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Research into environmental marketing/management: A bibliographic analysis

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Research into environmental marketing/management: A bibliographic analysis

Abstract

Purpose – The study identifies, synthesizes, and evaluates extant research on environmental marketing and management, with the ultimate aim of unveiling trends in this field. Specifically, it focuses on: (a) the characteristics of authors and manuscripts written on the subject; (b) the methodological aspects of empirical studies, in terms of design, scope and methodology; and (c) the thematic areas tackled, as well as the specific issues raised within each area.

Design/methodology/approach – Relevant articles were identified using both electronic and manual bibliographic search methods. Altogether, 530 articles were identified in 119 academic journals published during the period 1969-2008. Each article was content analyzed along six major dimensions, namely authorship profile, manuscript characteristics, research design, scope of research, research methodology, and topical area.

Findings – Overall, it was revealed that this body of research has undergone a serious transformation, moving from an early stage of identification and exploration to a more advanced phase characterized by greater maturity and rigor. This is demonstrated by: the tendency for more multi-authored, cross-cultural, and inter-disciplinary collaborative efforts; the increasing length in manuscript size and number of references over time; the growing sophistication of research designs, gradually placing emphasis on formalized and causal structures; the expanded scope of research, covering a wide range of countries, industries, and products, as well as firms of different status, size, and geographic focus; the tendency to use probability sampling designs, obtain high response rates, secure large sample sizes, and apply advanced statistical analysis; and the great diversity and in-depth coverage of the topics examined.

Research limitations/implications – Although a meta-analytical or bibliometric assessment could yield more quantitative insights, the fragmented nature of this type of research made the adoption of a bibliographic analysis a more appropriate approach. Various conceptual, methodological, and empirical implications are extracted from the study findings, while certain streams of research requiring further attention in the future were identified.

Originality/value – Although research on environmental marketing/management has experienced an exponential growth in the last decades, as a result of intensifying government, public, and company concern, it has been criticised for being too fragmented, widely diverse, and non-programmatic to yield an all-round picture of trends in the subject. This study provides one of the few attempts to identify, consolidate, and evaluate extant knowledge on the subject in a systematic and integrative manner. In doing so, it would provide a reference point that could stimulate and guide future research on the subject, helping in this way the *discipline's theoretical* advancement and practical development.

Keywords – Environmental marketing; environmental management; bibliographic review; content analysis

Paper type – Literature review

Research into environmental marketing/management: A bibliographic analysis

Introduction

Although the firm's interaction with the natural environment has been an issue of interest for economists, sociologists, and psychologists for a long time, it was not until the late 1960s that it was included in the research agendas of marketing and management scholars. Stricter environment regulations, stakeholder pollution concerns, and growing public pressures were among the forces that contributed to the emergence of a new line of academic inquiry, focusing on the effects that marketing/management practices had on the environment, and how this in turn influences them. At first, marketing and management were criticized as being incompatible with green issues, because of proposing methods and approaches that satisfied consumer needs and maximized business profits at the expense of the environment (Levy and Zaltman, 1975, Peattie, 1995, van Dam and Apeldoorn, 1996). Nowadays, however, both are considered an integral part of providing solutions to environmental problems, through, for example, the promotion of green consumer lifestyles, the cultivation of an ecological spirit among employees, and the dissemination of information about environmentally-friendly practices (Grant, 2007).

Initial writing on the subject came from Kotler and Levy (1969), who first introduced the concept of societal marketing management. Their pioneering article subsequently stimulated research attention on environmental issues, focusing on such topics as 'societal marketing' (Lavidge, 1970; El-Ansary, 1974; Takas, 1974), 'social responsibility and marketing' (Kotler and Zaltman, 1971; Davis, 1973), 'responsible consumption' (Fisk, 1973), 'ecologically concerned consumers' (Kinneer et al., 1974), 'ecological marketing strategy' (Kassajian, 1971), 'ecological concerns on brand perceptions' (Kinneer and Taylor, 1973), and 'environmental movement' (Leathers, 1972). Most of these efforts were trying to address criticisms made about the moral role of marketing in society, and contributed towards altering the general marketing definition to reflect greater sensitivity to environmental issues (Crane and Desmond, 2002).

Despite this initial mobilization of scholars in the field, surprisingly the execution of studies with an environmental focus remained at relatively sporadic levels for a relatively long time. The intensification of government, public, and company concern in protecting the

environment in the 1990s was responsible for the exponential growth of the discipline, which continues relentlessly up until the present day (Menon and Menon, 1997; Banerjee, 2002). As a result, numerous academic articles were produced, which, however, have been criticised for being too fragmented, widely diverse, and non-programmatic to yield an all-round picture of trends in the subject (Banerjee et al., 2003; Baker and Sinkula, 2005; Menguc and Ozzane, 2005). Such a situation is justifiable on the grounds that this stream of research is still in an evolving phase, attempting to integrate approaches from various other disciplines, such as ecology, sociology, and economics (Peattie, 1995; Hoffman and Ventresca, 2002).

To accommodate this situation, several efforts have been made to review the contributions made to the discipline, which have assisted in integrating theoretical and empirical work on the subject (see, for example, Kilbourne and Beckmann (1998), Bansal and Gao (2006), Chamorro et al. (2007), and Etzion (2007)). Although insightful and useful, these reviews cover a relatively short period of time and use a limited range of academic journals. They also tangentially tackle the profile of scholars and their outputs in the field, provide little information about methodological issues, or restrict their focus to a small number of thematic areas. Most importantly, they treat environmental marketing and management issues as independent from each other, despite the existence of signs that these are inextricably linked. To some extent, this overlapping can be attributed to the fact that, for a significant period of time, both environmental marketing and management issues were regarded by the academic and business community as dimensions of corporate social responsibility, a predominantly business theme (Willums, 1999).

Our study aims to fill this gap by identifying, synthesizing, and evaluating extant research on environmental marketing and management, with the purpose of revealing trends in the field. Specifically, the study has three major objectives: (a) to assess the characteristics of authors and manuscripts pertaining to environmental marketing/management; (b) to evaluate the methodological aspects of empirical research on the subject, in terms of design, scope and methodology; and (c) to examine the thematic areas tackled, as well as the specific issues raised within each area.

The remainder of the manuscript is organised into five sections. It first discusses the evolution of environmental practice and its impact on academic research. Then, the investigation approach adopted in conducting our bibliographic review is explained.

Following this, the findings of the study are presented and discussed with regard to article demographics, methodological characteristics, and thematic areas. It then draws conclusions, while the final section offers some suggestions for future research.

Research background

This section provides a historical overview of the major environmental issues that stimulated marketing/management thinking and research on the subject (see **Table 1**). The importance of the natural environment for organisations has always been apparent, especially for firms operating in industries directly using natural resources. The environment supplies them with inputs, offers destinations for their outputs, and provides a physical space within which their operations take place (Peattie, 1995). Although this role of the environment is relatively easy to identify, it can also be easily overlooked. To some extent this can be ascribed to the anthropocentric, as opposed to the ecocentric, approach adopted by most societies since the dawn of the industrial revolution (Gladwin et al., 1995; Starkey and Crane, 2003). This approach, which emphasizes human growth at the expense of nature, has inevitably acted as an invisible hand guiding business organisations to seek profit maximization, irrespective of any negative consequences on ecological matters (Shrivastava, 1995a).

... insert Table 1 about here...

The above situation continued until the early 1970s, when the relationship between human beings and the natural environment was revisited, due to the appearance of the first worrying signs (e.g., land degradation, animal extinction, atmospheric pollution) of systematic maltreatment of the environment. To strike a balance on the human-nature interface, governments in the developed parts of the world initiated the introduction of legislation to protect the environment, while through private initiatives the first environment-support groups made their début (Menon and Menon, 1997). The bulk of the business community viewed these regulatory and societal changes with great scepticism and fear, with only a few firms taking a proactive stance (Hart, 1997). These developments encouraged some scholars, mainly in the fields of marketing (e.g., Kasssarjian, 1971) and management (e.g., Davies, 1973), to delve more into environment-related issues and explore their impact on organisations.

In the 1980s, consumer awareness of the damaging effects of environmental problems significantly increased, while governments proceeded with the imposition of additional and stricter legislation regulating the protection of the environment (Menon and Menon, 1997). In response, a number of firms began to insert into their financial budgets sums for investing in an infrastructure that would meet environmental regulations, while the most progressive set up departments specializing in environmental issues (MacLean, 2005). However, an upsurge in economic growth observed in many countries at that time, a trend toward individualistic consumer patterns, a lack of innovative solutions to environmental problems, the existence of consumer confusion over environmental claims, and the appearance of deceptive green claims, were some of the reasons that delayed this ecological approach to business (Kangun et al., 1991; Peattie, 1995). In response, academic interest in the subject diminished, with only a handful of articles written on environmental matters. However, it was at this time that the concepts of holistic/strategic social responsibility (Peattie, 1995) and sustainability (Peattie, 2001) were first introduced, providing the driving force behind many studies.

Increasing media coverage of environmental disasters, mounting evidence of the harmful human impact on the natural environment, and growing pressures by environmental activists on politicians were some of the reasons for the resurgence of interest in environmental phenomena by governments, organizations, and people in the 1990s (Peattie, 1995; Banerjee, 1999). In response to this, the academic community made numerous scholarly contributions, tackling such issues as environmentalism, sustainable development, and enviropreneurialism (Menon and Menon, 1997; Sharma and Vredenburg, 1998). A challenging issue that scholars faced centred on the controversy noted by many firms regarding their environmental strategies: although prestigious, appealing, and profitable, they were easily copied by competitors, criticized by the media, and perceived negatively by consumers (Walley and Whitehead, 1994).

In the 2000s, interest in environmental issues has never been so high, due to increasing global warming fears, improved standards of living, and spiralling fuel prices (Mellilo and Miller, 2006). These factors, coupled with growing globalization trends, intensification of competition, and continued market integration, have been responsible for embodying more permanent environmental values in governments, organizations, and

consumers, who are now, more than ever, conscious of ecological issues (Karna et al., 2003; Baker and Sinkula, 2005). In addition, many companies began viewing environmental problems as potential opportunities to exploit by incorporating into their products and practices genuine environmental attributes and ethical qualities (Curtin, 2007). As a reflection of this new era, academic research on environmental marketing/management has skyrocketed and expanded to cover such issues as: environmentally-based resources and capabilities, environmental product development, and performance effects of environmentally-driven strategies (e.g, Chen, 2001; Chan, 2005; Menguc and Ozanne, 2005).

Evidently, the size and scope of environmental marketing/management research has been mainly linked to developments taking place in business organisations in their interactions with public policymakers, stakeholder groups, and customers. Examples include the consumerism movement in the 1970s, the regulatory-driven environmental approach spotted in the 1980s, the opportunistic managerial behaviour in the 1990s, and the paradoxes identified in the 2000s (Peattie, 1995; Menon and Menon, 1997; Aragon-Correa and Rubio-Lopez, 2007). Although this subject has increasingly occupied the attention of marketing and management scholars, the progression of this discipline was not always smooth, due mainly to the reactive, rather than proactive, attitude adopted toward investigating environmental phenomena.

Study methodology

Our bibliographic search covered all environmental marketing/management articles published during the period 1969-2008, that is, from the inception of this body of research up to the end of 2008. Three eligibility criteria were set from the outset in selecting articles relevant to our study: (a) the study covered academic articles published in marketing, management, or business journals, while books, book chapters, monographs, and conference papers were excluded; (b) manuscripts included in the review needed to be of a conceptual, empirical, methodological, or meta-analytical/review nature, with editorials, case studies, and reply comments omitted; and (c) due to linguistic constraints, the study was confined to articles published in internationally known journals written in English (although there is an understanding that there are also relevant publications written in other languages).

The articles were mainly traced from electronic databases such as ABI-INFO, EBSCO, Science Direct, and ISI Web of Science. Keywords, such as ‘environmentalism’, ‘environmental marketing/management’, ‘green marketing/management’, ‘sustainable marketing/management’, ‘natural environment’, ‘sustainability’, and ‘environmental responsibility’, were used to carry out this search. There were cases, however, especially for articles published at the beginning of the investigation period or for articles published in journals that were not included in the databases searched, where these could not be retrieved electronically. In these cases, articles were mainly identified by reviewing the list of references included in other articles and were physically obtained from libraries.

Altogether, 530 articles were identified in 119 academic journals, with *Business Strategy and the Environment*, *Journal of Public Policy and Marketing*, *Journal of Business Ethics*, *Journal of Marketing*, and *Journal of Business Research* accounting for 32.9% of all articles (see **Appendix**). This finding indicates a widespread interest in environmental issues in many areas and sub-areas of the marketing and management disciplines. However, although environmental research published in management journals experienced an exponential growth over time, the opposite was true for research appearing in marketing journals (see **Figure 1**). The allocation of these articles by time period is as follows: 1969-1978 (23 articles), 1979-1988 (22 articles), 1989-1998 (171 articles), and 1999-2008 (314 articles). Notably, the overwhelming majority (91.5%) of the manuscripts written on the subject were published in the last two decades, reflecting the heightened concern of various interested groups (e.g., public policy-makers, business managers, environmentalism organizations) to find solutions to environmental problems.

...insert Figure 1 about here...

To codify the information contained in each article, a coding frame was designed comprising six parts: (a) authorship profile (i.e., number of authors, number of institutions, number of countries, location of authors, number of disciplines, type of discipline); (b) manuscript characteristics (i.e., nature of the article, number of pages, number of references, paradigms used); (c) research design (i.e., problem crystallization, topical scope, time dimension, research environment, communication mode, control of variables, variable association); (d) scope of research (i.e., focus region, industry coverage, product type, unit of analysis, company size, market emphasis); (e) research methodology (i.e., sampling design,

sample size, data collection response rate, key informant, analytical technique); and (f) topical area (i.e., marketing management aspects, environmental management, environmental corporate strategy, external regulatory environment, environmental strategy implications, corporate environmental response, environmental advertising, miscellaneous).¹

The coding process was undertaken by three coders with a marketing/management background under the close supervision of two academics with knowledge of the subject and experience in content analysis. To enhance consistency in extracting and interpreting the information contained in the articles, a coding manual incorporating operational definitions of each item was prepared. Coders were rigorously trained on how to use the coding manual, as well as on how to content analyze the articles and transfer all relevant information onto the coding frame. To ensure that the whole procedure was fully understood, each coder was independently involved in coding ten articles under the close supervision of the principal investigator.

The content analysis began with the transferring of the information contained in each article on coding sheets by coders, who worked independently of each other. Then, the coding forms completed by each coder were thoroughly checked by the principal investigator to ensure that all sections were filled in properly. The edited coding forms of each coder were subsequently compared and contrasted with those of others to identify any differences in the input incorporated. An inter-coder reliability test was performed, which indicated an agreement in coding among the three coders ranging from 87% to 99%, which is within acceptable levels.² The discrepancies identified in the coding were examined in a special session, where the principal investigator, the three coders, and another expert in the field participated. Each discrepancy was thoroughly discussed, until a final agreement was reached among the panel members. The data contained in the finalized coding forms were subsequently entered for statistical analysis.

Research findings

This section presents the finding of the study, with reference to each of its three objectives, namely article demographics, methodological aspects, and thematic areas. The analysis is provided for the total number of articles examined during the period 1969-2008, as well as for articles published within each of the four decades comprising this period.

i. Authorship characteristics and manuscript features

Most of the research on environmental marketing and management is of a synergistic nature, as demonstrated by the fact that 67.4% of the manuscripts were written by two authors or more (see **Table 2**). Notably, although most of the articles written in the 1970s were single authorships, in subsequent decades there was an increasing tendency for more collaborative research (e.g., Azzone et al., 1997; Cornelissen et al., 2008). To some extent this is justifiable by the growing sophistication of work on the subject and the stricter publication procedures imposed by academic journals. This is more evident in the 2000s, where joint research accounted for 70.4% of the articles. About three-fifths (58.3%) of the manuscripts were written by authors belonging to the same institution. However, there has been a tendency over time for collaboration among authors coming from multiple institutions (e.g., Carlson et al., 1996; Branzei et al., 2004), found in 43.0% of the articles published during the last decade.

...insert Table 2 about here...

The overwhelming majority (i.e., 84.9%) of the articles were written by authors located in one country, while research involving scholars from multiple countries began in the 1990s (e.g., Schlegelmilch et al., 1996; Rugman and Verbeke, 1998), probably as a reflection of the growing global concern for ecological matters. In fact, 17.8% of the articles published in the last ten years involved authors from two countries or more (e.g., Kilbourne et al., 2002; Orsato et al., 2002). North America (and particularly the U.S.) took the lead in this line of research, with 55.6% of the articles written by American scholars. European-based researchers were involved in 39.4% of the articles, while other geographic regions contributed much less. However, a chronological analysis of the findings revealed that the share of American research has decreased dramatically over time, in contrast to European contributions that experienced a sharp growth (reaching 50.0% in the last decade).

More than three-quarters (76.4%) of the manuscripts were written by scholars belonging to a single discipline (e.g., Carlson et al. 1993; Menon and Menon, 1997), while articles involving authors from two disciplines represented 19.1% of the total (e.g., Aaker and Bagozzi, 1982; Miles and Covin, 2000). With the exception of the 1970s, when almost all articles were written by authors coming from a single discipline, this analogy remained more

or less the same throughout subsequent decades. As expected, the dominant disciplines of researchers in the field were marketing (40.9%), management (35.7%) and other business areas (32.8%), like production, operations, and finance. Interestingly, while marketing was the primary discipline of scholars in the 1970s, this has gradually been overtaken by researchers in the management and other business disciplines. Only in 6.8% of the articles were contributions made by practitioners.

More than half (57.5%) of the manuscripts on environmental marketing and management were empirical, as opposed to another 30.8% that were of a conceptual nature (see **Table 3**). Notably, although during the early periods of this research conceptual papers held a leading position, their percentage has subsequently decreased in favour of empirical articles (which reached 61.5% during the period 1999-2008). To some extent this mirrors a tendency by researchers in the field to explain environmental phenomena, using hands-on information obtained directly from managers, consumers, or other stakeholders. Other types of papers, such as those focusing on content analysis (e.g., Carlson et al., 1993), review/meta-analysis (e.g., Srivastava, 2007), and methodological issues (e.g., Banerjee, 2002), were relatively rare.

...insert Table 3 about here...

Average manuscript length in this field of research experienced a steady increase over time: while in the 1970s, 87.0% of the articles were under ten pages (e.g., Kassarian, 1971), in the last decade, 89.5% of the articles contained more than ten pages (e.g., Rivera-Camino 2007). To some extent this can be attributed to increasing demands by many reputable journals for more comprehensive theoretical foundations, more extensive use of research hypotheses, more thorough explanations of the investigation methods used, more tables/graphs required to present the results of rigorous statistical analysis, and more insightful discussion of the study findings.

Similar trends have been observed with regard to the number of references contained in the articles: while in the early years of environmental research 82.6% of the articles had less than 20 references (e.g., Henion, 1972), in the following decades the numbers of references used in each article increased tremendously. In fact, 90.4% of the manuscripts published during the period 1999-2008 had more than 20 references (e.g., Lopez-Gamero et al., 2008). This finding signifies a tendency by scholars to build on the findings of previous

work on the subject, as well as the need by many journals to provide more thorough literature reviews, design theoretically-based research models, and operationalize constructs using scales developed by other scholars in the past.

The majority (56.2%) of the environmentally-related articles were not theoretically grounded. This can be ascribed to the relatively nascent nature of this body of research, and the fact that only in the 1990s was there a real intensification of efforts to study environmental issues in greater depth. The ‘societal marketing’ concept (e.g., Abratt and Sacks, 1989) was one of the first to provide a theoretical perspective on the subject, although in recent decades this was replaced by various other paradigms. In descending order of use, these were the following: ‘stakeholder theory’ (e.g., Banerjee et al., 2003), ‘resource-based view’ (e.g., Rugman and Verbeke, 1998) and (its more specialized variant) ‘natural resource-based view’ (e.g., Menguc and Ozanne, 2005), ‘institutional theory’ (e.g., Jennings and Zandbergen, 1995), ‘theory of planned behaviour/reasoned action’ (e.g., Bech-Larsen, 1996), and ‘dominant social/NEP’ (e.g., Kilbourne and Beckmann, 1998). This paradigmatic pluralism, on the one hand, reflects the multifaceted nature of environmental phenomena, and, on the other, the different disciplines of scholars engaged in this line of research.

ii. Methodological aspects

Until the late 1990s, exploratory approaches were predominantly employed in the examination of environmental marketing/management issues (see **Table 4**). Although in recent research on the subject one can still find a sizeable number of empirical articles that are exploratory in nature (i.e., adopting a rather loose approach), formalised research (i.e., a structured approach using mainly research hypotheses) has gained significant momentum. While the former approach is useful in yielding insights into a discipline, especially at its conceptualization phase, the latter is important in systematically building blocks of knowledge into the discipline at subsequent phases. The tendency for more formalized research is consistent with the previously observed trend to increasingly rely on a solid theoretical ground and build on the results of prior work before embarking on investigating specific environmental research problems.

...insert Table 4 about here...

The majority of studies adopted a statistical format, that is, analyzing quantitatively data collected via primary or secondary methods. In fact, the proportion of statistical studies

increased significantly during the period under investigation, from 39.1% in the 1970s to 52.9% in the 2000s. The use of case studies in empirical articles represented just a fraction, although in recent decades there has been an increasing tendency to use them. Case studies were mainly used to provide an in-depth and qualitative examination of environmental marketing/management practices (e.g., Drumwright, 1994). Other types of qualitative analysis, such as unstructured interviews with environmental managers, were employed by a very small number of articles.

Most empirical articles were of a cross-sectional nature, while manuscripts containing longitudinal studies were rarely found (e.g., Bansal, 2005), probably due to time and cost constraints. The overwhelming majority of papers referred to studies that were conducted in a field rather than a laboratory setting, adopted a survey rather than an observational mode, and had an ex-post facto rather than an experimental control of variables. While in the early phases of environmental research the articles were mainly of a descriptive nature, in recent decades they have been mainly causal. This finding, in conjunction with the increasingly formalized approach adopted by many studies, manifests a gradual proliferation and sophistication of research on the subject.

North America (and especially the US) provided the locus of the first studies on environmental research (see **Table 5**). However, the interest has gradually shifted to Europe (e.g., the United Kingdom), which attracted the attention of approximately half of the empirical articles in the last decade. Recent years have also seen the spread of this research into other continents, such as Asia (e.g., China), Oceania (e.g., Australia), and Africa (e.g., South Africa). Obviously, this wide geographic coverage highlights a growing international concern for environmental issues, especially due to the publicity given to the subject by such phenomena as global warming effects, irresponsible deforestation, and air pollution.

...insert Table 5 about here...

Although in most cases empirical research on the subject covered only a few industries, there has been an increase in the number of studies with a multi-industry coverage. The selection of a cross-section of industries in these studies was purposively done, in order mainly to examine their moderating role on environmental marketing/management practices due to variations in pollution levels, regulatory conditions, and competitive intensity (Banerjee et al., 2003). More than a quarter of the empirical articles focused on industries

engaging in the production of consumer products (e.g., foodstuffs, toiletries, and household cleaning), closely followed by articles concerning industrial goods (e.g., petrochemicals, pharmaceuticals, and chemicals). Emphasis on the services (e.g., Carmona-Moreno et al., 2004; Rueda-Manzanares et al., 2008) or agricultural (e.g., Cespedes-Lorente and Galdeano-Gomez, 2004; Bremmers et al., 2007) sectors was much less, although recently there has been an increased interest in examining them, due to pressures to improve customer loyalty and enhance competitiveness.

In most articles, the unit of analysis was firms (and in some instances strategic business units and plants of larger organizations), with the emphasis equally placed on larger business concerns. In addition, while in the 1970s and 1980s consumers were the most common unit of analysis used in empirical research (e.g., Kinnear and Taylor, 1973; Crosby and Taylor, 1982), in subsequent decades their relative share has decreased (although the number of articles has increased in absolute terms). Some articles also used students as a substitute for consumers (e.g., McCarty and Shrum, 1994), albeit sporadically. A small segment of research focusing on green advertising used advertisements for content analysis purposes (e.g., Banerjee et al., 1995). The focus of the majority of empirical articles was on medium to large-sized firms due to their greater impact on the natural environment. However, there was a sharp increase during the last decade in research examining small companies, as a result of increasing pressure on small business managers to embrace sustainability (Gerrans and Hutchinson, 2000).

Despite intensifying globalisation trends in world markets, most of the articles had a domestic, rather than an international focus, which can be mainly attributed to: (a) the fact that the vast majority of articles on the subject were written by scholars belonging to a single country; (b) the time, cost, and other constraints inherent in conducting cross-cultural research (Craig and Douglas, 2005); and (c) the methodological difficulties in implementing cross-border empirical investigations (Malhotra et al., 1996).³ However, in the last decade, there has been an increase in the share of international articles, reflecting to some extent the growing concern for environmental issues worldwide.

Probability sampling designs were found in a quarter of the empirical articles examined, the tendency being to use these more intensively in recently conducted studies (see **Table 6**). Non-probability samples were less frequently employed, usually associated with

convenience samples, student informants, and case study approaches. Although approximately half of the empirical articles had samples not exceeding the 250 mark (e.g., Anderson and Claxton, 1982), recent decades have witnessed a trend toward gradually increasing sample sizes. In fact, more than a quarter of the empirical articles published in the last decade had samples of more than 500 (e.g., Diamantopoulos et al., 2003).

...insert Table 6 about here...

The mail survey was the most popular method for collecting research data on environmental issues, closely followed by personal interviews. However, while the former was associated mainly with large samples, the latter was most common in the case of small samples. Other data collection methods, such as drop-in questionnaires, telephone interviews, and e-mail surveys were less extensively employed. Response rates in primary research usually exceeded 40% (e.g., Judge and Elenkov, 2005), while rates of less than 25% were reported in a few studies (e.g., Baker and Sinkula, 2005). As opposed to primary data collection methods, secondary data were less popular in this line of research and were used mainly in gathering information on key environmental indices (e.g., emission levels) or business performance indicators (e.g., return on assets). Some articles also used observation methods to assess actual behaviour by organisations and consumers with regard to environmental issues.

Key informants in environmental research varied widely, with business managers providing the most common information source. In this case, the environmental/health and safety manager was the most frequently employed, followed by the CEO/president, production/operations manager, and the marketing/sales manager. Consumers were also extensively used as key informants, especially in studies assessing attitudes, beliefs, and behaviour toward environmentally-friendly products/services. However, although these constituted the primary source of information for studies conducted in the first three decades, their share in subsequent empirical research declined.

Bivariate (and to a lesser extent univariate) statistics were the most common method employed for data analysis, usually taking the form of correlation analysis, analysis of variance, and discriminant analysis. In fact, these were regularly used during the whole period under investigation. Multivariate statistical tools, such as factor analysis, multivariate regression analysis, and multivariate analysis of variance, were employed on a less frequent

basis, although in recent years there has been a notable increase in their use. Descriptive analysis (e.g., percentage frequencies) was also used, found chiefly in articles that used mainly an exploratory approach. Surprisingly, structural equation modelling, coupled with other modelling techniques were only sporadically applied in this stream of research.

iii. Thematic areas

Altogether, research on environmental marketing/management touched over 34 topics which can be grouped into eight broad categories (see **Table 7**). Marketing management aspects was the most commonly examined category, reported by 40.4% of the articles and positioned high on the agenda of researchers throughout the whole period under investigation. Most of the emphasis was placed on consumer attitudes and responses toward environmentalism and green marketing practices, such as willingness to pay premiums for ecological products (Schwepker and Cornwell, 1991; Kalafatis et al., 1999). The development of environmentally-friendly goods was also a very popular topic, especially as regards their antecedents and performance implications (Pujari et al., 2003; Polonsky and Ottman, 1998). Three other topics included in this category were: segmenting the market according to consumers' environmental sensitivity (Anderson and Cunningham, 1972), promoting green products (Menon et al., 1999), and applying environmentally-related logistics practices (Polonsky and Rosenberger, 2001). Eco-labelling, that is, information about a product's improved environmental performance and efficiency (e.g., Energy star, EU energy label, ECOMARK) was first introduced in the 1980s, with the emphasis being on their effectiveness on consumer purchasing decisions (Bjorner et al., 2004; Chamorro and Banegil, 2006). Other interesting issues examined were positioning ecologically-friendly brands in the minds of consumers (Kinnear and Taylor, 1973) and the way firms use environmentally-related pricing tactics and techniques (e.g., price premiums, rebates, and environmental cost absorption) to attract customers (Menon et al., 1999; Chen, 2001).

...insert Table 7 about here...

Environmental management provided the second major research area, attracting 31.7% of the articles. This is an area which has grown essentially during the last two decades, in response to an increasing demand from practitioners to instil specific principles that would guide environmental behaviour in their organisations. The most common theme studied here was stakeholder management (e.g., addressing specific stakeholder

environmental concerns) (Christmann, 2004; Kassinis and Vafeas, 2006), followed by adjusting planning and control systems to take into account the risks relating to the adoption of environmental initiatives (Hunt and Auster, 1990). Greening the organisational culture (e.g., cultivating an environmental orientation within the organization) (Banerjee, 2002; Menguc and Ozanne, 2005), management of environmental change (e.g., social problems and means of applying environmental thinking across all organizational layers) (Bansal, 2003; Judge and Elenkov, 2005), and leadership (e.g., pioneering environmental practices and achieving environmental objectives) (Egri and Herman, 2000) were three other important topics. Human resource management issues, such as selecting, training, and supervising personnel to adhere to the firm's environmental objectives (Ramus, 2001), were tackled in only 3.8% of the articles. A few articles (e.g., Fineman, 1996; Egri and Herman 2000) also dealt with the profile of the green manager, particularly focusing on their moral positions, leadership styles, and personal values/attitudes.

Issues pertaining to environmental corporate strategy were found in 29.2% of the articles, with their presence being more evident in the last decade. Of the elements of corporate strategy, production operations attracted most of the attention (11.3%), covering such themes as environmental manufacturing technologies (Klassen and Whybark 1999), green/lean production (King and Lenox, 2001), and pollution/waste reduction (King and Lenox, 2002). This was closely followed by strategic management issues, particularly focusing on corporate environmental strategic focus (Banerjee, 2001), environmental and strategic proactivity (Aragon-Correa, 1998), and environmentally-related unique organisational capabilities (Sharma and Vredenburg, 1998). Marketing, as part of the overall corporate strategy, was tackled in 8.7% of the articles, mainly dealing with antecedents and consequences of environmentally-oriented marketing strategies (Menon and Menon, 1997; Baker and Sinkula, 2005). Financial aspects were examined by 4.0% of the articles, with the emphasis being mainly on the examination of the relationship between corporate social/environmental and financial performance (Orlitzky, 2001; Curcio and Wolf, 1996). Other strategic elements that were examined on a much less frequent basis were supply chain management (e.g., Preuss, 2005) and green alliances (e.g., Mendleson and Polonsky, 1995).

Fourth in rank (reported in 24.9% of the articles) was the external regulatory environment, with greater emphasis given to this in the 1990s and 2000s. The imposition of environmental regulations attracted most of the attention (13.6% of the articles), particularly focusing on corporate reaction/pro-action toward environmental legislation (Gray-Lee et al., 1994; Rugman and Verbeke, 1998). Another important issue covered in this category is green standards, with major themes centring around procedures in achieving environmental standards (Jiang and Bansal, 2003), environmental certification effectiveness (Dowell et al., 2000), and performance of environmental management systems (Darnall et al., 2008). The least examined topic in this category is environmental movement, with most of the attention given to consumerism, environmentalism, and environmental boycotting (Mirvis, 1994).

The environmental strategy implications category accounted for 18.9% of the articles and was examined throughout the whole investigation period. The thrust of the research here was on the performance implications of environmental strategies (13.0% of the articles), particularly focusing on the relationship between environmental and financial performance, and the financial success derived from ecologically-friendly actions (Porter and Van der Linde, 1995; Klassen and McLaughlin, 1996). Another issue researched less extensively was the environmentally-driven competitive advantage, which is built upon the effective and efficient deployment of environmentally-related resources and capabilities (Russo and Fouts, 1997; Aragon-Corea and Sharma, 2003). A third issue refers to environmental benchmarking/best practices, providing guidelines to successfully implementing corporate environmental policies (Grove et al., 1996; Hart, 1997).

More than a tenth (11.7%) of the articles investigated aspects related to the corporate environmental response category. Notably, the share of articles in this category as part of the total, although initially high, has dropped sharply in subsequent decades. Here, the most widely research topic was corporate social responsibility pertaining to issues like social, stakeholder, and environmental obligations of the firm, socially responsible economic benefits, and consumer responses to socially responsible initiatives (El-Ansary, 1974; Aupperle et al., 1985; Crane and Desmond, 2002). The second area of research, examined by 2.3% of the articles only, was environmental ethics, with the focus being primarily on management's personal ethical traits, moral environmental marketing claims, and marketing ethical products (Robin and Reidenbach, 1987; Davis, 1992; Crane, 1997).

Environmental advertising, comprising a category on its own, was investigated by 7.7% of the articles. Five major issues were addressed here: environmental claims, i.e., assessing the content, emphasis, and substantiality of green advertising claims (Kangun and Polonsky, 1995; Scamonn and Mayer, 1995; Mohr et al., 1998); consumers' attitudes and responses to green advertisements, i.e., the effectiveness of environmental claims (Schuhwerk and Lefkoff-Hagius, 1995; Chan and Lau, 2004; D'Souza and Taghian, 2005); green washing, i.e., the level of misleadingness of environmental claims (Kangun et al., 1991; Newell et al., 1998, Karna et al., 2001); advertising greenness, i.e., the degree of environmental friendliness embodied in green advertisements (Banerjee et al., 1995; Kilbourne, 1995; Wagner and Hansen, 2002); and green advertising ethics, i.e., how ethical and moral are green advertising messages for various stakeholder groups (Cowton, 1992; Davis, 1994).

The final category included miscellaneous topics relating to environmental marketing/management, tackled by 19.6% of the articles. Some of the research issues addressed included: evaluation of corporate environmental reporting (Kolk, 1999), variations of environmental government and company policies across different countries (Polonsky et al., 1997), implications of environmental management/marketing knowledge for academic curricula (Demoss and Nicholson, 2005), applications of environmental practices to specific industries (King and Lennox, 2000), examination of the role that cultural values play on green consumer responses (Chan and Lau, 2000), formulation of environmentally responsible buying policies within organisations (Drumwright, 1994), and adoption of an entrepreneurial perspective to environmental marketing/management (Menon and Menon, 1997).

Summary and conclusions

Our bibliographic review of research in environmental marketing/management has clearly demonstrated that during the last forty years this field of research has undergone a serious transformation, moving from an early stage of identification and exploration to a more advanced stage characterized by greater maturity and rigour. The proliferation of this discipline has not been smooth, however, since only a few contributions were made during the initial decades, as opposed to the recent plethora of writings. To some extent this reflects changes in various macro (e.g., physical, demographic, socio-cultural), meso (e.g., political-

legal, economic, technological), and micro (e.g., competitors, buyers, markets) forces influencing the firm's activities. With growing globalization trends, the role of these forces is expected to become increasingly more intense, thus stimulating further managerial and academic interest in environmentally-related issues.

The study has shown that there is a tendency for more multi-authored, cross-cultural, and inter-disciplinary collaborative efforts, as well as a diffusion of research on environmental issues to various parts of the world. The trend is also for more data-driven (rather than conceptual) publications. The fact that an increasing number of studies are theoretically-grounded on sound marketing/management paradigms is another positive development, although there is still potential to introduce additional theories and paradigms from more advanced disciplines, such as economics, psychology, and sociology. There is also a tendency for increased length in manuscript size, as well as the incorporation of a greater number of references, which also imply a growing proliferation of knowledge on the subject.

Research designs exhibited an increasing sophistication, gradually placing emphasis on formalized (rather than exploratory) and causal (rather than descriptive) structures. However, there is room for conducting more research based on case studies, longitudinal investigations, and laboratory, observational, and experimental designs. The scope of this research has also been expanded to cover a wide range of countries, industries, and products, as well as firms of different status, size, and geographic focus. Nevertheless, it would be useful if more studies were conducted on multiple countries, neglected industries were taken into consideration, and environmental research adopted a more international perspective. In addition, there is a clear tendency for researchers to use probability sampling designs, obtain high response rates, secure large sample sizes, and apply advanced statistical tools for data analysis. These developments have had a positive impact on the quality of the data collected and the results obtained.

Environmental research covered a wide range of topics, with the thrust being on marketing management aspects (especially green attitudes and responses), environmental management (especially stakeholder management), and environmental corporate strategy (especially production operations). The great diversity of the topics tackled, coupled with the different theoretical perspectives from which these are derived, implies that the focus has

been extensively stretched to view most of the existing marketing and management areas from an environmental angle. Certain issues have also been specifically developed within this stream of research, as in the case of environmental labelling, environmental ethics, and environmental regulations/standards. The increase in the breadth and depth of environmental research has contributed toward creating a meaningful body of knowledge that has helped to justify the identity of a new field within the marketing/management sphere.

Overall, this line of academic inquiry has accumulated an enormous inventory of information, with important conceptual, methodological, and empirical contributions that help in its theoretical development and practical usefulness. The fact that the planet's ecosystem has reached a state of emergency is responsible for the greater mobilization of political, social, religious, and other forces to find solutions to ecological problems. This, coupled with intensifying competitive pressures and growing consumer sophistication, are expected to increasingly sensitize organizations on environmental issues. Inevitably, this will encourage a greater amount and diversity of research on the subject and assist in further advancing the field. Some suggestions for future research are provided in the following section.⁴

Future research

As a first step, future research needs to resolve a number of epistemological issues pertaining to environmental marketing/management. The way in which this new discipline is producing paradoxes, contradictions, and critiques for organisations is responsible for hampering its further progression, thus requiring immediate clarification (Newton, 2002; Aragon-Correa and Rueda-Manzanares, 2008). For example, researchers can investigate the role of environmental strategies in conjunction with general business strategies, provide clear guidelines on the key strategic factors contributing to superior performance, adopt and combine additional paradigms and theories extracted from other areas, and develop clear theoretically-anchored definitions to improve the field's cohesiveness.

Regarding marketing management aspects, the topic of green new product development can be further pursued, by: (a) expanding the theoretical definitions between disruptive innovative greener products and environmental improvements to existing products; (b) examining how environmental marketing strategies treat the distinction between the two;

and (c) introducing ideas, like environpreneurialism, in developing green products (Pujari, 2006). More research is also needed to better understand consumer attitudes and beliefs toward environmentally-related products, such as: drivers of consumer pro-environmental behaviour, consumer transition from shallow to deep environmental embracement, and external societal influences affecting sustainability and materialism (Cleveland et al., 2004; McDonald et al., 2006; Klibourne and Pickett, 2008).

Research on environmental management could expand to further cover the process of greening the organizational culture and its association with formulating environmentally-friendly policies and strategies within and across organizational departments (Branzei et al., 2004). Certain other factors with a potential effect on the adoption of environmental marketing/management behaviour could also offer grounds for future investigations. Such factors may include intellectual capital, special managerial characteristics, and structural elements internal to the organisation (e.g., Menon and Menon, 1997; Chen, 2008). Although the role of organisational resources and capabilities on environmental management has been extensively studied in the past, more studies should also be conducted on organisational learning, continuous innovation, and shared vision, in order to understand the drivers of environmental strategy and sustainable development (Rueda-Manzanares et al., 2008). There is also room for further research on stakeholder management, particularly focusing on different stakeholder evaluations of environmental initiatives, the role of shareholders and company employees in achieving superior environmental performance, and the financial gains and costs associated with different levels of environmental stakeholder pressures (Sharma and Henriques, 2005; Kassinis and Vafeas, 2006; Polonsky and Hyman, 2006; Rueda-Manzanares et al., 2008).

Within the context of environmental corporate strategy, although collaborating efforts on environmental issues in strategic alliances has been extensively referred to in the literature as being important in enhancing competitive position, this has been relatively overlooked (Shrivastava, 1995b; Polonsky and Rosenberger, 2001). Future research could focus on applications and variations of environmental commitment and orientation among collaborating partners, the factors driving firms to form strategic green alliances, and top management's role in initiating and successfully managing these alliances (Crane, 1998). A related topic that also warrants attention is that of green supply chain management, owing to

the crucial role that product and material sourcing plays in today's business (Zhu et al., 2008). Here, the emphasis could be on comparing waste management approaches by supply chain members, evaluating supply chain green practices from a customer satisfaction perspective, and identifying the resources/capabilities required in developing an integrated environmentally-friendly supply chain strategy (Srivastava, 2007; Darnall et al., 2008).

Within the sphere of external regulatory environment, green standards can be further explored, as new standards have emerged during recent years, with an increasing number of firms adopting them. Specifically, some areas that could be explored include: identification of strategic motivations for the adoption of green standards, exploration of consumer attitudes towards certified versus non-certified products, and environmental or financial performance comparisons between ISO 14001 certified and non-certified firms (Bansal and Hunter, 2003; Bansal, 2005; Sammer and Wustenhagen, 2006). Environmental regulation is another area for potential research, particularly as regards the firm's adoption of environmental initiatives and differences in their applications under different regulatory environments (Rothenberg, 2007). Moreover, as self-regulation is gaining foothold among multinational corporations, it would be interesting to reveal what determines the quality of implementation of environmental policies in country subsidiaries facing different regulatory intensity (Christmann, 2004). Furthermore, the critical role that regulatory forces play in forming intra-organisational environmental attitudes (e.g., top management commitment) and their potential consequences on raising public environmental concern, also warrant attention (Hoffman, 1999; Banerjee et al., 2003).

With regard to environmental strategic implications, despite the great amount of work on the performance outcomes of environmental management strategies, relatively little research has taken marketing strategies into consideration (Baker and Sinkula, 2005). In fact, the few studies conducted produced equivocal (and in some cases antithetical) results. This demands the execution of additional studies that would confirm the existence, causality, and potential fit issues pertaining to the marketing strategy-performance link (Banerjee et al., 2003). It is also important to clarify more the moderating role of several important factors, such as environmental munificence, environmental complexity, market turbulence, and corporate reputation (Aragon-Correa and Sharma, 2003; Baker and Sinkula, 2005; Sharma et al., 2007). Further, as previous studies dealt mainly with large organizations, more research

should be channeled into examining the performance consequences of environmental strategies adopted by smaller firms, especially in conjunction with governmental-granted economic incentives (Clemens, 2006).

One area that has been on the research agenda since the very first years of the field is the topic of Corporate Social Responsibility (CSR). Although the topic has been extensively examined by management scholars (e.g., Wood, 1991; McWilliams and Siegel, 2001), theoretical and empirical contributions by marketing scholars have been scarce and focused on specific specialized themes (Maignan and Ferrell, 2004). Extra emphasis should, therefore, be placed on communicating CSR practices, the stakeholders' role in influencing CSR initiatives, exploring the dark side of CSR in terms of customer acceptance, and further examining the marketing performance implications of CSR (Maignan and Ferrell, 2004; Luo and Bhattacharya, 2006). Another line of inquiry could further tackle environmental ethics, such as the different conditions under which green and ethical products are developed and marketed within and outside organizations (Crane, 1997), as well as bridging environmental and ethical dimensions using life-cycle theory (Gauthier, 2005).

Our analysis has clearly shown that environmental advertising holds an important position in the field's research agenda. However, despite the large number of papers on the topic, several issues remained untouched. These include the ethicality of the green advertising messages and how this relates to the ethicality of advertisers, the credibility of corporate green advertisements in conveying that the entire business is environmentally responsible, and the effectiveness of business-to-business environmental advertisements (Davis, 1994; Banerjee et al., 1995; Drumwright and Murphy, 2004). Moreover, given consumers' increasing skepticism towards green claims in advertisements, coupled with growing incidences of environmental advertising deceptiveness, there is a need to shed additional light on consumer reactions to these advertisements and examine their effect on advertisers' reputation and performance (Newell et al., 1998; Chan, 2000).

With reference to miscellaneous issues, in view of the fact that environmental responsibility has increasingly become a global phenomenon, it would be interesting to expand this line of research on the activities of firms engaged in international operations (Griffith et al., 2008). The focus could be, for example, on potential variations in environmental practices due to different target country coverage, foreign expansion modes, or

degree of foreign involvement. Moreover, despite their importance, cultural-related issues (e.g., power distance, individualism, and uncertainty avoidance) have been largely ignored by scholars in the field. However, these could be used to examine environmental practices in consumer behaviour (e.g., consumption of green products), marketing strategy (e.g., effectiveness of environmental marketing strategies across cultures), and strategic management (e.g., formation of environmental orientations and strategies) perspective (Laroche et al., 1996; McCarty and Shrum, 2001; Cummings, 2008). Environmental reporting is also an area that should be further pursued, particularly focusing on the lack of measure standardisation in reporting environmental practices and the possibility of green washing in environmental reports (Peck and Sinding, 2003; Jose and Lee, 2006; Montabon et al., 2007).

In summary, scholars need to further advance this stream of research to offer additional insights to corporate and public policy-makers. In doing so, three major courses of action have to be taken: first, to increase the depth of the analysis of each of the thematic areas identified in our study, through the incorporation of extra elements, the examination of different perspectives (e.g., customers, suppliers), and the replication of their studies in different socio-economic contexts; second, to expand the range of current categories of research, by borrowing relevant ideas, theories, and methodologies developed in other disciplines, melding together existing theories and paradigms available in the environmental literature, and further exploring important thematic areas that are currently underdeveloped; and third, to improve integration in this field, through a cross-fertilization of knowledge among scholars specializing in individual topics, the adoption of a multi-thematic approach to environmental issues, and the generation/validation of unified definitions and measures of the different constructs used.

Notes

1. These thematic areas were identified from the pertinent literature using the following procedure: First, all articles collected were independently reviewed by two experts in the field, and a list of items was produced. Then, the items identified were categorized into groups, based on previous categorizations made by other reviews on the subject, as well as hints provided in the literature. Items that could not be allocated in any category were incorporated under the 'miscellaneous' group.
2. To measure inter-coder reliability, the Holsti's (1969) method was employed which identifies the overall percentage of agreement, that is, the percentage of times when coders independently assign the same code to the same dimension.
3. Another factor (contributing to the existence of more domestic as opposed to international articles) is associated with the fact that the editorial policy of many mainstream marketing, management, and business journals is not to publish articles with an international flavour.
4. These future research areas were mainly identified after carefully reviewing the directions of research suggested by the authors of articles reviewed, especially as regards those published in the last five years of the investigation period.

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***The full list of articles used in the study can be obtained from the authors upon request**

Figure 1
Evolution of marketing/management research 1969-2008

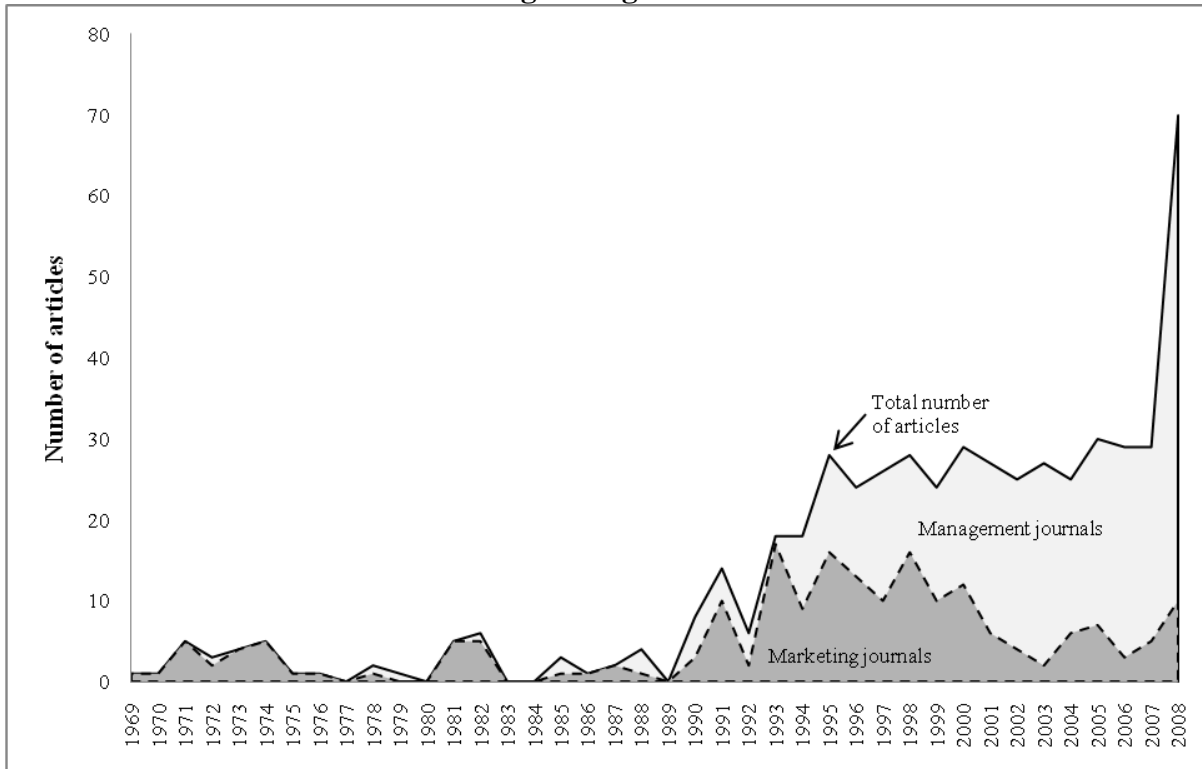


Table 1
Milestones in environmental marketing/management thought

	1970s	1980s	1990s	2000s
Key driver	<ul style="list-style-type: none"> ▪ Conservation 	<ul style="list-style-type: none"> ▪ Regulations 	<ul style="list-style-type: none"> ▪ Consumers 	<ul style="list-style-type: none"> ▪ Global market mechanisms
Secondary drivers	<ul style="list-style-type: none"> ▪ Lobbies ▪ Public interest ▪ Legal challenges ▪ Local pressure groups 	<ul style="list-style-type: none"> ▪ Media ▪ Maturing environmental movement ▪ Ecological disasters and discoveries 	<ul style="list-style-type: none"> ▪ Pressure groups ▪ Legislation ▪ Media ▪ Conservation concerns 	<ul style="list-style-type: none"> ▪ Consumers ▪ Regulations ▪ Pressure groups ▪ Media ▪ Politicians ▪ Shareholders
Main environmental problems	<ul style="list-style-type: none"> ▪ Local air, sea, lake and land pollution ▪ Environmental disasters (Seveso, IXTOC) 	<ul style="list-style-type: none"> ▪ Ozone depletion ▪ Acid rain ▪ Environmental disasters (Chernobyl, Bhopal, Piper Alpha, Exxon Valdez) 	<ul style="list-style-type: none"> ▪ Ozone depletion ▪ Environmental disasters (e.g., Kuwait sea island oil terminal) ▪ Animal extinction ▪ Rain forest destruction ▪ Acid rain 	<ul style="list-style-type: none"> ▪ Global warming ▪ Air pollution in major cities ▪ Water shortage ▪ Stretch of natural resources to the limits (e.g., deforestation) ▪ Overpopulation
Attitude by firms	<ul style="list-style-type: none"> ▪ Compliance ▪ Marketing was used as a tool to indicate this compliance ▪ Environmental issues were seen as a threat 	<ul style="list-style-type: none"> ▪ Embracing environmental issues with an individualistic attitude and without innovating ▪ Environmental strategies became possible 	<ul style="list-style-type: none"> ▪ Environmental friendliness can be communicated through marketing effectively ▪ Reactive and short-term responses to environmental problems ▪ Environmental issues as an opportunity 	<ul style="list-style-type: none"> ▪ Proactive, innovative and long-term approaches towards environmental issues ▪ Environmental culture and environmentally-friendly marketing strategies ▪ Environmental issues as a source of competitive advantage
Operative business questions	<ul style="list-style-type: none"> ▪ Are we harming the environment? ▪ How do we deal with the 'environmental problem'? 	<ul style="list-style-type: none"> ▪ Are we in compliance? ▪ How do we cut environmental costs? 	<ul style="list-style-type: none"> ▪ How do we satisfy our green customers? ▪ How do we deal with this 'environmental opportunity'? ▪ How can we communicate the green aspects of our products? ▪ How can we become environmentally friendly? 	<ul style="list-style-type: none"> ▪ Are we doing the right thing? ▪ How can we become genuinely sustainable? ▪ How can we develop a green philosophy across the entire organisation? ▪ How do we gain competitive advantage?
Main marketing/management themes	<ul style="list-style-type: none"> ▪ Air pollution and marketing ▪ Ecologically-concerned consumers ▪ Environmental advertising ▪ Ecological marketing ▪ Societal marketing ▪ Socially-concerned consumers ▪ Socially responsible marketing 	<ul style="list-style-type: none"> ▪ Socially-concerned marketing ▪ Marketing ethics ▪ Corporate social responsibility ▪ Environmental marketing ▪ Environmental management systems and practices ▪ Ethics in marketing 	<ul style="list-style-type: none"> ▪ Corporate social responsibility ▪ Enviropreneurial marketing ▪ Eco-orientation ▪ Green marketing and advertising ▪ Corporate environmentalism ▪ Green markets, segments and consumers ▪ Environmental strategies as a source of competitive advantage ▪ Environmentally-based marketing programs ▪ Environmental management systems and practices ▪ Green alliances 	<ul style="list-style-type: none"> ▪ Corporate social responsibility ▪ Enviropreneurial marketing ▪ Eco-orientation ▪ Corporate environmentalism ▪ Green marketing strategy ▪ Sustainable marketing and development ▪ Environmental New Product Development ▪ Green Supply Chain Management ▪ Environmental resources and capabilities ▪ Environmental strategies and financial performance

Source: Compiled by the authors, based on input from Miles and Munilla (1993), Peattie (1995), Menon and Menon (1997), Hofman (1997), Peattie (2001), Maignan and Ferrell (2004), Lee and Rhee (2005), and MacLean (2005).

Table 2
Authorship characteristics of environmentally-related articles

Authorship characteristic	Total (n=530) %	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
<u>Number of authors</u>					
One	32.6	60.9	36.4	33.9	29.6
Two	40.6	26.1	31.8	36.8	44.3
Three or more	26.8	13.0	31.8	29.3	26.1
<u>Number of institutions</u>					
One	58.3	78.3	50.0	59.1	57.0
Two	31.5	13.0	45.5	32.2	31.5
Three and above	10.2	8.7	4.5	8.7	11.5
<u>Number of countries</u>					
One	84.9	91.3	95.5	87.7	82.2
Two	13.6	8.7	4.5	11.7	15.6
Three or more	1.5	-	-	.6	2.2
<u>Location of authors*</u>					
North America	55.6	100.0	90.1	71.9	40.4
Europe	39.4	-	4.5	29.8	50.0
Oceania	7.2	-	-	6.4	8.6
Asia	7.0	-	-	1.8	10.8
Africa	.4	-	9.1	-	-
South America	.4	-	-	-	.6
<u>Number of disciplines</u>					
One	76.4	91.3	63.6	79.5	74.5
Two	19.1	8.7	31.8	15.2	21.0
Three or more	1.1	-	-	1.2	1.3
Not available	3.4	-	4.6	4.1	3.2
<u>Type of discipline*</u>					
Marketing	40.9	73.9	72.7	55.6	28.3
Management	35.7	21.7	31.8	26.9	41.7
Other business	32.8	4.3	22.7	21.1	41.7
Not available	4.0	-	9.1	4.1	3.8

*Articles may refer to more than one category

Table 3
Manuscript features of environmentally-related articles

Manuscript feature	Total (n=530) %	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
<u>Nature of article</u>					
Conceptual	30.8	60.9	18.2	40.4	24.2
Empirical	57.5	39.1	72.7	50.8	61.5
Content analysis	6.4	-	-	4.7	8.3
Review/meta-analysis	2.7	-	9.1	2.3	2.5
Modelling	2.1	-	-	.6	3.2
Methodological	.5	-	-	1.2	.3
<u>Number of pages</u>					
Up to 9	17.5	87.0	27.3	19.9	10.5
10-14	32.8	8.7	50.0	28.7	35.7
15-19	26.8	4.3	18.2	24.6	30.3
20-24	13.4	-	4.5	14.6	14.3
25 or more	9.4	-	-	12.3	9.2
<u>Number of references</u>					
Up to 19	16.4	82.6	31.8	18.1	9.6
20-39	28.5	17.4	40.9	35.1	24.8
40-69	35.3	-	13.6	28.7	43.0
70-99	14.0	-	9.1	12.3	16.2
100 or more	5.8	-	4.5	5.8	6.4
<u>Number of paradigms/ theories used</u>					
One	26.2	26.1	27.3	25.7	26.4
Two	12.0	-	9.1	11.7	13.4
Three	4.0	-	-	2.3	5.4
Four or more	2.3	-	-	1.2	3.2
None	55.5	73.9	63.6	59.1	51.6
<u>Paradigms/theories used</u>					
Stakeholder theory	14.2	-	9.1	9.9	17.8
Resource-based view	7.2	-	-	4.1	9.9
Institutional theory	4.5	-	-	.6	7.3
Theory of planned behavior/Reasoned action	3.6	-	-	3.5	4.1
Dominant social/NEP	3.4	-	-	4.7	3.2
Natural RBV	2.3	-	-	1.8	2.9
Societal marketing	1.9	17.4	9.1	.6	1.0
Legitimacy theory	1.7	-	-	-	2.9
Slack resources theory	1.5	-	4.5	1.2	1.6
Neoclassical economic theory	1.3	-	-	1.2	1.6
Political economy	.9	-	-	1.8	.6
Others	22.1	8.7	22.7	24.0	22.0
None	55.5	73.9	63.6	58.5	51.9

Table 4
Research design of environmentally-related articles

Research design	Total (n=530) %	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
<u>Problem crystallization</u>					
Exploratory	27.9	17.4	54.5	29.8	25.8
Formalized	29.6	21.7	18.2	21.0	35.7
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Topical scope</u>					
Statistical study	50.6	39.1	68.2	45.6	52.9
Case study	5.1	-	4.5	4.7	5.7
Qualitative	1.8	-	-	.6	2.9
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Time dimension</u>					
Cross-sectional	51.1	39.1	63.5	47.9	52.9
Longitudinal	6.4	-	9.1	2.9	8.6
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Research environment</u>					
Field	55.6	34.8	68.2	48.5	60.2
Laboratory	1.9	4.3	4.5	2.3	1.3
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Communication mode</u>					
Survey	55.1	34.8	68.2	48.5	59.2
Observational	2.4	4.3	4.5	2.3	2.3
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Control of variables</u>					
Ex-post facto	53.0	26.1	63.6	45.6	58.3
Experiment	4.5	13.0	9.1	5.2	3.2
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Variable association</u>					
Descriptive	28.6	26.1	36.4	29.2	28.0
Causal	28.9	13.0	36.4	21.6	33.5
Non-empirical	42.5	60.9	27.3	49.2	38.5

Table 5
Scope of research of environmentally-related articles

Scope of research	Total (n=530) %	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
<u>Focus region*</u>					
North America	27.0	39.1	50.0	30.4	22.6
Europe	22.5	-	9.1	15.2	29.0
Asia	6.4	-	-	2.9	9.2
Other	3.4	-	4.5	0.6	5.1
Not specified	3.8	-	13.6	5.8	2.2
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Industry coverage</u>					
1-3 industries	14.3	-	4.5	5.3	21.0
4-7 industries	4.2	-	-	1.8	6.1
8 and above industries	5.5	-	9.1	5.2	5.7
Not specified	9.4	-	13.6	5.3	12.1
Not applicable	24.1	39.1	45.5	33.1	16.6
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Product type*</u>					
Consumer goods	16.2	8.7	9.1	11.1	20.1
Industrial goods	16.0	-	4.5	7.6	22.6
Services	5.8	-	-	4.7	7.3
Agricultural goods	2.6	-	4.5	1.2	3.5
Not specified	9.2	-	18.2	4.7	11.8
Not applicable	23.2	30.4	45.5	31.6	26.6
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Unit of analysis</u>					
Company/SBU/Plant	31.8	-	27.3	15.7	43.3
Consumers	16.8	34.8	45.4	20.5	11.5
Students	3.5	-	-	5.8	2.9
Advertisements	1.9	-	-	5.3	.3
Other	.4	-	-	-	.6
Not specified	.8	-	-	-	1.3
Not applicable	2.3	4.3	-	3.5	1.6
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Company size*</u>					
Small	8.1	-	-	1.8	13.4
Medium	9.6	-	-	3.5	15.3
Large	17.5	-	4.5	9.9	29.9
Not specified	13.0	-	22.8	8.8	18.2
Not applicable	24.5	39.1	54.5	40.9	23.6
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Market emphasis*</u>					
Domestic	19.4	-	9.1	6.4	28.7
International	6.4	-	4.5	4.1	8.3
Not specified	9.4	-	18.2	7.0	10.8
Not applicable	24.5	39.1	45.5	33.9	16.9
Non-empirical	42.5	60.9	27.3	49.2	38.5

*Articles may refer to more than one category

Table 6
Study methodology of environmentally-related articles

Study methodology	Total (n=530) %	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
<u>Sampling design</u>					
Probability	24.9	21.7	45.5	16.3	28.3
Non-probability	20.9	13.1	9.1	22.2	21.7
Not specified	17.7	4.3	27.3	12.3	11.5
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Sample size</u>					
Less than 250	28.9	21.7	22.7	24.5	32.1
250-499	11.5	-	18.3	14.0	10.5
500-999	7.3	8.7	22.7	4.1	8.0
1000 and above	8.7	8.7	4.5	7.0	9.9
Not specified	1.1	-	4.5	1.2	1.0
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Data collection*</u>					
Mail	19.8	21.8	18.2	12.9	23.6
Personal interviews	18.1	13.0	22.7	14.0	20.4
Drop-in questionnaire	8.3	-	9.1	13.5	6.1
Telephone	5.3	-	9.1	7.0	4.5
Email	2.3	-	-	1.8	2.9
Observation	1.7	4.3	-	1.8	1.6
Secondary	4.5	-	4.5	1.8	6.4
Not specified	5.3	-	13.6	6.4	4.5
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Response rate</u>					
Less than 25%	7.5	-	4.5	5.3	9.6
25% - 39%	5.7	4.3	9.1	3.5	6.7
40% and above	16.2	17.4	22.7	16.3	15.6
Not specified	28.1	17.4	36.4	25.7	29.6
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Key informant*</u>					
Environ./Health&Safety mgr	10.6	-	-	6.4	14.3
CEO/President	6.7	-	8.7	2.9	9.6
Production/Operations mgr	4.3	-	4.5	1.2	6.4
Marketing/Sales mgr	3.8	-	-	3.5	4.5
Other mgr	12.1	4.3	9.1	4.7	16.9
Consumers	33.1	34.8	45.5	26.9	12.7
Students	4.3	-	-	8.2	2.9
Secondary data sources	4.2	-	4.5	1.8	5.7
Not specified	8.3	-	4.5	8.2	9.2
Non-empirical	42.5	60.9	27.3	49.2	38.5
<u>Analytical technique*</u>					
Descriptive	17.5	21.7	32.0	21.6	14.0
Uni/Bivariate	32.1	26.1	40.9	30.4	32.8
Multivariate	18.9	13.0	13.6	15.2	21.7
SEM	5.8	-	9.1	4.1	7.0
Qualitative analysis	4.7	-	-	2.9	6.4
Non-empirical	42.5	60.9	27.3	49.2	38.5

*Articles may refer to more than one category

Table 7
Thematic areas in environmentally-related articles

Thematic area*	Total (n=530) %	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
<u>Marketing management aspects</u>	40.4	52.2	68.2	50.3	32.2
Green attitudes and responses	27.9	34.8	63.6	35.7	20.7
Green product development	8.3	8.7	4.5	8.2	8.6
Green segmentation	5.8	21.7	9.1	2.5	5.7
Green promotion	5.5	4.3	4.5	5.8	5.4
Green logistics	4.0	8.7	4.5	3.5	3.8
Eco-labeling	3.6	-	9.1	1.8	4.5
Green brand position	3.0	8.7	-	2.9	2.9
Green pricing	2.3	4.3	-	1.2	2.9
<u>Environmental management</u>	31.7	4.3	4.5	22.8	40.5
Stakeholder management	10.4	-	-	7.0	13.7
Planning & control	9.2	-	-	5.3	12.7
Greening organization culture	6.6	-	-	7.0	7.3
Management of environmental change	6.2	-	-	6.4	7.0
Leadership	5.3	-	-	1.2	8.3
Human resource management	3.8	-	-	1.8	5.4
Green manager profile	2.8	4.3	4.5	2.3	2.9
<u>Environmental corporate strategy</u>	29.2	17.4	9.1	27.5	32.5
Production operations	11.3	-	-	11.1	13.1
Strategic management	9.6	-	-	8.2	11.8
Marketing	8.7	13.0	9.1	8.2	8.6
Finance	4.0	-	-	3.5	4.8
Supply chain	3.4	8.7	-	3.5	3.2
Green alliances	1.7	-	-	2.9	1.3
<u>External regulatory environment</u>	24.9	13.0	18.2	24.6	26.4
Environmental regulations	13.6	-	9.1	15.8	13.7
Green standards	8.1	-	-	1.8	12.8
Environmental movement	6.4	13.0	9.1	9.4	4.1
<u>Environmental strategy implications</u>	18.9	4.3	13.6	14.0	22.9
Performance implications of environmental strategies	13.0	4.3	13.6	7.6	16.6
Environmentally-driven competitive advantage	4.9	-	-	5.8	5.1
Environmental benchmarking /best practices	4.5	-	-	3.5	5.7
<u>Corporate environmental response</u>	11.7	43.5	31.8	8.8	9.6
Social responsibility	10.4	43.5	31.8	6.4	8.6
Environmental ethics	2.3	-	9.1	2.9	1.6
<u>Environmental advertising</u>	7.7	-	-	17.0	3.8
Environmental claims	6.2	-	-	14.0	2.9
Consumer attitude and responses	2.6	-	-	4.7	1.9
Green washing	2.3	-	-	5.3	1.0
Advertisement greenness	1.3	-	-	2.3	1.0
Green advertising ethics	.8	-	-	1.8	.3
<u>Miscellaneous</u>	19.6	21.7	4.5	18.7	21.0

* Articles may refer to more than one thematic area

Appendix
Publication outlets of environmentally-related articles

Journals	Total (n=530)	Time period			
		1969-1978 (n ₁ =23) %	1979-1988 (n ₂ =22) %	1989-1998 (n ₃ =171) %	1999-2008 (n ₄ =314) %
Business Strategy and the Environment	89 (16.8%)	-	-	5 (2.9%)	84 (26.8%)
Journal of Public Policy and Marketing	23 (4.3%)	-	3 (13.6%)	15 (8.8%)	5 (1.6%)
Journal of Business Ethics	21 (4.0%)	-	1 (4.6%)	4 (2.3%)	16 (5.1%)
Journal of Marketing	21 (4.0%)	14 (60.9%)	3 (13.6%)	3 (1.8%)	1 (.3%)
Journal of Business Research	20 (3.8%)	1 (4.3%)	1 (4.6%)	8 (4.7%)	10 (3.2%)
Advances in Consumer Research	19 (3.6%)	-	1 (4.6%)	16 (9.4%)	2 (.6%)
Academy of Management Journal	18 (3.4%)	-	2 (9.0%)	2 (1.2%)	14 (4.5%)
Journal of Consumer Policy	17 (3.2%)	-	-	11 (6.4%)	6 (1.9%)
Journal of Marketing Management	16 (3.0%)	-	-	15 (8.8%)	1 (.3%)
Strategic Management Journal	15 (2.8%)	-	1 (4.6%)	3 (1.8%)	11 (3.5%)
Journal of Consumer Marketing	13 (2.5%)	-	-	5 (2.9%)	8 (2.5%)
Academy of Management Review	11 (2.1%)	-	1 (4.6%)	7 (4.0%)	3 (1.0%)
California Management Review	9 (1.7%)	-	-	3 (1.8%)	6 (1.9%)
Eco-Management & Auditing	9 (1.7%)	-	-	3 (1.8%)	6 (1.9%)
European Journal of Marketing	9 (1.7%)	-	2 (9.0%)	3 (1.8%)	4 (1.3%)
Journal of Consumer Research	9 (1.7%)	2 (8.7%)	6 (27.2%)	-	1 (.3%)
Journal of Management Studies	9 (1.7%)	-	-	4 (2.3%)	5 (1.6%)
Journal of Advertising	8 (1.5%)	-	-	7 (4.0%)	1 (.3%)
Corporate Social Responsibility and Environmental Management	7 (1.3%)	-	-	-	7 (2.2%)
Journal of Macromarketing	7 (1.3%)	-	-	4 (2.3%)	3 (1.0%)
Long Range Planning	7 (1.3%)	-	-	5 (2.9%)	2 (.6%)
Journal of the Academy of Marketing Science	6 (1.1%)	2 (8.7%)	1 (4.6%)	1 (.6%)	2 (.6%)
British Journal of Management	5 (.9%)	-	-	2 (1.2%)	3 (1.0%)
Business Horizons	5 (.9%)	-	-	2 (1.2%)	3 (1.0%)
Miscellaneous	157 (29.7%)	4 (17.4%)	-	43 (25.1%)	110 (35.0%)