

CONTEMPORARY GEOGRAPHY: PERCEPTIONS OF THE CONCEPT OF ENVIRONMENT

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ABSTRACT

Geography is a science that includes different perspectives about the environmental concept. The general objective of this study is to analyze the concepts of environment used by Brazilian geographers. Our approach included semi-structured interviews applied to Brazilian geographers dealing with the environmental. The Method of Content Analysis was used to enable analyzes by grouping the respondents into different categories. This research revealed current results stating diverse Brazilian geographers' viewpoints regarding the concept of environment. Such a concept fits into four different geographical thinking such as classical, quantitative, critical and contemporary.

Keywords: Geography. Concept of Environment. Geographic Thinking. Perception. Contemporaneity.

GEOGRAFIA CONTEMPORÂNEA: PERCEPÇÕES DO CONCEITO DE AMBIENTE

RESUMO

A geografia é uma ciência que inclui diferentes perspectivas sobre o conceito ambiental. O objetivo desta pesquisa é analisar o conceito de ambiente utilizado por geógrafos brasileiros. Nossa abordagem incluiu entrevistas semiestruturadas aplicadas a geógrafos brasileiros que lidam com o meio ambiente. O Método de Análise de Conteúdo foi utilizado para possibilitar análises agrupando os respondentes em diferentes categorias. Esta pesquisa revelou resultados atuais afirmando diversos pontos de vista de geógrafos brasileiros sobre o conceito de meio ambiente. Tal conceito se encaixou em quatro diferentes pensamentos geográficos: clássico, quantitativo, crítico e contemporâneo.

Palavras-chave: Geografia. Conceito de Ambiente. Pensamento geográfico. Percepção. Contemporaneidade.

INTRODUCTION

Man from the very beginning of his existence relates to nature and uses its resources to reproduce his own life (CORRÊA, 1993; SOUZA, 2002; SALES, 2004; BLESA; RIPOLLÉS, 2020). According to Neckel et al. (2009), Alves and Sahr (2009), Brandli, Prietto, and Neckel (2014), and Watts (2015), this fact leads to the geographic space transformation corresponding to human needs and purposes. Confrontation strategies of environmental issues in the field of geography help shape the design of the environment throughout the history of geographical thinking (KEIGHREN et al., 2016). Thus, one cannot ignore the fact that the role of geography is essential when it comes to environmental issues (FLADVAD; KLEPP; DÜNCKMANN, 2020; SNEDDON, 2020; MEADOWS, 2020).

Therefore, traditionally geographical knowledge prioritized environmental issues, whereas, historically, geography deals with the study of landscape, environment and environmentalism (SUERTEGARAY; SCHÄEFFER, 1993, p. 93). However, for Schonardie (2003, p. 22), "the environmental law is an important warning signal of control and change in behavior of various areas of human activities." This way, "the concept of ecological sustainability in the dynamics of metropolis" or the knowledge of environmental complexity becomes "central to ecological rationality opposing to metropolis rationality" (LEFF, 2003, p. 21).

These new perspectives may have contributed to perception changes about the environment in a material or immaterial way (contemporary geography construction) (NECKEL, 2014). This evolution of thought

makes the concept of environment polysemy in a sense that there are various views and biases by which the environment is defined (LENS, 2016; WANDERLEY et al., 2017; MEADOWS, 2020). In addition, we conducted analysis between different conceptions of the environment, which let us reveal still tenuous, but significant conceptions of environmental geography (WATTS, 2015; DESAI, 2017).

The general objective of this study is to analyze the concepts of environment used by Brazilian geographers. The research was done with the application of twenty-seven open questionnaires for teachers working on Brazilian geography. To analyze the interviews, it was used the Method of Analyzing the Content (MAC) (BARDIN, 2011); which allowed to extract the fundamental meaning as well as to group the interviewees in different standards of similarities. This method enabled to analyze and relate different concepts of the environment.

CONCEPTIONS OF ENVIRONMENT IN GEOGRAPHY

The geographical movement during the classical, quantitative, critical and contemporaneous periods (KEIGHREN et al., 2016). Since the 19th century, geography has become an autonomous science; thereby, turning into an academic discipline. The geographical movement was spreading through Germany and France, where it was consolidated by the mid-20th century (CORRÊA, 1993; CIDADE, 2001; ALVES, SAHR, 2009).

After 1950, some movements, such as Pragmatic and Critical geography, a revolution was generated in this science, suitable to thoughts of Corrêa (1993), Cidade (2001), Alves and Sahr (2009), who claim that Geography has changed its methods and its concepts throughout the history. Today, “the ecological thinking is increasingly complex due to the incorporation of moral values of its ideological purposes and practical actions” (DIEGO, 2010, p. 13). This makes it evident that ecological actions are involved with religion, politics and science (FERRETTI, 2020).

In this context, there is a geographer with a full vision of the geographical space. Since the geographer has the ability to develop a broad view about degraded environment he is able to recover it for the common good of society, according to Neckel et al. (2009). Yet, for Alves and Sahr (2009, p. 50) educational system of geography “takes on a renewed role in the construction and application of knowledge” due to social, economic, and environmental changes of recent years that has stimulated the critical view towards the environment.

According to Cidade (2001, p. 116), “these new ways of thinking about geography have become a concern, because the geographical issue requires the new settings from geography, creating the opportunity of a review”, conceptual to relations that man develops with nature. Currently, the separation between society and nature results from capitalist dynamics. In this sense, social and economic separation was accompanied by a progressive transformation of nature. “In brief, it becomes increasingly clear that while the separation between society and nature is pretty old, capitalism, with knowledge systems related to their emergence, in its turn, establishes the trend of breakdown between man and nature” (CIDADE, 2001, p. 117).

Geography needs to be reviewed, whether you require other clarification and discussion, among other concepts, there is a concept of environment (CIDADE, 2001) that may refer to the idea of respect and influence. Geographical thinking about the environmental concept has evolved according to the time and way humans relate to nature. Geographic thinking in this text is interpreted by different geographers through four remarkable stages: classical (1), quantitative (2), critical (3) and contemporary (4).

Classical thought (1): this concept of environment can be observed in the period between the 18th and 19th centuries, as the main index of Friedrich Ratzel. Bernardes (2009, p. 14) states that geography conceived the environment from the concept of geographical determinism, and the focused space of the concern was designed as a living concept. According to Fabrício and Vitte (2011, p. 2), still in this period, the natural sciences were seen as models with the ideas of neutrality and infallibility, in faith of progress. Linked to this line, evolutionary biology focused on the concept of “body” and the importance of its means.

It is essential to recall that “Ratzel was among the first geographers incorporating the aspects of evolutionary positivism, using this method with ideological character”, since considering, “search for the German colonies, where the connection to the territory is central to the existence of a nation and its progress” (FABRÍCIO; VITTE, 2011, p. 310). Moreover, “time of emergence and consolidation of nation-states, the European colonial expansionism (neocolonialism of 18th -19th centuries), especially German and French states, considered the nature as something to be overwhelmed along with people and other

nations. In that period, like all science, geography told to be “neutral”, was essentially descriptive, and its biggest goal was cataloguing and conducting inventories of landscapes/natural resources and cultural habits of people” (FONSECA; CARACRISTI, 2009, p. 157).

Despite the search for territorial expansion by geographers, the man was considered an integral part of nature. Thus, the atmosphere was regarded as a mean with the possibility for the man to live, seek the progress and expansion of his activities.

Quantitative Geography (2): in 1960s’ analytical perspective called quantitative geography was ruling in geographical thought, based on one of the exponents of Richard John Chorley, who conceived the concept of environment through models. Its main features were models for feedback (positive and negative). The ecological model between man and society was prevailing. According to Bernardes (2009, p. 27), in that period, there was increased attention to the “insertion and men’s relationship with nature”, bringing up the concerns regarding the environmental dynamics, where man is considered as part of the environment since its transfiguration is operated and manipulated through men’s activity.

The applicability of quantitative geography is done through mathematical data, obtaining the representation of the environment and the objects that compose it. A statistical way should be used, where we consider the elements according to their numbers (CAMARGO; JUNIOR, 2004). Environment, in a quantitative view, according to Camargo and Junior (2004), is represented by models. In this context, we consider such models as geometrical, probabilistic, descriptive, and classifying that are required for research within geographical science.

Some quantitative geographers represented the environment as a set of natural order elements and social components models, as open systems (CAMARGO; JUNIOR, 2004; SHEPPARD; PLUMMER, 2009; MURAKAMI; YAMAGATA, 2020). The data is of technical nature, and it is not a concern at this stage to further review the environmental concept.

Regarding Critical geography (3): detached to the period from 1970 to 1990 and represented by the emergence of Critical geography in Brazil; which streams were in debates with anarchists and dialectic materialists opposing to positivism and even humanistic geography. In an anarchist context, one of the thinkers, Reclus (2010), was considered as one of the most important environmentalist geographers of his times. Geography becomes “treated by its environmental nature uniting the physical and human geography, in a totalitarian version articulated by social classes” (BERNARDES, 2009, p. 14).

According to Reclus (2010), these relationships between man and nature are strongly related to various social phenomena and natural beauty. According to his contribution, written in Paris in 1866, entitled “the feeling of nature in modern societies” man needs to exert a loving relationship with nature because the quality of people’s lives is depending on resource preservation. The environment becomes crucial in the development of social relationships, but nature is degraded. Therefore, there is an importance of the struggle for the preservation of natural resources. The environment should be better worked on by the geographers, like a stone being polished (RECLUS, 2010).

One can understand the concept of the environment within Critical geography as a totalizing object (EVERED, 2017; LAHIRI-DUTT, 2017; HENRY, 2020). Thus, the environment becomes a problematic result of ecological character by the fact of being modified or built by social/human action (LANE, 2016; BLESÁ; RIPOLLÉS, 2020). This analysis is highly articulated by social classes (HENRY, 2020).

Contemporary geography (4): highlighted by Bernardes (2009, p. 14), can be referred to as a result of the prevailing thinking in the late 20th and early 21st centuries. Among other Brazilian scholars dealing with the environmental perspective, Suertegaray (2002), Gonçalves (2004) and Mendonça (2010), were considered important. These authors emphasized the relationship between man and nature, considering that it depends on the relationship between people as well, according to the way we produce and use resources that derive the environmental issue.

In a broader perspective, it can be said that Contemporary geography, according to Suertegaray (2002, p. 27) considers the concept of environment as opposed to “landscape, although this has also converted in time, taken over by other settings, such as environment, habitat, ecosystem, all of them designating the outside world to man”. In the sense of the relationships of human beings (society) with the environment today, according to Souza (2002), promote meaningful transfiguration in nature and in the nature of objects. Cloning, transgenic (GM), informatics (IT), and environmental problems represent these changes before the significant transformation to enable the creation of new concepts.

Western culture expresses the concept of nature that outsources man and from that moment on, starts treating him individually (KUDAIBERGENOVA, 2017). Thus, social relations become essential for understanding the domination of nature (KUDAIBERGENOVA, 2017). The environmental issue is an expression of the relationships between men, held in societies with different organizational forms (DESAI, 2017). In these, nature is essential as a resource, becoming a secondary element, increasingly degraded by the relations of the society, according to the mode of production of each cultural society (GONÇALVES, 2004; MURRAY, 2021).

Culture, according to Gonçalves (2004, p. 83) "is one of the sectors of society, so one cannot say that all the societies degrade nature". An example is Indian tribes whose relationship with nature and concepts derive from it, and it is different from western capitalist culture (GONÇALVES, 2004; MURRAY, 2021). In fact, it can be stated that man produces culture by his own nature (FLADVAD; KLEPP; DÜNCKMANN, 2020). However, development can change cultural habits, also changing concepts that were built in the past.

The environment from a biological perspective is expressed as an ecosystem, being the connection between living beings and nature, considering the diversity of its places and complexity. The environment can also be designed as a place where one lives, related to everyday life: home, school, work (KUDAIBERGENOVA, 2017; PERRONS, 2017).

An environment component such as the biosphere arises to explain the independence of socio-environmental realities worldwide as the Earth is the matrix of all life. In this sense, the geographic view expresses that environment is our support for ecological networks, so-called "new territory", where design and environmental concepts become priorities (HAESBAERT; GONÇALVES, 2006, p. 12).

The current conception of geography by Vesentini (2008, p. 26) includes the environment into an effort to combine nature (physical, surroundings, and objects) with society. These relationships bring many impacts of human beings to their environment. In addition, degradations are studied in different levels in different countries (WATTS, 2015; CAGLAR, 2020), showing that man impacts the geographic space and, thus, modifies it.

The design of the environment that we are sharing is fundamental in understanding the importance of the environment that is being dealt with the population of various countries. Thus, "in Brazil, for example, speaking about the environment, first of all, means a struggle for solving serious social problems, that significantly characterized the national geographic space" (MENDONÇA, 2010, p. 71).

Hence, the term environment in general, is considered as a set that covers all the aspects of the site and needs to be appreciated, respected and preserved (WATTS, 2015). There is a need in point of view that includes the notion of human presence, belonging to the environment, with which man possesses natural ties for survival.

MATERIALS AND METHODS

This research has an epistemological nature and uses quantitative and qualitative methods. Some authors suggest mixing two methods through the mean they call triangulation. Achieving the final goal is a process-orientated by two references, symbolically placed at the vertices of the triangle (SIENA, 2007), which exposes the relationship of dependency both qualitatively and quantitatively. Based on this procedure, we analyze the data seeking to reveal the environmental design used by some geography teachers in Brazil. In order to do this, we followed these steps:

Step 1 - Bibliographic survey: the literature review of this research aimed to analyze the concept of environment by different authors of geographic and related areas. Such a review, according to Siena (2007, p. 66) was "developed from already published materials in books, journal articles and materials available on the internet". This procedure allows greater coverage of surveyed subject on the research topic.

Step 2 - Choice of respondents: Interview with academics to analyze the conception about the environment, Contemporary geography, by selecting geographers that approach the issue, also there were sent emails with research tools to doctors who teach Geography at the college level.

Geography teachers were chosen to answer the questionnaires by analyzing their CV's published in the Lattes database (Brazilian register of researchers), based on the following criteria (NECKEL, 2014):

-work experience and titles;

- popularity in the scientific world, publications in the environmental field;
- working or teaching courses that are related to environment or environmental issue.

It was sought to find out through the questionnaire if the respondents have noticed changes in the way of conceiving on the concept of the environment throughout teaching, and what the design of environment for the interviewees would be. In this context, conducting opinion surveys in the area of geography becomes extremely important for understanding the perceptions of the interviewed public about the importance of the researched subject (WARDROPPER et al., 2020). In this case, it deals with the theme: environment. Being notorious, studying the environment for the importance of identifying socio-cultural patterns in the geographic sciences, which are generally not well understood by contemporary society (MAGNUS; MACHADO; CÁCERES, 2018).

Step 3 - Application of research tools: questionnaires were sent to 35 teachers, providing 30 days to answer the questions. Subsequently, the data were tabulated and analyzed.

Step 4 - Selecting the method for data tabulation given by respondents to the survey instruments: to analyze data from research sources, the content analysis method was applied. Through its applicability, it becomes possible to classify elements into categories, investigate them, and categorize what they have in common (BARDIN, 2011; WATTS, 2015).

Method of Analyzing the Content (MAC) is a set of methodological tools that are applied to diverse discourses (BARDIN, 2011). Using MAC, it is possible to extract from data encoded to models, based on the deduction, that is, the inference. In this case, the method is suitable because of the use of content analyses, to take advantage of so-called "quantity" material; the example of research that uses this methodology is the recruitment interview survey.

Step 5 - Tabulation and data analyses: the questionnaires sent to the respondents were compound and aimed to find out the design or the concept of environment adopted by the respondents.

These steps were followed, making it possible to analyze the information that demonstrates different ways of thinking about the environment. Different opinions were crossed within the framework of the views of evaluated authors, while linking the issues from different perspectives such as in relation to Classical geography, Quantitative geography, Critical geography and Contemporary geography (NECKEL, 2014).

ENVIRONMENT CONCEPTIONS ASSIGNED BY BRAZILIAN GEOGRAPHERS

Table 1 can be seen, the answers can be grouped based on two criteria: the relationship between man and nature and the result of the relationship between man and nature. The first group, with regard to answers that reflect the environmental design from the relationship between man and nature, has as keywords or expressions as follows: interrelationship; relationship between man elements of nature. The second group of the answers can be extracted words or key phrases result of the actions of the company, derived phenomena of human action.

Table 1 - Respondents' responses on the concept of environment.

Environment concept in view of the interviewee	
Interviewed	Answers
A	The atmosphere corresponds to the result of the interaction between the factors which contribute to the maintenance of life , in its different dimensions and demonstration scales.
B	The environment is lived geographic space, transformed by man x nature relations .
C	Environment consists of the simple way related to objects that exist in space , their characteristics and conditions.
D	The environment as the junction of natural spaces and human activities is understood .
E	The very general concept of environment would imply a theory, and there is no theory that is not necessarily linked with the society that produces it. The nature conceptions also created by man in society .
F	Environment consists of the universe in which the system is inserted (to be) considered.
G	It is understood that the environment is constituted in a system that embraces the elements of nature and the elements built by man .
H	The concept of environment is very close to the concept of geographical space , being part of the systematic set of objects that are part of space.
I	The environment, leading to interaction man / nature, constitutes the totality of phenomena and at the same time complementary and antagonistic beings with each other .
J	Environment is the surrounding space of the individual or collective relationship in space. Especially in relation to human lives, the environment can be considered a conceptual and symbolic human production constructed in a material way.
K	The environment consists of landscapes that appear as units of study that help in the understanding of the spatio-temporal plurality of the space of human production.
L	The physical and chemical-biological dimension of nature as well as the complex relationships inherent in human society can be understood as the concept of the environment.
M	Environment in which abiotic and biotic aspects (including man) relate and interact, promoting changes, transformations and changes within a dialectical process of disintegration and structuring, always seeking a balance that however is precarious.
N	The environment is manifested from a totality of design that forms a set of elements in the geographical space.
O	The environment consists of the integrative perspective of the analysis of geographical space, enhancement of natural spaces with pretensions of seeking results achieved by combinations of relations between landscape and space, relationships between society and nature and processes and dynamics of interaction as protagonists.
P	Environment consists of the study area made up of natural and human elements , closely related and dynamic .
Q	Environment consists of everything that surrounds us with its complex interdependencies .
R	The environment is something that surrounds us, but in terms of facts or phenomena whose natural or transformed properties, affect human life and the natural system , the earth itself, the planet itself.
S	Environment is everything around our reality . Very broad concept, it includes the workplace, family, etc. Would all conditions involving the man that exist in a given space, even without the human presence.
T	The environment is an ambiguous notion and open .
U	The environment is the translation of a great synthesis , which considers the existence of problems with different operational reasons, for example, the search for sustainability.
V	The concept of environment is synonymous with the concept of Environmental Systems .
W	(The respondent does not answer this item in the search).
X	Environment is everything that is external to the subject and that it interacts with .
Y	The concept of environment goes beyond the local sphere, than is immediately visible, revealing himself as problems that affect all humanity and alter the dynamics of terrestrial nature.
Z	The environment is the spatial relationship between man and the elements of nature .
AA	Environment: concept that integrates multiple dimensions in continuous interaction involving: atmosphere, geosphere, hydrosphere, biosphere, noosphere, psychosphere.

Source - Respondents to the question (research).

Concerning the general exploratory analysis of the interviews, each respondent was attributed by a repeating Latin alphabet letter ("AA") in order to remain anonymous responses. The application of Method of Analyzing the Content (MAC) (BARDIN, 2011) allowed the classification the interviewees' notion about the concept according to Classical geography, Quantitative geography, Critical Geography and Contemporary Geography, shown in Figure 1.

Respondents "A", "D", "F", "Q", "R", "S", "T", "V" have the conception of environment, that treats a man as an external agent, considering all the surrounding objects with their complex interrelationship. This way, the environment represented through models is typical for Quantitative geography. This view is expressed in the construction of environmental concept tied to ecological models. In these sights, the environment conception refers to the one that coincides with General System Theory, considering the environment as a subsystem in relation to a larger one than the universe. It is known that "the application of the Theory of Systems debuted in the United States in the early decades of the 20-th century in accordance with the Cybernetics advancement". Systems were defined two sets of elements relating to each other with a certain degree of organization seeking to reach a goal or an objective. Moreover, "any set of objects that have common properties can be considered as a system; however, several criteria were lined by different authors in order to individualize the sets", thus, turning the concept of environment into a relationship between society and nature, or nature as a product of society" (SALES, 2004, p. 127).

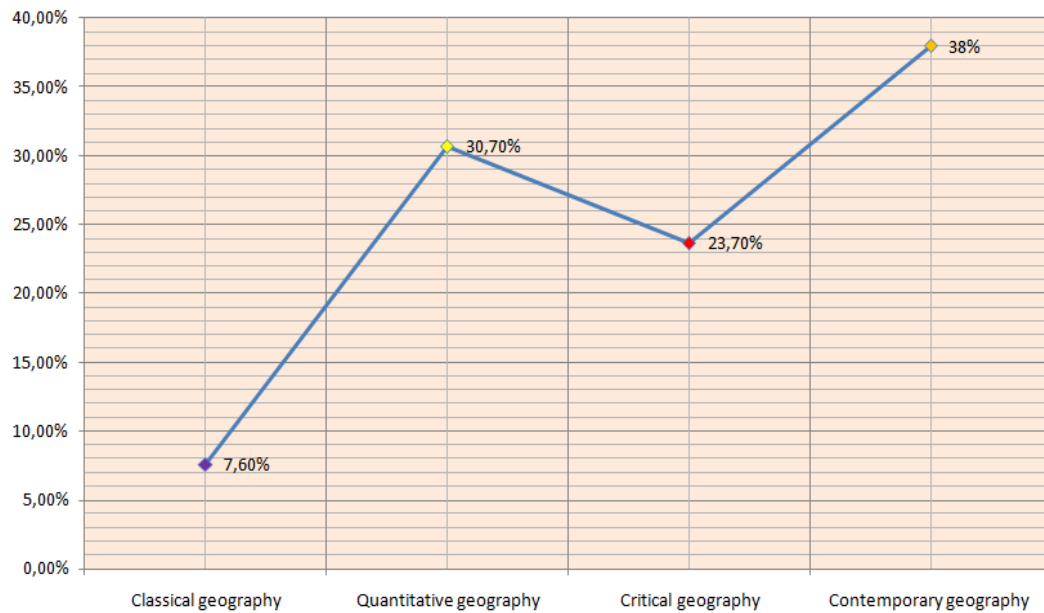
On the same view, the environment is reflected in all conditioning factors involving humans or those that exist in geographical space without the human presence (FERRETTI, 2020). This, in turn, can be represented using mathematical models (MURAKAMI; YAMAGATA, 2020). So, the ambience is synonymous of the environment, demonstrating that this is a controversial and open-end notion (NECKEL, 2014). One of the interviewees of this group reported that the most important for geography would be to "territorialize the environment" and use theoretical and methodological procedures allowing diagnosis, and predicting the environmental complexity-diversity. It is considered to be three entries (Bertrandianas): Geosystem (naturalistic entry), Territory (socio-economic input) and Landscape (socio-cultural input) an advance in terms of environmental studies that "these social practices are pointing to a resize of relationships between society and nature. Some items identified as ecological, sustainable, self-manageable and some for modelling" (MENDONÇA, 2010, p. 74). However, some strands of Critical Geography were found regarding environmental concept through the answers given by the interviewees "C", "H", "I", "N", "AA".

Furthermore, the environment approaches to the geographical space refer to the appropriation process and use of the territory by various social agents, referring to Critical geography. From this perspective, the analysis approaches revealed "main features of dialectics and /or anarchism, valuing differences and diversity in the environment". These respondents assume a conception of "totalizing the environment, which is coordinated by social classes" (BERNARDES, 2009, p. 14). According to Reclus (2010, p. 88), in this conception of the environment: "Man should not be included as a naturalized element, but as a social being that is product and producer of various environmental stresses".

In other environmental conception, the interviewees "B", "J", "K", "L", "M", "O", "P", "U", "X", "Y" assume in their answers that the shed in Contemporary geography, concluding that environment is a lived space and is transformed by the relations man versus nature, not only matching with their relationship but being the fruit, the result of these relationships, the influence of man over nature. According to Valcárcel (2000), this relationship that man has with the environment is originated from the beginning of human existence and is related to the history of the planet, thereby revealing relations to reflect the environment in geographic sciences in a contemporary way.

Regarding the vision of Contemporary geography assigned by the interviewees, the conception of the environment is corresponding to the medium where abiotic and biotic (including man) aspects relate and interact, leading to changes, transformations and adaptations, in a dialectical process of structuring and restructuring, aiming a balance that not always can be achieved in a more integrated way (KUDAIBERGENOVA, 2017). In this sense, the concept of environment needs to be distinguished from nature: it can be seen as all that is external to the subject and interacts with him, including the physical, chemical, biological, social, cultural and economic processes. Figure 1 demonstrates the reported conception of the environment of 26 from 27 interviewees, considering that the respondent ("W") did not allocate any conception of the environment within the research.

Figure 1 - Geographic thought about the concept of environment given by the interviewees.



Source - Adapted to the respondent's answers.

There are four basic concepts of environment, stated in the theoretical reference, that are the most common and present in different periods of geography formation exposed in the theoretical reference: Classical geography, Quantitative geography, Critical geography and Contemporary geography. In these classifications, assigned in accordance with the interviewees answers (Figure 1), variations may be noted regarding the conception of environment concerning the geographical thought.

Regarding the manner that interviewees think of the environment, considering the views of Classical geography, Quantitative geography, Critical geography and Contemporary geography, one realizes that a minority assigned the conception of environment based on naturalistic positivism, where man is dissociated from the nature, corresponding to prevailing ideas of Classical period. However, there is a presence of perceptive among the respondents who favor the concept of systematic environment, considering the analysis of different feedback (positive or negative), or a quantitative ecological model of relationships between man and nature.

There are also some bounds with Critical geography, based on environmental issues, totalizing, articulated by social classes, with features aimed on dialectics, or anarchism, considering differences and diversities in the environment (EVERED, 2017; BLESA; RIPOLLÉS, 2020). Finally, a group of respondents favor a view of environment focused on environmental complexity through the dialectical, transdisciplinary method, being the transfiguration of nature, in a perspective of science interaction with natural science of society (HENRY, 2020).

These different ways of perceiving the environment, assigned by the interviewees, reveal differences in attitudes, both theoretically and epistemologically, and this way exposing so many conflicts in the context of geography (MILLINGTON; WAINWRIGHT, 2016). Thus, this is not observed as a standard of thought, but as a common and different way of perceiving the environment (MURRAY, 2021). The conceptions that were aggregated and classified here, according to the most common views in different geographies, reveal the multiplicity of perspectives on environment conveyed by geographers. These, in turn, reveal different worldviews of each researcher in the context of Brazilian geographical thought.

In brief, the interviewed teachers showed a great diversity of conceptions on environment. Hence, the research reveals different epistemological perspectives that are differentiated in opinion of some respondents. Continuing the analysis, the different conceptions of the environment of the respondents (teachers) were grouped on the basis of keywords: nature (first group), models, quantity and factors (second group), diversity and differences in the environment, environmental criticism, environmental degradation, environmental issue, environmental stress (third group), nature, society, materiality and immateriality (fourth group).

The first group (Classical geography) was identified through the responses of the keywords "Nature". This group has a total of 7.6%, identifying the concept of environment as a nature. Thus, the environmental issue is treated differently (SNEDDON, 2020). On the one hand this feature demonstrates the impacts and on the other hand the neutrality of attributable imports of environmental concept that constitute a system, which includes the nature and manmade elements (DONOVAN, 2016). However, appreciating the impacts on the nature (SNEDDON, 2020). In this view, the respondents defend the conception of environment and nature, perhaps rethink and accept the presence of immaterial objects, representations in the concept of environment.

The second group (Quantitative geography) considered keywords: number, pattern and factors. In this category, 30.7 % of respondents were identified. For these, the conception of the environment is linked with Quantitative geography, being understood as a set of phenomena (elements and factors) with physical, chemical and biological properties directly derived from nature including: microclimate, mesoclimate, terrain topography and morphology, soil types, hydrology and hydrography, vegetation and the associated fauna, geology with phenomena of physical equality, chemical and biological properties derived from the human actions.

These latter could be, for instance: air, soil and water pollution, the topoclimas and microclimates of constructed urban spaces (all the buildings and their interior) and rural spaces (agricultural and pastoral resources), all kind of human settlements and their consequences over the morphology of the terrain, hydrography and hydrology with the new features arising from the use (river course deviations, dams, changes in water quality, consumption of aquifer water reserves).

This conception of environment placed in Quantitative geography and assigned by the interviewees, considers the environment as a set of system that cover the elements of nature and elements built by man (MURAKAMI; YAMAGATA, 2020). This system is established on the physical basis that is the geographical area and to geographer it is the study of spatial behavior in this system, where they justify their analyzes and subsidize the integration data in environmental analysis. This thinking, focused on the conception of environment, is assigned by the vast majority of respondents, materializing the environment in its physical form or just based on the objects that can be seen.

They are geographers who work with real objects. So, do not progress in their analyses (BLESA; RIPOLLÉS, 2020). This view is expressed in geographers training and can be identified in curriculum matrixes that value the technical formation, possible revealing the patterns of a Cartesian geography when analyzing the environment.

The third group (Critical geography) was identified with the following keywords: difference and diversity in the environment, environmental criticism, environmental degradation, environmental concerns, environmental stress. This critical approach of geography was assigned by 23.7% of the respondents, for such the concept of environment comprises man as a social producer of various environmental stresses, and the environment is analyzed as an object of social conflicts.

The fourth group (Contemporary geography) was identified by the keywords: nature, society, materiality and immateriality. It is worth remembering that the most part of the respondents (38%) consider environment designed as the whole, expressed in articulation of nature, society, materiality and immateriality. The environment can be material as well as immaterial, which depends a lot on who builds it or who thinks, which, in its turn, depends on the individual or even the whole society. Thus, environment is not summarized only to physical objects, but extends beyond, when it comes to immaterial issues, which may cause the individual to build an environment within the own imagination.

Such a way of building an immaterial environment, according to Silva Junior (2001, p. 1-2) in geographical formation, because "It is up to us, geographers, to allocate a considerable portion of attention to the power of symbols, images, myths and imaginaries constructed by the society". In this sense, the environment is the imaginary fruit that establishes an obligatory connection with the real world, where the entire human representation is.

The "construction of imaginary geography" is based on the abstract environmental construction and does not "pretend to create a new category among many other geographies that exist, because to the extent that the man began building his existence, in this very time created the basis for an imagetive geography" (SILVA JUNIOR, 2001, p. 2).

This construction of environment, based on both materiality and immateriality, considers that the environment can be built specifically, or according to the imagination of each person (NECKEL, 2014). However, this vision of environment can also create great conflicts within geographical sciences, because

geographers can analyze an object in different ways and contexts (MEADOWS, 2020; MURRAY, 2021). This might bring disagreements, because each sees the environment and builds the environment in a different way. An example of this is based on the answers of the interviewed teachers, ranked in the first group, who see the environment expressed in the combination of nature, society, materiality and immateriality, but with different thoughts and views on the environmental concept.

Through these analyzes, made on the respondent's answer regarding the concept and design of environment, expressed and divided into four groups, a great stress of geography was observed when working with environment, due to the multiplicity of concepts and conceptions attributed to the environment.

This multiplicity of opinions does not only apply to the concept or design of how respondents see the environment. One can say that Brazilian geography has been working on environmental issues in their studies in a diversified manner, that is, most studies do not follow a single pattern. It is clear that these diversities of expressions on the environment are not necessarily present in the curricular matrixes that ought to be focused, making the contemporary geographers formation enable to characterize and analyze the environment both in material and immaterial way.

CONCLUSIONS

From this evaluation and the literature on the subject, it was possible to evaluate the conception of environment that is discussed in the formation of geographers in Brazil. This analyzes allows one to understand that in reviewed geographical context remains the environmental conceptions of Classical geography, that is designed as nature, externalizing to humans actions, as well as more contemporary and critical conceptions.

The complexity and changes of environmental conception in Contemporary geography shows that the environment is not only composed of material things, but also immateriality and representations. Thus, environment is everything that can be constructed as the representation, and which may vary according to the interviewees' viewpoint. A clear example of this became evident in the number of concepts and conceptions of environment given by respondents not only in Contemporary geography, but also in Classical, Quantitative and Critical geography. In other words, the conception of environment in geography is based on the variety of concepts.

However, one comes to the conclusion that environment, from the point of view of the respondents, is the interrelationship between the various elements of nature in interaction with society. Furthermore, it is concluded that environment is the result of such interactions that are presented as spaces, being urban or not, of coexistence or social conflict between the natural and social (TUNG et al., 2016). So, it is not something that can be regarded as if it had been determined to set by the nature, or something seen only by the physical focus, but a system that is transformed and built by the means of natural and human interrelations.

Such a view of nature is not new, according to Limberger (2006, p. 97), who states that enlightened approach "pointed to the reason, sensitive data analysis and experience, changing the focus of God-man relationship into nature-man". At the same time, for the so-called Casterian method the goal was to know the parts by systemizing and understanding the nature in order to explain it. Such a method, however, has been proved inefficient as far as could not explain the reality as a whole, because it is presented in a complex way, including the integration and even the chaotic processes that are not fitting the inflexibility of the deterministic method.

It is in this context that appears the systemic approach "as an alternative or supplement to Casterian thought", because "it did not come to remove all that existed about research methods of science, but to group them and then get a deeper understanding of reality" (LIMBERGER, 2006, p. 97). Therefore, as one might infer throughout the research, there is no way to escape from a conception of environment that does not pervades the relationship between man and nature, both in a sense of bond established between them and in the sense of outcome that is produced from this relationship.

This can be observed when the respondents point out that today environment refers to the idea of production and reproduction of spaces (MILLINGTON; WAINWRIGHT, 2016). This means that environment no more just what is placed by the nature as well as by man, but particularly, social, and environmental relations.

Even though the concept of environment has exceeded its naturalistic design for the vast majority of respondents, it is noted that treatment of environmental studies is different when taking the geographers

working in systemic perspectives. Such are the majority and there are those who promote a totalizing analysis of dialectical perspective, the first defend the forwarding proposals that will solve environmental problems, the most critical second intend to a purely technical approach, seek to explain the roots of environmental problems.

REFERENCES

ALVES, Ana Paula Aparecida Ferreira; SAHR, Cicilian Luiza Löwen. Geografia ensinada – geografia vivida? Conceitos e abordagens para o ensino fundamental no Paraná. **Revista Discente Expressões Geográficas**, Florianópolis, n. 5, v. 5, p. 49-60, 2009.

ASHUTOSH, Ishan. The Geography and Area Studies Interface from the Second World War to the Cold War. **Geographical Review**, v. 107, n. 4, p. 705-721, 2017. <http://dx.doi.org/10.1111/gere.12243>. <https://doi.org/10.1111/gere.12243>

BARDIN, Laurence. **Análise de Conteúdo**. São Paulo: Edições 70/Almedina Brasil, 2011.

BERNARDES, Fernando Frederico. **(MEIO) Ambiente: quebrando paradigmas na literatura e no ensino da Geografia e da biologia – resultados preliminares**. In: ENCONTRO NACIONAL DE PRÁTICAS DE ENSINO EM GEOGRAFIA. Porto Alegre: Enpeg, 2009. p. 1 - 19. Edição X.

BLESA, Andreu; RIPOLLÉS, María. Critical capabilities for widening international new ventures' geographical scope. **European Management Journal**, p. 1-13, 2020. <http://dx.doi.org/10.1016/j.emj.2020.09.003>. <https://doi.org/10.1016/j.emj.2020.09.003>

BRANDLI, Luciana Londero; PRIETTO, Pedro Domingos Marques; NECKEL, Alcindo. Estimating the Willingness to Pay for Improvement of an Urban Park in Southern Brazil Using the Contingent Valuation Method. **Journal of Urban Planning and Development**, v. 141, n. 4, p. 1-10, 2015. [http://dx.doi.org/10.1061/\(asce\)up.1943-5444.0000254](http://dx.doi.org/10.1061/(asce)up.1943-5444.0000254). [https://doi.org/10.1061/\(ASCE\)UP.1943-5444.0000254](https://doi.org/10.1061/(ASCE)UP.1943-5444.0000254)

CAGLAR, Abdullah Emre. The importance of renewable energy consumption and FDI inflows in reducing environmental degradation: bootstrap ardl bound test in selected 9 countries. **Journal of Cleaner Production**, v. 264, p. 121663, 2020. <http://dx.doi.org/10.1016/j.jclepro.2020.121663>. <https://doi.org/10.1016/j.jclepro.2020.121663>

CAMARGO, José Carlos Godoy; JUNIOR, Dante Flávio da Costa Reis. Considerações a respeito da geografia neopositivista no Brasil. **Geografia**, Rio Claro, v. 29, n. 3, p. 355-382, 2004.

CIDADE, Lúcia Cony Faria. Visões de mundo, visões da natureza e a formação de paradigmas geográficos. **Revista Terra Livre**. São Paulo, v. 17, n. 17, p. 99-118, 2001.

CORRÊA, Roberto Lobato. **Meio Ambiente e a Metrópole**. In: MESQUITA, Olindina Vianna; SILVA, Solange Tietzmann. Geografia e questão ambiental. Rio de Janeiro: IBGE, Departamento de Geografia, 1993.

DESAI, Vandana. Black and Minority Ethnic (BME) student and staff in contemporary British Geography. **Royal Geographical Society (with IBG) - Area**, v. 49, n. 3, p. 320-323, 7 ago. 2017. <http://dx.doi.org/10.1111/area.12372>. <https://doi.org/10.1111/area.12372>

DIEGO, José Díaz. El encantamiento de la ecología. Capitales religiosos en el ecologismo moderno. **Boletim Goiano de Geografia**, v. 29, n. 2, p. 1-2, 2010. <http://dx.doi.org/10.5216/bgg.v29i2.9012>. <https://doi.org/10.5216/bgg.v29i2.9012>

DONOVAN, Amy. Geopower. **Progress In Human Geography**, v. 41, n. 1, p. 44-67, 2016. <http://dx.doi.org/10.1177/0309132515627020>. <https://doi.org/10.1177/0309132515627020>

EVERED, Kyle T.. Beyond Mahan and Mackinder: situating geography and critical geopolitics in middle east studies. **International Journal of Middle East Studies**, v. 49, n. 2, p. 335-339, 2017. <http://dx.doi.org/10.1017/S0020743817000125>. <https://doi.org/10.1017/S0020743817000125>

FABRÍCIO, Deyse Cristina Brito; VITTE, Antonio Carlos. Paul Vidal de La Blache e a Geografia Francesa: do contexto histórico às monografias urbanas. **Revista Cordis: Revista Eletrônica de História Social da Cidade**, São Paulo, v. 6, n. 6, p. 301-332, 2011.

FERRETTI, Federico. Critical Geographies. **International Encyclopedia of Human Geography**, p.

37-43, 2020. <http://dx.doi.org/10.1016/b978-0-08-102295-5.10632-8>. <https://doi.org/10.1016/B978-0-08-102295-5.10632-8>

FLADVAD, Benno; KLEPP, Silja; DÜNCKMANN, Florian. Struggling against land loss: environmental (in)justice and the geography of emerging rights. **Geoforum**, v. 117, p. 80-89, 2020. <http://dx.doi.org/10.1016/j.geoforum.2020.09.007>. <https://doi.org/10.1016/j.geoforum.2020.09.007>

FONSECA, Valdelúcio Nascimento; CARACRISTI, Isorlanda. **Os Princípios Geográficos e suas Relações com a Consolidação da Ciência Geográfica**. In: XV Encontro de Geógrafos do Ceará, Fortaleza - XV EGECE, 2009.

GONÇALVES, Carlos Walter Porto. **Os (Des) Caminhos do Meio Ambiente**. 11 ed. São Paulo: Contexto, 2004. 148 p.

HAESBAERT, Rogério; GONÇALVES, Carlos Walter Porto. **A nova des-ordem mundial**. 1 ed. São Paulo: Editora UNESP, 2006. 157 p.

HENRY, Jacob. Beyond the school, beyond North America: new maps for the critical geographies of education. **Geoforum**, v. 110, p. 183-185, 2020. <http://dx.doi.org/10.1016/j.geoforum.2020.01.014>. <https://doi.org/10.1016/j.geoforum.2020.01.014>

KEIGHREN, Innes M.; CRAMPTON, Jeremy W.; GINN, Franklin; KIRSCH, Scott; KOBAYASHI, Audrey; NAYLOR, Simon N; SEEMANN, Jörn. Teaching the history of geography. **Progress in Human Geography**, v. 41, n. 2, p. 245-262, 2016. <http://dx.doi.org/10.1177/0309132515575940>. <https://doi.org/10.1177/0309132515575940>

KUDAIBERGENOVA, Diana T.. "My Silk Road to You": Re-imagining routes, roads, and geography in contemporary art of "Central Asia". **Journal of Eurasian Studies**, v. 8, n. 1, p. 31-43, 2017. <http://dx.doi.org/10.1016/j.euras.2016.11.007>. <https://doi.org/10.1016/j.euras.2016.11.007>

LAHIRI-DUTT, Kuntala. Thinking 'differently' about a feminist critical geography of development. **Geographical Research**, v. 55, n. 3, p. 326-331, 2017. <http://dx.doi.org/10.1111/1745-5871.12211>. <https://doi.org/10.1111/1745-5871.12211>

LANE, Stuart N.. Slow science, the geographical expedition, and Critical Physical Geography. **The Canadian Geographer / Le Géographe Canadien**, v. 61, n. 1, p. 84-101, 2016. <http://dx.doi.org/10.1111/cag.12329>. <https://doi.org/10.1111/cag.12329>

LEFF, Enrique. **A complexidade ambiental**. Tradução de Eliete Wolff. São Paulo: Cortez, 2003. 342p.

LENS, Michael C.. Measuring the geography of opportunity. **Progress In Human Geography**, v. 41, n. 1, p. 3-25, 2016. <http://dx.doi.org/10.1177/0309132515618104>. <https://doi.org/10.1177/0309132515618104>

LIMBERGER, Leila. Abordagem sistêmica e complexidade na geografia. **Geografia**, Londrina, v. 15, n. 2, p. 95-109, 2006.

MAGNUS, Luíza Z.; MACHADO, Renata F.; CÁCERES, Nilton. Ecogeography of South-American Rodentia and Lagomorpha (Mammalia, Glires): roles of size, environment, and geography on skull shape. **Zoologischer Anzeiger**, v. 277, p. 33-41, 2018. <http://dx.doi.org/10.1016/j.jcz.2018.06.002>. <https://doi.org/10.1016/j.jcz.2018.06.002>

MEADOWS, Michael E.. Geography Education for Sustainable Development. **Geography and Sustainability**, v. 1, n. 1, p. 88-92, 2020. <http://dx.doi.org/10.1016/j.geosus.2020.02.001>. <https://doi.org/10.1016/j.geosus.2020.02.001>

MENDONÇA, Francisco. **Geografia e meio ambiente**. 8. ed. São Paulo: Contexto, 2010. 80 p.

MILLINGTON, James D. A.; WAINWRIGHT, John. Mixed qualitative-simulation methods. **Progress In Human Geography**, v. 41, n. 1, p. 68-88, 2016. <http://dx.doi.org/10.1177/0309132515627021>. <https://doi.org/10.1177/0309132515627021>

MURAKAMI, Daisuke; YAMAGATA, Yoshiki. Models in quantitative geography. **Spatial Analysis Using Big Data**, p. 159-178, 2020. <http://dx.doi.org/10.1016/b978-0-12-813127-5.00006-0>. <https://doi.org/10.1016/B978-0-12-813127-5.00006-0>

MURRAY, Alan T.. Contemporary optimization application through geographic information systems.

Omega, v. 99, p. 102176, 2021. <http://dx.doi.org/10.1016/j.omega.2019.102176>.
<https://doi.org/10.1016/j.omega.2019.102176>

NECKEL, Alcindo. **A Questão ambiental nos cursos de graduação em geografia no Brasil e o pensamento geográfico sobre o conceito de ambiente**. 2014. 144 f. Tese (Doutorado) - Curso de Programa de Pós-Graduação em Geografia, Universidade Federal do Rio Grande do Sul, Porto Alegre, 2014. Cap. 6.

NECKEL, Alcindo; PANDOLFO, Adalberto; ROJAS, José Waldomiro Jiménez; FANTON, Gilson, MARTINS, Marcele Salles, PANDOLFO, Luciana Marcondes; KUREK, Juliana. Recuperación ambiental de un área verde urbana. **Revista de Ciencia y Tecnología**, v. 11, n. 1, p. 33-41, 2009.

PERRONS, Diane. Social theory, economic geography, space and place: reflections on the work of ray hudson. **European Urban and Regional Studies**, v. 24, n. 2, p. 133-137, 2017. <http://dx.doi.org/10.1177/0969776416689221>. <https://doi.org/10.1177/0969776416689221>

RECLUS, Élisée. **Do sentimento da natureza nas sociedades modernas**. Org. e Trad. de COELHO, Plínio Augusto. São Paulo: Expressão e Arte: Editora Imaginária, 2010. 95 p.

SALES, Vanda de Claudino. Geografia, sistemas e análise ambiental: abordagem crítica. **GEOUSP: Espaço e Tempo**, São Paulo, v. 2, n. 16, p.125-141, 2004. <https://doi.org/10.11606/issn.2179-0892.geousp.2004.73959>

SCHONARDIE, Elenise Felzke. **Dano ambiental: a omissão dos agentes públicos**. Passo Fundo: UPF, 2003. 128 p.

SIENA, Osmar. **Metodologia da Pesquisa Científica: Elementos para Elaboração e Apresentação de Trabalhos Acadêmicos**. Gepes. Ppgmad. Departamento de Administração, Porto Velho: Unir, 2007. 201 p.

SILVA JUNIOR, Otoniel Fernandes da. Por uma Geografia do Imaginário: percorrendo o labiríntico mundo do imaginário em uma perspectiva geográfica cultural. **Labirinto** (Porto Velho), v. 3, p. 3, 2001.

SHEPPARD, Eric; PLUMMER, Paul. Economic Geography, Quantitative. **International Encyclopedia of Human Geography**, p. 328-331, 2009. <http://dx.doi.org/10.1016/b978-008044910-4.00218-2>.
<https://doi.org/10.1016/B978-008044910-4.00218-2>

SNEDDON, Chris. Environmental Studies and Human Geography. **International Encyclopedia of Human Geography**, p. 253-258, 2020. <http://dx.doi.org/10.1016/b978-0-08-102295-5.10790-5>.
<https://doi.org/10.1016/B978-0-08-102295-5.10790-5>

SOUZA, Marcelo Lopes de. **Mudar a cidade: uma introdução crítica ao planejamento e à gestão urbanos**. 2. ed. Rio de Janeiro: Bertrand Brasil, 2002, 560 p.

SUERTEGARAY, Dirce Maria Antunes. **Geomorfologia e Geografia física: uma (re) leitura**. 1. ed. Editora Unijur, Rio Grande do Sul, 2002. 126 p.

SUERTEGARAY, Dirce Maria Antunes; SCHÄFFER, Neiva Otero. **Análise ambiental: a atuação do geógrafo para e na sociedade**. In: MESQUITA, Olindina Vianna; SILVA, Solange Tietzmann. Geografia e questão ambiental. Rio de Janeiro: IBGE, Departamento de Geografia, 1993.

TUNG, Elizabeth L.; PEEK, Monica E.; MAKELARSKI, Jennifer A.; ESCAMILLA, Veronica; LINDAU, Stacy T.. Adult BMI and Access to Built Environment Resources in a High-Poverty, Urban Geography. **American Journal of Preventive Medicine**, v. 51, n. 5, p. 119-127, 2016. <http://dx.doi.org/10.1016/j.amepre.2016.04.019>. <https://doi.org/10.1016/j.amepre.2016.04.019>

VALCÁRCEL, Ortega. **Los horizontes de la geografía**. Barcelona: Ariel, 2000. 604 p.

VESENTINI, José William. **Novas Geopolíticas**. 4. Ed. São Paulo: Contexto, 2008. 128 p.

WANDERLEY, Artur Maia; MACHADO, Isabel Cristina Sobreira; ALMEIDA, Erton Mendonça de; FELIX, Leonardo Pessoa; GALETTO, Leonardo; BENKO-ISEPPON, Ana Maria; SORK, Victoria L.. The roles of geography and environment in divergence within and between two closely related plant species inhabiting an island-like habitat. **Journal of Biogeography**, v. 45, n. 2, p. 381-393, 2017. <http://dx.doi.org/10.1111/jbi.13137>. <https://doi.org/10.1111/jbi.13137>

WARDROPPER, C.B.; MASE, A.S.; QIU, J.; KOHL, P.; BOOTH, E.G.; RISSMAN, A.R. Ecological

worldview, agricultural or natural resource-based activities, and geography affect perceived importance of ecosystem services. **Landscape And Urban Planning**, v. 197, p. 103768, 2020. <http://dx.doi.org/10.1016/j.landurbplan.2020.103768>.

<https://doi.org/10.1016/j.landurbplan.2020.103768>

WATTS, Glenn. Applied physical geography. **Progress In Physical Geography: Earth and Environment**, v. 39, n. 1, p. 121-129, 2015. <http://dx.doi.org/10.1177/0309133314561541>.

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