

An effective definition of Environmental Psychology: Empirical Research in Spain between 1985 and 2002.

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Abstract

There are important transformations for the Environmental Psychology in Spain since its birth and first steps until its full development. In this work we try to reflect this evolution. Our main objective is centered in the analysis of the development and extent of empirical Environmental Psychology research in Spain. The last twenty years scientific production has been progressively consolidated. The paper analysis the effective definition of the area; the hypothesis regarding the relevance of *green* psychology, if those studies directed towards intervention have a relevant place in the psycho-environmental area, also the institutional research centres are identified, the scientific impact attained with regard to publication of the studies is evaluated; and finally, the type of sample, the design and statistical analytical tools utilized are examined. The researched themes show a wide variety of interests that, together with the type of sample used, reflect a significant awareness of social problems. Nevertheless, there are certain limitations to development that represent a challenge for the future. Firstly, it is necessary to direct orientation towards social problems, with a better development of a research that combines intervention and social change as the object of study. Secondly, it is essential to enhance thematic diversity with a diversification of methodological, design and analytic approaches, directed towards confirmatory and causal models. And finally, encouragement must be given to a widening of the conceptual and theoretical parameters of psycho-environmental research by an opening up to multi- and interdisciplinary approaches.

Key-words: Effective definition, Environmental Psychology.

Introduction

In 1986, in the opening chapter of the book that is considered as the first manual of Environmental Psychology in Spain, Jiménez-Burillo and Aragonés noted that *Environmental Psychology is still far from being a consolidated discipline* (pg. 24). Almost fifteen years later, the work presented here attempts to contrast the present-day validity of that

assertion by analysing the level of development of psycho-environmental research in Spain from an empirical viewpoint.

It is obvious that environmental psychology in Spain takes its place within the international panorama of that discipline and in this paper it is not our intention to establish a territorial claim. Nevertheless, Environmental Psychology in this country can be described through an internal tradition of nearly thirty years of activity, mostly in academic fields. The principle manifestation of such activity are seven conferences which have marked the consequent diffusion of the discipline (Aragonés and Corraliza, 1988; De Castro, 1991; Hernández, Martínez and Suárez, 1994; Hernández, Suárez and Martínez, 1994; Pol and Pich, 1999; Iñiguez and Pol, 1996; Pol, 1996; Sabucedo, García-Mira and Prada, 1988; García-Mira, Sabucedo and Romay, 2002; San Juan, Rodríguez and Vergara, 2001). This body of work has also been the object of continued revision.

As long as seventeen years ago, in a paper that analysed theoretical and empirical studies in Environmental Psychology in Spain, Hernández and Jiménez (1988) identified one-hundred-and-fifty-one publications in an almost exhaustive sample of the period that can be considered as the first phase of this area in Spain. The authors noted a greater preponderance of theoretical and bibliographical work over empirical; a scarce number of Spanish contributors to international publications, and a predominance of studies related to perception, cognition and environmental quality. Nevertheless these authors gave an overview of the growing evolution of psycho-environmental publications from 1971 to 1986 and gave a favourable prognosis to further research development.

Furthermore, Pol (1994) as part of a qualitative revision, took into consideration three dimensions (education, research and intervention) that signalled a consolidation within the university milieu and advances in the scientific domain but little in the way of professional development. Similarly, Aragonés (1994) emphasised the institutional progress achieved.

With regard to research content, Aragonés (1995) in another paper, defines thirteen thematic categories from a revision of the table of contents corresponding to the publications emanating from the first four conferences and two monographic Work Shops in this area during the

same period. According to this author the scientific work could be mainly grouped within four areas.

The greatest area included studies related to natural resources and their management, social mobilisation in relation to the environment, and environmental attitudes and education. The second area grouped those studies that were concerned with the analysis of the processes of environmental cognition. These two areas constituted, respectively, 17,2% and 13,3% of the analysed studies. Only two other areas contained more than 10% of the studies, both concerned with a typology of specific environments, particularly the institutional (11,7%) and the urban (11,7%) environments.

In another similar review, García-Mira (2000, 2002) describes the principal research areas and appoints that the theoretical orientation had been essentially cognitive. So, from its origin, Environmental Psychology in Spain is fundamentally grounded in the study of perception and the representation of the environment. However, with time, other themes of study have gained more presence. These emergent areas are grouped by García-Mira in five categories: relations with constructed environment, especially urban; intervention and environmental management; pro-environmental attitudes and behaviour; environmental education and methodology.

Contrast between the intentional and effective definitions of Environmental Psychology as a scientific discipline is made implicit in the cited studies, but none of them analyzed it. Our research has a two-fold objective. On the one hand, to define what is presently the effective definition and how it has evolved, and on the other hand, the level of adjustment between the former and the intentional definition.

In congruence with this approach, we believe that a suitable starting point is the intentional definition provided by Aragonés and Amérigo in their manual of Environmental Psychology (2000). According to these authors, the area finds itself in a period of consolidation as much in teaching terms as in research and its diffusion. In a review of the principal conceptualisations in the area, Aragonés and Amérigo define Environmental Psychology as a discipline that *studies the reciprocal relation between people's behaviour and the socio-physical environment both natural and constructed* (pg. 26). These authors also specify the general characteristics and basic principles of the area according to the

distinction made by Bell, Greene, Fisher and Baum (1996) between the study perspective and the studied scenarios and problems. These characteristics make reference to: (1) a holistic and naturalistic conception of the environment; (2) the interactive nature of the relation between the person and the physical environment; (3) a claim directed towards the resolution of environmental problems; (4) interdisciplinary transfer of concepts and models; (5) methodological eclecticism; (6) improvements in the quality of life and in the environment as the final objective; (7) the areas and scenarios studied undergo change according to social demand; and (8) a change from the concern for architecture and the urban milieu towards an interest in the pro-ecological issues and the *green*.

In order to confirm if the above intentional definition matches the reality of the development of the area in Spain it is necessary to analyse empirical psycho-environmental material from various linked parameters. This implies describing the content-profile and its changes from a diachronic perspective, in such a way so as to allow the identification of the substantive tensions within the area. In relation to this, it is pertinent to verify the amount of development of the applied and interventionist perspective in the discipline and the changes in value-orientation that suppose the inclusion of pro-environmental awareness in the areas investigated. Moreover, for a suitable comprehension of the advancement of Environmental Psychology during our study period, it is essential to check this research from a methodological perspective, particularly considering the statistical techniques completed and the level of generalisation of the obtained results. Finally, in order to evaluate consolidation of the discipline, we analyse the establishment of Environmental Psychology within the Spanish academic context, identifying the research groups and, furthermore, checking the level of diffusion of environmental knowledge generated by those groups.

Method

Sample

This study was made by revising all those texts related to the area of Environmental Psychology published in 32 bibliographical sources (see appendix 1). These included conference proceedings, monographs, books

and national and international scientific journals. All texts had at least one Spanish author. The revision of conference proceedings and scientific meetings includes only those with a complete text or with an exhaustive summary of no less than 1500 words.

The period analysed was from 1985 to 2002. The period was chosen so as to include the first conference held in Spain (I Jornadas de Psicología Ambiental, Madrid, 1986) and the XVII Conference of the International Association for People Environment Studies (La Coruña, Spain, 2002). Thus we were able to include the seven conferences held in Spain up to the latter year, given that this type of event constitutes the scientific reference point for Spanish environmental psychologists.

With reference to the above criteria a total of 370 pieces of empirical research were identified and analysed.

Procedure

In order to analyse the identified texts a system of categories was devised in which information was collected into three fundamental categories: identifying data; content; and methodology.

The identifying data refers to the source, the year of publication, the type of publication (specifically: Environmental Psychology Conference proceedings, Social Psychology Conference proceedings, articles in international and national journals or books) and the institution to which the author(s) belonged. When the work had two authors then we referred to the institution of the first author. With more than two authors we referred to the institution to which the majority of the researchers belonged.

The information about contents included the area examined in the research and the sociophysical environmental objective of the study. To identify the analysed themes the thematic categories defined by Hernández and Jiménez-Burillo (1988), Stokols and Altman (1987) and Aragonés (1995) were utilised. In this way 21 discrete thematic categories were defined, (see table 1).

The methodology section made reference to the type of design, the nature of the analysed sample and the statistical technique employed.

Results

With the aim of analysing the chronological development of psycho-environmental research the revised texts have been grouped in eight distinct periods: 1985-86, 1987-89, 1990-91, 1992-94, 1995-96, 1997-98 and 1999-2001. Also those texts published during 2002 were examined, with the objective, as abovementioned, to include those studies presented at the XVII IAPS Conference. Each of the above periods includes the domestic scientific conferences regularly held in Spain since 1986.

The results are presented in 6 blocks in agreement with the aims of this study. First, the analysis of an effective definition of the area; second, verify the hypothesis regarding the relevance of *green* psychology in the recent development of the field; third, we check if those studies directed towards intervention have a relevant place in the psycho-environmental area; fourth, the institutional research centres are identified, and also their development during the above years; fifth, the scientific impact attained with regard to publication source of the studies is evaluated; sixth, and finally, the type of sample is examined, as are the design and statistical analytical techniques utilized.

An effective definition of Environmental Psychology

By means of a thematic analysis of research content it is possible to demarcate the empirical definition of Environmental Psychology maintained by Spanish researchers during the examined periods. Table 1 shows the frequency and percentage of studies grouped in twenty content categories defined for that purpose.

As can be observed from the table, there is a considerable thematic spread in Spanish psycho-environmental research. Only two categories contain more than 15% of the studies (*Attitudes, Values and Beliefs* and *Perception and Cognition* while five categories contain between 5% -10%. The remaining eleven categories together group 34% of the studies carried out during the period. The subjects least studied were the *Environmental Problems, Crowding, Management of the Environment, Participation and Voluntary Work, and Personal Space, Privacy and Territoriality*. None of these rose above 2%.

Table 1. Distribution of the studied themes

| Theme | n | % | Theme | n | % |
|--|----|------|---|------------|------------|
| Attitudes, Values and Beliefs | 61 | 16,5 | Impact, Audits | 8 | 2,2 |
| Ecological Behaviour | 18 | 4,9 | Identity and Attachment | 22 | 5,9 |
| Environmental Design and Ergonomics | 16 | 4,3 | Methodology and techniques | 22 | 5,9 |
| Environmental Education | 13 | 3,5 | Participation and Voluntary Work | 5 | 1,4 |
| Emotions (fear) | 9 | 2,4 | Risk Perception and Disasters | 19 | 5,1 |
| Personal Space, Privacy and Territoriality | 6 | 1,6 | Perception and Cognition | 58 | 15,7 |
| Physical Factors (noise, light, ...) | 31 | 8,4 | Landscape Preference | 11 | 3,0 |
| General | 12 | 3,2 | Environmental Problems | 4 | 1,1 |
| Management of the Environment | 4 | 1,1 | Health, Environment and Quality of Life | 15 | 4,1 |
| Crowding | 4 | 1,1 | Assessment, Preference and Satisfaction | 32 | 8,6 |
| | | | Total | 370 | 100 |

From a chronological viewpoint the themes have evolved in a different way. Table 2 shows the evolution during our study periods of the eight themes with more contributions of empirical research.

Research about *Attitudes, Values and Beliefs* has gradually gained ground within psycho-environmental research. During the first two periods (1985-86 and 1987-89) there was only one study published, while already by 1990-91 this had increased to eight (13,8% of published articles in the said period). By 1999-2001 that publication percentage had increased to 34%.

Conversely, however, one can note how the category *Perception and Cognition* goes in the opposite direction. In the 1985-86 period the studies gathered within this category represented 57,7% of the total. But it gradually diminishes from 1995-96 to the point where, during 1999-2001, it scarcely represents 4%.

Studies concerning *Assessment, Preference and Satisfaction* were published intermittently during the analysed periods, and range from 2% in 1999-2001 to 17,4% in 1987-89. The *Physical Factors* category, though reaching 16% in 1999-2001, remains relatively stable at about 8% during the other periods. Publications about *Identity and Attachment*, although increasing gaining ground in a relative sense from 1995-96 nevertheless the number of publications in each period is low. Something

similar occurs in the *Methodology and Techniques* category, which has a scarce presence except in the 1990-91 period, when it attains 15,5%.

Table 2. Temporal development of the eight principle themes

| Theme | Years | | | | | | | | |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|--|
| | 1985 1986 | 1987 1989 | 1990 1991 | 1992 1994 | 1995 1996 | 1997 1998 | 1999 2001 | 2002 | |
| Attitudes, Values and Beliefs | N 1 | 1 | 8 | 9 | 9 | 9 | 17 | 7 | |
| Theme % | 1, % | 1, % | 13, % | 14, % | 14, % | 14, % | 27, % | 11, % | |
| Ecological Behaviour | N 0 | 0 | 0 | 5 | 3 | 5 | 3 | 2 | |
| Theme % | , % | , % | , % | 27, % | 16, % | 27, % | 16, % | 11, % | |
| Physical Factors (Noise, light...) | N 1 | 2 | 5 | 6 | 3 | 3 | 8 | 3 | |
| Theme % | 3, % | 6, % | 16, % | 19, % | 9, % | 9, % | 25, % | 9, % | |
| Identity and Attachment | N 1 | 0 | 2 | 1 | 3 | 4 | 5 | 6 | |
| Theme % | 4, % | , % | 9, % | 4, % | 13, % | 18, % | 22, % | 27, % | |
| Methodology and techniques | N 2 | 2 | 9 | 1 | 4 | 3 | 0 | 1 | |
| Theme % | 9, % | 9, % | 40, % | 4, % | 18, % | 13, % | , % | 4, % | |
| Risk Perception and disasters | N 1 | 0 | 3 | 6 | 5 | 2 | 1 | 1 | |
| Theme % | 5, % | , % | 15, % | 31, % | 26, % | 10, % | 5, % | 5, % | |
| Perception and Cognition | N 15 | 4 | 12 | 12 | 7 | 3 | 2 | 3 | |
| Theme % | 25, % | 6, % | 20, % | 20, % | 12, % | 5, % | 3, % | 5, % | |
| Assessment, Preference and Satisfaction | N 2 | 6 | 6 | 12 | 9 | 13 | 7 | 6 | |
| Theme % | 3, % | 9, % | 9, % | 19, % | 14, % | 21, % | 11, % | 9, % | |
| Others | N 3 | 8 | 13 | 15 | 9 | 18 | 7 | 5 | |
| Theme % | 3, % | 10, % | 16, % | 19, % | 11, % | 23, % | 9, % | 6, % | |

Those studies about *Risk Perception and disasters* have kept a low and decreasing profile apart from the periods between 1992 and 1996 where they represent around 9% of the works published. Lastly, *Ecological Behaviour* has made a rather belated appearance on the scene, only present since 1992, and has played a minor role, that is, around 6% for each period.

With regard to the type of environment studied, table 3 presents the frequency and percentage of the studies made with reference to a classification into six different contexts.

Table 3. Study Environment

| | N | % |
|---|-----|-------|
| Residential | 36 | 9,7 |
| Work | 13 | 3,5 |
| School /University | 51 | 13,8 |
| Institutional | 13 | 3,5 |
| Urban | 162 | 43,8 |
| Natural Environment | 23 | 6,2 |
| Other environments, mixed, global, undetermined | 72 | 19,5 |
| Total | 370 | 100,0 |

As can be seen, 43,8% of the studies have dealt with the urban environment as a whole, compared with only 6,2% focus on the natural environment. This leaning in psycho-environmental research towards the built-up environment is further emphasised if we take also into account that the studies concerning residential, work, educative and institutional environments take up 30,5% of research production.

A Green Psychology Hypothesis

With the aim of compare the prominence of a *Green Psychology* focus in the contents of psycho-environmental research we have opted to group the eight thematic categories that contain any element associated with the situation of the deterioration of the environments so as to contrast them with the other themes considered. Therefore, the following are classified as *green*.

- Attitudes, Values and Beliefs
- Ecological Behaviour
- Environmental Education
- Management of the Environment
- Impact, Audits
- Participation and Voluntary Work
- Risk Perception and Disasters
- Environmental Problems

In order to avoid including too many categories of small percentage in the graphs we have combined some of those themes, based on a criterion of conceptual similarity. Thus, *Emotions* is combined with the category *Assessment, Preference and Satisfaction*; *Identity and Attachment* is united with *Personal Space, Privacy and Territoriality* and lastly, *Health, Environment and Quality of Life* is grouped with *Crowding* (see figure 1).

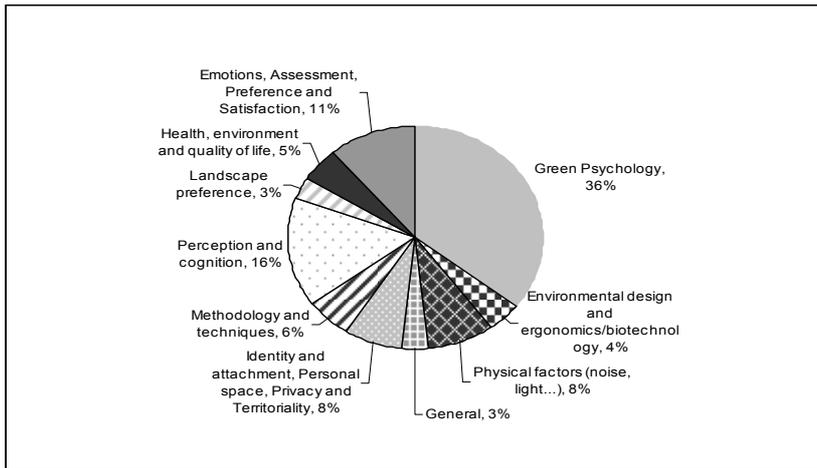


Figure 1: Distribution of Green Psychology publications compared to others.

As can be observed, those categories conceptually related to a *green* psychology gather together 35,7% of the publications, superseding those categories associated with an *architectural* focus, represented by research related to *Assessment, Preference and Satisfaction; Physical Factors* and *Environmental Design and Ergonomics*. These categories together represent 23,5% of the published works.

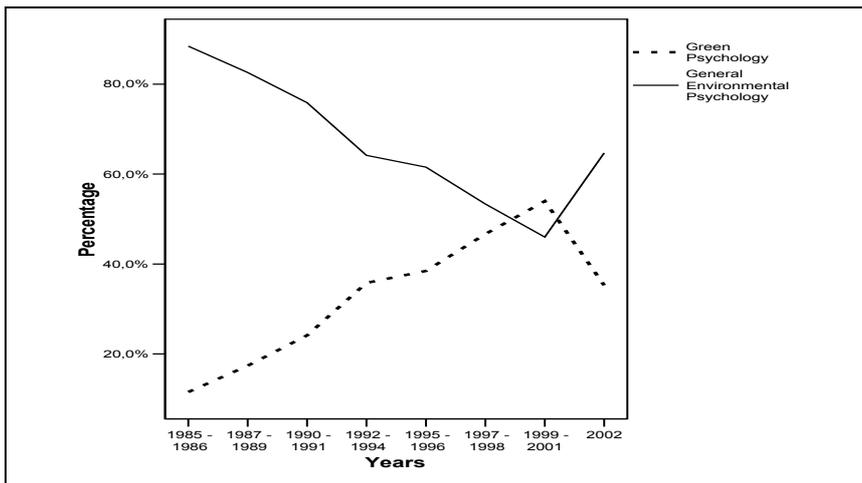


Figure 2: Development of Green Psychology in contrast to General Environmental Psychology.

With the intention of check the presence of Green Psychology during the periods analysed, figure 2 shows the chronological development of this focus in contrast to the general trends within Environmental Psychology. In this way, one can verify that the relative contributions of a green focus have increased in a consistent manner during those periods, going from 11,5% of publications in the 1985-86 period to more than half (54%) in 1999-2001.

So as to check this emergent focus, table 4 shows the distribution of a green orientation in relation to the types of environments studied. The study of the natural environment (56,5%), and the environment regarded from a global or at least naturalised perspective (65,3%) has been mainly approached from a green perspective. In contrast, in those urban and/or built-up environments (residential 86,1%, work 61,5%, educative 54,9%, institutional 84,6%, urban 77,2%) it is the general trend that dictates the main focus. Nevertheless, it is to be noted that a substantial percentage of green-orientated studies have been completed in the urban-constructed context. In this way, and taken together, the studies with a green orientation ascribed to the above five types of environment amount to 54,6% of all research from this perspective.

Table 4. Distribution of Green Psychology according to the type of environment analysed

| Environment | | Green Psychology | General Environmental Psychology. | Total |
|-----------------------------|------------------------------|------------------|-----------------------------------|----------------|
| Residential | N | 5 | 31 | 36 |
| | Type of environment % | 13,9 % | 86,1 % | 100,0 % |
| Work | N | 5 | 8 | 13 |
| | Type of environment % | 38,5 % | 61,5 % | 100,0 % |
| School /University | N | 23 | 28 | 51 |
| | Type of environment % | 45,1 % | 54,9 % | 100,0 % |
| Institutional | N | 2 | 11 | 13 |
| | Type of environment % | 15,4 % | 84,6 % | 100,0 % |
| Urban | N | 37 | 125 | 162 |
| | Type of environment % | 22,8 % | 77,2 % | 100,0 % |
| Natural Environment | N | 13 | 10 | 23 |
| | Type of environment % | 56,5 % | 43,5 % | 100,0 % |
| Mixed, global, undetermined | N | 47 | 25 | 72 |
| | Type of environment % | 65,3 % | 34,7 % | 100,0 % |
| Total | N | 132 | 238 | 370 |
| | Type of environment % | 35,7 % | 64,3 % | 100,0 % |

Intervention in Environmental Psychology

In order to evaluate those texts that had interventional intent within psycho-environmental research overall, the present authors opted to group five thematic categories that contained elements related to psycho-environmental applications, interventions and actions. The following are classified under *intervention*:

- Environmental Design and Ergonomics
- Environmental Education
- Management of the Environment
- Impact, Audits
- Environmental Problems

So as to avoid, in the graphic representation, too many categories of small percentage, we regrouped them as before.

Thus, *Assessment, Preference and Satisfaction* was combined with *Emotions*; *Personal Space, Privacy and Territoriality* joined *Identity and Attachment*; and *Crowding* went with *Health, Environment and Quality of Life*. (See figure 3). Those studies related to intervention therefore only represent 12,16%, compared with Attitudes, Values and Beliefs (16,5%) or the Perception and Cognition category (15,7%).

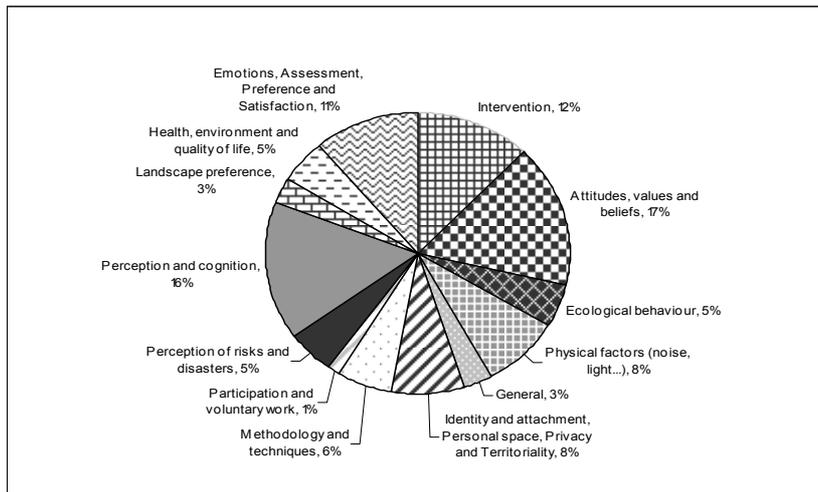


Figure 3. Distribution of studies of Psycho-Environmental Intervention compared with others

In table 5 the temporal distribution of those studies orientated towards intervention in contrast with all the other publications is shown. In general, the percentage of such studies is low (12,2%), and has remained relatively stable over the last fifteen years of research activity.

Table 5. Temporal distribution of the prevalence of intervention studies

| | Years | | | | | | | | |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1985 | 1987 | 1990 | 1992 | 1995 | 1997 | 1999 | | |
| | 1986 | 1989 | 1991 | 1994 | 1996 | 1998 | 2001 | 2002 | Total |
| Intervention | 7,7 % | 17,4 % | 8,6 % | 7,5 % | 9,6 % | 20,0 % | 20,0 % | 5,9 % | 12,2 % |
| Non-intervention | 92,3 % | 82,6 % | 91,4 % | 92,5 % | 90,4 % | 80,0 % | 80,0 % | 94,1 % | 87,8 % |

Identification and Evolution of Research Centres

The definition and evolution of Environmental Psychology in Spain can be better understood if the institutional research centres are identified and their development over the research periods analysed.

In this regard, we show in table 6 the percentage of published research according to the institutional provenance of the authors in each one of the periods. However, it must be noted that this indicator does not take into account the number of persons involved in the different research teams.

In this table it can be observed that, almost exclusively, it is the university context that has provided published research. Five universities are responsible for more than 50% of the work. We can also see that the number of universities (and logically the number of research groups) has generally increased, though in a varied manner over the periods examined. From the first, we can see that five universities have maintained a presence, to a greater or lesser measure, over these years; this has been followed by the subsequent incorporation of other research teams maintained to the present. On the other hand, we note that some universities have only made occasional contributions or over a brief period of time.

Table 6. Development of Research Groups

| Research Groups | Years | | | | | | | 2002 | Total |
|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 1985 - 1986 | 1987 - 1989 | 1990 - 1991 | 1992 - 1994 | 1995 - 1996 | 1997 - 1998 | 1999 - 2001 | | |
| U. de Barcelona | 38,5 % | 30,0 % | 16,1 % | 14,1 % | 23,5 % | 8,3 % | 4,2 % | 26,5 % | 17,3 % |
| U. de La Laguna | 15,4 % | 5,0 % | 7,1 % | 20,3 % | 11,8 % | 11,7 % | 22,9 % | 8,8 % | 13,6 % |
| U. A. de Madrid | 19,2 % | 10,0 % | 10,7 % | 14,1 % | 7,8 % | 6,7 % | 12,5 % | 5,9 % | 10,6 % |
| U. C. de Madrid | 7,7 % | 15,0 % | 19,6 % | 6,3 % | 13,7 % | 6,7 % | 6,3 % | 2,9 % | 9,7 % |
| Other Universities | - | 5,0 % | 12,5 % | 10,9 % | 3,9 % | 8,3 % | 14,6 % | 11,8 % | 9,2 % |
| U. de Málaga | - | 5,0 % | 8,9 % | 6,3 % | 5,9 % | 8,3 % | 6,3 % | 5,9 % | 6,4 % |
| U. da Coruña | - | - | - | - | 3,9 % | 8,3 % | 12,5 % | 2,9 % | 3,9 % |
| Other non-university | - | 10,0 % | 3,6 % | 3,1 % | 3,9 % | 1,7 % | 2,1 % | 8,8 % | 3,6 % |
| U. de Stgo de Compostela | 3,8 % | 10,0 % | 1,8 % | 1,6 % | 7,8 % | 3,3 % | 2,1 % | 2,9 % | 3,6 % |
| U. A. de Barcelona | 7,7 % | - | 10,7 % | 4,7 % | 2,0 % | 1,7 % | - | - | 3,6 % |
| U. de Sevilla | - | - | 5,4 % | 1,6 % | 2,0 % | 5,0 % | 4,2 % | 5,9 % | 3,3 % |
| U. de Granada | 3,8 % | 10,0 % | - | 3,1 % | 2,0 % | 6,7 % | - | 2,9 % | 3,1 % |
| U. del País Vasco | - | - | - | 4,7 % | 2,0 % | 8,3 % | 4,2 % | - | 3,1 % |
| U. de Castilla La Mancha | - | - | - | 1,6 % | 3,9 % | 3,3 % | 6,3 % | 2,9 % | 2,5 % |
| U. de Almería | - | - | - | - | 2,0 % | 5,0 % | 2,1 % | 2,9 % | 1,7 % |
| U. de Oviedo | - | - | 1,8 % | 4,7 % | 2,0 % | - | - | - | 1,4 % |
| U. de Vigo | - | - | - | 1,6 % | - | 1,7 % | - | 5,9 % | 1,1 % |
| U. de La Rioja | - | - | - | 1,6 % | 2,0 % | 1,7 % | - | 2,9 % | 1,1 % |
| U. de Valencia | 3,8 % | - | 1,8 % | - | - | 3,3 % | - | - | 1,1 % |
| Total | 100,0 % |

Scientific impact according to type of publication

The publications have been classified in five distinct categories. The first category, *Proceedings of Conferences and Work Shops in Environmental Psychology*, contains those studies presented as scientific

communications in specific meetings of Spanish environmental psychologists. This type of research represents 73% of the empirical research analysed. The second category, *Proceedings of Conferences and Work Shops in Social Psychology*, includes those psycho-environmental studies (10,3%) that have been presented in Social Psychology meetings held in Spain during the study periods. The third category, *Articles in International Journals*, represents 4,9% of the published research. The fourth category, *Articles in National Journals*, takes up 10,3% of studies. Finally, the fifth category, *Books*, refers to those empirical studies that have been published as monographs or as chapters of a book. This category has 1,6% of the revised studies.

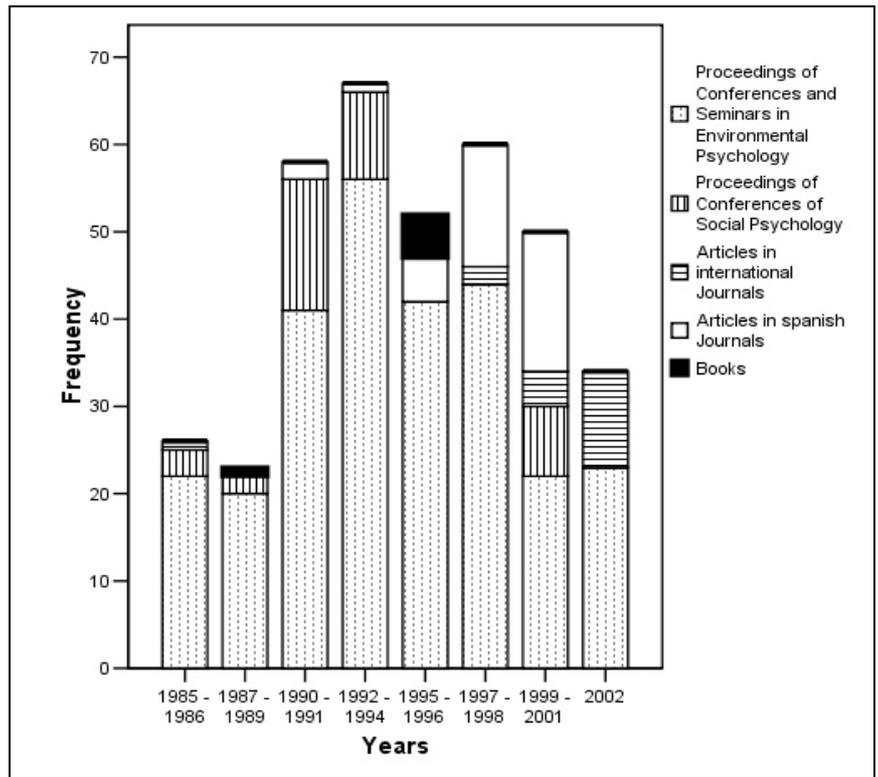


Figure 4. Development of publications

Figure 4 shows the evolution of the different types of publication during the eight periods into which the analysis period has been divided.

Proceedings of Conferences and Work Shops in Environmental Psychology is the category that includes the bigger percentage of works in all the periods. Conversely it is the *Books* category that has the smaller percentage. In fact it is only represented in two periods 1987-89 and 1995-96. The category regarding publications germane to *Articles in National Journals* began in 1990-91 and thereafter continues in the four subsequent periods. The category *Articles in International Journals*, although present in the initial period 1985-86, it is nevertheless not until 1997-98 that it occupies a regular place, growing from 3,3% of publications in 1997-98, 18% in 1991-2002 to 32, 4% in 2002.

Statistical and Methodological Characteristics

In table 7 the evolution of the type of sample used in Psycho-Environmental research over the periods is analysed. Of the 357 studies, 54,9% use participants from the general public, while 27,2% use participants from the university milieu. The latter comprise 15,4% of the general total. Only 1,7% of the studies combine at least the two of the above types of sample. From a chronological point of view, though those studies with the general public are always in the majority, nevertheless one can observe a decrease in favour of studies with a university-based sample.

Table 7. Temporal distribution of types of sample

| Sample | | Years | | | | | | | | Total |
|----------------|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------|------------|
| | | 1985 1986 | 1987 1989 | 1990 1991 | 1992 1994 | 1995 1996 | 1997 1998 | 1999 2001 | 2002 | |
| School | N | 10 | 6 | 4 | 9 | 2 | 9 | 7 | 8 | 55 |
| | Years % | 40,0 % | 26,1 % | 6,9 % | 13,4 % | 4,2 % | 15,3 % | 15,9 % | 24,2 % | 15,4 % |
| University | N | 8 | 5 | 11 | 18 | 19 | 16 | 17 | 3 | 97 |
| | Years % | 32,0 % | 21,7 % | 19,0 % | 26,9 % | 39,6 % | 27,1 % | 38,6 % | 9,1 % | 27,2 % |
| Non-University | N | 7 | 11 | 43 | 40 | 26 | 34 | 19 | 16 | 196 |
| | Years % | 28,0 % | 47,8 % | 74,1 % | 59,7 % | 54,2 % | 57,6 % | 43,2 % | 48,5 % | 54,9 % |
| Mixed | N | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 3 | 6 |
| | Years % | ,0 % | 4,3 % | ,0 % | ,0 % | 2,1 % | ,0 % | 2,3 % | 9,1 % | 1,7 % |
| Stimuli, ... | N | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| | Years % | ,0 % | ,0 % | ,0 % | ,0 % | ,0 % | ,0 % | ,0 % | 9,1 % | ,8 % |
| Total | N | 25 | 23 | 58 | 67 | 48 | 59 | 44 | 33 | 357 |

With regard to the development of the type of design of research, in figure 5 one can note a progressive decrease in the percentage of studies that do not specify the type of design and in those that merely present statistics of a descriptive nature. Such types of study, in 1985-86, comprised 42,3%, but by 1999-2001 this had fallen to 20% (25,6% of the total of collected work). Case studies only appear in the 1995-96 period and contribute 3,8% in those years. In 1997-98 observational studies were at 5% and this dropped further to 2% in the following period. However in 2002 observational studies went up to 6%. Correlational studies are the most frequent design-type, in total they represent 58% of studies. And they are consistent, between 50% and 68% since 1987. Quasi-experimental studies never top 10%, although there were relative increases in the 1987-89 and 1992-94 periods. Since 1997 they have stabilised at around 6%. Finally, experimental design studies, following a strong showing in the initial 1985-86 period (26,9%) did not exceed 15% in the subsequent periods.

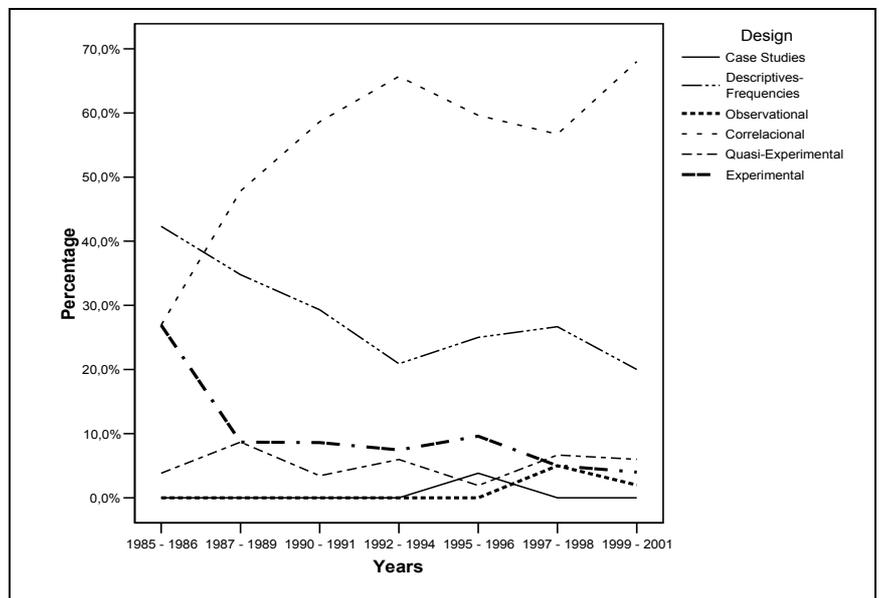


Figure 5. Development of research design.

In conclusion, and with the intention of verifying up to what point Environmental Psychology can be described as an area of confluence for different types of research, in line with the methodological eclecticism advocated in intentional definitions of the discipline, the kinds of statistical analyses used in the studies are shown. In table 8 those statistical techniques used in the 357 studies demonstrate the following: 28,3% use only descriptive statistics; 33,4% examine the internal structure of the variables for latent dimensions; 4,6% attempt to confirm the existence of such dimensions; 21,7% make comparisons between groups (of these 68% were limited to univariate analyses, that is, 14,8% of the total). As for studies that focus on the time variable, only one was uncovered. It represents 0,3% of the total.

In grouping the descriptive studies with those that apply principle components, those that utilise multi-dimensional scaling or cluster analysis and those that employ correspondence analysis, we find that 62,6 % of the publications use non-inferential statistical techniques.

Table 8. Distribution of analytical techniques.

| | % |
|---|--------------|
| Descriptive | 28,3 |
| Ji-square | 4,0 |
| Correspondences | ,9 |
| Correlations and simple regressions | ,9 |
| Non-parametric Correlations | 2,9 |
| Regressions | 3,1 |
| Non-parametric Contrasts | 1,1 |
| Prametric contrasts (t-test, ANOVA) | 13,7 |
| Principle components, reliability | 24,0 |
| Multi-dimensional scaling, cluster | 9,4 |
| Multivariate (manova, discriminant, canonical corr) | 6,9 |
| Structural equations | 4,6 |
| Temporal series | 0,3 |
| Total | 100,0 |

Discussion

This study continues a line of research that has been followed with certain regularity in Environmental Psychology in Spain. It has, as its main objective, the construction of as realistic an image as possible of this area, an image that therefore requires a chronological profile to be

complete. As in previous studies (for example Hernández and Jiménez Burillo, 1988; Aragonés, 1995) the present authors have sought, in an effective and empirical way as possible, to identify the principle currents in the development of knowledge within the discipline. So as to achieve that aim we have revised those themes that have interested psychologists and environmental psychologists, and also examined which conceptual orientations and methodologies have been utilized. In regard to this, we have analysed: a) the content of the studies; b) the kind of environment studied; c) the identification and contribution of those Environmental Psychology concerned with pro-ecological or *green* aspects; d) the degree of development of an interventionist focus in research; and e) the statistical and methodological characteristics that have furthered Spanish Psycho-Environmental research. It must also be noted that, while Environmental Psychology in this country has developed in a similar way to the discipline in general, there are nevertheless certain structural aspects in our research tradition that have served to define the evolution on the domestic scene. With regard to this, in this study we have identified those institutional centres responsible for research development and the medium by which advances have been made known.

Of course, to attempt to conceptually grasp an area by an analysis of the empirical production has its limitations. Among those it is worth mentioning that, at least to some extent, a discipline may circumscribe itself merely to its empirical production. On the other hand, the theoretical contributions often embody both the essence and the depth of that which it seeks to define. Nevertheless, to evaluate the empirical research enables one to better reflect the intrinsic diversity of the area, and in such a way that it becomes more permeable and sensitive to the scientific variations and concerns that sustain a discipline. Moreover, the image projected by such an approach is more specific and detailed and at the same time informs about the vitality within the area and its impact within the context of the scientific community.

Another limitation is related to the representativity of the analyzed studies. It is practically impossible to access all published works in this eighteen years. However, the analysis of the 370 publications supposes an exhaustive approach and we think that it represents properly the psycho-environmental research body.

The analysis of Environmental Psychology publications in Spain between 1985 and 2002 reveals substantial development. The number of psycho-environmental research studies has increased: from 25 in the period 1985-86 to 50 in 1999-2001. This evidence coincides with that demonstrated in previous research, both empirical (Hernández and Jiménez Burillo, 1988; Aragonés, 1995) and those others of a qualitative or global nature (Pol, 1994; García-Mira, 2000).

A quantitative description, however, does not wholly reflect the environmental psychology generated in Spain. To give a true and effective definition of the discipline we should take into consideration the conceptual and methodological nature of the research examined. In this sense, to compare the defining characteristics of what constitutes Environmental Psychology in intentional and in effective terms we note that in various aspects the realities of the area are evidently at some distance from the intentional definition.

The thematic spread observed during our analysis demonstrates the wealth of themes and the variety of content associated with the area. This indicates to us that the defining conceptual core, when utilized outside its usual frame of reference, that is in terms of person-environment interaction, becomes multiple and more complex. This is particularly so if one takes into account that some of the thematic categories that we use are general and could be further divided. Nevertheless, and despite this spread, one can observe a clear confluence from a paradigmatic point of view. In this way the analysis of the thematic contents reveals that the majority of research studies are done from a social-cognitive perspective. In fact, of the eight most productive themes, five connect their paradigmatic orientation explicitly to representational and psychosocial content.

However the above is not to say that psycho environmental knowledge has been centred on the analysis of basic cognitive processes. On the contrary, the chronological evolution of the most investigated themes shows how processual and cognitive research has declined in favour of research about attitudes, values and environmental beliefs. The latter now predominate in the study of socio-cognitive constructs in connection with other psychosocial and behavioural variables. In relation to this approach, it also seems reasonable to assume that Environmental Psychology in Spain has both its origin and development at the heart of

psychological knowledge in general and in Social Psychology in particular, and is therefore somewhat distanced from interdisciplinary approaches.

Another aspect to be taken into account with disciplinary definitions is the type of environments analysed. In the intentional definitions there is a tendency to characterise Environmental Psychology as being concerned as much with the natural as the constructed environment. Our results, however, reveal a primary interest in Spain in urban and/or constructed milieu. We can therefore say that an Environmental Psychology linked to architecture and the urban remains dominant and constitutes one of the central characteristics in effectively defining the area of our disciplinary knowledge.

A characteristic note of the results obtained has to do with the pro-environmental leaning associated with the development of Environmental Psychology in this country. In absolute terms, those contents linked to the idea of pro-ecological commitment make up one of the main badges of identity in the overall psycho-environmental research. In fact *green* subject matter has gone on gaining presence throughout the 18 years of our study. This reflects that our sphere has a growing interest on knowledge since the 1980s, and which in recent years has gained increased relevance with the incorporation of the *sustainable development* concept in the area's discourse. (For example: Schuck and Schultz, 2002; Bonnes and Bonaiuto, 2002; Moser and Cois 2003; García-Mira, Sabucedo and Romav, 2003).

This *green* orientation pervades the group of themes in the research developed. Nevertheless, one should not confuse the pro-environmental with the study merely of the natural environment. Our results indicate that a substantial part of natural environment research emphasises the individual-environment interaction and fails to take account of sustainability criteria, criteria which are present in a substantial number of studies of urban and constructed environments.

In the same way that the group of disciplines include the idea of applicability in their intentional definition, Environmental Psychology tends to be presented as an area of study directed by an awareness of social problems and demands, (for example Valera, 2003). However, though this awareness may be reflected in the research contents, our results also indicate a notable absence of studies geared towards intervention. Those thematic categories related to education, design and

management scarcely exceed a tenth part of the research applied. This raises the question: up to what point are those social demands merely limited to theoretical and conceptual concerns in which the capacity towards intervention barely raises its head?

In any case, one should nonetheless stress the effort expended in research with the participation of the general public. But in view of the tendency to utilize *captive* participants (a more convenient recourse) psycho-environmental researchers limit themselves mainly in their studies to samples associated with the environments analysed. Although one cannot speak of *public representation*, it is clear that the preference for this type of sample nonetheless is engendered by that aforementioned awareness of social problems and demands. In the final analysis they do their research from a perspective as naturalistic as possible.

Along the same line one notes the clear predominance of a correlational focus in the studies analysed. In view of this fact, one must stress the almost complete absence during our study periods of other types of research design, notably those based on experimental procedures. To compare the development of correlational with that of experimental designs in general, one notes a *mirror image*, in which the increased swing to one type of design coincides with the decrease of another, and vice versa.

The dominance of the correlational could imply a loss of relevant psycho-environmental information if one did not take into account the use of statistical techniques that allow one to establish causal relations. In this sense, our results show a scarce recourse to structural equations and to temporal sequences in contemporary psycho-environmental research.

In addition to effective description, another of the aspects that help to characterise a research area is the level of institutionalisation. We refer here to the consolidation of research teams and centres and the diffusion of their scientific work. From this point of view, and in agreement with our results, one notes an increase in the number of institutions engaged in psycho-environmental research, particularly teams in the universities. Conversely we have to highlight the scarce contributions made by non-university research teams to the publications examined. Although they have been a constant presence since the earliest days of psycho-environmental research in Spain, their number of contributions have been fairly modest.

By grouping the various university research teams one can identify at least three principle categories. The first category contains the *historic* teams, that is those teams active since the initial phase of Spanish psycho-environmental research and who have produced significant and regular work during our study periods. They have, in terms of volume of publication, the strongest profile of the area. This is the case of the Universidad de Barcelona, Universidad Autónoma de Madrid, Universidad Complutense de Madrid, and Universidad de La Laguna. A second category groups those *consolidated* teams, whose production has been stable and has continued during the greater number of the analysed periods. Here we can find the universities of Malaga, Coruña, Sevilla, País Vasco, Castilla-La Mancha and Almería. The third category includes those teams whose production is not as yet fully consolidated and who have had an intermittent presence as regards publication.

Another aspect related to institutionalisation is connected to the level of diffusion attained by research and the format in which it has been published. Although still scarce, publication in international journals has increased gradually over the last ten years, as has publication in national journals. However it is the conference forum, particularly those conferences of Environmental Psychology, which continues to be the main source of the dissemination of research in the area. This seems to indicate that psycho-environmental research in this country has still not totally overcome its immediate point of reference.

All things considered, and to reiterate, over the last twenty years scientific production has been progressively consolidated. In regard to this, the discipline shows itself to be socio-cognitive in theory and correlational in methodology. The themes researched show a wide variety of interests that, together with the type of sample used, reflect a significant awareness of social problems. The area has reached a high level of university institutionalisation primarily through the influence of the continuing conference forum, and there is now increased activity aimed at international diffusion of research.

Nevertheless, it must be said, there are certain limitations to development that represent a challenge for the future. Firstly, it is necessary to direct orientation towards social problems, with a better development of a research that combines intervention and social change as the object of study. Secondly, it is essential to enhance thematic

diversity with a diversification of methodological, design and analytic approaches, directed towards confirmatory and causal models. And finally, encouragement must be given to a widening of the conceptual and theoretical parameters of psycho-environmental research by an opening up to multi- and interdisciplinary approaches.

Appendix

Bibliographic sources with Environmental Psychology publications of Spanish authors

| | Frequency | % |
|---|------------|--------------|
| I Jornada de Psic. Ambiental | 22 | 5,9 |
| II Jornadas de Psic. Ambiental | 17 | 4,6 |
| III Jornadas de Psic. Ambiental | 37 | 10,0 |
| IV Congreso de Psic. Ambiental | 48 | 13,0 |
| V Congreso de Psic. Ambiental | 37 | 10,0 |
| VI Congreso de Psic. Ambiental | 44 | 11,9 |
| VII Congreso de Psic. Ambiental | 22 | 5,9 |
| Seminario de Orellana-Badajoz | 1 | ,3 |
| II Congreso Andaluz de Educación Ambiental | 2 | ,5 |
| II Jornadas de Educación Ambiental | 1 | ,3 |
| I Congreso Nacional de Psic. Social | 3 | ,8 |
| II Congreso de Psic. Social | 2 | ,5 |
| III Congreso de Psic. Social | 15 | 4,1 |
| IV Congreso Psic. Social | 10 | 2,7 |
| V Congreso de Psic. Social | 5 | 1,4 |
| Conference IAPS | 34 | 9,2 |
| Monografías Psico-socioambientales | 2 | ,5 |
| Percepción social de los riesgos | 3 | ,8 |
| Rev. Acústica | 2 | ,5 |
| Rev. Apuntes de Psic. | 4 | 1,1 |
| Rev. de Psicología General y Aplicada | 2 | ,5 |
| Rev. de Psicología Social | 8 | 2,2 |
| Rev. de Psicología Social Aplicada | 7 | 1,9 |
| Rev. Estudios de Psicología | 9 | 2,4 |
| Rev. Environment & Behaviour | 7 | 1,9 |
| Rev. Environmental Psychology | 4 | 1,1 |
| Rev. Environmental Social Psychology | 1 | ,3 |
| Rev. Infancia y Aprendizaje | 1 | ,3 |
| Rev. Medio Ambiente y Comportamiento Humano | 11 | 3,0 |
| Rev. Psychological Report | 1 | ,3 |
| Rev. Psicothema | 4 | 1,1 |
| Rev. TecniAcústica | 4 | 1,1 |
| Total | 370 | 100,0 |

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