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## Why do they separate it or not? Attitudes and behaviors towards organic waste separation

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*This article shows the results of an exploratory study related to the separation of organic waste in order to offer suggestions for the improvement of waste disposal communication campaigns. The overall objective is to analyze attitude and behavior of those who do and those who do not separate organic waste, related to a specific promotional campaign carried out in two neighborhoods, in the municipality of Badalona (Spain), within the framework of the study of pro-environmental attitudes and behaviors and based on the Psychosocial Four Spheres Model. 1,010 interviews were conducted and data was analyzed using Chi-Squared Automatic Interaction Detector (CHAID). Waste separation behavior was used as a dependent variable. The reasons given to explain why people do or do not separate organic waste and sociodemographic variables, have been introduced as independent variables. In accordance with the Four Spheres Model, results show significant differences in waste separation. Based on the profiles obtained, we find some predictive variables that facilitate the development of communication campaigns according to the requirements of each community.*

*Keywords: Attitudes, communication campaigns, environmental behavior, Psychosocial Four Spheres Model, waste separation.*

## ¿Por qué la gente separa o no? Actitudes y comportamientos en la separación de residuos orgánicos

*El artículo presenta los resultados de un estudio exploratorio sobre las actitudes y conductas de separación de residuos orgánicos, con el objeto de*

*plantear sugerencias para el diseño y desarrollo de campañas de comunicación para la promoción de conductas pro-ambientales. El objetivo general es analizar las actitudes y comportamientos de las personas que separan y las que no separan los residuos orgánicos, en dos barrios de Badalona (España) en los que se efectuó una campaña para la promoción de su separación, basándose en el Modelo Psicosocial de las Cuatro Esferas. Se realizaron 1010 entrevistas individuales. Los datos fueron analizados utilizando Chi-Squared Automatic Interaction Detector (CHAID). El comportamiento de separación de residuos se utilizó como variable dependiente. Las razones aducidas para explicar por qué la gente separa o no los residuos orgánicos y las variables sociodemográficas se determinaron como variables independientes. De acuerdo con el Modelo de las Cuatro Esferas, los resultados muestran diferencias significativas en la separación de residuos. A partir de los perfiles obtenidos es posible establecer el conjunto de variables predictivas que faciliten el desarrollo de las campañas de comunicación de acuerdo con los requisitos de cada comunidad.*

*Palabras clave: actitudes, campañas de comunicación, comportamiento pro-ambiental; Modelo Psicosocial de las Cuatro Esferas, separación de residuos.*

## Introducción

In recent years various regulations for the reduction of biodegradable waste going to landfill have been established at European (EC Directive 2008/98/EC of the European Parliament and Council of November 19, 2008), national (BOE. Ley 10/1998, [Spanish State Waste Law 10/1998 of 21 April]) and local levels (DOGC Llei 1/2009, [dated 21 July, Catalan Law amending the Law 9/2008, 10 July and Law 6/1993, 15 July]). To improve composting and energy production, public administrations are increasing targets to facilitate collection and encourage separation of organic waste behavior by citizens.

Therefore, local governments and departments responsible for waste management require technical, professional and academic interventions in order to carry out their policies. The objective of this study is to explore the most important attitudes and behavior associated with the separation and disposal of organic waste, and to offer suggestions for improvement in the planning of campaigns and their assessment, according to each community.

The separation and disposal of organic waste is an example of environmental behavior, as well as a relevant subject in environmental psychology research. Several theoretical models are proposed to explain environmental behavior and its related issues such values, beliefs, norms, attitudes and contextual factors (Ajzen, 1985; Lindenberg & Steg, 2007; Schwartz, 1977; Steg & De Groot, 2010; Stern, 2000). Some of these factors refer to norms and behavioral changes (Barr, 2007; McKenzie-Mohr, 2000; Vining & Ebreo, 2002) and changes in the community where this behavior occurs (Wiesenfeld & Sanchez, 2002). In order to summarize the main psychological factors mentioned in scientific literature to explain the

environment behavior, this study is based on the *Psychosocial Four Spheres Model*, developed by Pol, Vidal and Romeo (2001), which includes: rationality, emotion, functionality and social influence, closely interconnected and interrelated. These spheres refer mainly to psychological factors considered in theoretical models mentioned above.

The *Psychosocial Four Spheres Model* is derived from previous applied research studies (Castrechini, Jiménez, & Vidal, 2009; Pol, 2000, 2003; Pol, Castrechini, & Di Masso, 2010; Pol *et al.*, 2001; Pol, Vidal, Valera, & López, 1997; Romeo & Vidal, 2002). It facilitates a general framework for the analysis of waste management communication campaigns. Additionally, the model links different theoretical assumptions in order to explain changes of attitudes and behaviors.

Interventions focusing on providing information, primarily affect the *rationality sphere*. This *sphere* emphasizes the cognitive dimension of human behavior and pro-environmental attitudes, “knowing” how to behave and the consequences, as highlighted by Schwartz (1977), Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980), among others. The supposed tendency of internal consistency between attitudes, thoughts and behavior is related to rationality. Influenced by the contributions of Festinger (1957), this assumption is often made in communication campaigns that seek to modify behavior by creating cognitive dissonance, which together with persuasive communication are the most common intervention strategies for promoting environmentally friendly behavior (Nyamwange, 1996; Werner, 2004, 2009).

Cognition cannot be understood without emotion (Frijda, 1988, 1995, 1996). One of the most important aspects of persuasive campaigns is, in addition to rationality, the manipulation of emotions to form their messages (Gobé, 2005). In the proposed model related to the *emotion sphere*, fear, shame or guilt are some of the most common emotions used in persuasive campaigns, although familiarity or good humor are other ways to generate emotions associated with the behavior or attitude to be changed. Related to fear in environmental communication campaigns, Brulle (2010, p. 92) stated, «fear combined with information about effective actions can also be strongly motivating» (O'Neill & Nicholson-Cole, 2009, p. 376; Witte & Allen, 2000). The *emotion sphere* refers to feelings, affections and emotions. These are fundamental for motivation and desire to behave in a specific way, as stressed in the theories of Schwartz (1977) and Stern (2000; Stern & Dietz, 1994; Stern, Dietz, Abel, Guagnano, & Kalof, 1999; Stern, Dietz, & Guagnano, 1998). As Carrus, Passafaro and Bonnes (2008) pointed out, anticipated negative emotions and past behavior are significant predictors of desire to engage in pro-environmental action. Desire, in turn, positively predicts pro-environmental attitudes and behavioral intentions (Pol, Vidal, & Romeo, 2001).

The *social influence sphere*, considered in the contributions of Fishbein and Ajzen (1975), refers to the desire to be socially accepted (normative social influence) as well as to the desire to do the right thing (informational social influence)

(Cialdini & Trost, 1998). These kinds of social influences are related to the importance of descriptive and injunctive norms (Reno, Cialdini, & Kallgren, 1993). The importance of social norms within sustainable behavior (Thøgersen, 2006) is highlighted in the models of Schwartz (1977) and Stern (2000; Stern & Dietz, 1994; Stern *et al.*; 1999; Stern *et al.*; 1998), and recently, in behavior related to climate change management (Griskevicius, Cialdini, & Goldstein, 2008). For the present case, we are interested in finding out to what extent a person separates waste “because everyone does it” (descriptive norm) or “it is the right thing to do” (injunctive norm) as examples of both types of social pressure. The development of separation and disposal behavior as a personal responsibility (or the right thing to do), implies that the “locus of control” lies in the subject and not outside it (Allen & Ferrand, 1999; Berenguer & Corraliza, 1998). As mentioned by Hines, Hungerford and Tomera (1987) and Bamberg and Möser (2007), personal responsibility is, therefore, a key variable to explain environmental behavior such as energy conservation (Black, Stern, & Elworth, 1985), recycling (Guagnano, Stern, & Dietz, 1995), travel mode choice (Hunecke, Blohbaum, Matthies, & Höger, 2001), and the purchase of environmentally friendly products (Thøgersen, 1999).

Finally, to encourage environmental behavior, the *functionality sphere* applies to resources, minimizing effort and costs and perceived difficulty to develop the desired behavior (Kaiser & Schultz, 2009; Mosler, Tamas, Tobias, Caballero, & Guzmán, 2008). Facilitating and enabling waste separation usually refers to aspects like proximity of containers and appropriateness of the collection schedule for people's daily routines. Barr (2007) called these factors, behavioral context. He pointed out that this aspect has been examined by a relatively small number of authors.

The main objective of this study consists of analyzing attitude and behavior after a specific promotional campaign carried out in two neighborhoods, in the municipality of Badalona (Barcelona, Spain) with very different characteristics. One is characterized as being both residential and commercial, with basically middle class people (Neighborhood 1), while the second is mainly composed of lower class inhabitants, and includes certain areas with social conflicts (Neighborhood 2).

The promotional campaign was simultaneously carried out in both neighborhoods in 2007. The main characteristics of the campaign were, door-to-door information, use of prompts and brochure, and delivering of bags and trash bins at the beginning of the campaign.

In this study, as in most research on human development, the terms community and neighborhood are used synonymously (Cook, Herman, Phillips, & Settersten, 2002) since the nature of neighborhood «provides the individual with some expectations about what people do, think and feel, at least in regard to the attitudes existing in the neighborhood» (Gil, Pons, Grande, & Marin, 1996). Hence, we considered neighborhood as a first segmentation variable.

## Method

### *Participants*

According to data published by the municipality, the number of households in Neighborhood 1 and Neighborhood 2 is 7,721 (1,030 and 6,691 respectively). The total sample was made up of 1,010 households, and had an error of  $\pm 3.2\%$  for a confidence level of 97%. The sampling technique of random routes was used. 37.4% of respondents live in the Neighborhood 1 and 62.6% in Neighborhood 2.

### *Procedure*

Data were collected using a questionnaire applied during a personal interview. Both neighborhoods were included in the organic waste collection communication campaign of 2007. The same communication campaign was carried out in both neighborhoods for the same length of time during 2007. The collection of organic fraction was launched the same day in both districts, one and a half years after the communication campaign using the same collection system.

To conduct the interviews, door-to-door system was applied to ensure that the questionnaire was understood and to unify the evaluation criteria. The four interviewers received a previous training session.

Interviews lasted for four days in Neighborhood 1 and six days in Neighborhood 2. Each took about 10 minutes between 10am and 2pm, and between 3pm and 7pm, after the subjects arrived home or just before they left. These hours are frequently used for the disposal of waste while the legally established time is between 8pm and 10pm.

Participants were volunteers, and they did not receive any compensation for their participation. Confidentiality of response was ensured.

### *Instruments and variables*

A personal interview was given in order to clarify the questions in the survey regardless of the participants' social standing or educational level. The questionnaire had two major parts: the first included socio-demographic data (gender, age, level of education, residence area and number of people living in the household); the second part analyzed attitude and behavior concerning separation and disposal of organic waste. The interview design was based on the theoretical structure of the *Four Spheres Model* (Pol *et al.*, 2001). Answers in these two parts were used as independent variables in the analyses.

To assess beliefs towards separation of organic fraction were developed two indirect questions *Why do you think people separate organic fraction waste?* And the same question in a negative sense: *Why do you think people do not separate organic fraction waste?* The questions were formulated in indirect way to

reduce social desirability bias (Fisher, 1993). Following the *Four Spheres Model*, the answers of the interviewees were categorized as shown in table 1.

To assess their own behavior, the participants were asked directly whether or not they separated the organic fraction. To check their answers, they were asked to show where the organic waste was kept in the household, and the location of the nearest container. This answer was used as a dependent variable in the analyses.

TABLE 1. ATTITUDES TOWARD SEPARATION OF ORGANIC WASTE FRACTION (p. 6).

<i>Spheres</i>	<i>People <b>separate</b> because:</i>	<i>People <b>do not separate</b> because:</i>
Rationality Sphere	They know how to ( <i>procedure and the consequences of separation</i> ).	They do not know how to ( <i>lacking knowledge of procedure and consequences of separation</i> ).
Emotion Sphere	They want to ( <i>it is important for them, to feel good about themselves</i> ).	They do not want to ( <i>laziness, losing interest, has no impact</i> ).
Functional Sphere	They have facilities to do it ( <i>facilitators available, e.g. space at home, containers near the household</i> ).	They don't have facilities to do it ( <i>lack of space at home, containers too far away or overfilled</i> ).
Social Influence Sphere	It is their responsibility ( <i>to do the right thing</i> ). Everyone does it ( <i>it's trendy</i> ).	It is not their responsibility ( <i>it doesn't matter</i> ). Nobody does it.

## *Analysis*

Segmentation techniques were used to obtain different profiles of citizens who do or do not separate organic waste. The dependent variable used was whether the interviewees did or did not separate organic waste at home. The predictor variables included socio-demographic characteristics and the above mentioned attitudes toward separation of the organic fraction (see Table 1).

The CHAID procedure was applied (Chi-Squared Automatic Interaction Detector) (Kass, 1980, SPSS for Windows CHAID Release 6.0. Chicago, SPSS Inc) to study which of the independent variables differentiate the people who do or do not separate waste. This procedure makes it possible to maintain the original answer levels of the predictor variables, especially the socio-demographic, and does not reduce the results to dichotomous solutions.

To obtain clear and interpretable results two different trees were designed. The first one included the socio-demographic predictor variables and attitudes of respondents toward separation regarding people that separate organic waste. The second one also included socio-demographic predictor variables and attitudes of

respondents regarding people that do not separate organic waste. Because of its importance as an element for social categorization or reference group and its impact on the neighbors' attitudes, the variable "neighborhood" was forced as the first segmentation variable (Gil *et al.*, 1996).

To obtain the highest possible number of *branches*, the algorithm that determines the minimal node size of parental and child nodes was fixed at 100 for the *parental nodes* and 50 for each *child node*.

## Results

### *Descriptive Results*

The sample is composed of 719 women (71.2%) and 291 men (28.8%). Age distribution is well balanced. 22% of participants are between 26 and 40 years old. The majority of respondents finished primary school (37.7%) and lived in two person-households (33.2%).

Participants saying that they are separating organic waste represent 66.3% of the total sample. Depending on the neighborhood the percentage differs: 75.7% separate organic waste in Neighborhood 1 while 62.6% separate it in Neighborhood 2. The descriptive analysis of both neighborhoods is shown in table 2.

TABLE 2. DESCRIPTIVE ANALYSIS BY NEIGHBORHOOD (P. 7).

<i>Variables</i>	<i>Categories</i>	<i>Neighborhood 1</i>	<i>Neighborhood 2</i>	<i>TOTAL</i>
<i>Gender</i>	Male	35.7%	24.7%	28.8%
	Female	64.3%	75.3%	71.2%
<i>Age</i>	< 25	8.2%	5.2%	6.3%
	26 - 40	22.2%	21.8%	22%
	41 - 55	27.2%	24.8%	25.7%
	56 - 65	22.8%	23.6%	23.3%
	> 66	19.6%	24.5%	22.7%
<i>People living in the household</i>	Alone	8.2%	10.6%	9.7%
	Two people	33.6%	32.9%	33.2%
	Three people	29.6%	26.3%	27.5%
	Four people	21.7%	22%	21.9%
	Five or more people	6.9%	8.2%	7.7%
<i>Level of education</i>	Incomplete primary	23.5%	32%	28.8%
	Primary	39.4%	36.7%	37.7%
	Secondary	20.9%	22%	21.6%
	Higher education	16.1%	9.3%	11.9%
<i>Separation of organic waste</i>	Yes	75.7%	60.8%	66.3%
	No	24.3%	39.2%	33.7%



***Attitudes towards people who separate organic waste***

The first segmentation variable in both neighborhoods is the belief that people separate organic waste because “it is their responsibility”. In general terms, the percentage of people who separate organic waste was 66.3% but this percentage is higher in both neighborhoods among people who think, “it’s their responsibility” (Neighborhood 1: 87.9%, Neighborhood 2: 72.8%).

At the next segmentation level, significant differences were found in both neighborhoods. In Neighborhood 2 the percentage of participants who separate organic waste increases among those who consider that people separate because “they want to do so” and “it’s their responsibility” (82.1%). In Neighborhood 1 the percentage of participants who separate increases among those living in households of two to four members, and consider that people separate organic waste because “it’s their responsibility” (91.4%). Results can be seen in figure 1 (see page 209).

The established model has a risk of 0.319. The correct global classification is 68.1%. For the people who carried out the separation, the correct classification is 96.1% while for those who did not separate it is 12.9%.

***Attitudes towards people who do not separate organic waste***

The first segmentation variable in both neighborhoods is the belief that people do not separate organic waste because “they don’t want to do so”. For participants who think that people do not separate organic waste because “they don’t want to do so” the percentage of separation is higher (Neighborhood 1: 80.7 %, Neighborhood 2: 69.4%). In Neighborhood 1 this is a terminal node.

At the next segmentation level, in Neighborhood 2 the percentage of participants separating organic waste increases among those who have secondary or higher educational levels and consider that people do not separate because “they don’t want to do so”.

The established model in this case has a risk of 0.311. The correct global classification is 68.9%. For the people who separate the correct classification is 85.5 % while for those who do not separate it is 36.2%. Results can be seen in figure 2 (see page 210).

Summarizing, in Neighborhood 1 the percentage of people who separate increases among those who live in households of between two and four people, and think that people separate because “it’s their responsibility” and that people do not separate because “they don’t want to do so”. In Neighborhood 2, the percentage of people who separate increases among those who have a higher educational level. They believe that people separate organic waste “because they want to do so” and because “it’s their responsibility”.

Separation of organic waste (Node 0)		
	%	n
Yes	66.3	670
No	33.7	340
Total	100	1010

Neighborhood  
Corrected  $p = .00$   
Chi-Squared = 23.521, df = 1

Neighborhood 2 (Node 1)		
	%	n
Yes	60.8	384
No	39.2	248
Total	62.6	632

Neighborhood 1 (Node 2)		
	%	n
Yes	75.7	286
No	24.3	92
Total	37.4	378

Is their responsibility  
Corrected  $p = .00$   
Chi-Squared = 34.394, df = 1

Is their responsibility  
Corrected  $p = .00$   
Chi-Squared = 23.735, df = 1

No response (Node 3)		
	%	n
Yes	50	167
No	50	167
Total	33.1	334

Agree (Node 4)		
	%	n
Yes	72.8	217
No	27.2	81
Total	29.5	298

No response (Node 5)		
	%	n
Yes	66.2	141
No	33.8	72
Total	21.1	213

Agree (Node 6)		
	%	n
Yes	87.9	145
No	12.1	20
Total	16.3	165

They can do it  
Corrected  $p = .016$   
Chi-Squared = 5.856, df = 1

They want to  
Corrected  $p = .033$   
Chi-Squared = 4.55, df = 1

They know how  
Corrected  $p = .008$   
Chi-Squared = 7.079, df = 1

People living in the household  
Corrected  $p = .014$   
Chi-Squared = 10.931, df = 1

No response (N7)		
	%	n
Yes	53.4	141
No	46.6	123
Total	26.1	264

Agree (N8)		
	%	n
Yes	37.1	26
No	62.9	44
Total	6.9	70

Agree (N9)		
	%	n
Yes	82.1	64
No	17.9	14
Total	7.7	78

No response (N10)		
	%	n
Yes	69.5	153
No	30.5	67
Total	21.8	220

No response (N11)		
	%	n
Yes	58.7	71
No	41.3	50
Total	12	121

Agree (N12)		
	%	n
Yes	76.1	70
No	23.9	22
Total	9.1	92

Alone; Five or more people (N13)		
	%	n
Yes	68	17
No	32	8
Total	2.5	25

Two to four people (N14)		
	%	n
Yes	91.4	128
No	8.6	12
Total	13.9	140

Figure 1. Segmentation tree with attitudes attributed to people who separate organic waste (p. 7).

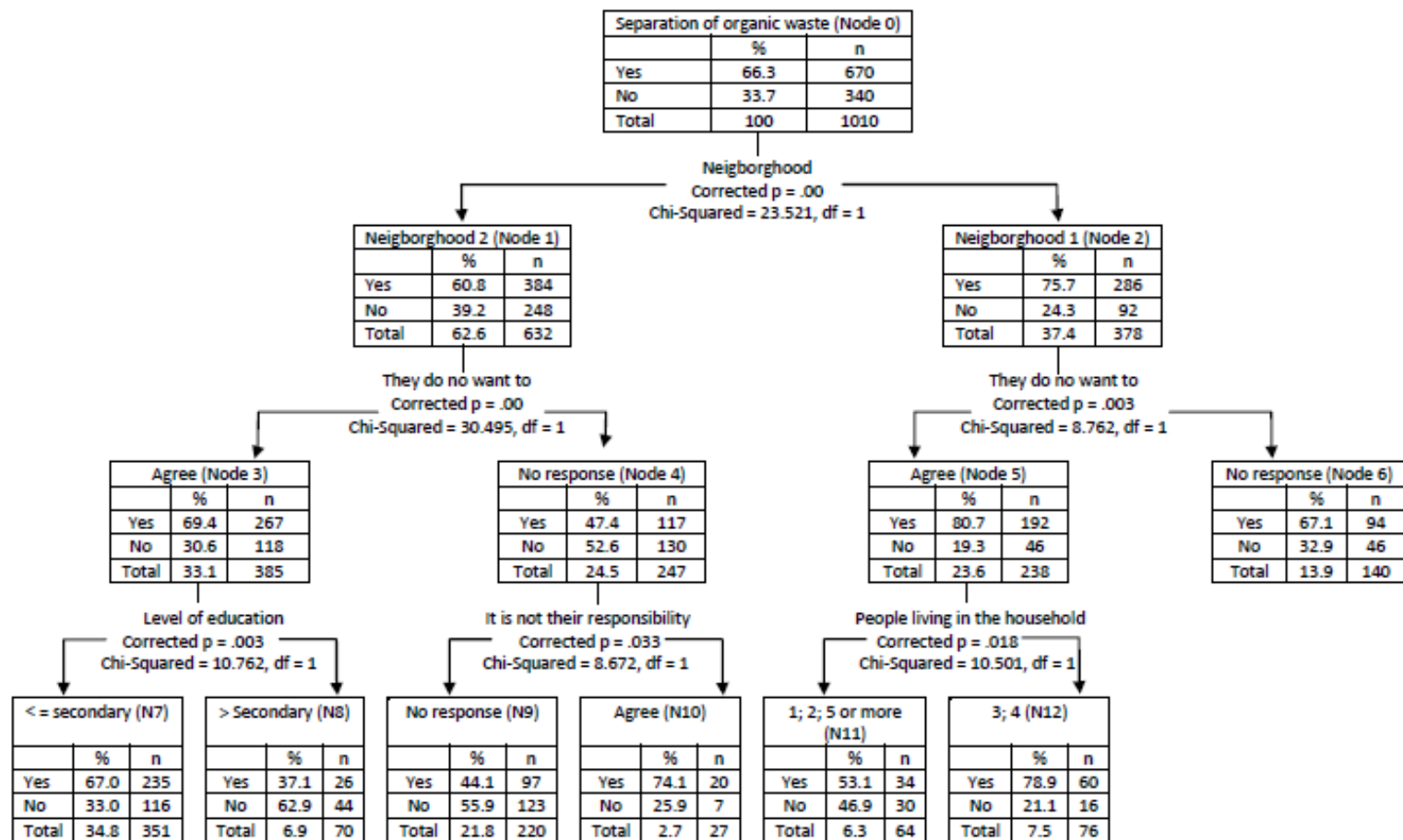


Figure 2. Segmentation tree with attitudes attributed to people who do not separate organic waste (p.8).

## Discussion

The management of urban residue requires citizens to develop or modify new collection and separation behavior for waste generated at home. Although the European, national and regional legislation regulates these changes, the establishment of legal norms is not sufficient to develop or modify it. The overall objective in this work was to analyze attitudes and behaviors of those who separate and those who do not separate organic waste, in order to offer suggestions for the improvement of campaigns and their evaluation according to each community (in this case according to two neighborhoods of Badalona, Spain). This objective is within the discussion on theoretical models proposed to explain environmental behavior and its related issues such values, beliefs, norms, attitudes and contextual factors. In this study we are based on the *Psychosocial Four Spheres Model*, considered here as an attempt to summarize several factors and psychological variables analyzed in environmental behavior literature.

The results obtained can be explained according to this model. In this sense, it can be observed that the *social influence sphere* is fundamental to explain the reasons why participants separate organic waste.

Participants consider that separation and disposal behavior is a personal responsibility or the right thing to do, implying that the “locus of control” lies in the subject and not outside it (Allen & Ferrand, 1999; Berenguer & Corraliza, 1998). This result indicates that the attributed reason is an injunctive norm and an informational social influence (Reno *et al.*, 1993), and is coherent with the importance of the personal norm (Stern, 2000; Stern & Dietz, 1994; Stern *et al.*; 1999; Stern *et al.*, 1998) and the perceived behavioral control (Ajzen & Fishbein, 1980). As mentioned by Hines, Hungerford, and Tomera (1987) and Bamberg and Möser (2007), personal responsibility is, therefore, a key variable to explain ecological behavior, because it can be conceived «as a feeling of strong moral obligations» (2007, p. 15).

Participants state that people do not separate organic waste because «they don't want to do so». Therefore, this is an act of volition, as mentioned by Frijda (1988). As pointed out by Carrus *et al.* (2008), the lack of intention to act is related to negative anticipated emotions that may affect the individual's desire to engage in household recycling. All these arguments are related to the *emotion sphere*.

The *rationality sphere* is not perceived as a significant variable to explain why people do or do not separate. This result represents a qualitative advancement of communication strategies, as it questions the suitability of typical informative campaigns. Furthermore, Bratt (1999) argues that when the environmental impacts of recycling are communicated to the public, collective benefits should be emphasized rather than the consequences of individual behavior. This may explain the low contribution of this sphere.

Based on these results, it is considered as relevant that future interventions and campaigns oriented to these neighborhoods, do not focus exclusively on information (*rationality sphere*). Communication lines must be developed primarily on the *emotion sphere*, creating an intense emotional response in the target group, causing people to associate a specific emotion with environmental behavior (Gobé, 2005). In addition, it is necessary to take into account the importance of understanding cultural discourse. In this sense, we consider that is necessary to «conduct our studies fixing on one discursive hub at a time, for example, on identity or self, and ask first how people around here communicate explicitly about people through their various discursive devices such as symbols of identity» (Carbaugh & Cerully, 2012, p. 6). Moreover, waste disposal campaigns should take the social influence into account, specifically the fundamental role of the online social networks (OSNs) must be considered, like Twitter and Facebook (Ali & Ahmad, 2012; Chatterjee, 2009) promoting behaviors and attitudes.

With regard to demographic data, especially to the significant relation between separation behavior and the number of household members, the results of this study are similar to those obtained by Gamba and Oskamp (1994) whose study reveals significant curvilinear relation between both variables for single and for five member households when organic waste separation tasks decrease. Also shown is the relation between organic waste separation behavior and educational level. Nevertheless, it can be considered that these results do not show a causal relation between both variables, but that «people with higher education read more, thus increasing their knowledge of environmental practices». This knowledge «has a positive impact on the development of environmental skills, which leads to instrumental organic waste separation behavior» (Corral-Verdugo & Zaragoza, 2000, p. 13).

Summarizing, based on the profiles we obtained of citizens who separate organic waste and who do not, we can establish some predictor variables that facilitate the development of communication campaigns in a differentiated way, for every neighborhood analyzed. In accordance with the *Psychosocial Four Spheres Model*, it is also necessary to design intervention programs suitable for the most relevant *spheres* of each community. Traditionally, studies have focused on people who do not develop environmental behaviors. However, we consider it necessary to address those who develop environmental behavior, because there is no guarantee that this behavior will be maintained in future.

In order to design a communication campaign suitable for the place where it is to be carried out, we consider it important to know what kind of reasons people explain to separate or not separate the organic waste.

In this study we knew what the reasons were, but we did not know the arguments behind those reasons. To know the arguments we have to apply other methods like focused interviews, examine the narratives used to justify the behav-

iors (Barr, 2011; Peeples, Krannich, & Weiss, 2008; Zoller, 2012) or use an Analytic Deliberation process (Dietz, Ostrom, & Stern, 2003).

The number of communities analyzed should be emphasized. For future research an increase is expected in the number of target communities as well as the inclusion of cultural variables to analyze attitudes and behavior towards organic waste separation, in order to develop cross-cultural analysis.

An additional limitation is that the interaction between attitudes and situational norms has not been considered (Cialdini & Trust, 1998; Corraliza & Berenguer, 2000). In future, it will be necessary to observe the conflict between injunctive and descriptive norms (Cialdini & Trust, 1998; Oceja & Berenguer, 2009) and their relation with attitudes.

In conclusion, the present work provides a way to facilitate psychosocial process assessment related to environmental behavior and, based on the *Four Spheres Model*, allows the development of communication strategies that consider community singularities. Thus guaranteeing the suitability of the campaigns where they are carried out.

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