ENVIRONMENTAL PERCEPTION AND AFFECTIVITY: EXPERIENCES IN A COMMUNITY GARDEN[1]

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1. Introduction

Community gardens in urban areas can provide benefits both for the environment and local communities. Their implementation and maintenance is the responsibility of the government, which offers technical support in association with educational institutions and civil society organizations (COSTA et al., 2015b). These spaces can help regulate the local climate and enhance biodiversity and, as a social technology, can boost household income and improve community health (CARDONA; BARRETO, 2014; COSTA et al., 2015a; LUCENA et al., 2015).

Exploratory and descriptive research has focused on the following dimensions of community gardening: the role of environmental education in raising awareness in schools; social empowerment through strengthening of local economies and the creative force of work processes, with emphasis on freedom, community spirit, and emancipation; and counterculture, marked by movements pioneering new ways of living in cities, such as permaculture and urban agroecology (CALGARO; ALFONSO; ARAÚJO, 2013; BRAGA; ZAMITH, 2014; QUEVEDO et al., 2015). However, are community gardens able to restore family bonds and reclaim community traditions? And how do the users of these spaces perceive experiences and socioenvironmental interactions in these settings?

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In view of the interest in understanding experiences associated with the person--community garden relationship, we adopted a theoretical framework based on environmental psychology. From this perspective, environmental perception refers to the way people experience their surroundings, with emphasis on physical, cultural, social and historical dimensions. Human beings located in a spatial field establish signs and meanings from the contexts that surround them, interpreting and acting in the environment (KUHNEN, 2011). One of the elements of this process, affectivity, represents a dialectical response based on intensely centered affect that breaks with a behavior pattern, eliciting new behaviors through physiological actions and people's life histories (SAWAIA, 2004 *apud* SALES et al., 2012).

No one is affected being alone or isolated. Even in imaginative processes, another image acts as a provider. Thus, the affective experience in the symbolizations of community gardens may be regarded as a bridge towards pro-environmental and social behavior. In nature, the perception of affects can inspire individuals to take responsibility for caring for the environment. The environmental space can either facilitate or hinder the expression of variables that regulate pro-environmental and social behavior and therefore environments perceived as positive tend to generate these behaviors (CORRAL-VERDUGO et al., 2014). These variables represent dimensions interwoven with the concept of quality of life, such as inter and intragenerational solidarity, respect, equality, and environmental preservation and restoration. In short, quality of life is manifested in personal, relational and environmental balance (POL, 2009).

Among the behaviors observed from the appropriation and perception of our surroundings, the concept of territoriality is set in the ambience made in the intersubjectivity of people, in which sociospatial constructions are experienced within the mental systematization of structures incorporated into everyday life. City images are cognitively organized and analyzed in the field of urban planning using mental maps, since they tend to reveal aspects of how individuals relate to built or natural spaces (LYNCH, 2010). Within the field of environmental psychology, the researcher Zulmira Bomfim (2010), in an attempt to capture the affects linked to the representation of cities, broadened the use of these instruments and created affective maps. The author demonstrated that by using symbolizations together with the construction of metaphors it is possible to analyze the subjective expression of people in the representations transmitted through the drawings.

Considering the potential community gardens have to promote positive affectivity and restore family bonds and reclaim community traditions, this study analyzed the environmental perception and affects of participants of a government community gardens program in a provincial city in the State of Paraná, located in the south of Brazil. The program, which has been running since 2000, involves the creation of strategically-located gardens on areas of vacant land severely affected by the improper disposal of waste. The program is a joint initiative between the local council's environment, public services, and health departments aimed at creating community spaces that promote economic activities and healthy eating. At the time of the study, the program benefitted approximately 700 families who grew up to 250 tons of produce per year adopting agroecological practices and sold it onsite mainly to local residents (O DIÁRIO, 2016).

2. Methodology

We conducted an exploratory descriptive case study using a qualitative research approach. This study was approved by the Research Ethics Committee (application number 1.953.029).

Research was conducted in a community garden in a provincial city in the State of Paraná, located in the south of Brazil, founded in 1947 and inspired by the garden city concept of modernist architecture. The city faces typical environmental problems associated with rapid population growth, including increasing pressure on water resources and significant increase in the amount of solid waste, thus posing a number of challenges for local government environmental and health managers. In order to mitigate and prevent environmental impacts, the local government has developed various actions aligned with national environmental policy to promote sustainable development and improvements in quality of life. Among these is the "Community Gardens" program, which is a joint initiative between the local council's environment, public services, and health departments (MAROSTICA, 2010).

Research was conducted *in loco* in order to capture the natural dynamics of the study setting. Fourteen users of the community garden were randomly-selected to participate in the study based on availability. The study objective was explained to the participants, who signed an informed consent form guaranteeing confidentiality and freedom to withdraw from the study at any time. Research was conducted over a period of two months in two stages. In the first stage, interviews were conducted with the participants comprising a closed socioeconomic questionnaire containing items addressing sex, age, social class, level of schooling, occupation, and experience of living in rural areas, and open questions regarding their experiences in the garden and its relationship with mental health, affects, and quality of life. The answers were recorded by the researcher who did not interfere in the answers in order to capture the first impressions of the interviewees over their affects and experiences in the garden. In the second stage, the participants were asked to draw an affective map depicting the garden and elaborate a phrase depicting the garden.

The "Affective Map Generator Instrument" (*Instrumento Gerador de Affective maps* - IGMA) was developed by Bomfim (2010) to capture the affects. People reveal their perceptions and affectivity in relation to the environment through the production of images and syntheses associated with their feelings and relationship with their surroundings. For the purposes of this study, the maps were adapted to account for the fact that the majority of participants were elderly and had low levels of schooling, particularly in relation to the elaboration of metaphors and the exclusion of the attribute "quality", given that in a pilot study undertaken in a different garden with a similar socioeconomic structure and context the users had trouble answering these items. The metaphor was adapted to the elaboration of "a phrase that represents the garden", thus giving rise to representations and signs. To gain an insight into affects and feelings and the participants' representation of the environment, they were asked to represent the garden in a drawing (map), without worrying about size and proportions and artistic merit, and to write a phrase that represented the garden. They were then asked to answer some questions in

order to gain a better understanding of their perceptions of the associated elements in the map and the phrase.

The maps were analyzed by quantifying and coding the elements presented, thus transmuting raw data into usable information and allowing for the categorization of the units in accordance with drawing type (cognitive or metaphoric) and the affects and feeling attributed to the drawing and metaphor. The qualitative analysis of the codes and categories was performed using the content analysis method developed by Laurence Bardin (2009). The comments of each interviewee were categorized into themes according to the text units in repeated phrases or words, which tend to reveal representations, beliefs and behavior intentions (SILVA; FOSSÁ, 2013; CAREGNATO; MUTTI, 2006). Content analysis was performed using the software MAQXDA-12 (ZAMITH-CRUZ, et al., 2016). It is important to note that some answers fitted into more than one category since any given answer may attribute meanings and senses from different perspectives.

3. Results

The *sociodemographic characteristics* of the participants are shown in table 1. The group was made up of seven men and seven women. The predominant salary range was "E" (two to four minimum salaries), while the majority of participants were retired and had completed secondary school. All participants had lived in rural areas during childhood and/or adolescence.

Table1. Sociodemographic characteristics of the participants

Variables		Group (n=14)
Sex	Male	7
	Female	7
Age	50 to 59 years	6
	Over 60 years	8
Schooling	Preschool	4
	Primary school	2
	Secondary school	8
Occupation	Retired	6
	Self-employed sales representative	3
	Driver	1
	Production assistant	1
	Tailor	2
	Housewife	1
Family salary range	D (2 to 4 minimum salaries)	3
	E (1 to 2 minimum salaries)	11

Source: Authors

Using the MAXQDA-12 it was possible to codify and determine the frequency of occurrence of each of the themes represented by the interviewees in the affective maps, as shown in Table 2. A total of seven categories were created according to the following attributions: the perception of an environment that promotes "distraction", "occupies time", and "relaxation" (n=6); mental health and quality of life (n=3); relations (socioenvironmental interaction) (n=2); productivity (n=2), healthy eating (n=2); and economy and livelihood (family economy) (n=2). Unpleasantness was mentioned once, revealing the occurrence of contrasting opinions in relation to the garden.

Table 2. Results obtained from the affective maps produced by the users of the community garden.

Categories	**Meanings**
1. Distraction and restoration	1.1 Distraction/passing time 1.2 Occupy the mind 1.3 Peaceful 1.4 Get rid of bad thoughts 1.5 Forget problems and pains
2. Mental health and quality of life	2.1 Pleasure 2.2 "Like a Therapy" 2.3 Gratification 2.4 Pleasantness
3. Productivity	3.1 Produce 3.2 Harvest 3.3 Grow
4. Economy and livelihood	4.1"A bit of extra money" 4.2 Household food 4.3 Sales
5. Healthy eating	5.1 "Healthy and without poison" 5.2 Organic production
6. Relations	6.1 Interaction 6.2 Sharing.
7. Unpleasantness	7.1 Disunity

Source: Authors

The questions helped understand the results obtained from the affective maps. *The perception of a restoring environment* was the most present theme in the answers given by the participants, who highlighted the sensation of distraction and occupying time as elicitors of positive affects.

> "*...because this here is something that allows a person's mind to be free, quiet, peaceful, takes (us) away from vanity...*"
> Interviewee 6

> "*It's a good thing, isn't it? A person comes here, talks, takes their mind off things. It's good for the mind, for the body and everything.* "
> Interviewee 13

Mental health and quality of life were also noted in the responses, reflected in manifestations of pleasure, the perception of the garden as "therapy", pleasantness and of the contrast between health and illness. Perceptions of health benefits are exemplified by the recently retired interviewee10, who revealed that experiencing lack of activity is something that can lead to illness, while interviewee 11 refers to "bad thoughts", mentioning the sensation of persecution and restlessness linked to his recent retirement and confirming that the motivation to frequent the garden and spend time there helped to overcome these thoughts, which were stopping him from leaving the house and interacting in the community.

> "*It's marvelous you know, really emotional. If I wasn't here I would be ill, in hospital; I don't know, I would just sleep at home.* "
> Interviewee 10

> "(...) *before it seemed that at any moment someone would enter the house, I wouldn't leave the house; always closed. Now I go out every day and things have improved. At home I was just terrified of people all the time. Things have improved massively with the garden, because now I can go out …*"
> Interviewee 11

Interviewee 11 worked as a security guard and his persecutory fantasies reflected the violence he faced at work and the fear of possible retaliation or persecution. The positive affects involving his relationship with the environment led to an improvement in his condition and demonstrate the "therapeutic" potential of community gardens.

With respect to *productivity*, the answers depict a feeling of pleasure in harvesting and the characteristics of the plants, while the category *economy and livelihood* includes constructed metaphors and affects involving family income. In relation to *healthy eating*, the participants highlight the absence of chemical products and it is possible to observe pro-social behaviors and the perception of health afforded by eating organic food.

"*...I've been here (name of the city) for 20 years. We only used to be able to buy vegetables in the supermarket. Now everyone has their patch... I take (the produce) home and sometimes I give what's left over that I can't eat to a neighbor whose more in need, I sell...*"
Interviewee 4

the vegetables we grow here in the garden don't have agrochemicals and we are careful not to use anything that is harmful to health and helps a lot and we feel, you know, that (our) day-to-day health has improved as well..."
Interviewee 1

The category "relations" encompasses the *socioenvironmental interactions* demonstrated by the answers that refer to relationships with neighbors and sense of connection to the natural environment. Interviewee 9, who mentions talking to the plants and a community experience, demonstrates a feeling of pleasantness. Conversely, interviewee 11 shows discontent. His account presents names, which were left out of the transcription, indicating a feeling of anguish in the discussions between the users:

"(...) *he talks to the others and takes their mind off things, that man stood close to that sign over there, he walks the whole day, arrives in the afternoon talks to the plants. That's good; it takes people's minds off things.* "
Interviewee 9

"(...) *This here garden is anguish... from time to time there are arguments....*"
Interviewee 11

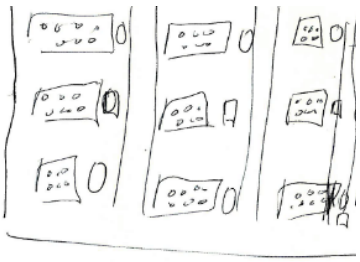
Three maps are presented below to illustrate the codes and themes that emerged in this study:

In this drawing it is possible to highlight the careful representation of the structures of the garden organized in cognitive synthesis (Lynch, 2010). Here the participant sought to demonstrate each bed, emphasizing description and details, including the shade cloth depicted by the "x" covering the entire garden. The metaphor refers to the garden users and alludes to a feeling of pleasure happiness.

Figure 2 and Frame 1. Affective map drawn and inquiry by interviewee 2.

Individual	Structure	Meaning	Feeling	Metaphor	Sense
2	Cognitive (vegetable beds, corridor, entrance and street, health center, covering and green house)	This is the garden, the street, the corridor, and the sign: the "community garden" sign is important	Happiness and pleasure	For the users the garden represents therapy and family livelihood; it is a source of income	When I see the vegetable patch I feel different, I feel pleasure every day

Source: Authors

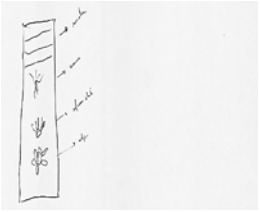


This structure illustrates Lynch's cognitive model. In this drawing the vegetable beds are represented in detail, showing the production of the vegetables and rows. The metaphor emphasizes health and production, with the attribution of sense in sharing and socioenvironmental interactions, completed by the feeling of solidarity and sharing.

Figure 3 and Frame 2. Affective map drawn and inquiry by interviewee 1.

Individual	Structure	Meaning	Feeling	Metaphor	Sense
1	Lynch (vegetable patches and rows)	The garden is like this, corridors, vegetable beds with the plants, water and gate	Solidarity and sharing	The garden is a distraction that generates health and produce	We are counselors, we swap recipes, listen to stories; each person, each vegetable bed has a story

Source: Authors



Here the vegetable bed is represented individually and is metaphoric, which is an observation supported by the interviewee's answer describing feelings of sadness and disunity, including interactions with the other users, and the wish that users participated more.

Figure 4 and Frame 3. Affective map drawn and inquiry by interviewee 5.

Individual	Structure	Meaning	Feeling	Metaphor	Sense
5	Metaphoric	Vegetable bed, plants, disunity	Sadness, disunity	The garden should be more united, more of a community	Greater participation and union

Source: Authors

These maps show the effectiveness of the instrument developed by Bomfim for analyzing affects present in territoriality and environmental perception, illustrating the diverse range and representativeness of feelings. The following section discusses the findings from an environmental psychology perspective.

4. Discussion

The present study provides insights into the perceptions of the users of the community garden regarding affectivity and experiences in this socioenvironmental setting. The themes present in the discourses of the interviewees codified by the affective map instrument reveal the multiplicity of experiences, perceptions and feelings. This diversity was also observed by Egli et al. (2016), who reported 22 variables encompassing the socioenvironmental dimension. In common with the findings of the present study, these variables were linked to individual, social and environmental wellbeing.

The positive feelings expressed through the maps and answers to the questions put to the study participants show that community gardens are positive settings. These spaces have been conceptualized by researchers from the field of environmental psychology as built or nonbuilt environments that facilitate human realization and promote sustainability (CORRAL-VERDUGO, *et al.*, 2014). In this context, environmental, social, economic and subjective factors tend to elicit the sensation of well-being through systemic dialectic since it promotes pro-social behavior, as seen for example in the item "sense" broached by interviewee 1 (Figure 3): "We are counselors, we swap recipes, listen to stories; each person, each vegetable bed has a story". The sharing revealed in the discourse of the interviewees in the category "relations" could serve to support awareness raising actions in the community, given that affects are an important attribute for the acquisition of new knowledge, principally when transmitted by figures in the local community. Such strategies may be used by the government in community actions involving health and environmental themes (KRASNY, et al. 2015).

Historicity translates affective memories linked to the garden. All of the interviewees lived and grew up in rural areas and experienced the exodus from rural areas to cities. A study conducted by Pearce et al. (2015) on urban forests demonstrated that affective memories revealed a sense of connection to the natural environment represented by the symbolic dimension, enabling the synthesis of individual and cultural experiences related of a physical space. However, the appropriation of community gardens also occurs due to their functional characteristics, that is, productivity and family economy.

Both productivity and family economy were themes that emerged in this study. The integration between historical, natural, functional and emotional aspects can be seen in the conservation of community gardens and public spaces (ROSTAMI, et al., 2016). The affects that involve these dimensions are illustrated in Figure 2, in which the interviewee attributes the sense of harvesting and valuing the garden to the affects of happiness and pleasure: "For the users, the garden represents therapy and family livelihood; it is a source of income". The shared stories and relationships with neighbors are essential to maintaining community gardens and promoting health and food security, and preventing illness

(COSTA et al., 2015; EVANS et al., 2015; KEANE, 2015). Organic food together with productivity lead to autonomy and appropriation of the space, (re)constructed each time a crop is planted (UREN, et al. 2015).

Deepening our understanding of the link between cultural dimensions and productivity allows us to reflect on popular traditions. The symbolic restoration of these cultural dimensions by this study awakens a unique movement against the historic neglect and lack of recognition of the value of rural areas, agriculture, and contact with nature in urban centers, showing that it is possible to live and coexist harmoniously with the natural environment (ZACARIAS; HIGUCHI, 2017).

Social relations and sharing permeate the contact between individuals with different histories and experiences. Therefore, collisions are necessary in the spaces of proximity in order to construct otherness and coexistence (CAMPOS-DE-CARVALHO et al., 2011). Such experiences were observed in this study in Figure 5 and in the answer provided by interviewee 11. The individual context is questioned through the demands of the group or, in other words, for production to be occur satisfactorily users need to engage to overcome dichotomies (HALE et al., 2011). Freeman et al. (2012) highlight that the individual identities are reflected in the way of dealing with the garden and demonstrate particular experiences, memories and affects, which reinforces the observations of Corral-Verdugo et al. (2014) regarding the need to preserve the social fabric, diversity, and empowerment made possible in pro-social behavior, affective expression and empathic understanding.

The social relations experienced in these settings are frequently linked to altruistic behavior and sharing, as shown in the codes relating to quality of life and socioenvironmental interactions. However, clashes occur and favor the urgency of conflicts. Group or community psychology that takes into account the environmental perspective helps to understand and intervene in conflicts. It is essential to identify the factors that elicit such behaviors and facilitate the emerging meaning in these discourses. The public environment reflects dichotomies between individuals - with their private conscious or unconscious motivations - and the collective experience. Thus, the inclusion of activities and workshops allows for the (re)organization of the group, its meanings and signifiers.

Feeling useful and involvement in the work allow the users to actively participate in the community where they live and improve their physical and mental health. In the present study, the most frequent feelings depicted by the maps and in the discourses of the participants were those identified as “distraction”, “therapy”, and stress reduction. These attributes are investigated by environmental psychology within the concept of restoring environments and represent ways of reducing mental fatigue and levels of stress and anxiety. Restoring environments facilitate the sensation of well-being and balance by renovating the attention directed towards the activities: in this case growing vegetables. The garden investigated by this study presents the quality of escape, attributed to the fact that the users are able to go to a specific place surrounded by growing activities and group participation (ALVES, 2011).

Productivity, one of the themes highlighted by the participants, also infers a perception of a restoring environment and explains the presence of this quality in the users’ discourse. Alves (2011) suggests that the concept of fascination in relation to the

perception of the environment is restoring. In the garden, this fascination is produced by growing vegetables and the compliments they receive when they harvest them. This state permits distraction and the feeling of carefreeness, given the knowledge linked to the understanding of natural processes. Thus, it is evident that fascination encompasses the process and content (ALVES, 2011).

The results also show a high prevalence of recent retirees in the garden. Bastos et al. (2013) assert that the structural burden of the aging process has attracted the interest of many researchers. This movement has resulted in the subfield of social gerontology which strives to promote active aging. Among the main areas of research, "green care" is a new social technology that health processes in the relation with green spaces. Supported by various researchers, having a connection with nature is important for human beings and is considered a constructive base for physical and mental health (SEMPIK et al., 2010).

The garden investigated by this study and the interviewees' experiences indicate various aspects of "green care", including the perception of restoration (interviewee 6), reconnection with the community (interviewee 11), and social support or family income (interviewee 4). Other elements highlighted by Sempik et al. (2010), such as specific interventions aimed at treatment, social rehabilitation, work skills training, and environmental education were not identified in the garden and could serve as the basis for future interdisciplinary research and government actions. The potential of this garden as a positive environment is yet another argument for increasing research into environmental education aimed at the community.

4. Final Considerations

The present study provides a new approach to the study of community gardens that analyses environmental affectivity and the experiences of users beyond the utility-based factors commonly investigated by studies. The affective map instrument is an important tool that helps to identify affects and the senses attributed to them. In this respect, the findings reveal that the affects and experiences in this garden encompass mental health and quality of life, socioenvironmental interactions, productivity, family economy, and healthy eating.

The main findings include the perception of an environment that promotes distraction and relaxation or, in other words, a positive restoring environment. In these contexts it is possible to develop interventions that promote sustainability and pro-social behavior, which are essential constructs of environmental ethics.

A negative affect identified by this study was unpleasantness, suggesting that proximate environments trigger individual and collective conflicts of interest. However, when overcome, these conflicts enable the construction of otherness and ensure authenticity between users.

The study area was a garden that was already in place and with social experiences arbitrated by its users, which limit the generalizability of the findings, suggesting the need for further studies in similar or neutral settings to facilitate the correlation of the varia-

bles. The study sample raised questions regarding the social integration of elderly people and retirees. Active aging is a recurring topic that needs to be explored in greater depth.

It can be concluded that the affects experienced by the users contributed towards the formation of senses and representations of the surroundings and also facilitate and promote psychological restoration and quality of life. However, the essence of the affects is the capacity to generate senses and enable the action of individuals in their socioenvironmental context, modifying and building realities.

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ENVIRONMENTAL PERCEPTION AND AFFECTIVITY: EXPERIENCES IN A COMMUNITY GARDEN

***Resumo*:** As hortas comunitárias buscam assegurar a promoção da alimentação saudável e da economia familiar. Contudo, tais espaços demonstram um potencial resgate de vínculos afetivos e promoção da coletividade. Objetivou-se analisar a percepção ambiental e os afetos dos usuários do programa Hortas Comunitárias em uma cidade do sul do Brasil. Foram entrevistados 14 usuários, em sua maioria aposentados e com mais de 60 anos. Adaptou-se o Instrumento Gerador de Mapas Afetivos para tornar os afetos passíveis de interpretação. Na análise de conteúdo constatou-se a percepção de um ambiente que facilita a restauração psicológica, a saúde mental, a qualidade de vida, as interações socioambientais, a produtividade, a alimentação saudável e a economia familiar. Os afetos experimentados foram frequentemente descritos com o sentido de identificar as hortas como ambientes restauradores e promotores de qualidade de vida, importantes mediadores da coletividade e da apropriação do ambiente.

***Palavras-Chave*:** hortas comunitárias; mapas afetivos; psicologia ambiental; saúde ambiental.

***Abstract*:** The community gardens seek to ensure the promotion of healthy food and family economy. However, these areas demonstrate a potential for rescuing affective bonds and promoting the collectivity. The objective was to analyze the environmental perception and affections of the community garden program users in a city located in southern Brazil. 14 users were interviewed, mostly retired and over 60 years old. The Affective Maps Generator Tool was adapted to make the affections possible for interpretation. The content analysis found the perception of an environment that facilitates the psychological restoration, mental health, quality of life, environmental interactions, productivity, healthy diet and family economy. The affections experienced were often described with the intention to identify gardens as restorative environments and spaces that promote quality of life, which are important mediators of collectivity and the appropriation of environment.

***Keywords*:** community gardens; affective maps; environmental psychology; environmental health.

***Resumen*:** Las huertas comunitarias buscan asegurar la alimentación sana y la economía familiar. Sin embargo, tales espacios demuestran un potencial rescate de vínculos afectivos y promoción de la colectividad. Se objetivó analizar la percepción ambiental y los afectos

de los usuarios del programa huertos comunitarios en una ciudad del sur de Brasil. Se entrevistó a 14 usuarios, en su mayoría jubilados y con más de 60 años. Se adaptó el Instrumento Generador de Mapas Afectivos para hacer los afectos pasibles de interpretación. En el análisis de contenido que se encuentra la percepción de un entorno que facilita la restauración psicológica, salud mental, calidad de vida, las interacciones ambientales, la productividad, la dieta saludable y economía familiar. Afectos experimentados a menudo se describen con identificar las huertas como los entornos de restauración y la promoción de la calidad de vida, importantes mediadores de la comunidad y la apropiación del medio ambiente.

***Palavras Clave*:** jardines de la comunidad; mapas afectivos; psicología ambiental; salud ambiental.