

Antarctic Guardians: Commitment as a result of identity variables and ecological attitudes

Esteban Sanchez Pallahuala ¹
Paulina Pérez Igor ¹
Javiera Ruiz Gómez ¹

Valeria Pino Caidane ¹
José Mario Díaz Muñoz ¹
Claudia Estrada-Goic ^{II}

Abstract: The research is interested in both ecological and identity (social) variables involved in increasing environmental commitment to Antarctic care. Two studies with inhabitants of two cities in the extreme south, and another with a national sample from three different geographical areas (north, center and south) participated by answering a self-administered survey. The instruments measured the perception of personal responsibility for Antarctic care in the present and future, Value of Antarctica, Antarctic regional ecological identity, and environmental beliefs. The core results show that identification with the Antarctic territory is important in determining the perception of responsibility and commitment to its care, and that this process is mediated by the value given to the polar continent. This mediation was observed in both the sample of locals and nationals. These results are discussed in relation to the importance of considering identity variables when developing models that aim to promote a pro-ecological attitude.

¹University of Magallanes, Punta Arenas, Magallanes, Chile.

Keywords: Environmental protection, social identity, ecological attitudes, Value of Antarctica, environmental commitment.

São Paulo. Vol. 25, 2022

Original Article

DOI: <http://dx.doi.org/10.1590/1809-4422asoc20200243r1r2vu2022L3OA>

Introduction

Antarctica is a territory of global interest because of its potential resources, which has led nations to agree on international treaties to protect it (SHAH, 2015), even though it has not been completely protected from the environmental damage that affects our planet. It is now clear that a significant part of the environmental deterioration is of anthropogenic origin (PEREVOCHTCHIKOVA, 2013). A change in this reality requires an understanding of the ways in which the attitude of protection and care of the natural environment can be built up and/or maintained over time.

Numerous models designed by psychology attempt to explain, describe, and predict the performance of environmentally responsible behaviors (GROB, 1995; CORRAL-VERDUGO, 1996; SCHULTZ; ZELEZNY, 1999; STERN, 2000). One such model is value theory, which deals with norms and beliefs towards the environment (STERN, 2000; STERN; DIETZ; ABEL; GUAGNANO; KALOF, 1999). This model, like the others, postulates that attitudes and the intention to act have an important influence on behavior when other factors do not prevent it from taking place (TAYLOR; TODD, 1995).

All models state that individuals only engage in environmentally responsible behavior when they are sufficiently informed about environmental issues, are motivated towards them and are capable of generating qualitative changes (ÁLVAREZ; VEGA, 2009). The value theory states that people who value other species will be highly concerned about the environment and the conditions that threaten it. People will be more concerned about environmental conditions that threaten their health or well-being (STERN; DIETZ; GUAGNANO, 1996).

The correlations between pro-environmental attitudes (concern for environmental problems) and ecologically responsible behavior are, in general, very low (AMÉRIGO; GONZÁLEZ, 1996). This has led to the conclusion that a high level of environmental awareness does not ensure the implementation of ecologically responsible behavior (GONZÁLEZ, 2003). Behavior can be affected by personal commitment and perception, by personal costs and benefits of particular actions, (KATZEV; JOHNSON, 1987) as well as by specific personal beliefs and norms of behavior (BLACK; STERN; ELWORTH, 1980). In other words, it is not enough that the individual is informed of the need to act to protect the environment, nor that he or she feels concern or understands the need for change. The individual is required to identify him/herself as the one who must act to solve or contribute to the resolution of the environmental problem.

The personal perception of being responsible for the care and protection of Antarctica could be understood as a behavior of self-attribution that there is an implicit obligation or duty that rests on the individual. In order to measure this degree of perceived responsibility, tasks of different orders are considered: from social, political, scientific, and environmental actions, which can be manifested both in the present and in their future projection. It is a behavioral intention, so it is only partially predictive of the behavior that will finally be executed, while at the same time it shows

a symbolic commitment of intention to act (AJZEN; FISHBEIN, 1980). The future commitment, moreover, is usually conditioned by the planning fallacy or bias that establishes that it is difficult to evaluate the real implications of a commitment if it will come into effect in the long term (LOVALLO; KAHNEMAN, 2003). Therefore, it is possible to hypothesize that the perception of responsibility will tend to be greater in the future because the evaluation of the elements that will have to be available to update this behavioral intention are difficult to evaluate in the present.

Regarding the care of Antarctica and the value attributed to it, this is not necessarily unanimous given the different conceptions that individuals and nations confer to this territory. The concept of “value of Antarctica” responds to this problem. McLean and Rock (2016) used a model to identify the most valued characteristics of Antarctica. These authors consider seven qualities that define Antarctica as: a component in the Earth’s climate system, one of the world’s last great deserts, a scientific laboratory for the benefit of humanity, a tourist destination, a reserve of mineral resources that could support society in the future, an important habitat for wildlife, and as an essential component of the history of human exploration. On the other hand, Liggett and Hemmings (2013) argue that Value of Antarctica is composed of six types of values: First, Environmental Value, which refers to the degree of appreciation of Antarctica as a grandiose natural territory, which is unparalleled. The Social Value, on the other hand, refers to the historical connection with this territory, which translates into a feeling of connection with it, becoming part of the national identity. The Political Value refers to the peaceful coexistence of nations in their encounter in the Antarctic territory. The Aesthetic Value values the idyllic composition of its landscape. The Economic Value refers to the potential benefit of the exploitation of natural resources with the objective of obtaining commercial benefits. Finally, the Scientific Value points to the potential research in different fields that would be possible thanks to the existing resources in Antarctica. This value model is more specific than the previous one and allows us to observe values associated with the individual, the human and the natural. Studies on the general population indicate that not all groups assign the same values to Antarctica. Some consider Antarctica more valuable because of its ecosystem and natural landscapes (POWELL; RAMSHAW; OGLETREE; KRAFTE, 2016), others because it is a potential source of natural resources and an important component of the planet’s climate system (PEDEN; TIN; PERTIERRA; TEJEDO; BENAYAS, 2016).

Although Antarctica is at a great distance from urban centers, this does not prevent people from considering it valuable and part of their personal identity. The notion of Regional Identity has been configured with reference to the theory of social identity (TAJFEL, 1984; ZUÑIGA; ASÚN, 2003). In this theory, the concept of social identity corresponds to a part of an individual’s self-concept that implies the knowledge of belonging to a social group and that carries a valuational and emotional meaning associated with this belonging. In other words, it would be the part of who we are that is constructed because we feel “attached” to a group, social category or territory. In the case of territories, we speak of regional identity. It can be

defined as feeling part of a human group that inhabits a certain territory, which has a common historical reference and a socio-cultural continuity (ZUÑIGA; ASÚN, 2003). Many people tend to give their loyalty and affections to geographical entities with a homogeneous history, landscape and way of life (SALAZAR, 1996). Regional identity is the image that individuals and groups in a region shape in their relations with other regions, and the process of social construction of this identity arises from the interactions that members of a local territory have with outsiders and that serve to define the region (SALAZAR, 1996). Previous studies related to the Antarctic territory show that inhabitants of one of the Antarctic gateway cities feel identified with this territory, although they do not have and have not had direct contact with it. From this perspective, it is to be expected that it would be considered a valuable territory also for its identity meaning (TAJFEL, 1979). This value does not necessarily build a single attitude towards this natural environment but can be a factor in the development of environmental attitudes and beliefs of a different order.

Environmental beliefs are defined by the attitude that people have regarding the reasons why the environment should be taken care of and consider the consequences that environmental deterioration may have for themselves, for human beings in general and for the biosphere (STERN; DIETZ, 1994; THOMPSON; BARTON, 1994).

Amérigo et al. (AMÉRIGO; ARAGONÉS; DE FRUTOS; SEVILLANO; CORTÉS, 2007) postulate the existence of a tripartite paradigm composed of anthropocentric beliefs (which refer to nature as an asset in the life of human beings at the service of their needs), egobiocentrism (the importance of the natural given the beneficial effect of contact with the environment) and biospherism (related to the importance of nature itself).

Regarding the relationship between these beliefs and sociodemographic and psychological variables, recent research reports interesting results related to age, gender and educational level, among others. Age shows positive associations with the feeling of caring for nature (AMÉRIGO; GONZÁLEZ, 1996; MOYANO-DÍAZ; CORNEJO; GALLARDO, 2011; MOYANO-DÍAZ; PALOMO-VÉLEZ; OLIVOS; SEPÚLVEDA-FUENTES, 2017). However, studies on young people who have been exposed to specific training on the subject point to the presence of an orientation to care for nature by acting in favor of its care (PALAVECINOS; AMÉRIGO; ULLOA; MUÑOZ, 2016). With respect to gender, research shows that women tend to report more environmental concern than men (ZELEZNY; CHUA; ALDRICH, 2000; XIAO; MCCRIGHT, 2012). Interest in caring for nature is also linked to a higher educational level educacional (SCOTT; WILLITS, 1994; GÓMEZ; NOYA; PANIAGUA, 1999; MEYER, 2015) and political ideology (MOYANO-DÍAZ; PALOMO-VÉLEZ; OLIVOS; SEPÚLVEDA-FUENTES, 2017). Socioeconomic status (ARAGONÉS; AMÉRIGO, 1991; VAN LIERE; DUNLAP, 1981) and place of residence (VAN LIERE; DUNLAP, 1981) were also studied, but their influence on pro-environmental behavior is not conclusive. Taken together, however, these variables explain a very small portion of the phenomenon.

Regarding the psychosocial variables related to caring for nature, Hines et al. (HINES; HUNGERFORD; TOMERA, 1987) identify the sense of responsibility (those who perceive themselves to be responsible care more), locus of control (the internal locus of control favors the orientation to the protection of nature), knowledge of the subject (having information increases commitment), knowledge of pro-environmental behaviors (knowing the actions to be taken increases their implementation), verbal commitment (particularly when this implies the public declaration of an attitude) and attitudes towards the environment or ecology (believing in its importance and impact). Psychosocial factors referring to values such as anthropocentrism - ecocentrism (THOMPSON; BARTON, 1994) (HWANG; KIM; JENG, 2000; SANTOS; GARCÍA-MIRA; LOSADA, 1998) and degree of personal responsibility have been found to be strong predictors of environmental attitude and, consequently, of responsible environmental behaviors (GROB, 1996; VINING; EBREO, 1990). As for cognitive factors, referring to knowledge about the environment (HINES; HUNGERFORD; TOMERA, 1987; KAISER; WÖLFING; FUHRER, 1999), results found by Hwang et al. (HWANG; KIM; JENG, 2000) indicate that knowledge about the environment, as well as the degree of personal responsibility for the behavior, were not sufficient causes for pro-environmental behaviors, but they did contribute significantly. Nevertheless, no studies exist that link identity aspects to the understanding of pro-environmental attitudes.

Then, what identity and attitudinal variables contribute to the development of the perception of being responsible for Antarctic care? The proposal of the present study is that identification with the Antarctic should manifest itself in a greater valuation of this territory and have an impact on the self-assignment of responsibility. Both studies deal with this issue, one with a sample of southernmost localities and the other with a national sample that allows a first comparison of the phenomenon in more or less geographically distant territories.

Study 1

The study aimed to measure the valuation of the Antarctic territory, the adherence to different values linked to it and the relationship with other variables such as the perception of present and future responsibility, Antarctic regional identity and ecological beliefs, making a comparison between the different cities of the Magallanes Region and Chilean Antarctica (capital city, southern city, other cities). The basic prediction is that identification with the territory leads to the perception of responsibility mediated by an increase in the valuation of the Antarctic as an effect of the ingroup bias.

Method

Participants

A total of 253 persons selected by accidental non-random sampling participated.

The inclusion criterion was residence in one of the cities of the Region of Magallanes and Chilean Antarctica (66.3% in the capital city, 33.7% in southern cities). The age range of the participants was 18 to 81 years ($M = 37.20$; $SD = 13.68$). The 55.8% were women, while the remaining 44.2% were men. A non-experimental cross-sectional correlational design was used.

Instruments

Antarctic Variables:

- Present and Future Personal Responsibility Perception Scale: this scale is composed of 12 statements aimed at determining the perception of the role that, as a member of a regional community, it has in the protection, development and/or use of the natural resources of the Antarctic territory. Responses are given by indicating the degree of perceived involvement (1: Not at all to 5: Completely). The reliability of the Present Role scale was .94 (Alpha) and of the Future Role scale was .93 (Alpha).
- Antarctic Values Scale: This scale, composed of 17 items, measures adherence (importance: (1) from Not at all to (5) Totally) to values consensually associated with Antarctica such as: environmental, social, political, aesthetic, economic and scientific according to the Liggett and Hemmings model. The reliability for this sample was .92 (Alpha).
- Antarctic Regional Ecological Identity Scale: It is made up of a total of 10 statements that measure identification with the Antarctic environment, which are answered on a scale indicating the level of agreement with the statements. The reliability for this sample was .93 (Alpha).

Ecological variables:

- Environmental Beliefs Scale: reformulation of Thompson and Barton's (1994) scale that aims to measure beliefs about environmental issues. This scale has three internal dimensions: anthropocentric, biospherical and egocentric. It is made up of a total of 15 statements that are answered by indicating the level of agreement with each statement. The reliability for the sample of the Anthropocentric dimension was .79 (Alpha), for the Biospheric dimension it was .57 (Alpha) and for the Egocentric dimension it was .77 (Alpha).

Procedure

Two modalities were applied for data collection. Participation was voluntary, and participants were asked to read and sign an informed consent form in the case of the physical format. Participation in the online digital format required the participant to

read the informed consent form beforehand and to mark whether or not he/she agreed to continue with the questions. The instruments were self-applied, and questions were answered during the process. At the end, the participants were thanked.

Results

As shown in Table 1, adherence to Antarctic values was high (exceeding the neutral theoretical point of the scale) as well as Antarctic Regional Identity and the responsibility they feel for the protection of Antarctica in the present and in the future. With respect to the ecological variables both Egocentric and Biocentric beliefs were high while Anthropocentric was neutral (neither agree nor disagree). That is, participants who value Antarctica recognize it as important to their identity and feel responsible for its care (see Table 1).

When evaluating the value attributed to the Antarctic, the highest average is that of aesthetic value, followed by scientific and environmental. The lowest average was for political value, although this, like the others, showed high agreement (above neutral).

Table 1. Descriptive results and correlations of study variables 1 and 2.

Variables	Partial Correlations							
	Study	ARP	ARF	ASI	REI	CE	BB	CA
Antarctic valuation total	1	.39**	.26**	.38**	.27**	.46**	.51**	.34**
	2	.57**	.49**	.50**	-	.23**	.30**	.13
Antarctic Role Present (ARP)	1	-	.86**	.58**	.52**	.23**	.20**	.17**
	2	-	.68**	.43**	-	.28**	.27**	.32**
Antarctic Role Future (ARF)	1	-	-	.61**	.60**	.23**	.15**	.12
	2	-	-	.44**	-	.41**	.49**	.42**
Antarctic Social Identify (ASI)	1	-	-	-	.63**	.27**	.31**	.15*
	2	-	-	-	-	.59**	.60**	.46**
Regional Ecological Identity (REI)*	1	-	-	-	-	.30**	.29**	.01
Egocentric Beliefs (EB)	1	-	-	-	-	-	.64**	.19**
	2	-	-	-	-	-	.85**	.37**
Biospheric Beliefs (BB)	1	-	-	-	-	-	-	.32**
	2	-	-	-	-	-	-	.33**
Anthropocentric Beliefs (AB)		-	-	-	-	-	-	-

*Variable measured only in study 1 / ** Significant correlations at $p < .01$.

Source: prepared by the authors, 2022

When comparing the capital city with the southern city, they give a lower political and economic value, and a higher aesthetic and environmental value to Antarctica.

Relevance is given to the overall value of Antarctica in both the contiguous city and the capital city (see Table 2).

With respect to Value of Antarctica, a positive relationship is observed with both Antarctic Regional Identity and Magellanic Regional Identity. The more Antarctica is valued, the more the physical environment of the Region and the Antarctic territory are considered valuable for the identity, and vice versa. Positive associations were also observed with the commitment to care for Antarctica and with the three ecological beliefs (see Table 1).

A regression was performed with Present Commitment as the dependent variable, and with Antarctic Regional Identity, Value of Antarctica and the Ecological, Anthropocentric, Egocentric and Biocentric Beliefs as predictor variables. The model explains 41% of the variance ($r^2 = .41$), ($F_{(6,230)} = 27.34, p = .001$). The Antarctic Regional Identity variable ($\beta = .36, p = .001, 95\%CI[.23, .52]$) is the most explanatory, followed by Regional Identity ($\beta = .26, p = .001, 95\%CI[.14, .41]$), Value of Antarctica ($\beta = .22, p = .001, 95\%CI[.14, .50]$) and Biocentric Belief ($\beta = -.17, p = .02, 95\%CI[-.48, -.04]$). The Anthropocentric and Egocentric Beliefs were not explanatory.

As shown in Figure 1, the causal model that explains the commitment to care for Antarctica based on identification with the Antarctic territory (IRA), mediated by the valuation of the Antarctic territory, is significant ($\beta = .62, p < .001$). The direct effect of Antarctic Regional Identity on perceived responsibility for the Antarctic territory is reduced when adherence to Antarctic values is included, confirming the existence of an indirect effect, $r^2 = .37, F_{(2,236)} = 69.18, p < .0001$.

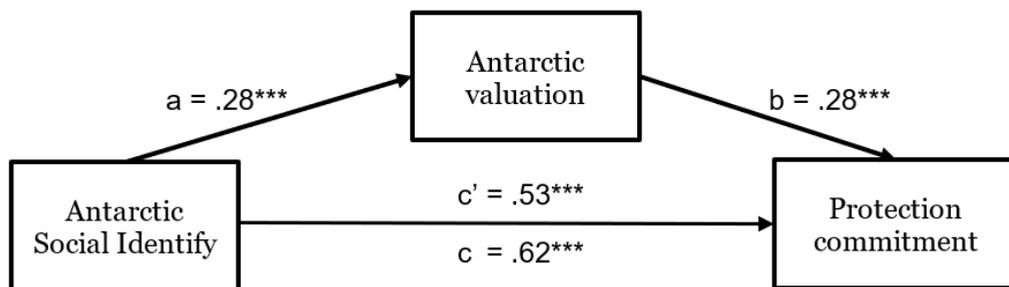
Table 2. Descriptive results and comparisons of Antarctic value by zone (Austral/Capital)

	Antarctic values (AV)					
	M	TD	C _{aus}	C _{cap}	t	Sig.
Aesthetic value	4.5	0.7	4.47	4.47	-0.02	n.s.
Environmental value	4.3	0.8	4.20	4.37	-1.46	n.s.
Scientific value	4.5	0.7	4.41	4.47	-0.63	n.s.
Social value	4.1	0.9	4.14	4.12	0.08	n.s.
Political value	3.5	0.9	3.84	3.90	-0.49	n.s.
Economic value	3.5	0.9	4.02	3.84	1.46	n.s.
Antarctic valuation total	4.2	0.7	4.19	4.22	-0.29	n.s.
Antarctic Social Identify (ASI)						
	M	TD	C _{aus}	C _{cap}	t	Sig.
Regional Identity	4.1	1.0	4.41	3.95	3.30	.001
Regional Ecological Identity*	3.5	0.9	3.77	3.40	2.99	.003
Protection commitment (PC)						

	M	TD	C _{aus}	C _{cap}	t	Sig.
PC Future	3.7	0.9	4.16	3.57	5.54	.001
PC Present	3.5	1.0	3.77	3.46	2.16	.031
Environmental Beliefs						
	M	TD	C _{ausn}	C _{cap}	t	Sig.
Egocentric Beliefs (EB)	4.3	0.7	4.22	4.27	-.459	n.s.
Biospheric Beliefs (BB)	4.3	0.6	4.22	4.27	-.461	n.s.
Anthropocentric Beliefs (AB)	3.1	1.0	3.06	3.04	.123	n.s.

Source: prepared by the authors, 2022

Figure 1 - Effect of identification with the Antarctic on the Protection commitment to care for the territory as mediated by the global value attributed



Source: prepared by the authors, 2022

Bootstrap analysis shows an indirect effect of valuing the Antarctic territory on perceived responsibility, which increases with the inclusion of the mediator, $\beta = .08$, $SD = .03$, 95% [.03, .15]. Identification with the Antarctic territory increases one’s valuation of the Antarctic territory and this, in turn, increases commitment to its protection and care.

Discussion

The aim of this study was to establish the relationship between the intention to act as an Antarctic custodian and both identity and ecological variables in samples from two “Antarctic gateway” cities. The main result indicates that the commitment to Antarctic stewardship is mainly explained by the identification with the territory and the valuation attributed to it. This combination of identification and valuation is predicted by Tajfel’s theory (TAJFEL, 1979), which states that when someone identifies with something and recognizes it as part of what he or she is, value increases because this constitutes an aspect of group self-esteem and, as a consequence, of one’s own value. That is, if I consider it part of me, then I value it. The differences observed between the two localities, which indicate that the geographically closer one shows a greater identification, could be due to the fact that it is a smaller and relatively isolated locality (maritime and air connec-

tion). As reported in the literature, small groups tend to generate optimal conditions for identification that do not compromise the individuation of each member and therefore tend to show higher levels of identification (BREWER, 2003). Thus, although both groups give Antarctica an intrinsic value associated with their social identity, this is more intense in the smaller group (1% of the population). Another possible explanation is the fact that members of small groups tend to withstand high cohesion better, which may lead to greater identification. However, this could be even greater due to the fact that in the southern city a large percentage of the inhabitants come from other cities and are not native to that locality. The latter could be attributed a greater sense of responsibility and identification with their environment, since their appreciation has been culturally passed down through generations (HAGSTROM; SELVIN, 1965).

An interesting result with respect to the ecological variables was that the biocentric belief is the only one that was explanatory of the orientation towards the generation of a caring attitude towards the Antarctic. This belief dictates that nature is considered valuable for its own sake, which would promulgate a responsibility towards it, generating less invasive and sustainable behaviors with the environment. It is intended to take care of the environment because it is the place where we live, so it is our job to protect it. Thus, this result can be associated with a greater identification with the environment, since the biocentric belief makes us channel our thoughts towards pro-environmental attitudes that allow a sustainable coexistence between people and nature. Previous studies showed that a sample of Antarctic scientists showed high levels of anthropocentrism due to the functional relationship involved in the work they do. Apparently, the general population of the southern area seems to show a more idealized relationship, from an ecological perspective, which is reaffirmed in the strong aesthetic value assigned to the territory (LATORRE; JALIL; HECHENLEITNER; LÓPEZ; CABANAS; ESTRADA, s/f).

The role of Value of Antarctica as a mediator between Antarctic social identity and the willingness to become a custodian of the territory is significant, indicating that feeling identified with the Antarctic territory influences the valuation we give to the territory, which generates in people a greater sense of responsibility, leading to a greater commitment to the Antarctic territory. This first research lays the groundwork for considering non-ecological variables linked to social identity as relevant to understanding the intention of custodial behavior. The initial pending question is whether this relationship is unique to this population or a more global phenomenon that could be understood as theoretically relevant. This issue is addressed in study 2.

Study 2

The present study aims to measure the valuation of the Antarctic territory, the adherence to different values linked to it, and the relationship with other variables such as the perception of present and future responsibility, Antarctic regional identity, and ecological beliefs, comparing the locals with an initial sample representing three areas of the country: north, center and south.

Method

Participants

A total of 180 persons selected by accidental non-random sampling participated. The inclusion criterion was to be Chilean and to live in a geographic area other than the southern austral region. The age range of the participants was 18 to 69 years, ($M = 27.06$; $SD = 12.2$). Sixty percent were men, while the remaining 40% were women. All of them live in the country. A design similar to study 1 was used.

Instruments

Antarctic variables:

- Present and Future Personal Responsibility Perception Scale: For this sample, the reliability of the Present Role scale was .88 (Alpha) and of the Future Role scale was .91 (Alpha).
- Antarctic Values Scale18: Reliability for this sample was .92 (Alpha).
- Antarctic Regional Ecological Identity Scale44: The reliability for this sample was .92 (Alpha).

Ecological Variables:

- Environmental Beliefs Scale37: Reliability for this sample for the Anthropocentric dimension was .80 (Alpha), for the Biospheric dimension was .59 (Alpha) and for the Egocentric dimension was .79 (Alpha) 4.

Procedure

Two modalities were applied for data collection, face-to-face and digital. Participation was voluntary, and participants were asked to read and sign an informed consent form beforehand, in the case of the physical format. Participation in the digital format via online, asked the participant to previously read the informed consent and mark whether he/she agreed or not to continue with the questions. The instruments were self-applied and questions were answered during the process. At the end, the participants were thanked.

Results

All the variables of the study showed high averages (above the theoretical neutral point of the scale), indicating that the participants indicate that they assign a high value to Antarctica, importance to this territory in their social identity and a feeling of responsibility regarding its care both in the present and in the future. Ecological, biospheric and egocentric beliefs were also high, while anthropocentric beliefs were neutral (neither agree nor disagree) (see table 1).

The results of the Antarctic Values Scale (VA) indicate that the highest average adherence of the total sample was to the Aesthetic Value, followed by the Environmental

Value and then the Scientific Value. The lowest average value was the Economic Value, although like all the previous values, it was above the neutral point indicating high agreement (See Table 4). When comparing the group of nationals with the local population, both assign a higher aesthetic and environmental value to Antarctica while political and economic value are the least reported. For those where the averages differed, locals assigned more value (See Table 3).

Locals showed a greater identification with Antarctica than nationals, but the latter reported feeling a greater responsibility for the protection of Antarctica, both now and in the future. (See Table 4).

Table 3. Descriptive data of the Antarctic value (AV) by zone of study 2 and comparison with local means (M_L)

Antarctic values (AV)										
	<i>M</i>	<i>TD</i>	South Zone	Central Zone	North Zone	<i>F</i>	Sig.	M_L	<i>t</i>	Sig.
Aesthetic	4.4	0.8	4.4	4.4	4.4	0.16	<i>n.s.</i>	4.48	-1.5	<i>n.s.</i>
Environmental	4.2	0.8	4.3	4.1	4.3	0.72	<i>n.s.</i>	4.33	-2.2	.03
Scientific	4.2	0.8	4.3	4.1	4.2	0.98	<i>n.s.</i>	4.46	-4.7	.01
Social	4.1	0.9	4.1	4.1	4.0	0.04	<i>n.s.</i>	4.13	-0.9	<i>n.s.</i>
Political	4.0	0.8	4.0	3.9	3.9	0.07	<i>n.s.</i>	3.88	0.6	<i>n.s.</i>
Economic	3.8	0.8	3.7	3.7	3.9	0.96	<i>n.s.</i>	3.89	-2.0	.04
AV total	4.1	0.7	4.1	4.1	4.1	0.19	<i>n.s.</i>	4.21	-2.1	.04
Antarctic Social Identify (ASI)										
	<i>M</i>	<i>TD</i>	South Zone	Central Zone	North Zone	<i>F</i>	Sig.	M_L	<i>t</i>	Sig.
ASI	3.4	0.9	3.5	3.6	3.1	3.73	.03	3.50	0.89	<i>n.s.</i>
(Protection Commitment): (PC)										
	<i>M</i>	<i>TD</i>	South Zone	Central Zone	North Zone	<i>F</i>	Sig.	M_L	<i>t</i>	Sig.
PC Future	3.9	0.8	3.7	4.0	4.0	3.15	.05	3.74	2.9	.01
PC Present	3.8	0.7	3.7	3.8	3.7	0.43	.65	3.55	4.0	.01

Fuente: elaborado por los autores, 2022

Value of Antarctica is positively related to both Antarctic Regional Identity and the perception of responsibility for its care in the present and future. Egocentric and biospheric beliefs also show a positive relationship with the value assigned to the Antarctic, and vice versa. There is, however, no relationship with the anthropocentric belief, indicating that the value attributed to Antarctica is not connected with the idea that it should be useful for human beings (See Table 3).

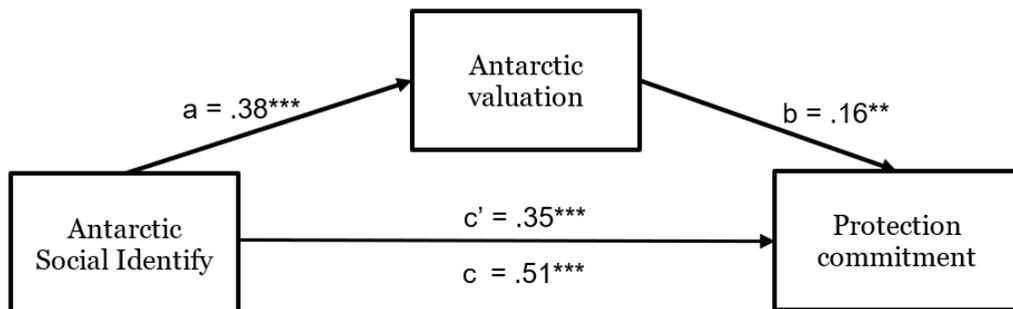
When returning commitment to the care and protection of Antarctica - present role (VI) for Value of Antarctica, Antarctic Regional Identity and Ecological Beliefs

Egocentric, Biospherical and Anthropocentric, the model explains 39% of the variance, ($r^2 = .39$, $F_{(5,167)} = 21,09$, $p = .001$).

Total Value of Antarctica ($\beta = .50$, $p = .001$, 95%CI [.39, .70]) is the most explanatory followed by Anthropocentric Beliefs ($\beta = .20$, $p = .004$, 95%CI [.05, .24]). Then, the responsibility for the care and protection of Antarctica in the present is increased when adhering to the value given to the Antarctic and, when the idea that it should be useful for humans increases. The other variables of the study were not significant in explaining the commitment to the care and protection of Antarctica in the overall group of participants.

As shown in Figure 2, the proposed simple mediation model in which Value of Antarctica acts as a mediator is significant ($\beta = .19$, $SD = .05$, 95% [.10, .29]). The direct effect of Antarctic Regional Identity on Commitment to Antarctic Care is reduced when Value of Antarctica is included as a mediator, confirming the existence of an indirect effect. Feeling identified with Antarctica increases the perception that Antarctica is valuable and this, in turn, increases the commitment to care for Antarctica.

Figure 2 - Effect of identification with the Antarctic on the Protection commitment to care for the territory as mediated by the global value attributed in a national sample



Source: prepared by the authors, 2022

Discussion

The objective of this second study was to measure the variables of study 1 but in a sample of national population to allow a first comparison. The main result indicates that, unlike the locals where the commitment to Antarctic care is explained mainly by the identification with the territory and the biocentric belief in the environment, in the case of the nationals, the main explanatory variable is the value attributed to the Antarctic together with the anthropocentric belief. In other terms, whereas for the locals the identity and the value of the Antarctic environment influences the desire to protect this territory, in the case of the nationals it is defined by the perceived value of Antarctica and its importance in satisfying human needs. There are studies that indicate that not all groups assign the same values to Antarctica. Thus, some consider Antarctica more valuable for its ecosystem and natural landscapes (POWELL et al., 2016) others for being a potential source of natural resources, and others believe it to be an important component of the

planet's climate system (PENDEN, et al., 2016). The role of identity seems to indicate that the locals have a less instrumental vision than those who identify less with the territory, probably because of its geographical remoteness. The lack of differences between the three national zones (north, center and center-south) could be explained by the fact that the territorial extension and the distances between these zones do not allow them to feel identified with the territory. Despite the relative proximity of the center-south zone to Antarctica, the distance between the two areas is close to 4,535 km, which is why there are no differences with the rest of the zones.

The role of Value of Antarctica as a mediator between Antarctic social identity and the willingness to become a custodian of this territory is replicated in the case of nationals. Valuing Antarctica is accompanied by a willingness and commitment to contribute to care and protection actions in the present and future. This result complements the previous one positing that it is the phenomenon of social identification that establishes that feeling part of a group is directly related to group commitment and therefore with the intention to contribute positively by getting involved in activities that are beneficial to the group (ELLEMERS; KORTEKAAS; OUWERKERK, 1999).

Discussion and General Conclusion

The general objective of this research was to study the role of identity and ecological variables in the development of an attitude of care and protection of the Antarctic. Both studies show similar results. The first of them refers to the fact that the values that both locals and nationals attach to Antarctica are mainly of an aesthetic and environmental nature. This seems to indicate that all the participants in the study attach importance to this territory because of the beauty of its natural landscape and at the same time as a precious asset that should be protected and guarded, probably as an effect of the continuous media exposure to natural images of extraordinary beauty. It is uncommon to see photographs of pollution or aridity linked to the Antarctic.

A second result is also replicated in the national study and indicates that identification with the territory, together with considering it as part of one's social identity, leads to an increase in its perceived value and this, in turn, increases the possibility of adopting the intention of responsible behavior, protection and care. This could be explained by the link between group identification and the consequent ingroup bias. Identification includes group responsibility, i.e., the commitment to act for the benefit of one's own group. If this group is formed around a given territory, the value attributed to this territory is important for group self-esteem and necessarily drives the commitment or attempt at action on the part of the members of the group (ELLEMERS; KORTEKAAS; OUWERKERK, 1999).

In theoretical terms, these results lead us to consider non-ecological variables for the development of predictive models of sustainable ecological behavior. In practical terms, this first study allows us to consider public policies that go in this direction, as well as identity elements that could improve the effectiveness of pro-environmental attitude campaigns.

One of the limitations of the study is methodological, since the selected population may not have included some groups, thus affecting its representativeness, which should be expanded in other studies, particularly with respect to the national sample. In addition, the instruments used are extensive and this may affect the reliability of some participants.

Future research, in addition to expanding the national sample, should consider groups that have so far been excluded, such as the non-urban population, who may have evolved a possibly different identity relationship with the Antarctic, since their exposure to information about the territory is limited. On the other hand, it is advisable to consider a population of indigenous origin that has had a historical link with the Antarctic due to its geographic position and that could display a different identity and ecological profile than the temporary or first-generation inhabitants. In addition, it is worth including new identity variables that can explain, as moderators or mediators, the process of adhering to a protective view of the Antarctic. In this way, we hope to contribute to understanding the role of group psychological variables that affect the ecological and our consequent relationship with the territories in which we live or with which we feel identified.

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Esteban Sanchez Pallahuala

✉ esanchez@umag.cl

ORCID: <https://orcid.org/0000-0002-9716-4460>

Submitted on: 31/03/2021

Accepted on: 18/04/2022

2022;25:e02431

Paulina Pérez Igor

✉ paperez@umag.cl

ORCID: <https://orcid.org/0000-0002-7988-8465>

Javiera Ruiz Gómez

✉ jruiz@umag.cl

ORCID: <https://orcid.org/0000-0001-8647-5792>

Valeria Pino Caidane

✉ vapinto@umag.cl

ORCID: <https://orcid.org/0000-0003-0634-1191>

José Mario Díaz Muñoz

✉ jodiaz@umag.cl

ORCID: <https://orcid.org/0000-0002-8383-3512>

Claudia Estrada-Goic

✉ claudia.estrada@umag.cl

ORCID: <https://orcid.org/0000-0002-9982-2025>

Guardiões da Antártica: Compromisso como resultado de variáveis de identidade e atitudes ecológicas

Esteban Sanchez Pallahuala
Paulina Pérez Igor
Javiera Ruiz Gómez

Valeria Pino Caidane
José Mario Díaz Muñoz
Claudia Estrada-Goic

Resumo: A pesquisa está interessada tanto nas variáveis ecológicas quanto nas variáveis de identidade (sociais) envolvidas no aumento do envolvimento ambiental no cuidado antártico. Dois estudos com habitantes do sul de duas cidades, e outro com uma amostra nacional de três áreas geográficas diferentes (norte, centro e sul) participaram respondendo a uma pesquisa auto-administrada. Os instrumentos mediram a percepção de responsabilidade pessoal pelos cuidados antárticos no presente e no futuro, a valorização antártica, a identidade ecológica regional antártica e as crenças ambientais. Os resultados centrais mostram que a identificação com o território antártico é importante para determinar a percepção de responsabilidade e o compromisso com seu cuidado, e que este processo é mediado pelo valor colocado no continente congelado. Tal mediação foi observada tanto na amostra de locais como de nacionais. Estes resultados são discutidos em relação à importância de considerar as variáveis de identidade ao desenvolver modelos destinados a promover uma atitude pró-ecológica.

São Paulo. Vol. 25, 2022

Artigo Original

Palavras-chave: Proteção ambiental, identidade social, atitudes ecológicas, apreciação antártica, compromisso ambiental.

Guardianes antárticos: El compromiso como resultado de variables identitarias y actitudes ecológicas

Esteban Sanchez Pallahuala
Paulina Pérez Igor
Javiera Ruíz Gómez

Valeria Pino Caidane
José Mario Díaz Muñoz
Claudia Estrada-Goic

Resumen: La investigación se interesa tanto en variables ecológicas como identitarias (sociales) que participan en el aumento del compromiso ambiental en el cuidado antártico. Dos estudios con habitantes del sur austral de dos ciudades, y otro con una muestra nacional de tres zonas geográficas diferentes (norte, centro y sur) participaron contestando una encuesta autoaplicada. Los instrumentos midieron la percepción de responsabilidad personal en el cuidado antártico en el presente y futuro, la valoración antártica, la identidad regional ecológica antártica y creencias ambientales. Los resultados centrales muestran que la identificación con el territorio antártico resulta importante para determinar la percepción de responsabilidad y compromiso en su cuidado, y que este proceso es mediado por el valor que se le otorga al continente helado. Dicha mediación se observó tanto en la muestra de locales como de nacionales. Se discuten estos resultados en torno a la importancia de considerar variables identitarias al desarrollar modelos orientados al fomento de la actitud proecológica.

São Paulo. Vol. 25, 2022

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Palabras-clave: Protección ambiental, identidad social, actitudes ecológicas, valoración antártica, compromiso ambiental