

ENVIRONMENTAL PSYCHOLOGY AND ENVIRONMENTAL PROBLEMS: A LITERATURE REVIEW

PSICOLOGIA AMBIENTAL E PROBLEMAS AMBIENTAIS: UMA REVISÃO DE LITERATURA

PSICOLOGÍA Y PROBLEMAS AMBIENTALES: UNA REVISIÓN DE LITERATURA

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ABSTRACT: This study discusses the contribution of environmental psychology to environmental problems. The human behavior is the principal reason involved in environmental problems. So, the psychology and environmental education have a fundamental role to present strategies to change the environmental behavior. This literature review occurred in the CAPES periodic platform with articles published in the last ten years. This research used the descriptors: “environmental psychology” and “environmental problems”. 126 articles were found and 12 articles were selected to compose the theoretical discussion. These articles presented subjects like: permaculture, pro-environmental behavior and environmental perception.

KEYWORDS: Environmental psychology. Environmental behavior. Environmental problem.

RESUMO: O presente trabalho discutiu as contribuições da Psicologia Ambiental para as pautas ambientais da atualidade a partir de uma revisão de literatura. Os comportamentos humanos são a base dos problemas vivenciados nesse âmbito. Logo, a psicologia tem papel fundamental em parceria com a educação ambiental para apresentar estratégias de conscientização e modificação do comportamento ambiental. A revisão de literatura realizada aconteceu a partir da Plataforma do Periódicos CAPES com artigos publicados nos últimos 10 anos com os descritores “Psicologia Ambiental” e “Problemas Ambientais”. Entre os 126 artigos encontrados, 12 artigos foram selecionados para compor a discussão teórica da pesquisa. Os artigos trataram de temas como permacultura, comportamentos pró-ambientais e percepção ambiental.

PALAVRAS-CHAVE: Psicologia ambiental. Comportamento ambiental. Problemas ambientais.

RESUMEN: El presente trabajo discutió las contribuciones de la psicología ambiental a las pautas ambientales actuales. Para esto, fue utilizado una revisión de literatura. El

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comportamiento humano es la base de los problemas ambientales. La psicología tiene un papel fundamental en asociación con la educación ambiental para presentar estrategias para modificar el comportamiento ambiental. La revisión de la literatura fue realizada en la Plataforma de publicaciones periódicos CAPES con artículos publicados en los últimos 10 años con los descriptores "Psicología ambiental" y "Problemas ambientales". Entre los 126 artículos encontrados, fueron seleccionados 12 artículos para componer la discusión teórica. Los artículos trataron temas como la permacultura, el comportamiento ambiental y la percepción ambiental.

PALABRAS CLAVE: *Psicología ambiental. Comportamiento ambiental. Problemas ambientales.*

Introduction

Environmental problems are one of the most debated topics in contemporary times. Encouraging the change of habits, raising public awareness and encouraging the adoption of pro-sustainability behaviors are some of the main challenges faced.

When starting from the understanding that environmental problems arise from the adverse effects of human behaviors, psychology enters as an important area of study as this is the area that studies the behaviors, thoughts, feelings and motivations of human beings. In this way, the contributions of Environmental Psychology become crucial for the contemporary debate on environmental problems.

Environmental Psychology emerged in the 1950s and its object of study is the relationship between man and his surroundings. Currently, the research objectives are about the need to develop a harmonious relationship that results in both human well-being and environmental sustainability (WIESENFELD, 2005).

However, current discussions about environmental impacts show the disharmony between human behavior and the environment. The strengthening of globalization and industrial capitalism are combined with the culture of disposability and waste, which contradicts the notion of sustainability.

Education can be a factor that generates transformation in society based on citizen education and critical reflection. Thus, Environmental Education emerges as an alternative from the intensification of environmental problems and the identification of deficiencies in the processes of formulating public policies (PÁDUA; SÁ, 2002).

Ecological behavior is considered complex and multidetermined. The advances in studies in the area of Environmental Education have broadened the interest in understanding what makes human beings adopt sustainable and pro-environmental practices. It is pointed out

that even if the individual has pro-environmental values, it is possible that he does not act in congruence with them. Thus, Environmental Psychology and Environmental Education are allied, as the former helps to understand the existing barriers in the relationship between man and the environment (RAYMUNDO; KUHNEN, 2010).

Therefore, Environmental Psychology has focused on the development of programs that strengthen ecological attitudes, taking into account the presence of beliefs and perceptions that make up the individual's cognitive and affective dimension.

In this way, Environmental Psychology can contribute to the formation of subjectivities that adopt pro-environmental and ecological attitudes. Such changes are essential to reduce the consequences of environmental problems already experienced and to avoid further problems in the future (RAYMUNDO; KUHNEN, 2010).

This article discusses, through a literature review of articles from the last 10 years, the contributions of Environmental Psychology on the issue of environmental problems. The research was developed on the CAPES platform of periodicals with the descriptors: "Environmental Psychology" and "environmental problems" The selected articles were discussed from analysis categories, which are: Permaculture, pro-environmental behavior and environmental perception.

It is considered that understanding the factors that influence pro-environmental behaviors helps in the construction of interventions in the field of environmental education. In addition, promoting the dialogue between Environmental Psychology and Environmental Education is essential to increase the impacts of actions in favor of sustainability across society.

Methodology

The platform selected was CAPES Periodicals, due to the inclusion within it of several databases, such as Scielo and Pepsico. Therefore, the main sources for research in different areas of knowledge are inserted in this single platform.

The descriptors used were: "environmental psychology" and "environmental problems". The inclusion criteria in the research were: 1) To deal with theoretical or applied research with pertinent subjects to the area of Psychology about environmental problems; 2) Address the role of psychology in the face of environmental problems; 3) Be an article or expanded abstract; 4) Be written in Portuguese.

The exclusion criteria were: 1) Not to address environmental problems; 2) Dealing with research from another area of knowledge that addresses aspects related to Psychology; 3) Be

book chapters, theses or dissertations; 4) Not having a summary or full article available in the database that was used for the research.

The first stage of the research took place through the search using the descriptors. The second step was the selection of articles based on the inclusion and exclusion criteria. After selecting the articles, the articles were read in order to extract the main ideas and establish a comparison between them.

For the analysis of the articles, the following criteria were used: 1) relevance of the study; 2) focus on behavioral and psychological aspects involved in socio-environmental problems; 3) Relation between psychology and environmental education; 4) Discussions about the possibility of environmental psychology interventions.

Results and discussions

126 articles were found from the research directed to the last 10 years. At the end, 12 articles were selected based on the inclusion and exclusion criteria cited in the methodology.

Below is Table 1 with the list of articles:

Table 1 - Selected articles source: Authors (2020)

	AUTHOR	THEME
1	(DINIZ, 2016)	Environmental Psychology's view of Permaculture
2	(IGLESIAS; CALDAS; RABELO, 2014)	Pro-environmental behaviors
3	(BECK; PEREIRA, 2012)	Pro-environmental behaviors in business students
4	(PINHEIRO <i>et al.</i> , 2011)	Pro-environmental behaviors in business students
5	(CRUZ; IGLESIAS, 2017)	Pro-environmental communication strategies
6	(AFONSO <i>et al.</i> , 2016)	Environmental awareness, pro-environmental behavior and quality of waste management in health services
7	(KUHNEN; BECKER, 2010)	Environmental concern and responsible consumption

8	(DEUS; AFONSO; AFONSO, 2014)	Environmental awareness and use of plastic bags
9	(CRUZ; SILVA; ANDRADE, 2016)	Social representations of water resources
10	(DA SILVA <i>et al.</i> , 2015)	Pro-environmental behavior and environmental education
11	(CÔRTEZ; MORETTI, 2013)	Green consumption
12	(RIBEIRO, 2018)	Environmental perception of green area managers

Source: Devised by the authors

The categories of analysis used were as follows: 1. Permaculture; 2. Pro-environmental behavior; 3. Environmental perception. In the discussion topic, the articles were interrelated so that similarities and divergences were discussed.

Permaculture

Article 1 (DINIZ, 2016) deals with the concept of Permaculture and the relation of the theme with sustainable lifestyle from the perspective of Environmental Psychology. The “green revolution” occurred in the 20th century, when scientific advances allowed the use of chemical and biological properties for the purpose of increasing harvest, which generated an increase in the use of pesticides (NODARI; GUERRA, 2015).

Currently, the notion of sustainable lifestyle encompasses three aspects: predispositions, psychological repercussions and behaviors. Predispositions refer to determinants that precede behavior, such as worldviews, beliefs, desires and intention. Psychological repercussions are individual benefits of adopting sustainable practices, such as the feeling of happiness and well-being in people who adopt pro-environmental behaviors, which is pointed out by some studies. The behavioral dimension refers to deliberate and effective attitudes aimed at reducing degrading impacts on the environment. For example, the reduction of consumerist patterns and cooperation practices are included (DINIZ; 2016).

Permaculture was developed by Bill Molison in Australia and is characterized by a holistic view based on the sustainability of natural resources. This model values the optimization of production and nature conservation (NODARI; GUERRA, 2015).

Permaculture is a sustainable practice that mixes traditional and innovative ideas in the field of agriculture with an emphasis on the vision of the future and the possibility of solidarity between generations. Permaculture ethics is based on three pillars: care for the planet earth and all species of living beings; care with people, in order to offer basic conditions for food, education and work; be careful with the distribution of time, money and materials to achieve the other two aspects mentioned above (DINIZ; 2016).

It appears that Permaculture is a proposal for a sustainable lifestyle that dialogs with the proposals of Environmental Psychology. This makes it possible to balance the relationship that man establishes with the environment (DINIZ; 2016).

Pro-environmental behavior

Article 2 discusses the existing psychological barriers to the adoption of responsible consumption through a survey that evaluated 272 participants of both sexes. The barriers investigated were: environmental dullness, lack of behavioral control, uncertainty, denial, reluctance, conflict of goals, social comparison, lack of identification with the community, tokenism, habits, perceived risk and optimistic bias (IGLESIAS; CALDAS; RABELO, 2014).

Environmental dullness involves access to a large number of information at the same time, which ends up generating the tendency for most content to be discarded and ignored. (IGLESIAS; CALDAS; RABELO, 2014).

The lack of perceived behavioral control and uncertainty correspond to beliefs that the individual contribution cannot compete with what happens in the community. Denial, on the other hand, works as a defense mechanism used to protect against discomfort. Therefore, some individuals may present a tendency to rationalize or intellectualize the debate on environmental problems. In addition, ignorance and uncertainty can also negate existing problems (IGLESIAS; CALDAS; RABELO, 2014).

The reluctance is about the tendency to react negatively to impositions that seem to restrict the subject's freedom of choice. The conflict of goals states that pro-environmental actions can generate individual sacrifices (IGLESIAS; CALDAS; RABELO, 2014). For example, many individuals prefer the use of a car for commuting due to the comfort and insecurity of cities (AMERICAN PSYCHOLOGICAL ASSOCIATION, 2009).

The social comparison is about the influence of other people in engaging in pro-environmental behaviors. When the individual perceives his individual effort as significantly greater than that of other people, he may become unmotivated. Another psychological barrier

is the lack of identification with the community, which reduces the feeling of attachment to the place. This conception dialogues with the notion of space appropriation, as a human need to demarcate and appropriate its territory (IGLESIAS; CALDAS; RABELO, 2014).

Tokenism happens through small concessions made by the subject that hide other behaviors that bring more harmful effects to the environment. Habits are also a psychological barrier as they demarcate the tendency to repeat. Another aspect is linked to the perceived risk, in view of the perception of potential risks and difficulties in the change process (IGLESIAS; CALDAS; RABELO, 2014).

The optimistic bias corresponds to extreme perspectives, which tend to fatalize existing problems or minimize them. Both ways of dealing with the environmental issue can generate inertia and conformism (IGLESIAS; CALDAS; RABELO, 2014).

Article 3 developed a survey on the values involved in the purchase decision and environmental concern process. 33 interviews with projective techniques were evaluated. It was argued that contemporary society is ambivalent on the issue of consumption. The debates on environmental degradation and consumption reduction coexist with notions that reinforce immediacy, individualism and the search for pleasure through consumption. (BECK; PEREIRA, 2012).

Article 4 (PINHEIRO *et al.*, 2011) presented a research that evaluated the pro-environmental behaviors in business students through two scales: the scale of concerns about the environmental consequences of Schultz (2001) and the scale of pro-motives. Thompson and Barton (1994).

The importance of disseminating sustainable ideas in management courses would be the impact on future managers, generating awareness since the formation so that there is a greater alignment of companies with environmental causes (PINHEIRO *et al.*, 2011).

However, it is known that as much as there is a recognition of environmental causes, this does not necessarily translate into pro-environmental actions. Some studies address that there are two types of reasons behind sustainable behaviors, they are: anthropocentric or ecocentric. The first focuses on the benefits that the environment brings to human beings and the second defends nature by itself (PINHEIRO *et al.*, 2011).

There are also three distinct concerns, which are selfish, altruistic or biospheric. The selfish is characterized by the focus turned towards oneself, the altruistic towards the other and the biospheric towards nature (PINHEIRO *et al.*, 2011). Ecocentric motivation is usually associated with altruistic concern (BECK; PEREIRA, 2012).

The understanding of what reasons and concerns are associated with a greater engagement in pro-environmental behaviors offers directions for Environmental Education as it allows the development of pedagogical proposals that encourage such changes and concerns in students. According to the results obtained with the application of the scales, the biospheric concern is positively correlated to ecocentric motivations and to the increase in frequency of behaviors that favor the environment (PINHEIRO *et al.*, 2011).

Article 5 discusses the influences of posters on pro-environmental behavior. It is noteworthy that catchphrases based on common sense about human behavior are still widely used. Some characteristics that contribute to the ineffectiveness of this practice, such as: “Insufficient information, instructions difficult to understand, use of language distant from common sense and other characteristics make it impossible to predict the type of action that a person takes after reading a poster”³ (CRUZ; IGLESIAS, 2017, p. 307)

Some factors considered successful for persuasive communication are:

the place where it is posted, the type of behavior conveyed and the tone of the message, for example, have already derived the recommendations to present specific behaviors, in a place close to their occurrence and in a polished format, so as not to threaten personal freedom (CRUZ; IGLESIAS, 2017, p. 307)⁴

Framing is a technique that describes the consequences of a decision, it can emphasize the positive or negative side. The use of *framing* makes it possible to incite the perception about the environmental impact realized (CRUZ; IGLESIAS, 2017). *Framing* is based on Perspective Theory, which points out that human beings make decisions based on a comparison between gains and losses. However, the individual's perception is influenced by the way communication is configured (VALÉRIO DO SACRAMENTO *et al.*, 2014).

The use of positive *framing* is more recommended to encourage pro-environmental behavior. When negative *framing* is used, it is preferable to approach an alternative practice, therefore:

the message must contain information that proves the effectiveness of an alternative, as well as arguments that the individual is capable of adopting the suggested behavior. If a message fails to emphasize both the means and the

³ “Informação insuficiente, instruções difíceis de compreender, uso de linguagem distante do senso comum e outras características tornam impossível prever o tipo de ação que uma pessoa adota após ler um cartaz”

⁴ o local em que é afixado, o tipo de comportamento veiculado e o tom da mensagem, por exemplo, já derivaram as recomendações de apresentar comportamentos específicos, em local próximo à sua ocorrência e em formato polido, de forma a não ameaçar a liberdade pessoal (CRUZ; IGLESIAS, 2017, p. 307)

individual's capacity, the attempt produces exactly the opposite of its objective (CRUZ; IGLESIAS, 2017, p. 313).⁵

When *framing* points to a catastrophic consequence for humanity, there is a tendency for individuals to develop, as a form of self-protection, the belief that it is a distant future and that they do not have the capacity to change (CRUZ; IGLESIAS, 2017).

Many posters with positive *framing* point to ecocentric arguments, and the exposure of the card must be in line with the motivations of individuals to increase effectiveness. Therefore, anthropocentric and ecocentric arguments could be included or research on which motivation is predominant for that audience could be developed (CRUZ; IGLESIAS, 2017).

Other concepts used in this field are behavioral control and the locus of control that propose the inclusion of incentives for the emission of the desired behavior. However, the individual's perception of being in control of his behavior increases the chances of adopting pro-environmental behavior. The locus of control refers to a personality factor (CRUZ; IGLESIAS, 2017).

Some studies have investigated the relation between environmental concerns and types of *framing*. Some investigated variables allowed to conclude that

when the concern about global climate change is low, the probability of voting a law that supports sustainable initiatives, the purchase of environmentally friendly products and the practice of environmentally sustainable consumption is greater when a message is framed in a negative way (VALÉRIO DO SACRAMENTO, 2014, p. 192).⁶

Article 6 deals with a descriptive survey with 154 participants that assessed the state of environmental awareness, pro-environmental behavior and the quality of waste management in health services. Solid waste has proved to be a problem worldwide due to inadequate disposal (AFONSO *et al.*, 2016).

Based on the Theory of Planned Behavior, it is possible to identify beliefs that influence pro-environmental behavior and the issue of solid waste (AFONSO *et al.*, 2016). The Theory of Planned Behavior points to the existence of complex psychological factors that generate effects on the actions of individuals (CHIERRITO-ARRUDA *et al.*, 2018).

⁵ a mensagem deve conter informação que comprove a eficácia de uma alternativa, bem como argumentos de que o indivíduo é capaz de adotar o comportamento sugerido. Se uma mensagem falhar em ressaltar tanto os meios, quanto a capacidade do indivíduo, a tentativa produz justamente o contrário de seu objetivo (CRUZ; IGLESIAS, 2017, p. 313).

⁶ quando a preocupação a respeito da mudança climática global é baixa, a probabilidade de votar uma lei que apoie iniciativas sustentáveis, a compra de produtos ambientalmente amigáveis e a prática do consumo ambientalmente sustentável é maior quando uma mensagem é enquadrada de forma negativa (VALÉRIO DO SACRAMENTO, 2014, p. 192).

Environmental perception

Article 7 discusses representation regarding the use of water resources by youth and adults. In this study, the topic of environmental perception and water consumption was discussed. The main representations about water that appeared were: to be essential for the present and for the future; maintenance of survival (KUHNNEN; BECKER, 2010).

Article 8 described the environmental attitudes and beliefs of 274 students at a higher education institution in order to establish relations with the use of plastic bags. This study pointed out the positive relation between environmental awareness and the use of plastic bags (DEUS; AFONSO; AFONSO, 2014).

Human reality is structured from socially constructed meanings. Personal, cultural and social characteristics are mediators of capturing and interpreting the world. The process of selection and organization of environmental stimuli culminates in an active appropriation of the environment, taking decisions and actions (KUHNNEN; BECKER, 2010).

The Theory of Social Representations was developed by Moscovici in France in the 1960s. This theory explains the processes of building ideas and beliefs about social objects. Social representations are theories of common sense that are dynamic and dialogue with each other (MORAES *et al.*, 2014).

It is possible to mention some characteristics of social representations, such as: being common to a group of people and being born of social interactions and historical and individual events. Therefore, social representations are systems of values and practices that are related to a social environment, period and location. Such systems influence the interpretation and meaning of stimuli (MORAES *et al.*, 2014).

Article 9 discusses the environmental perception of elementary school students at a public school located in Piau . The data were obtained through the application of a questionnaire with 129 students from the 6th to the 9th grade. It is emphasized that the perceptions of the students found reinforce the need to implant debates on environmental problems (CRUZ; SILVA; ANDRADE, 2016).

Article 10 presents a survey that took place with students and teachers at a Federal Institute of Education. The aim of this study was to identify the relation between the perception of Environmental Education classes and pro-environmental behaviors (DA SILVA *et al.*, 2015).

Perception is divided into visual and informational perception. Visual perception means the act of visualizing an object, occurring automatically. Informational perception is the process of attributing meanings to the object (CRUZ; SILVA; ANDRADE, 2016).

Article 11 addresses a survey conducted in Brazil, Chile, Argentina, Portugal and Spain. The research discusses individuals' perceptions of green consumption and their motivations. It was observed that each country has different perceptions (CÔRTEZ; MORETTI, 2013).

Article 12 presented a study on the environmental perception of managers about the green areas of a higher education institution. The research took place through an interview and the application of a questionnaire. It was found that green areas have been increasingly valued. They also function as habitats for animals and are recognized as a way to improve people's quality of life (RIBEIRO, 2018).

Perception is the first phase of knowledge, as it implies knowledge of the existence of environmental problems, but there may be ignorance of the origins and ways of coping. In the study in question, it was observed that managers have knowledge about environmental causes and management of green areas (RIBEIRO, 2018).

Discussion

The main psychological factors cited by the articles were motivations, concerns and environmental perception. It was shown that when there are ecocentric motivations and ecological concerns, the individual is more likely to manifest pro-environmental attitudes (PINHEIRO *et al.*, 2011).

Another important issue is the need to identify which environmental perceptions are predominant in a target audience before developing any intervention aimed at increasing the frequency of pro-environmental behaviors, especially in *framing* cases. However, posters with positive and negative *framing* are still considered ineffective (CRUZ; IGLESIAS, 2017).

Some divergences found in the studies were the educational emphasis, while others denoted that the information is already present in the social environment. Therefore, awareness is not the determining factor that would lead the person to adopt pro-environmental behaviors, but it is necessary to combine other strategies to obtain the expected result (CRUZ; IGLESIAS, 2017).

Permaculture can be seen as a proposal for sustainable practice that is an alternative in the context of a socio-environmental crisis. Permaculture refers to an agricultural model that differs from the traditional one that emerged in the 19th century, which introduced chemical products in the cultivation process. In the 20th century, with the advent of the "Green Revolution", new types of wheat, more resistant to pesticides, appeared. Permaculture goes

against this movement by proposing the absence of toxic products and the rescue of pre-industrial planting and sanitation techniques (CESAR; ALFINITO, 2018).

Studies show that it is necessary to develop a more ecocentric and biocentric vision in caring for nature. On the other hand, even the speeches given in defense of pro-environmental behaviors tend to highlight the benefits for future generations and for the maintenance of the human species, which is characterized as an anthropocentric view (BOMFIM; FERREIRA, 2010).

It is noteworthy that anthropocentric ethics was what brought human beings to the current situation of environmental degradation. Thus, when the same line of reasoning is reproduced, it becomes difficult to change the paradigm to enable the adoption of new sustainable practices (BOMFIM; FERREIRA, 2010).

Sustainability emphasizes the need to get out of the utilitarian discourse on nature. From this, more just and solidary relations between man and the environment will emerge (CESAR; ALFINITO, 2018). The current moment is one of paradigm shifts, considering that each paradigm builds a structure of relations in its surroundings. Contemporary society is sustained through a culture highly marked by an anthropocentric vision. For this to change, it is necessary to strengthen new paradigms based on cooperation (BOMFIM; FERREIRA, 2010).

For this, the role of education, from school, in order to promote ecological and sustainable values is highlighted. It is pointed out that the school is a way of preparing the individual for life and should assist in the development of society (FERREIRA, 2019).

Final considerations

Environmental problems are a global issue. There is a consensus in the literature that environmental problems stem from human behavior that degrades the environment. Thus, Environmental Psychology and Environmental Education are disciplines that help to understand this phenomenon.

The present work achieved the objectives stipulated by generating reflections on the contributions of Environmental Psychology. It is pointed out that studies on environmental perception, motivations and concerns that increase the engagement of individuals in pro-environmental behaviors showed some possibilities for intervention in this field.

The theoretical articulation between the field of Environmental Psychology and Environmental Education was a contribution made by this work. Therefore, it is concluded that

these two fields can work together in the promotion of pro-environmental behaviors and environmental perceptions that favor the engagement in sustainable practices.

REFERENCES

- AFONSO, T. ZANON, M. A. G., LOCATELLI, R. L.; AFONSO, B. P. D. Consciência Ambiental, Comportamento Pró-Ambiental e Qualidade de Gerenciamento de Resíduos em Serviços de Saúde. **Rev. Gest. Ambient. Sustentabilidade**, São Paulo, v. 5, n. 3, 2016. Available: <http://www.revistageas.org.br/ojs/index.php/geas/article/view/631>. Access: 28 Oct. 2019.
- AMERICAN PSYCHOLOGICAL ASSOCIATION. **A report by the american psychological association's task force on the interface between psychology and global climate change**. 2009 Available: <https://www.apa.org/science/about/publications/climate-change.pdf>. Access: 22 Nov. 2019.
- BECK, C. G.; PEREIRA, R. C. F. Preocupação ambiental e consumo consciente: os meus, os seus e os nossos interesses. **Revista GeAS**, v. 1, n. 2, p. 53-79, 2012.
- BOMFIM, Z. A. C.; FERREIRA, F. Sustentabilidade Ambiental: visão antropocêntrica ou biocêntrica? **Ambientalmente sustentável**, v. 1, p. 37-51, 2010.
- CEZAR, C.E. F. S.; ALFINITO, S. A permacultura como inovação social para o desenvolvimento sustentável e adoção do decrescimento. **Revista humanidade e inovação, Palmas**, v. 5, n. 6, p. 86-102, 2018.
- CHIERRITO-ARRUDA, E. *et al.* Comportamento pró-ambiental e reciclagem: revisão de literatura e apontamentos para as políticas públicas. **Ambient. soc.**, São Paulo, v. 21, e02093, 2018. Available: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-753X2018000100324&lng=pt&nrm=iso. Access: 22 Nov. 2019. DOI: <http://dx.doi.org/10.1590/1809-4422asoc0209r3vu1814ao>
- CORTÊS, P. L.; MORETTI, S. L. A. Consumo verde: um estudo transcultural sobre crenças, preocupações e atitudes ambientais. **Revista Brasileira de Marketing**, v. 12, n. 3, p. 45-76, 2013.
- CRUZ, L. A. G.; IGLESIAS, F. Comunicação pró-ambiental. 307. **Psico**, Porto Alegre, v. 48, n. 4, p. 306-316, 2017.
- CRUZ, F. C. F.; SILVA, M. F. S.; ANDRADE, I. M. Percepção socioambiental dos alunos de ensino fundamental de uma escola municipal de Caxingó, Piauí, Brasil. **Holos**, Ceará, v. 4, 2016.
- DA SILVA, A. M.; MEIRELES, F. R. S.; REBOUÇAS, S. M. D. P.; ABREU, M. C. S. Comportamentos ambientalmente responsáveis e sua relação com a educação ambiental. **Revista de Gestão Ambiental e Sustentabilidade**, v. 4, n. 1 p. 1-16, 2015.

DEUS, E. G. S. Q.; AFONSO, B. P. D.; AFONSO, T. Consciência ambiental, atitudes e intenção de uso das sacolas plásticas não-recicláveis. **Revista de Gestão Ambiental e Sustentabilidade**, v. 3, n. 1, p. 71-87, 2014.

DINIZ, R. F. Permacultura como um estilo de vida sustentável: o olhar da psicologia ambiental. **Revista Internacional Interdisciplinar INTERthesis**, Florianópolis, v. 13, n. 2, p. 106-118, jun. 2016. ISSN 1807-1384. Available: <https://periodicos.ufsc.br/index.php/interthesis/article/view/1807-1384.2016v13n2p106>. Access: 18 Oct. 2019. DOI: <https://doi.org/10.5007/1807-1384.2016v13n2p106>

FERREIRA, G. R.; RIBEIRO, P. R. M. A importância da afetividade na educação. **DOXA: Revista Brasileira de Psicologia e Educação**, [S.l.], v. 21, n. 1, p. 88-103, fev. 2019. ISSN 2594-8385. Available: <https://periodicos.fclar.unesp.br/doxa/article/view/12003/8647>. Access: 18 June 2020. DOI: <https://doi.org/10.30715/doxa.v21i1.12003>

IGLESIAS, F., CALDAS, L. S., RABELO, L. A. T. Negando ou Subestimando Problemas Ambientais: Barreiras Psicológicas ao Consumo Responsável. **Psico**, Rio Grande do Sul, v. 45, n. 3, p. 377-386, 2014.

KUHNEN, A.; BECKER, S. M. S. Psicologia e Meio Ambiente: Como jovens e adultos representam água de abastecimento. **Psico**, Rio Grande do Sul, v. 41, n. 2, 2010. Available: <http://revistaseletronicas.pucrs.br/ojs/index.php/revistapsico/article/view/1508>. Access: 28 Oct. 2019.

MORAES, P. R. *et al.* A teoria das representações sociais. **Direito em foco revista online**, v. 6, p. 17-30, 2014.

NODARI, R. O.; GUERRA, M. P. A agroecologia: estratégias de pesquisa e valores. **Estud. av.**, São Paulo, v. 29, n. 83, p. 183-207, abr. 2015. Available: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-40142015000100183&lng=en&nrm=iso. Access: 22 Nov. 2019. DOI: <http://dx.doi.org/10.1590/S0103-40142015000100010>.

PÁDUA, S. M.; SÁ, L. M. O Papel da Educação Ambiental nas Mudanças Paradigmáticas da Atualidade. **R. paran. Desenv.**, Curitiba, n. 102, p. 71-83, jan./jun. 2002. Available: <http://www.reasul.org.br/files/O%20PAPEL%20DA%20EDUCAÇÃO%20AMBIENTAL%20NAS%20MUDANÇAS.pdf>. Access: 28 Oct. 2019.

PINHEIRO, L. V. S. *et al.* Transformando o discurso em prática: uma análise dos motivos e das preocupações que influenciam o comportamento pró-ambiental. **RAM, Rev. Adm. Mackenzie (Online)**, São Paulo, v. 12, n. 3, p. 83-113, jun. 2011. Available: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1678-69712011000300005&lng=en&nrm=iso. Access: 28 Oct. 2019. DOI: <http://dx.doi.org/10.1590/S1678-69712011000300005>

RAYMUNDO, L. S.; KUHNEN, A. A psicologia e a educação ambiental. **Revista de Ciências Humanas**, Florianópolis, v. 44, n. 2, p. 435-450, abr. 2010. ISSN 2178-4582. Available: <https://periodicos.ufsc.br/index.php/revistacfh/article/view/2178-4582.2010v44n2p435/20918>. Access: 06 Oct. 2019. DOI: <https://doi.org/10.5007/2178-4582.2010v44n2p435>

RIBEIRO, V. A. Percepção Ambiental de Gestores Sobre as Áreas Verdes em Instituição de Ensino Superior. **Revista de Gestão Ambiental e Sustentabilidade**, São Paulo, v. 7, n. 2, 2018. Available: <http://www.revistageas.org.br/ojs/index.php/geas/article/view/717>. Access: 28 Oct. 2019.

SCHULTZ, P. W. The structure of environmental concern: concern for self, other people and the biosphere. **Journal of Environmental Psychology**, Thousand Oaks, CA, v. 21, n. 4, p. 327-339, 2001.

THOMPSON, C. G.; BARTON, M. A. Ecocentric and anthropocentric attitudes toward the environment. **Journal of Environmental Psychology**, Thousand Oaks, CA, v. 14, n. 2, p. 149-157, 1994.

VALÉRIO DO SACRAMENTO, S. R.; GALVÃO, R. A.; FREIRE, O. B. L.; MOLL BRANDÃO, M.; QUEVEDO-SILVA, F. O efeito da consciência ecológica e do framing de perda e ganho no comportamento do consumidor **Revista de Administração da Unimep**, São Paulo, v. 12, n. 3, p. 184-206, 2014.

WIESENFELD, E. A Psicologia Ambiental e as diversas realidade humanas. **Psicol. USP**, São Paulo, v. 16, n. 1-2, p. 53-69, 2005. Available http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1678-51772005000100008&lng=pt&nrm=iso. Access: 15 Oct. 2019.

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