4), 325-344.

Zhang, J., & Shavitt, S. (2003). Cultural values in advertisements to the Chinese X-generation: Promoting modernity and individualism. *Journal of Advertising*, 32 (1), 23-33.

Zhang, Y., & Neelankavil, J. P. (1997). The influence of culture on advertising effec-

tiveness in China and the USA: A cross-cultural study. *European Journal of Marketing*, 31(2), 134-149.

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