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Attitudes towards the risks of climate change: contributions from a Chilean exploratory case study

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Abstract:

Aim: The alteration of the planetary climate, mainly because of human activity, could trigger ecological, economic, and social impacts capable of disrupting the forms of life on the planet. In this context, the influence of psychosocial factors on the environmental awareness and the way in which these factors can for support pro-environmental behaviors is researched on the example of students from a Chilean university.

Design / Research methods: Transactional exploratory mixed research. Bibliographic review and application of a survey to the community of a Chilean university (n=134). The process consisted mainly of two stages: (1) literature review and (2) survey application.

Conclusions / Findings: The reviewed authors agree that people exhibit pro-environmental behaviors when they are sufficiently informed about environmental problems, have a favorable attitude towards them and can generate effective qualitative changes that do not cause significant difficulties later on. The results of the survey applied to the university sample show that the respondents can perceive the damage of global warming and have pro-environmental behaviors in greater proportion compared to the bibliographic data reviewed. The results are exploratory; however, they provide a focus for future research in this context.

Originality / Value of the article: This article offers an updated perspective on perceptions in relation to climate change and pro-environmental behaviors, based on the case study. Additionally, it offers a proposal for the intervention of university educational plans.

Keywords: global warming, pro-environmental behaviors, society, sustainability
JEL: I23, Q01, O44

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1. Introduction

Modern society faces the problem of alteration of the planetary climate which is almost certainly caused by human activity (The Intergovernmental Panel on Climate Change 2021). Climate change can trigger ecological, economic, and social processes capable of disrupting the forms of life on the planet (European Central Bank 2021). The models used by economists to predict the damage of global warming differ from those used by scientists, seriously underestimating the impact of this phenomenon on human habitability (Keen et al. 2022).

The European Union has become the leader regarding policies to face this challenge. However, recent international conflicts such as Russia's invasion of Ukraine, may negatively affect the implementation of policies, strategies to reduce the use of polluting sources and diversification of raw materials to produce clean energy, and addressing the causes and mitigating of the damage at a global level. The analysis of the annual reports of the International Monetary Fund (IMF) and the communications of its members, revealed a discrepancy between the support of these countries for the IMF initiatives to address the causes and solutions to climate change, versus their absence in the *communiqués* of the countries, revealing the lack of an agreement between these countries on how to address climate change (Dormido et al. 2022).

According to Caballero et al. (2007), without a change in attitude, in developed countries, pro-environmental policies will not materialize; therefore, becoming aware of the seriousness of the problem is crucial to moving towards change.

This article discusses the influence of psychosocial factors on people's environmental awareness, and how these factors could be used for change towards pro-environmental or sustainable behaviors. As García (2006) points out, *"knowledge of social attitudes towards climate change has an extraordinary value to respond with 'high-minded' strategies to the challenge that this environmental problem represents."*

The aim is to discuss the topic by using the data obtained from the National Environmental Survey (Ministry of the Environment of Chile 2020) and the results of

the Environmental Awareness Survey, designed and applied on the university community (students, academics and employees).

Based on the results, guidelines are proposed for education in sustainability at the academic, community and business levels, as well as for the strengthening of cooperation and research networks, both at the University of Santiago of Chile and in its connection with the national and international environment. This contributes to the training of professionals as builders of sustainable environments; as well as the 2030 agenda for sustainable development, in accordance with the objectives of the 2020–2030 Institutional Strategic Plan.

2. Theoretical framework

2.1. Global climate change

Global climate change can be directly and/or indirectly attributed to human activity, in addition to the natural variability of the climate observed during comparable periods of time (Framework Law on Climate Change of Chile 2022). The scientific evidence has proven that since the beginning of the Industrial Revolution, the atmospheric concentration of carbon dioxide (CO_2) and other greenhouse gases (GHG) such as methane (CH_4) and nitrous oxide (N_2O), have increased appreciably because of the burning of fossil fuels, although other causes are also pointed out, such as the expansion of certain agricultural and livestock activities (IPCC 2013). The data in this regard offer no doubt that this effect has taken place, since according to the Fourth IPCC Report (2007: 30) the average temperature of the Earth has increased by 0.74 ºC during the century from 1906 to 2005. Unlike other climatic changes, the current alterations are developing at a relatively fast pace. However, their main peculiarity lies in the agent that is originating them: man. Some effects of rising temperatures on physical and biological systems have already been documented (IPCC 2007: 31–33). Likewise, other impacts have been ventured that climate change could trigger in the future, both on a global scale and by large regional groups (IPCC 2007: 47–54). Although some of these effects may be beneficial for man, as is the case, for example, of higher agricultural yields in certain cold environments, the vast

majority will be counterproductive (Nelson et al. 2009). Thus, to mention only some of the impacts whose probability of occurrence is estimated at more than 90 percent, we can expect an increase in pests, a decrease in water quality, a reduction in the quality of life in hot areas and a higher risk of contracting infectious, respiratory, and skin diseases (Sanz, Galán 2020).

2.2. Adaptation to climate change

This concept refers to the action, measure, or process of adjustment to the current or projected climate or its effects on human or natural systems, to moderate or avoid damage, reduce vulnerability, increase resilience or take advantage of beneficial opportunities (Framework Law on Climate Change of Chile 2022).

Climate change constitutes a threat to the well-being of all humanity and must be confronted as soon as possible at all levels. In the case of Latin America, total emissions represent only 8.3% of global emissions, but, at the same time, the region is particularly vulnerable to the impact of climate change due to its geographic, climatic, socioeconomic, and demographic characteristics (CEPAL 2015).

Adaptation can reduce the risks of the effects of climate change, but its effectiveness is limited, particularly in the face of rapid or large changes. From a long-term perspective, and in the context of sustainable development, applying immediate adaptation measures can result in the selected options being more effective and having beneficial effects on the development process (IPCC 2014a). Faced with the already inescapable effects of climate change, Bárcena (2020), Executive Secretary of the Economic Commission for Latin America and the Caribbean (ECLAC), stated that one of the region's priorities must be “increasing resilience and the capacity to adaptation of society, as well as exploring the existing synergies between the adaptation processes and the other development objectives.”

In the case of Chile, the commitment before the UN was to decouple the growth of emissions, so that by 2030, the country’s emissions are between 30 to 45% less, with respect to our GDP. Thus, the first steps were taken towards that green growth, low in carbon that promotes clean and renewable technologies that allow future generations to live better in a Chile of the future. This initiates a National Climate Change Action Plan 2017–2022 (PANCC-II), which is aimed at the effective

implementation of measures that have been identified to adapt to climate change, contributing to fulfill international commitments before the Framework Convention on the United Nations on Climate Change (UNFCCC).

The negative effect of the long drought in the country and the various initiatives for adaptation to climate change are highlighted. Among them, generating a decrease in the emission of local pollutants and a continuous increase in terrestrial protected areas, driven by urban wetlands.

2.3. Climate change mitigation

This term refers to the "Action, measure or process aimed at reducing greenhouse gases emissions and other climate forcings, or restricting the use of said gases as refrigerants, insulators or in industrial processes, among others, or to increase, avoid the deterioration or improvement of the state of the sinks of said gases, in order to limit the adverse effects of climate change" (Framework Law on Climate Change of Chile 2022).

Currently, numerous initiatives have been emerging that seek to deal with the threat. To a large extent, unlike what happens in other regions of the world, in Latin America and the Caribbean, adaptation is inseparable from mitigation and benefits, without exception, from the restoration of ecosystems, the recovery of soils, the recovery of the general, coastal, and riparian vegetation cover, and the positive impact on biodiversity (Marquet et al. 2019).

However, it is noted that many measures are of a technological nature, fundamentally aimed at reducing greenhouse gas emissions by replacing fossil energy sources and increasing energy efficiency. The 2021 State of the Environment Report explains Chile's environmental performance, revealing 130 environmental performance indicators in matters of biodiversity, water, soil, waste, and climate change, among others.

Without denying the relevance of this type of action, it is unquestionable that mitigating and adapting to climate change are challenges that go beyond the energy sphere, so they will require much more than the replacement of some technologies by others. Complex problems demand complex solutions, so that the situation of historical urgency in which we find ourselves calls for a transition towards lifestyles

more in line with the laws of nature. To a large extent, the success of this change will depend on the ability of societies to mobilize individual and collective action, with everything related to the social perception of climate change acquiring decisive importance (Jori 2009).

2.4 Perception and attitudes of society to climate change

According to Jori (2009), the citizen's perception involves three aspects. In the first place, perceptual information allows climate change policies to be adapted to society's behavior patterns related to a great diversity of aspects that are significant for solving the problem: food, mobility, etc. Second, it is important to know how climate change is perceived to identify issues where there are gaps or erroneous popular beliefs. Only in this way will it be possible to determine what messages must be spread throughout society to clarify the most obscure issues or eradicate the most common mistakes. Finally, it is convenient to know the attitudes and opinions of individuals, because citizen knowledge, based fundamentally on lived experiences, can be very useful when defining effective policies against global warming.

The author concludes: "we must not underestimate or underestimate the knowledge that citizens have on this matter, since, on occasions, this cognitive capital could produce more fruitful results than those harvested up to now by technicians, scientists and politicians."

2.5 The environmental education?

Pro-environmental behavior or pro-ecological behavior (Corral-Verdugo 2001), is defined as "The set of effective and deliberate actions that result from the protection of natural resources or, at least, in the reduction of environmental deterioration." Such definition mainly included environmental behaviors oriented to the physical environment; however, later, in order to integrate physical and social aspects included in the understanding of environmental problems, the authors Corral-Verdugo and Pihneiro (2004) coined the term "Sustainable Behavior," defined as "A set of effective and deliberate actions that have as a purpose, the care of the natural and socio-cultural resources necessary to guarantee the present and future well-being of humanity."

Following the Corral-Verdugo (2001) definition, sustainable behavior should meet at least five characteristics:
1) Effectiveness implies responding skillfully to requirements or demands for care of the physical and social environment.
2) Deliberation means that the conduct must occur with the specific purpose or intention of caring for the social, economic, and environmental.
3) Anticipation, implies that, although the behavior is carried out now, the individual projects his action into the future.
4) Solidarity set of altruistic tendencies and actions deployed in response to concern for others, and,
5) Austerity, raises the need to deploy a lifestyle in which the consumption of goods and natural resources is limited to what is necessary, avoiding their waste.

Currently there is a vast research that seeks to predict determining factors of sustainable behavior, in this sense Álvarez and Vega (2009), after an exhaustive study of various authors, conclude that most agree that attitudes and the intention to act they have an important influence on behavior when other factors do not prevent it from taking place, especially with regard to individual behaviors of consumption and environmental participation.

By way of synthesis, Álvarez and Vega (2009) conclude that "in all of them it is stated that individuals only carry out environmentally responsible behaviors when they are sufficiently informed about the environmental problem, are motivated towards it and, in addition, are capable of generating qualitative changes, are convinced of the effectiveness of their action and that it will not generate significant difficulties."

Despite the above and reviewing the data obtained in our survey, we can conclude that although social sensitivity towards the improvement and defense of the environment has increased, this increase is not reflected in specific behaviors. Coming to ensure that "a high awareness of the environment, by itself, does not ensure the implementation of responsible ecological behavior" (Puertas, Aguilar 2021).

Pedro Álvarez and Pedro Vega (2009) state that different authors agree that there are three groups of variables that determine the development of environmental

behavior (psychological, socio-cultural, and contextual). The factors were the following:

- *Contextual* (Corraliza, Berenguer 2000) such as relevance (Weigel, Newman 1976), the cost-benefit assessment of the action (Axelrod, Lehmam 1993; Payne et al. 1992), the influence of advertising, the time elapsed between the assessment of attitude and behavior (Ajzen, Fishbein 1980), etc.
- *Psychosocial*, which refer to variables and representational, such as dispositional characteristics (Suárez 2000); values, such as anthropocentrism-ecocentrism (Thompson, Barton 1994), authoritarianism (Schultz, Stone 1994), etc., locus of control and degree of personal responsibility (Hwang et al. 2000; Santos et al. 1998), etc., which have been considered strong predictors of environmental attitude and, consequently, of environmentally responsible behavior (Grob 1995).
- *Sociodemographic*, such as gender, and others such as Zeleny et al. (2000), who review the works published in this regard between 1988 and 1998, considering age, level of education, religion, political ideology, socioeconomic status, place of residence, etc., whose influence on pro-environmental conduct is not conclusive, even offering contradictory results.
- *Cognitive*, referring to knowledge about the environment (Himes et al. 1986–87).

Álvarez and Vega (2009) found, because of a meta-analysis, that the variables associated with responsible environmental behavior focus on knowledge of problems, knowledge of action strategies, locus of control, attitudes, verbal commitment, and a sense of responsibility; some variables can be recognized in the National Environmental Survey in Chile (2020).

3. Methodology

To obtain an updated perspective on perceptions in relation to climate change and pro-environmental behaviors, a descriptive and mixed research approach was used in the perspective of Hernández Sampieri (2014). It consists of two stages: bibliographic

review and design and application of a survey to the community of a Chilean university (n=134 as of August 5, 2022). The methodological design was of the non-experimental, cross-sectional type, exploratory with an intentional sample, that is, applied in a specific university context in a single moment, without considering a control group.

The review was systematized through documentary analysis, hermeneutics, and content analysis. The methods used guided the analysis of the information collected through the academic search websites: Academia.edu, Google Scholar, Research and Redalyc, official sources such as ECLAC, IPCC and government agencies; To narrow the search, the keywords defined for this article were used: global warming, pro-environmental behavior, society, sustainability. The criteria for filtering the information obtained were its scientific value for this article and topicality; subsequently, they were classified by analysis categories using the same keywords (global warming, pro-environmental conduct, society, sustainability).

The elaboration of the survey consisted of three stages: definition of the variables of the instrument, design of the instrument and validation of the survey.

It began with the exploration of similar investigations carried out in the last 30 years, with scientific value for this article and within the parameters established in the keywords. This made it possible to identify that the dimensions closest to the national reality were those studied by Álvarez and Vega (2009): psychosocial, sociodemographic, and cognitive factors. The other factors were not considered, given the limited scope of the article. Regarding the definition of the variables, the degree of incorporation of pro-environmental behaviors in the daily context of people belonging to the community of a Chilean university was determined as a dependent variable. They are represented in the following Table 1:

Table 1. Definition of variables for survey design

Variable Name	Operational Definition	Variable type	Measurement form	Response type
Sociodemographic data	Sociodemographic data: age range, status (students, academics, civil servants)	Quantitative	Survey	Polytomous
Pro-environmental attitudes	Psychosocial factors, which refer to variables and representational, such as dispositional characteristics (Suárez 2000).	Qualitative	Survey	Polytomous
Perception of environmental problems	Psychosocial factors, which refer to variables and representations, such as anthropocentrism-ecocentrism (Thompson, Barton 1994), locus of control and degree of personal responsibility (Hwang et al. 2000; Santos et al. 1998).	Qualitative	Survey	Polytomous
Knowledge of sustainability topics	Cognitive factors: Knowledge of basic concepts in reference to the environment (Himes et al. 1986–87)	Quantitative	Survey	Polytomous

Source: authors' own elaboration.

The survey was reviewed by the team of teachers of the Social Responsibility and Sustainability subject regarding its coherence and cohesion. Given the scope proposed for this research, the institutional protocol for sending it to the university community

was followed, including consultation with the Ethics Committee. Finally, on June 14, 2022, it was officially distributed by the University's Department of Communications. As technological support, the Google Forms platform was used for its provision and hosting of results.

The instrument was structured in seven (7) questions and is made up of four (4) sections, with a single or multiple response option, depending on the question. The first corresponds to sociodemographic data (two (2) questions); the second to Perception of environmental problems (two (2) questions); the third to knowledge (one (1) question); and the fourth to pro-environmental attitudes (two (2) questions). For 26 days and until July 31, 134 responses were received: 43.6 % of officials; 26.3% academics and 24.1% students. The rest of the respondents self-assigned themselves in other categories such as: media agent, graduate/graduate, continuing education, etc.

To end the section, the main limitations of this research are pointed out:

- Security of the data of the respondents: which implied minimizing the questions that involved private information. Therefore, at the data level, it was only requested to indicate age range and status to which they belonged.
- Distortion of responses due to people's social desirability bias. However, Dominguez et al. (2012) propose to consider it a variable as such and "part of the psychic structure of the common individual that allows him to be sensitive to interaction with others and to adapt to a social environment."
- High demand for surveys: there is currently an excess requirement for online surveys aimed at the university community, of equal or greater relevance, which could have generated less interest in answering this survey.
- Theme: the topics addressed could affect the response rate, especially in people with a low level of training and digital literacy.

4. Results

To know the attitude that individuals have about the environment in Chile, were analyzed the results of the National Environmental Survey carried out by the Ministry of the Environment of Chile (2020). This survey was applied to 3,300 people, and its

objective was to characterize the environmental opinions of citizens, their environmental behaviors and their main environmental concerns.

The result of the survey shows that the problem that most worries the surveyed population is air pollution as the main environmental problem that affects them (32.8%), followed by garbage (29.7%), noise and water pollution (13.5%) and climate change (5.7%).

Regarding climate change, 100% of those surveyed consider that climate change is a phenomenon that is occurring; 71.4% believe that it is produced by human action, while 19.2% attribute it to natural processes and 7.2% attribute it to a combination of both phenomena.

When asked if they believe that Climate Change is a problem, 32.6% agree that "It is an urgent problem that we have to deal with today;" 29.4% favored the statement "It is not a problem yet, but it will be in the future;" 16.2% state that "It is an urgent problem, but there is nothing to do now" and 17.9% believe that "It is not a problem to worry about."

Regarding the actions carried out in recent years to adapt to climate change, Table 2 shows that more than 50% have reduced their energy (54.2 %) and water (51.9%) consumption; followed by changes in diet (33.4%), in the way they dress (27.6%) and in their home (19.4%).

Table 2. Changes you have made in recent years to adapt to climate change

Decrease in energy use	54.2%
Reduction of water consumption	51.9%
Changes in diet	33.4%
Changes in the way of dressing	27.6%
Changes in the infrastructure of your home	19.4%
Occupation changes	6.5%

Source: National Environmental Survey (2020).

Regarding the perception of the effectiveness of the actions currently carried out by different actors, Table 3 shows the results considering a high assessment for scientists, NGOs, their own action and that of their environment, and the UN; instead, a negative perception for companies (large, medium and small) and the government and municipalities.

Table 3. Effectiveness of the different social actors perceived by the respondents

78.1%	He believes that scientists are quite a few and very effective
78.5%	Believes that NGOs are quite and very effective
72.6%	He believes that the action of himself and his immediate environment are quite and very effective
68.7%	Believes that international organizations (UN) are quite and very effective
46.1%	Believes that the actions carried out by large companies or industries are ineffective
38.2%	He believes that the actions carried out by the government and the municipalities are ineffective.
36.9%	Believes that the actions carried out by small and medium-sized companies are ineffective

Source: National Environmental Survey (2020).

In relation to non-pro-environmental personal habits, Table 4 summarizes those that the respondents recognize they still practice:

Table 4. Non-pro-environmental habits practiced by the respondents

58%	Does not compost organic waste
57%	Does not separate waste for recycling
33%	Do not buy used or second-hand products
29%	Do not buy products in bulk
27%	Throw away damaged clothing and shoes
20%	Does not choose products with minimum packaging
20%	Admits not to repair or give another use to things in disuse
18%	Get rid of damaged furniture

Source: National Environmental Survey (2020).

In relation to pro- environmental attitudes, Table 5 lists the habits practiced by the respondents:

Table 5. Pro-environmental habits practiced by respondents

61%	Use reusable bags for shopping
92.9%	Turn off or unplug electrical appliances you are not using
64.1%	Save water through water reuse, shorter showers, etc.

Source: National Environmental Survey (2020).

Regarding the results obtained in the survey prepared by the authors and applied in the university community between June 14 and August 5, 2022, 134 responses were obtained. In the following Table 6, the sample is characterized by status:

Table 6. Characterization of the sample by status

Status	**Percentage**
Officials	44%
Academics	26.1%
Students	23.9%

Source: authors' own elaboration.

Two important issues that we would like to highlight from the responses of the respondents are the following:

95%	They believe that climate change is a problem to be concerned about.
86%	They believe that the entire society should be concerned with mitigating the negative effects of climate change.

Regarding the personal pro-environmental habits that were consulted, Table 7 highlights those with the highest percentage declared by the respondents:

Table 7. Pro-environmental habits practiced by members of the university survey

79.5%	Recycle non-organic waste
34.8%	Compost organic waste
33.3%	Do not buy items that contain single-use plastic
18.2%	Use a bicycle to avoid increasing the carbon footprint

Source: authors' own elaboration.

To explore the use of concepts, it was asked if they recognize basic concepts such as: GHG, carbon footprint, water footprint, sustainability, and social responsibility.

Table 8. Recognition of environmental concepts

Response	Greenhouse gases	Sustainability	Carbon footprint	Water footprint	Social Responsibility
Yes	**86%**	**94%**	**84%**	**60%**	**88%**
No	1%	0%	1%	13%	1%
Vaguely	13%	5%	15%	25%	10%
Does not answer / does not know	0%	1%	0%	2%	0%

Source: authors' own elaboration.

Finally, the respondents were asked to propose other actions that could help mitigate Climate Change. On that item, 125 responses were obtained, which through content analysis were categorized into: environmental, technological, regulatory, attitudinal measures. The main ideas are mentioned below:

Environmental measures

- Reforest with native species
- Increase waste and wastewater recycling
- Compost

Technological measures

- Implement electromobility
- Digitize processes
- Encourage research and the use of clean technologies

Regulatory measures

- "Put a heavy hand" on large companies that pollute
- Update standards for the use of natural resources and atmospheric and noise pollution.
- Implement and monitor compliance with pro-environmental public policies.

Attitudinal measures

- Promote the vision of a society immersed in the natural environment.
- Raise people's awareness, raise awareness, educate.
- Create incentives for the population to change destructive habits.
- Decentralize cities.

5. Discussion, conclusions, and recommendations

The results of this study should be considered exploratory, since it concerns a case study not being representative for pro-environmental perception or behavior at the university level. The research focuses on a specific institution with a particular organizational culture, and its results can be the basis for future research. The results can be used for policy development at the university research, and for adaptation of the curriculum.

The results obtained from the bibliographic review and the application of the survey show differences regarding pro-environmental behaviors in a national context versus a local one (university community). These results show that 95% of the people surveyed in the university community claim to be aware of the damage caused by global warming. This result could be attributed to the fact that people linked to higher education are immersed in an environment that constantly disseminates scientific articles, news, events through the various communication channels and is kept up to

date on environmental issues. In the ideas proposed by the respondents, the dominance of issues around clean energy is observed, they perceive the lack of regulation in companies and pro-environmental policies applied in society. Emphasis is placed on improving education and making people aware of how to change habits. Unfortunately, this response from a certain group tells us that it is necessary to transmit this awareness to other social groups, but it is still lacking.

On the other hand, these results could reflect the work that higher education institutions have developed to promote and encourage the involvement of their students in sustainable behaviors within the campus through programs integrated into their study plans, aimed at providing sufficient knowledge to encourage them to become sustainable citizens. An example is the Social Responsibility and Sustainability subject taught by a Technological Faculty to all its technology careers, where the professors encourage reflection and practical work to promote ethical and pro-environmental conduct in future professionals.

Considering the bibliographic review, the results presented and the experience of those who subscribe in the academic field, it is proposed to improve the effectiveness of educational plans considering the following aspects:

5.1. Knowledge and information on environmental problems

As cognitive determinants of environmental behavior in the literature, aspects such as knowledge and information about environmental problems, the actions that cause them and the mechanisms to avoid or correct them are considered. Numerous authors agree on the idea that environmental knowledge is an antecedent of people's behavior. McDonald (2014) studies pro-environmental behavior in the workplace, emphasizing the knowledge that workers must have to actively participate in recycling, waste management, energy saving or any other pro-environmental action. Garces et al. (2002), for their part, empirically show that greater individual knowledge about the environmental impact of waste implies a greater degree of participation in recycling. Jareño et al. (2012) argue that it is important to transmit environmental knowledge in childhood and adolescence and highlight the importance of family education and from other environments. Along the same line of argument, Krajhanzl

(2010) confirms that pro-environmental behavior can be based on prior knowledge of environmental science.

5.2. Attitudinal change

The fact of having a conceptual knowledge of a situation does not necessarily imply an attitudinal change and much less a behavioral one towards that situation, therefore, although it is necessary to inform the population, it is necessary to generate an attitudinal change. For Fischbein and Ajzen (1967, 1973, 1980), attitudes towards a certain behavior are a personal factor that includes the affective feelings of the individual, which can be positive or negative with respect to the execution of a specific behavior. They maintain that many of the behaviors of human beings are under voluntary control, so that the best way to predict a given behavior is the intention that one must perform or not perform said behavior. This intention will be based on two determinants: one of a personal nature (attitudes) and another that reflects social influence, which is defined as the person's perception of the social pressures that are imposed on them to carry out or not carry out a task. certain behavior (subjective norm). The authors also highlight that individuals perform a behavior when they have a positive attitude towards its execution and when they believe that what others think about what they should do is important. The "Model of Reasoned Action" (Fischbein, Ajzen 1980) conceives the human being as a rational animal that processes information or uses it systematically, that is how the subject is seen as a rational decision maker, who behaves based on the assessment it makes of the results of its behavior and the expectations it has about its behavior in relation to obtaining certain results.

Therefore, it is necessary to work on more than one variable:

1. The personal variable or individual attitude: clarifying concepts and generating a positive inclination regarding pro-environmental behaviors.
2. Social influence, or what others think about pro-environmental behaviors, using something as common today as social networks and influencers.
3. The evaluation of the results of their behavior. It is recommended that educational plans contemplate feedback on the achievements that are being achieved, for example reporting how many fewer tons of CO_2 are generated when using public

transport, so that the subject sees that their contribution is important in the macro figures, demonstrating that any extra effort that these actions mean, are valued as a contribution, even if they are minimal in relation to the benefit that is achieved.

3. Efficient behaviors

Along with informing, it is necessary to guide the population in terms of possible courses of action, in as much detail as possible, since, by modifying the attitude in favor of the environment, a feeling of impotence arises as they feel incapable of carrying out the appropriate behaviors (Uzzel et al. 1995), since they do not know how to act to solve the problems of which they have become aware.

Therefore, the favorable attitude towards pro-environmental conduct must be associated with the development of skills to act with sustainability criteria; that is, with the ability to use knowledge and skills in other contexts, both individually and collectively. This involves applying what has been learned to real-life situations. The most effective way to consolidate the knowledge learned and acquire sustainable habits will be by putting them into practice.

This implies the need for a new paradigm for the development of pro-environmental behaviors that could be expressed as the development of "training for action" (Breiting, Mogesen 1999). Well, for environmental education to achieve the commitment, motivation and, above all, the action and participation of individuals and groups in favor of sustainable development, it must provide them with three types of knowledge (Sauvé 1994, cited by Coron):

1) A know-how, which implies knowledge and information that allow people to know the complex nature of the environment and the meaning of sustainable development.

2) A knowing-being, which supposes the sensitization and awareness of society about the need to achieve a model of sustainable development and society, promoting, for this, the attitudes and values that imply sustainability.

3) Lastly and fundamentally, knowing-acting, that is, effectively mobilizing and combining individual resources (knowledge, procedures, and attitudes) and the environment (information, people, material, etc.), using critical capacity, to resolve some tasks that can be judged as complex.

In this context, in the University of Santiago of Chilean there is an initiative of the Faculty of Architecture, who emphasize promoting cultural change for waste

management and its recovery by modifying the way of relating them to waste. In many cases, this implies making them useful again, reducing the amount of garbage and understanding that "the materiality that surrounds us is transitory and we must know how to work with it" to develop new solutions to environmental problems. We hope that this initiative bears fruit and that there is a lasting change in the students.

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