Evaluation of an Experience Proposal of Inclusion After an Activity Developed in the Sensory Garden

Avaliação de uma Proposta de Vivência Sobre Inclusão Após Atividade Desenvolvida em um Jardim Sensorial

Evaluación de una Propuesta de Experiencia de Inclusión Tras una Actividad Desarrollada en el Jardín Sensorial

RESUMO

Objetivo: O presente estudo teve como objetivo avaliar a percepção de alunos universitários em uma vivencia no jardim sensorial construído no campus da Faculdade Peruíbe. **Método:** trata-se de um estudo transversal com 86 alunos da Faculdade Peruíbe onde foi avaliado a percepção dos mesmos acerca da experiencia realizada de olhos vendados no jardim sensorial via questionário digital. **Resultados:** Apesar da sensação de paz e tranquilidade ao observar o jardim, as emoções e sensações negativas frente ao experimento foram superiores as emoções positivas. **Conclusão:** o jardim sensorial é uma ferramenta que possibilita a realização de diversas atividades educacionais e que experiencias sensoriais despertam sentimentos contraditórios em seus participantes.

DESCRITORES: Jardim Sensorial; Ensino Superior; Emoções; Percepção Sensorial; Inclusão

ABSTRACT

Objective: The present study aimed to evaluate the perception of university students in an experience in the sensory garden built on the campus of Faculdade Peruíbe. **Method:** a cross-sectional study was carried out with 86 students from Faculdade Peruíbe where their perception of the experience carried out blindfolded in the sensory garden was evaluated via digital questionnaire. **Results:** The results demonstrate that despite the feeling of peace and tranquility when observing the garden, negative emotions and sensations regarding the experiment were greater than positive emotions.**Conclusion**: the sensory garden is a tool that makes it possible to carry out various educational activities and that sensory experiences awaken contradictory feelings in its participants.

DESCRIPTORS: Sensory Garden; Higher Education; Emotions; Sensory Perception; Inclusion

RESUMEN

Objetivo: El presente estudio tuvo como objetivo evaluar la percepción de estudiantes universitarios en una experiencia en el jardín sensorial construido en el campus de la Facultad Peruíbe. **Método:** Se realizó un estudio transversal con 86 estudiantes de la Facultad Peruíbe, donde se evaluó su percepción de la experiencia realizada con los ojos vendados en el jardín sensorial mediante un cuestionario digital. **Resultados:** Los resultados demuestran que, a pesar de la sensación de paz y tranquilidad al observar el jardín, las emociones y sensaciones negativas con respecto al experimento fueron mayores que las positivas. **Conclusión:** El jardín sensorial es una herramienta que permite realizar diversas actividades educativas y que las experiencias sensoriales despiertan sentimientos contradictorios en sus participantes.

DESCRIPTORES: Jardín Sensorial; Educación Superior; Emociones; Percepción Sensorial; Inclusión

RECEIVED: 10/14/2025 **APPROVED:** 10/31/2025

How to cite this article: Baptista AS, Martins A, Broggio RB, Pereira ICC. Evaluation of an Experience Proposal of Inclusion After an Activity Developed in the Sensory Garden. Saúde Coletiva (Brazilian Edition) [Internet]. 2025 [cited year month day];16(102):17986-18001. Available from: DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

Andreia Salvador Baptista
Doctorate in Physical Therapy - Peruíbe Faculty – UNISEPE Educacional, Peruíbe, SP, Brazil
ORCID: https://orcid.org/0000-0002-6722-9163

Anderson Martins
Doctor of Physical Therapy - Peruíbe College – UNISEPE Educacional, Peruíbe, SP, Brazil
ORCID: https://orcid.org/0000-0002-8790-8032

Raísa Barbara Broggio
Master's Degree in Education - Peruíbe College – UNISEPE Educacional, Peruíbe, SP, Brazil
ORCID: https://orcid.org/0000-0002-7907-2220

Isabela Cristina Corrêa Pereira
Undergraduate student in Physical Education - Peruíbe College – UNISEPE Educacional, Peruíbe, SP, Brazil
ORCID: https://orcid.org/0009-0002-2430-7632

INTRODUCTION

Sensory gardens emerged in the United States and Europe in the late 1990s, as healthcare professionals sought to create more functional spaces for their patients, but with a scientific and technological vision, also providing a place for leisure, inclusion, and therapy for people with special needs, initially the visually impaired.

The Sensory Garden aims to stimulate the senses and include people, as well as being a tool to aid rehabilitation and serve as a space for non-formal education for all people, also enabling discussion about the environment and sustainability, as well as allowing human beings to reconnect with nature, recover lost energy, get rid of stress and worries of today's troubled life, used as an aid in the recovery and well-being process of sick people or people with some type of disability.

The construction of sensory gardens arose from the idea of providing experiences for the visually impaired. This experience was later expanded with the aim of reflecting on social inclusion, creating a space to promote the exchange of experiences and perceptions among different audiences during the journey[3].

Sensory gardens are constructed using a variety of elements that stimulate the senses and are particularly effective in association with health services, such as nursing homes and hospitals, as well as schools, colleges, parks, and botanical gardens, but there are basic elements and considerations that are common to all of them [4]. This resource, like the garden, is still little known and used in Brazil, but it is recognized as beneficial to children, adults, and the elderly, especially those with sensory processing problems, including autism and other disabilities such as blindness [5].

Environmental education is one of the areas to be worked on in an integrated and cross-cutting manner, with the garden acting as a non-formal teaching tool for concepts related to nature, biodiversity, and environmental awareness [6]. Linking these two components of the teaching-learning process is the first step toward working effectively, generating positive results in the construction of students' knowledge. This sensory experience stimulates curiosity, an essential factor in the act of learning [7].

Through the senses, students can recognize plant species, understand ecology, the great biodiversity of organisms in small spaces, which leads them to become aware of biodiversity on the planet, in addition to promoting their awareness of environmental conservation through the perception of human senses by perceiving colors and shapes (vision), textures (touch), smells (smell), and sounds (hearing)[8].

The human body and its various sensory organs, such as the eyes, mouth, nose, ears, among others, are subjected to a multitude of stimuli, which produce varied sensations in the individual. This can be a space for therapeutic purposes, transposing the process, such as caring for a plant, or in this case, caring for the garden, which would improve everyone's life, because this act of caring enables different sensations and emotions [9].

Sensory gardens, also called therapeutic gardens or restorative environments [10], represent an ancient form of therapy because they exert an attractive influence on the human senses. Unlike a common garden, the sensory garden is a space not only for leisure and contemplation, but also a tool for inclusion, education, and social participation [9]. By bringing together different educational content from formal schooling, the sensory garden ensures a pleasant and therapeutic methodology in the teaching and learning process [8]. Sensory gardens not only have therapeutic benefits, but also educational ones, as they make learning equitable, creating a cooperative and inclusive educational environment [6].

Gardens have been used to aid in the treatment of many conditions, including dementia, and have been shown to be effective in improving sleep, agitation, and cognition in patients with dementia [11]. The benefits of gardens are thought to occur through two mechanisms: reminiscence and sensory stimulation. Evidence suggests that these mechanisms work in part by encouraging a relaxing and calm environment, while providing an opportunity to maintain skills and habits of daily living. This is partly supported by other research suggesting that simply observing nature can reduce stress and anxiety [6].

Garden-based interventions have

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

been used as a form of therapy for specific disorders and diseases, including autism spectrum disorder [12] and childhood cancer [13] , as well as for socioemotional development or biological measures of health.

At a micro level, innovative strategies such as interventions that include multiple components, such as experiential learning and education. These types of interventions can be instrumental in promoting health [14].

These practical interventions can also increase outdoor physical activity and improve academic performance [15]. For young people and older adults, gardening improves mental health and can help reduce anxiety, stress, and anger [15, 16, 17].

When students engage in experimentation, they are encouraged to observe, formulate and test hypotheses, analyze results, and draw conclusions, leading them to reason rather than simply memorize [9] . Sensory gardens contribute to this process by serving as an additional tool in teaching and learning, encouraging students to work in an interdisciplinary manner, promoting respect for people with disabilities, building a pluralistic environment for the school and the community, with a focus on inclusion, awakening interest and respect in the inclusive process. In addition to the above, it also has the complementary benefit of being an excellent place for relaxing activities, stimulating the learning process, and promoting social inclusion [18,19,20] andstimulating senses that may be dormant. It is not exclusively for people with special needs and/or those undergoing rehabilitation, but for society as a whole [6,15, 17].

Therefore, it is understood that the sensory garden is a tool with various possibilities, from therapeutic to educational and inclusive. With this research, we seek to investigate an activity with university students that focuses on reflection on inclusion.

METHOD

This is a cross-sectional study that seeks to evaluate an experiential activity with university students from Faculdade Peruíbe, who participated in an activity in the institution's sensory garden with the aim of reflecting on inclusion. The research was submitted to Plataforma Brasil and was approved by the ethics committee under number CAAE 91892025.5.0000.5490.

The sensory garden consists of different types of soil divided by concrete strips to signal changes in the ground. Its handrail is made of treated eucalyptus trunk, and around it are plants separated according to the senses (touch, sight, smell).

The activity was experiential in nature and lasted 50 minutes. Initially, students removed their shoes, blindfolded themselves, and received information about disability, architectural barriers, and guidance on how to get to the garden. Monitors assisted throughout the activity.

During the walk, participants could ask for help, ask questions, or stop the activity. At the end of the corridor, they removed their blindfolds and began the experience by touching the plants, receiving information about their benefits and applications in everyday life. To conclude the experience, herbal teas from the garden were offered, and there was a chat about the experiences and how to put oneself in the place of a person with a disability.

A digital form created by Google Forms with closed and open questions was sent out to evaluate the experience, feelings, emotions, and challenges encountered.

RESULTS

A total of 86 students from Faculdade Peruíbe participated in the activities in the sensory garden on a completely voluntary basis. Knowing the demographic characteristics of the participants helps to draw up a profile and provides information that can contribute to the understanding of the data collected and its possible variables.

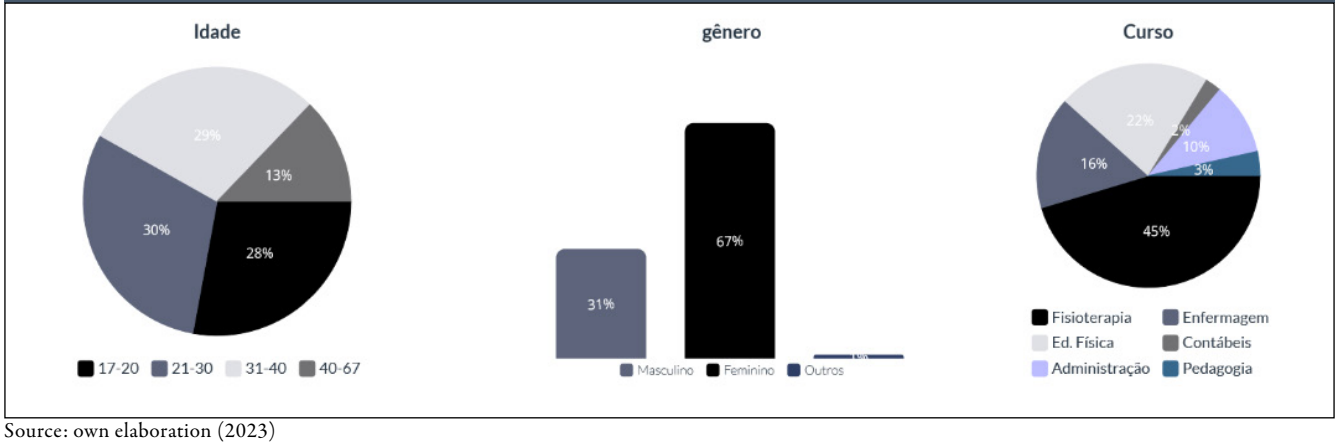
Initially, information regarding age, gender, and course was requested. The age of the participants ranged from 17 to 67 years, distributed as follows: 24 participants (27.9%) were between 17 and 20 years old; 26 participants (30.2%) were between 21 and 30 years old; 25 participants (29.1%) were between 31 and 40 years old; and 11 participants (12.8%) were over 40 years old.

In terms of gender, 58 respondents identified as female (67.4%), 27 participants as male (31.4%), and only one participant identified as belonging to another gender (1.2%).

The distribution of participants among the courses shows a greater interest in the topic among students enrolled in health courses, with 39 participants enrolled in the physical therapy course (45.3%), 19 students enrolled in the physical education course (22.1%), and 14 students enrolled in the nursing course (16.3%). The remaining participants are distributed among business administration courses, with 9 students (10.5%), pedagogy with 3 students (3.5%), and accounting with 2 students (2.3%).

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

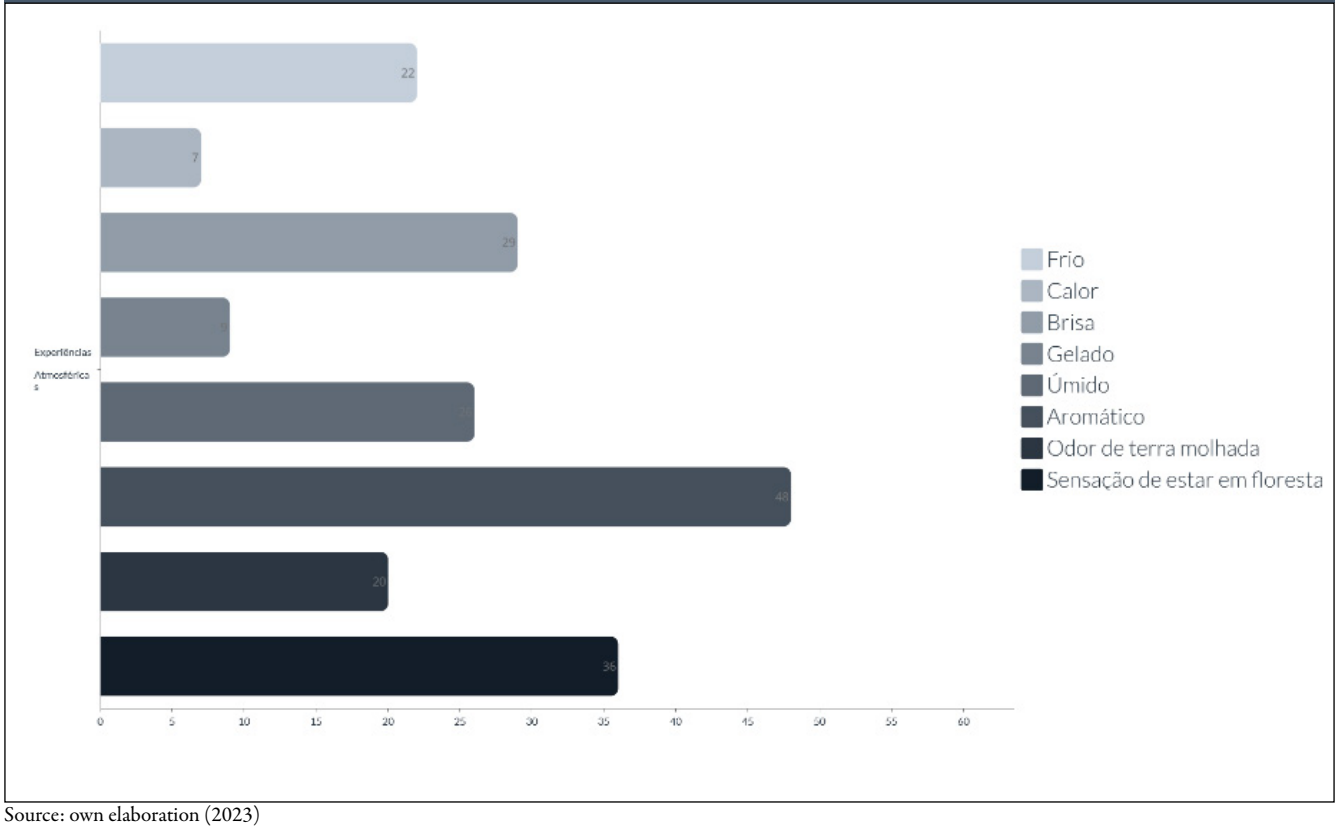
Figure 1 – Demographic data



Source: own elaboration (2023)

After surveying the participants' profiles, they were asked to indicate their atmospheric and sentimental/ emotional sensory experiences during the activities in the garden. The data collected regarding atmospheric sensations are shown in Graph 1.

GRAPH 1 – Atmospheric Sensations

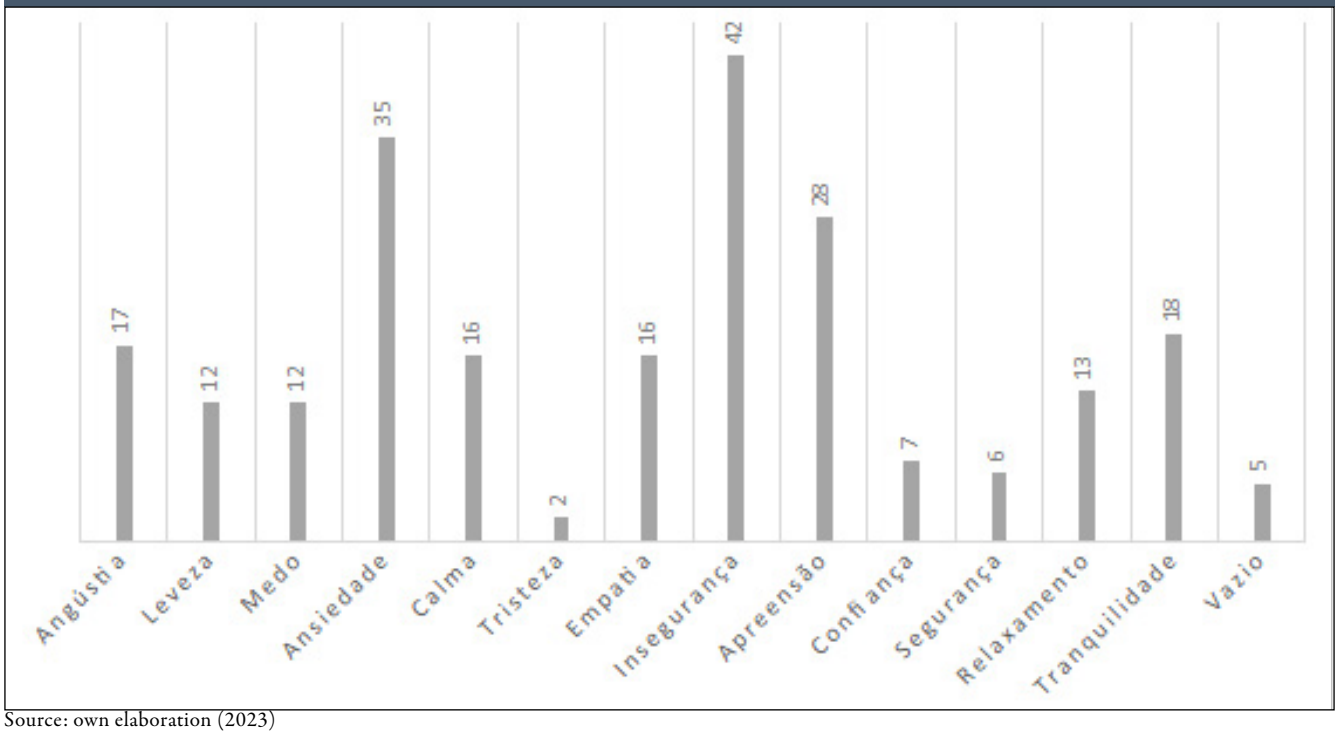


Source: own elaboration (2023)

The results presented in Graph 2 and Graph 3 show that “insecurity,” “anxiety,” and “apprehension” were the experiences most reported by participants during the activities. However, when we evaluate the general perception of the garden and the experiences with and without blindfolds, the participants' opinions point in the opposite direction, with the terms "intriguing" and "pleasant" predominating in the responses.

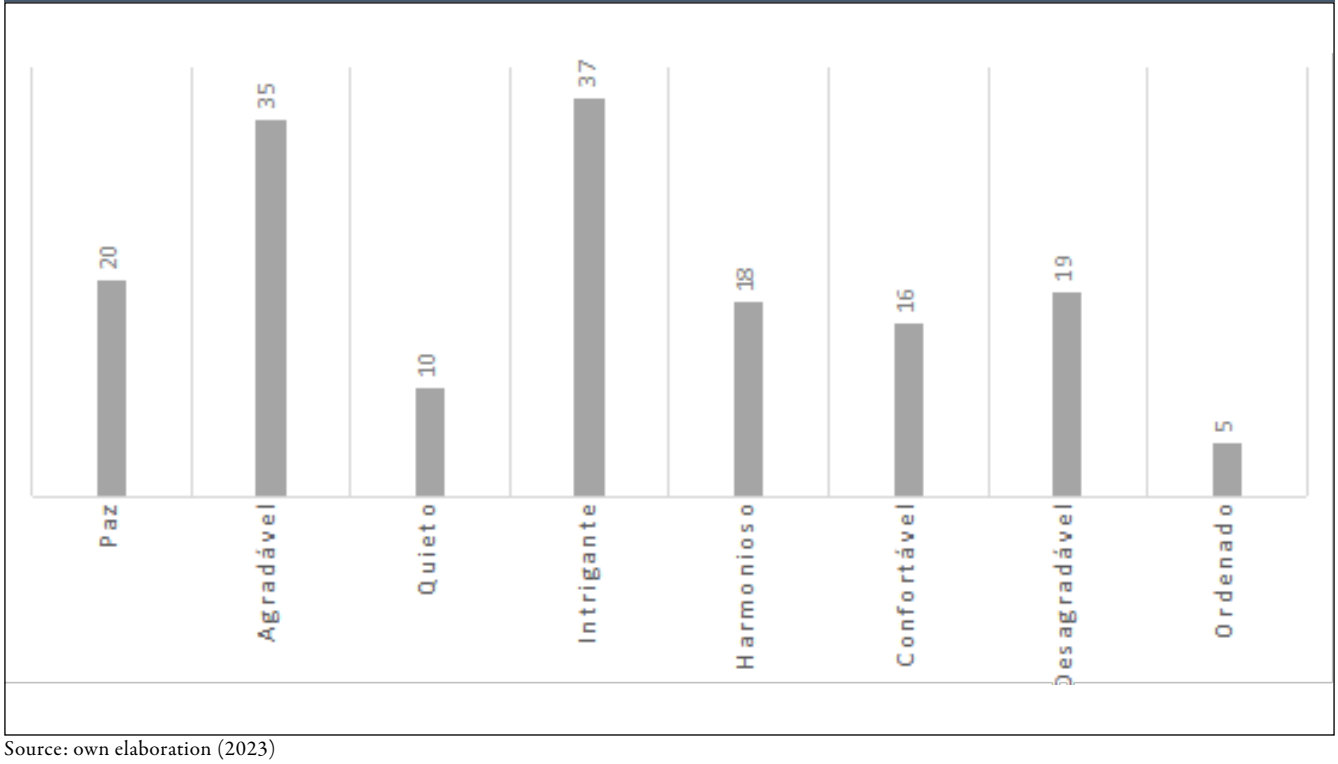
DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

Graph 2 – Sensations and Emotions during blindfolded activities



Source: own elaboration (2023)

Graph 3 – Perception of the Garden



Source: own elaboration (2023)

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

The other questions on the form presented to participants in the sensory garden experience at Faculdade Peruíbe are related to accessibility and people with disabilities.

Of the 86 participants, 43 claim to have a relative or family member with a disability, of which visual impairments represent 9.3%, hearing impairments 11.6%, cognitive/intellectual impairments 41.9%, and physical impairments correspond to a total of 37.2%. Participants were not asked to specify the degree and type of each disability.

When asked how it felt to put themselves in the shoes of a visually impaired person during the blindfold experience, 44.2% of participants were impressed by the difficulties or did not expect to experience so much difficulty, 48.8% came to understand what it is like to live with a disability, and 20.9% said they were committed to being more attentive to people with special needs.

When asked whether the experience had changed their views on disabilities and accessibility, only 1.2% said it had not changed their perception of the issue, but all 86 respondents said they understood the need for accessible environments in their daily lives.

DISCUSSION

When analyzing the options selected on the form presented to participants in relation to perception and emotional experience, it is possible to note a predominance of negative feelings over positive ones, most likely because much of the activity was performed blindfolded. The results presented in graph 2 make it clear that "insecurity," "anxiety," and "apprehension" were the experiences most frequently reported by participants during the activities. However, in a general perception of the garden and the experiences with and without blindfolds, the participants' opinions point in the opposite direction, with "intriguing" and "pleasant" as the predominant responses (Graphs 2 and 3).

A survey conducted in China in 2020 with university students showed that when comparing experiences in urban environments and gardens, atmospheric sensations also point to a predominance of the aspects "cold," "humid," and "aromatic" [21].

A survey conducted on the perception of vocational high school students [22] in the Sensory Garden of the Natural History Museum and Botanical Garden of the Federal University of Minas Gerais (UFMG) points to similar reports, with the main responses being "surprise," "curiosity," "enchantment," "fear," and "insecurity." The survey conducted in China [21] with university students, on the other hand, shows a predominance of the terms "safe," "orderly," and "interesting." It is worth noting that in both surveys, the entire experience was conducted without the use of blindfolds.

When asked about the experience of putting themselves in the shoes of a visually impaired person during the blindfold activity, 44.2% of participants reported surprise at the level of difficulty encountered; 48.8% said they had gained a better understanding of the experience of living with a disability; and 20.9% said they had committed to being more attentive to people with special needs.

As for a possible change in perception about disability and accessibility after the experience, only 1.2% of participants said there had been no change in their view. Notably, all 86 respondents said they recognized the need for accessible environments in their daily lives.

A similar experience to that carried out at Faculdade Peruíbe was held in the sensory garden of the Center for Agricultural Sciences at the Federal University of Vale do São Francisco (UNIVASF), where participants walked through the garden blindfolded or unblindfolded. The authors state that this type of experience arouses curiosity and understanding of accessibility.

The sensory garden not only aids in understanding accessibility, but also acts positively by improving motor skills, spatial and temporal perception, and promoting the recovery of the perception of the "self" [24,25,26].

The sensory garden space becomes not only a space for relaxation and contemplation, but also an instrument for integration, education, and social participation of individuals with different needs, enabling contact with the natural environment and its peculiarities.

CONCLUSION

Sensory gardens are spaces that promote relaxation and well-being, but they are also spaces for the development of educational and innovative activities. The proposed experience of simulating the difficulties of a person with visual impairments during a tour of the sensory garden is an example of these practices.

It is clear that sensory perception is something that people often do not value in their daily lives and that when they are deprived of one of their senses, emotions such as anxiety and fear come to the surface.

The garden space and its sensory experiences promote self-knowledge and the awakening of sensations and emotions, and should be explored in its multiple facets to get the most out of it.

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

REFERENCES

1. Alves SFNSC, Paiva PDO. Os sentidos: jardins e paisagens. Revista Brasileira de Horticultura Ornamental. 2010;16(1):47-49.

2. Leão JFMC. Identificação, seleção e caracterização de espécies vegetais destinadas à instalação de jardins sensoriais táteis para deficientes visuais em Piracicaba (SP), Brasil [tese]. São Paulo: Escola Superior de Agricultura Luiz de Queiroz; 2007.

3. Forte ST. Metodologia de projetos de arquitetura paisagística: aplicação ao caso de jardins terapêuticos [dissertação]. Lisboa: Instituto Superior de Agronomia, Universidade Técnica de Lisboa; 2013.

4. Worden E. How to design an accessible sensory garden. Disponível em: https://ben-20twelve.wordpress.com/sensory-gardens/. Acesso em: 20 abr 2023.

5. Hussein H, Omar Z, Ishak SA. Sensory garden for an inclusive society. Asian Journal of Behavioral Studies. 2016;1(4):33-43.

6. Silva MOC, Libano A. Botânica para os sentidos: preposição de plantas para elaboração de um jardim sensorial. Brasília: Repositório Institucional UNICEUB; 2015.

7. Borges TA, Paiva SR. Utilização do Jardim Sensorial como recurso didático. Revista Metáfora Educacional. 2009;(7).

8. Matsuda SC, Cerri-Arruda A, Penha AS. A ludic garden with medicinal, aromatic, fruitful and ornamental plants might be a useful tool in science teaching. Cadernos de Agroecologia. 2013;8(2).

9. Ely VHM, Castro J, Goulart VD, Zoccoli A, Koelzer MP, Wan-dal OAJ. Projeto de Pesquisa "Desenho Universal aplicado ao Paisagismo". Florianópolis: Universidade Federal de Santa Catarina; 2010.

10. Gressler SC, Güinther IA. Ambientes restauradores: definição, histórico, abordagens e pesquisas. Estudos de Psicologia. 2013;18(3):487-495. Disponível em: https://doi.org/10.1590/S1413-294X2013000300009

11. Lee Y, Kim S. Efeitos da jardinagem interna no sono, agitação e cognição em pacientes com demência – um estudo piloto. International Journal of Geriatric Psychiatry. 2008;23:485-489.

12. Flick KM. The application of a horticultural therapy program for preschool children with autism spectrum disorder. Journal of Therapeutic Horticulture. 2012;22(1):38-45.

13. Blair D. The child in the garden: an evaluative review of the benefits of school gardening. Program Evaluation. 2009;40(2):15-38.

14. Evans A, Ranjit N, Rutledge R, Medina JL, Jennings R, Smiley A, et al. Exposure to multiple components of a garden-based intervention for middle school students increases fruit and vegetable consumption. Health Promotion Practice. 2012;13(5):608-616.

15. Carney PA, Hamada JL, Rdesinski R, Sprager L, Nichols KR, Liu BY, et al. Impact of a community gardening project on vegetable intake, food security and family rela-

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001

tionships: a community-based participatory research study. Journal of Community Health. 2012;37(4):874-881.

16. Dickey KJ. One seed at a time: how an urban community gardening program promotes prosocial development in youth. 2019.

17. Soga M, Gaston KJ, Yamaura Y. Gardening is beneficial for health: a meta-analysis. Preventive Medicine Reports. 2017;5:92-99.

18. Branco MGFC, Filho MGS, Santos HMB, Sabino AL, Pacheco EL, Melo W, Andrade LHC. A biodiversidade como aliada na elaboração da proposta de um jardim sensorial para a Universidade Federal de Pernambuco. In: Anais do III Simpósio Nordestino de Ciências Biológicas; 2010. p. 213-220.

19. Nisbet EK, Zelenski JM, Murphy AS. Happiness is in our nature: exploring nature relatedness as a contributor to subjective well-being. Journal of Happiness Studies. 2011;12:303-322.

20. Galliano LO, Sussuarana MD. Praça Zagury: jardim sensorial como proposta de preservação de patrimônio cultural e arquitetônico de Macapá-AP. In: V Simpósio Nacional de Gerenciamento de Cidades; 2017.

21. Zeng C, Lyu B, Deng S, Yu Y, Li N, Lin W, et al. Benefits of a three-day bamboo forest therapy session on the physiological responses of university students. International Journal of Environmental Research and Public Health. 2020;17(9):3238. doi: 10.3390/ijerph17093238.

22. Souza FAG. A percepção ambiental de estudantes no Jardim Sensorial do Museu de História Natural e Jardim Botânico da UFMG. 2023.

23. Campelo MJ, Santos MM, Souza J. Jardim Sensorial na UNIVASF: um leque de sensações com o uso de plantas medicinais e aromáticas. Brazilian Journal of Development. 2021;7(12):118106-118119.

24. Muniz EM. Implantação de jardim sensorial na escola municipal de ensino fundamental Paulo Freire, no município de Ilha Solteira-SP. 2022.

25. Romani E, Fernandes Florêncio de Araújo M, Cesar Bezerra Barbosa L. Jardim sensorial da UFRN. Revista Projetar – Projeto e Percepção do Ambiente. 2021;6(2):169-178.

26. Souza AG, Lucia Freitas Paniz V, Cony Quinteiro S, De Assis Pereira B, Bara O, Cesar Lourenço B. Jardim sensorial como ferramenta didática e de inclusão. Extensão Tecnológica: Revista de Extensão do Instituto Federal Catarinense. 2021;8(15):129-150. doi: 10.21166/rext.v8i15.1795.

DOI: 10.36489/saudecoletiva.2025v16i102p17986-18001