

Reflection by Students on Empowering Early Childhood Educators to Integrate Sensory Gardens in Schools

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Abstract: This article reports on efforts to empower 10 early childhood development (ECD) practitioners on the concept of sensory gardens in 2023. This project builds on a project launched in 2022. During the 2022 sessions, ECD practitioners were taught the basic concepts of sensory gardens. Ten ECD practitioners interested in including aspects related to sensory gardens in their ECD centres in 2022 were invited to the training sessions by 14 ECD students. The participants were encouraged to develop interactive elements for their gardens and incorporate them into their ECD centres. A qualitative approach was employed in which the students reflected on the training they provided for the ECD practitioners. The study revealed that training ECD practitioners to incorporate aspects of sensory gardens into their ECD centres positively impacted the students' overall learning experience and development. The study provides valuable insights into the benefits of integrating sensory gardens into ECD centres and their potential for promoting holistic development in students in the ECD Phase.

Keywords: *Sensory gardens; early childhood development; practitioners; students*

Introduction

A sensory garden is a small garden designed to provide opportunities to stimulate senses and sustainable learning in a spectrum of children, including those with special needs (Vukovic and Mingaleva, 2023). It benefits children and adults, and can provide a safe and calming place to stimulate the senses.

A sensory garden has been established at the University of Pretoria's Mamelodi Campus. The main focus of the garden is to train practitioners in the Early Childhood Development (ECD) Phase and provide a safe space for staff and students to learn and relax. Mamelodi is a township situated east of Pretoria, South Africa. It is one of seven townships around Pretoria and was developed in 1953 by the former apartheid government.

The article reports on an investigation of how ECD pre-service students can add value to ECD practitioner training by incorporating aspects of sensory gardens in their ECD Centres, and how they can mutually benefit from this. The study follows up on initial training performed six months earlier, when ECD practitioners were trained to start small sensory gardens at their centres and use them in their teaching and learning. This study illustrates that ECD students can have a valuable impact on training ECD practitioners and can experience such training as value added to their self-development and community engagement responsibility.

The research gap in the literature highlights that the incorporation of sensory gardens predominantly centres on learners with disabilities and special needs. At the same time, there is a significant lack of focus on the role of ECD practitioners in this domain. This article aims to bridge the gap by exploring how student teachers in the ECD phase can

actively assist ECD practitioners in establishing and enhancing the use of sensory gardens within their ECD centres

Literature review

A sensory garden is a thoughtfully designed area that offers a wide range of sensory experiences (Zajadacz and Lubarska, 2020). When carefully planned, it becomes a valuable resource, serving educational and recreational purposes for various users. A key feature of a sensory garden is the intentional selection and organization of elements like hardscaping, softscaping, colours, textures and wildlife. These elements are specifically chosen to stimulate senses such as sight, hearing, smell and touch, thereby providing an extraordinary sensory experience (Hussein, 2012).

Originally, sensory gardens were established for people with immobility or other impairments (Lambe, 1995). Sensory gardens are usually established close to kindergartens (ECD Centres), hospitals, schools, care homes and other health care facilities (Balode, 2013). Sensory gardens are becoming increasingly popular for educational purposes in special schools (Hussein, 2017; Stoneham, 1996; Titman, 1994; Westley, 2003; Woolley, 2003; Zajadacz and Lubarska, 2020), for rehabilitation purposes in hospitals (Marcus and Barnes, 1999; Dinu Roman Szabo et al., 2023; Tyson, 1998) and health benefits in nursing homes (Stoneham, 1997; Stoneham and Thoday, 1994). Sensory gardens are currently being developed for pre-schools (Kucks and Hughes, 2019), schools and for university education (Souter-Brown, 2020). Universities worldwide are creating sensory gardens on their campuses to enhance human wellbeing, both subjectively and objectively. The concept of a sensory garden is being embraced to promote overall wellness within university communities (Souter-Brown, 2020).

The educational significance of a sensory garden lies in its potential to offer children an immersive experience that affects their behaviour, and shapes their social development. Environmental education in this interactive setting is ideal for active learning (Stoneham, 1996). Incorporating sensory stimulation in a school environment can promote cognitive development and enhance overall well-being, emotional maturity and social interaction (Stadele and Malaney, 2001). The characteristics of sensory experiences can foster deeper exploration and understanding of a sensory garden, meeting users' needs for enjoyment within an environment (Souter-Brown, Hinckson and Duncan, 2021). Therefore, ECD practitioners should encourage children's natural curiosity to explore, create and be innovative in their surroundings, as children at this stage are innately eager to discover new things (Fu, 2021).

The value of a sensory garden is that it has an impact on children's relationships and communication, as connecting with the natural world enhances memory, nurtures imagination and creative thinking. It fosters a curiosity for learning about the world, promotes cognitive skills, boosts self-confidence and reduces stress (Hauk et al., 2018; Yusop, Yassin and Tahar, 2020). Hands-on exposure to nature, outdoor fun and learning, and the opportunity to autonomously create space are vital for a child's development. The aesthetic, spiritual and

psychological benefits of working in a garden, as well as the mere presence of nature, hold greater significance than the advantages of cultivating plants (Lim, Dillon and Chew, 2020).

Children from low-income backgrounds and those from ethnic minorities frequently encounter restrictions in accessing appropriate outdoor environments, leading to disparities in health (Mitchell, Africa and Logan, 2018; Sprague, Berrigan and Ekenga, 2020; Wells, Jimenez and Mårtensson, 2018). Research indicates that access to quality outdoor environments and nature can positively impact children from disadvantaged social backgrounds. This access can help alleviate the stressors that may impede their development and learning (Chawla et al., 2014; Evans and English, 2002; Mitchell et al., 2018). Children who engage in natural environments demonstrate better motor skills, balance and executive functioning skills compared to those who use conventional playground equipment (Hussein, 2012; Johnstone et al., 2022). The time children spend in natural environments is closely linked to the advancement of their cognitive abilities (Nikraves and Tabaeian, 2016; Wells et al., 2018). Studies show that children consistently prefer spending time in outdoor environments and natural surroundings when given the option (Chawla, 2020). Yun et al. (2018) highlighted in their study in Korea that incorporating horticultural activities that engage all five senses with natural objects familiar and appealing to children can significantly enhance sensory development in educational settings. Dudkiewicz et al. (2020) described a new project in Poland designed to address the diverse needs of children, supported their mental and physical development while enabling teachers to conduct creative classes. This initiative established sensory zones, dividing them into areas focused on sight, hearing, touch, smell, and taste to develop processing skills.

Prins et al. (2022) conducted a meta-analysis that underscores the value of nature-based play in early childhood education. They argue that the play environment significantly affects its quality. Their research indicates that nature-based play can enhance children's creativity while generating joy and enthusiasm. Experiences in natural settings can stimulate children's imaginations and encourage problem-solving skills, fostering cognitive development through experiential learning. Moreover, garden-based programs in early childhood settings have been utilized to promote healthy eating behaviors and various health benefits. Such programs expose children to fresh fruits and vegetables and engage them in the process of growing and harvesting their own food, which can instill a sense of responsibility and connection to their food sources. These initiatives have been linked to improved dietary practices among young children, reinforcing the importance of nutrition in their overall development. Sustainable Development Goal 17 aims to eradicate malnutrition by 2030, which can be a benefit in the introduction of sensory gardens (United Nations, 2002). However, evidence concerning the effectiveness of home-based gardens in supporting nutrition during early childhood remains limited (Skelton et al., 2020).

Higher education institutions are encouraged to recognize and tackle issues that impact the welfare of communities, both nationally and globally. They should also implement innovative teaching approaches to foster students' critical thinking and creativity, going beyond their subject expertise. As a result, students can enhance their skills

with a strong sense of social responsibility, preparing them to be discerning contributors to society (Coelho and Menezes, 2021).

Pedagogies for community engagement involve merging educational objectives and community service to benefit student development and the greater good. This approach to teaching and learning integrates community service with instruction and reflection to enhance learning experience outcomes, promote civic responsibility and strengthen communities. It is a collaborative effort that involves faculty and community partners, such as non-governmental organizations or government agencies. Students are tasked with applying course concepts to activities within the community, providing them with hands-on learning experiences in real-world settings to cultivate community engagement skills. It also allows community partners to address important needs (Bandy, 2016).

Research questions

The following question frames the argument in this paper:

What is the significance of transferring skills to ECD practitioners to integrate sensory garden aspects in their gardens for ECD students?

To address this broader question, the following sub-questions were explored:

- a. What is the ECD student's perception of incorporating a sensory garden in their ECD centres?
- b. What are the benefits of including a sensory garden in ECD centres for both ECD practitioners and ECD learners?

Theoretical Framework

The stress reduction theory underpins this study. The theory suggests that a calming and stress-reducing effect on humans is found in natural settings, supporting the value of a sensory garden. In natural environments, individuals consciously experience a sense of emotional restoration that triggers unconscious physiological reactions that lead to rapid, short-term stress recovery (Yakinlar and Akpinar, 2022). Vygotsky's theory of cognitive development (Vygotsky and Cole, 1978) and Kolb's experiential learning theory (Kolb, 1984) served as the theoretical basis for the project. In the South African context, where numerous learners face learning difficulties, Vygotsky's theory helped educators comprehend learners' developmental stages and emphasized the need to tailor teaching methods and content delivery accordingly. Kolb's experiential learning theory was employed to evaluate educators' grasp of childhood development principles and to determine their training needs. Additionally, the researchers integrated the reflective principles of these theories to shape the training programme for educators.

Context of the Study

The University of Pretoria's Mamelodi Campus is located in a township east of Pretoria, South Africa. One of the key strategic focus areas of the campus is to create educational pathways. This involves four phases: early childhood development, primary education, secondary education and higher education. This specific study centres on early childhood development. It aims to raise awareness among ECD practitioners and ECD students about the benefits of sensory gardens, and provide guidance on incorporating sensory-stimulating elements into teaching practice. It is also important to note that many ECD centres in the township, catering to children from birth to seven years old, are not registered with the Department of Basic Education, exacerbating the lack of quality assurance and compromising the quality of teaching and learning.

This means they do not receive funding and are not monitored or supported by stakeholders such as the Department of Health (DoH), the Department of Social Development (DSD) and the Department of Basic Education (DBE) (Matjokana and Bipath, 2024). Furthermore, most practitioners lack formal qualifications, and only a small percentage hold training credentials recognized by the DBE under the National Qualifications Framework (NQF). However, there have been recent changes. In April 2022, the administrative responsibility for all ECD functions was transferred from the DSD to the DBE (South African Government, n.d.) as part of a government initiative to ensure pre-school registration and accountability (Department of Basic Education, n.d.).

Methodology

This qualitative approach incorporated Kolb's experiential learning theory (Kolb, 1984) to gather and analyze the data. The theory is divided into four stages: concrete experience, reflective observation, abstract conceptualization and active experimentation. In 2022, 33 ECD practitioners from 25 ECD centres attended a training session once a week over five weeks. This constituted the concrete experience stage. The training included visiting an established sensory garden at a pre-school in one of the suburbs of Pretoria. The rest of the training was linked to an established sensory garden at the University of Pretoria's Mamelodi Campus. After five weeks, a staff member from Merrimack College (USA), her student and a staff member of the Mamelodi Campus visited 14 ECD centres to determine if they had implemented the concept of a sensory garden in their centres. From these visits, additional development needs were identified. This study and the follow-up training involved the ECD students at the University of Pretoria's Faculty of Education. The students were required to build on the previous training of 2022 (Jordaan and Falk, 2025). The research project obtained ethical clearance from the Ethics Committee of the University of Pretoria's Faculty of Education (Protocol No. EDU106/22) and received a Scholarship of Teaching and Learning (SoTL) grant from the University of Pretoria. Sixteen third-year students studying for their ECD qualification volunteered to participate in the project. The students consented and committed themselves to seven sessions. The project was not a compulsory part of their programme. Ten practitioners in the ECD Phase from 10 ECD centres in Mamelodi were invited and consented to participate in the 2023 training, which comprised

three training sessions. The ECD practitioners had all been involved in the previous year's sensory garden project with the University of Pretoria's Mamelodi Campus and Merrimack College. These 10 ECD practitioners showed a willingness to incorporate sensory garden aspects into their ECD centres.

When this article was written, the 10 ECD centres were not registered with the Department of Basic Education through the Gauteng Department of Education, nor did they receive any training or government subsidy, and functioned from their houses and their backyards. The ECD centres overall had limited vegetation in their ECD centres. This challenge often arises due to various factors, including a lack of knowledge about effective horticultural practices, insufficient space to implement such activities, limited manpower to oversee and facilitate these gardens or inadequate water resources necessary for maintaining plant life. Each of these elements can significantly hinder the ability to create and sustain engaging, nature-based learning environments for children. Addressing these barriers is crucial for fostering positive sensory experiences and promoting holistic development among young learners.

The Department of Basic Education started actively rolling out a programme to register all the ECDs in the townships from January 2024 (Buda, 2025). Additionally, all the ECD centres had low monthly fees, ranging from approximately \$24 to \$42. Even with the low fees, all the centres offered lunch for the students. Most centres maintained a high teacher-to-learner ratio, ranging from 1:20 to 1:35. All the ECD centres were managed by women, indicating women's important role in ECD centres and education within these communities. The centres were all an extension of the ECD principals' homes. The yards of the schools were small and had limited vegetation.

The ECD practitioners were expected to pay for their transport to the campus. However, the project manager sponsored all the materials. The main objective of the project was to reaffirm the knowledge acquired during the 2022 training sessions and further empower the ECD practitioners to integrate elements of sensory gardens into their ECD centres. The ECD students were also empowered to plan and implement training for the ECD practitioners and to be informed about the value of a sensory garden in the ECD environment.

The ECD students received an orientation session with regard to the ECD practitioners and what is expected from them before the programme commenced. The training included the following sessions, which incorporated abstract conceptualization, active experimentation and reflective observation sessions:

Session 1: 23 May 2023

Early Childhood Development (ECD) students visited an existing sensory garden at a pre-school located in the suburbs. This school was well-resourced and affluent. The visit aimed to introduce students to the concept of a sensory garden to enhance the project's credibility.

Session 2: 6 June 2023

The students toured the existing sensory garden at the University of Pretoria's Mamelodi Campus and participated in an orientation session regarding the training received by the ECD practitioners, as well as the gaps identified during the visits in 2022.

Session 3: 8 August 2023

The students prepared a lecture on the value and importance of a sensory garden aimed at the ECD practitioners. The students outlined the fundamental aspects of sensory gardens, including how these spaces can enhance children's sensory experiences and overall development in the presentation. They shared their plans for the upcoming two weeks which focused on the specific activities and goals of the session. Following the lecture, an interactive discussion was held, allowing practitioners to share their thoughts, ask questions, and explore how they might integrate sensory gardens into their educational settings.

Session 4: 15 August 2023

The first group of students presented a practical session for the ECD practitioners, during which they guided the practitioners in creating a sensory mobile to be added to their gardens, focusing on enhancing both sight and sound. The students supplied different recycled materials, such as plastic bottles, tin cans, old CDs and bells, which the ECD practitioners creatively incorporated to develop their mobiles. The ECD practitioners were motivated not only to create a mobile but also to think about how the mobiles will be incorporated as an educational tool in the classroom and gardens.

Session 5: 22 August 2023

The second group of students conducted a practical session for the ECD practitioners, emphasizing the senses of touch, smell, and taste. The students brought textured resources, such as soft sand and pebbles, to enhance the sense of touch, along with fruits, flowers, and small plants to stimulate the senses of taste and smell. Additionally, the ECD practitioners had the opportunity to paint stones in various bright colors that they could incorporate into their gardens. This hands-on activity allowed them to explore different sensory elements and encouraged creativity and personal expression in designing their sensory spaces.

Session 6: 29 August 2023

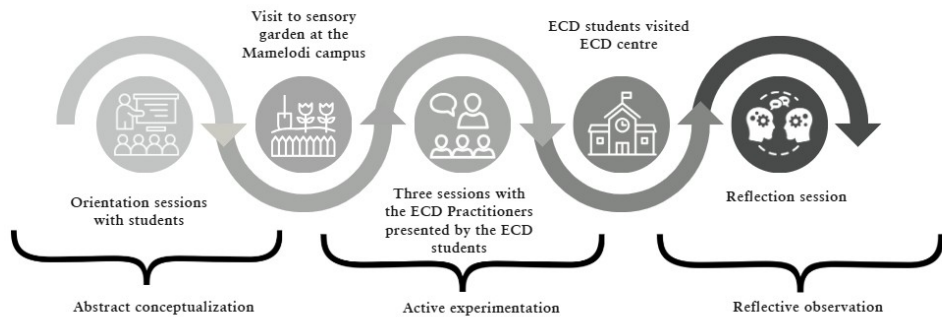
The students visited the ECD Centre Isiphosengane Pre-School to see how the practitioner incorporated the materials developed during the three sessions in her ECD center. The students interacted with the learners, engaging them in various activities that highlighted the practical applications of the materials they created. The students also observed learners' excitement playing with the resources that the practitioners incorporated into the centre. The above supports Stadel and Malaney (2001) assertion that sensory gardens promote social interaction that could enhance cognitive development and children's well-being. The interaction not only allowed the students to observe first-hand the impact of their work.

The visit facilitated meaningful exchanges where the students could share ideas and strategies with the practitioner, deepening their comprehension of effective teaching techniques.

Session 7: 12 September 2023

A reflection session was organized with the ECD students.

Diagramme 1: Research process for the training of the ECD practitioners by ECD students



Source: Jordaan 2025

To orientate the students about the value of a sensory garden in an ECD environment, the students received an orientation lecture and visited an existing sensory garden in one of the suburbs of Pretoria. The sensory garden was located in a private high-resourced pre-school. That gave the students a view of what a functional sensory garden can look like. Thereafter, the students were divided into two groups. Each group had to develop a presentation for the first meeting with the ECD practitioners, as well as practical sessions. The first session with the invited practitioners took place on 8 August 2023 and two students, representing the two groups, presented a session on the value of a sensory garden, how important it is to incorporate the different senses in a sensory garden and how they were planning to develop artefacts in the following two sessions that the practitioners could add to their gardens.

During the session of 15 August 2023, Group 1 helped the ECD practitioners in active experimentation (Kolb, 1984) to create sensory mobile to be added to their gardens to enhance the sense of hearing and sight. Group 2 delivered their presentation on 22 August 2023. The practitioners had the opportunity to create artefacts to add to their garden to include the sense of touch, smell and taste. The training was presented in English, and all the ECD practitioners could understand the training. The ECD practitioners received a certificate at the end of the second three sessions. Participants valued the certificates. Even though the certificates did not have any official value, they were proud to receive them. On 29 August 2023, the ECD students visited one of the ECD centres situated in the township to see how the practitioners had incorporated the artefacts into their ECD centre. A reflection session was held with the students on 12 September 2023. Of the 16 students who

participated in the project, seven attended the final reflection session and completed the survey.

A final reflection research protocol was distributed among the ECD students at the end of the project to record their reflective observations of their experiences. The students were asked the following questions:

1. What did you understand the project to be about?
2. How did you personally benefit from the project?
3. How would you say the ECD practitioners benefitted from the project?
4. What are the benefits that ECD learners will reap from the project (short- and long-term benefits)?
5. Were your participation benefits met, and how?
6. Would you like to participate in other related projects and why?
7. What suggestions would you like to contribute to the betterment of future projects?

Findings

The students' reflections about their training in the ECD centres and their visit to one ECD centre encouraged them to reflect on and review the thought processes and training of ECD practitioners.

In this section, the authors examined the discourses likely accessible to ECD students as tools for contemplating, discussing and applying sensory gardens in ECD centres. Based on their feedback about what they had learnt during the training sessions, the ECD students identified the following themes regarding what they had gained from the training sessions.

Project understanding and goals

The students reflected on the reason and value of the training and indicated that the main objective was to educate and inform ECD practitioners about the benefits of sensory gardens/toys (Participant 1).

It was also important to teach the practitioners that making sensory toys could be affordable, as they can be made from recycled materials (Participant 1). Participant 2 reflected on promoting holistic child development through sensory experiences and the importance of exploring and implementing sensory gardens in a school. Participant 3 reflected on how the educational community can be engaged and supported.

Personal Benefits for ECD Students

The ECD students developed an increased knowledge about the benefits of a sensory garden in an ECD centre (Participant 3). The ECD students developed teamwork and communication skills by presenting the sessions to the ECD practitioners (Participant 1). Presenting the sessions provided the students an opportunity to step out of their comfort zone and grow (Participant 4) personally. It also allowed them to learn more about sensory gardens and the benefits of such a garden in an ECD centre (Participant 4). The training sessions improved the students'

understanding of careers and the opportunities the project may provide (Participant 5).

Benefits to ECD Practitioners

The students reflected on the benefits of the training for the ECD practitioners and indicated that they had a better understanding of the importance of a sensory garden (Participant 1). They received new information on how to develop sensory skills from the learners (Participant 6). Through the training, the ECD practitioners gained practical skills and learnt innovative approaches (Participant 2). The students provided the ECD practitioners with support and resources to implement sensory garden aspects in their gardens (Participant 4). They also learnt how to use recyclable materials effectively and to implement cost-effective resources (Participant 5).

Benefits to ECD Children

Participant 7 reflected on the value a sensory garden has on the short-term enjoyment and exploration of sensory experience for the children, but also on the long-term development of the children's sensory-motor and cognitive skills, and their enhanced awareness of their senses and their environment.

Satisfaction with Participation of ECD Practitioners

The project was a positive experience for the students. Participant 1 indicated: "Yes, I really enjoyed making the wind chime, working with my peers, and sharing our knowledge." However, Participant 2 felt it was too short and wished she could have done more. For the students, it was fulfilling to see the appreciation of the ECD practitioners and the impact their short interaction had on the practitioners. Participant 6 indicated that she appreciated the effective communication and collaboration. This collaborative effort not only fostered a sense of community among the students but also allowed them to develop essential teamwork skills. Many students remarked on how working together towards a common goal strengthened their relationships and improved their ability to listen to and support one another. Additionally, the hands-on nature of the activities sparked enthusiasm and engagement, leading to deeper discussions about the importance of nature-based play in early childhood learning.

Willingness of Students to Participate in Future Projects

The students reflected that they desired to make a positive impact in the community. As future ECD teachers, it was important for them to be lifelong learners. The project exposed the students to community engagement, and they wished to continue participating in similar projects (Participant 2). The community engagement project allowed them to grow professionally and learn (Participant 3), and gave them the satisfaction of contributing to positive change (Participant 7).

Suggestions for Improvement

The students reflected that it was important to have the commitment and engagement of all participants to ensure a successful project, and highlighted that it was important “to engage with more ECD practitioners to learn and be able to excel in their schools” (Participant 3). The students also indicated that the impact could be better determined if it had been possible to visit all 10 ECD centres and not just one.

Overall, the feedback indicated that the project had successfully accomplished its objectives of educating, supporting, and benefitting both ECD practitioners and learners. Although the students and ECD practitioners were content with the project, there are recommendations for improvement, particularly related to enhancing participant commitment and broadening engagement with the ECD practitioners. To address these concerns, future projects could benefit from implementing more preparatory sessions that foster a deeper connection between the students and practitioners before the hands-on activities take place. This preliminary engagement could include workshops that explore the specific needs and interests of the practitioners, allowing the students to tailor their projects accordingly. Additionally, incorporating a system for ongoing feedback and check-ins throughout the project could help maintain enthusiasm and commitment, ensuring that everyone feels invested in the outcomes. By focusing on these areas, the initiative could not only strengthen the relationships between the participants but also create a more impactful and lasting influence on early childhood education practices within the community.

Discussion

The project was conducted on the University of Pretoria’s Mamelodi Campus, where plants and trees are abundant. However, the community faces challenges with water scarcity. The students focused on incorporating water-wise plants into their training. Educating the learners on the importance of appreciating nature is crucial, as it would also allow them to engage their senses. The need for future training was identified in the 2022 project. Even though this was a small group, the ECD practitioners were identified from the 2022 group as being the most willing to incorporate aspects related to sensory gardens into their centres.

The University of Pretoria’s Mamelodi Campus is an excellent setting to train ECD practitioners as it already has an established sensory garden. Students enrolled in the Community-based Project module of the Faculty of Engineering, Built Environment and Information Technology add additional landscaping and interactive sensory aspects to the garden each year. The University of Pretoria’s Merensky Library added a storytelling corner to the garden and presented a number of storytelling workshops to the ECD practitioners.

Given the positive impact of nature on children’s health and development, it was important to support initiatives that made nature more accessible. Recent interdisciplinary academic research confirms that sensory gardens have a beneficial effect on both the objective and subjective wellbeing of individuals. The concept of sensory gardens has evolved over time and now serves a wide range of functions, aligning with the United

Nations' Sustainable Development Goals of quality education, including inclusive education, healing, stress reduction and overall wellbeing (Vukovic and Mingaleva, 2023).

University-community partnerships are vital for fostering the development of ECD practitioners. These collaborations offer significant opportunities for knowledge sharing, mentorship and hands-on training, helping practitioners enhance their skills and stay informed about the latest research and best practices. By bridging academic insights with practical experience, these partnerships contribute greatly to the professional growth and effectiveness of ECD practitioners, ultimately benefiting the wellbeing and development of ECD learners.

Limitations

The study faced certain limitations, including a small sample size of just 10 ECD practitioners from 10 ECD centres in the Mamelodi township in 2023. The project was relatively short, but was built from the initial initiative in 2022 (Jordaan and Falk, 2025), which aimed to introduce ECD practitioners to the sensory garden concept. Nevertheless, despite these constraints, this study established the foundation for future research into incorporating sensory gardens into ECD centres. Additional investigations in this field could provide valuable insights for improving the educational environment for ECD learners. All the ECD practitioners participated in the training in 2022, and their willingness to attend the second session demonstrates their commitment to adding a small sensory garden. However, incorporating a sensory garden into the ECD site may be challenging due to the water shortages in the community. This paper focuses on just one educational intervention that was implemented through the University of Pretoria's Mamelodi campus. To explore other educational initiatives, the University of Mamelodi regularly organizes a series of workshops. The limited funding received through the SoTL grant from the University of Pretoria affected the number of ECD practitioners and ECD students involved in the training and the ECD centres that could be visited.

Recommendations

Sensory gardens can be utilized nationally and globally to enhance children's learning experiences and support the development of their perceptual, gross, and fine motor skills. Students at higher education institutions have the opportunity to lead professional development programs for early childhood development (ECD) practitioners, helping them recognize the importance of integrating sensory garden elements into their teaching, learning processes, and assessment methods in schools.

These higher education institutions can create model sensory gardens that serve as practical training facilities for educators and as tranquil spaces for staff and students to unwind and connect with nature. Proper maintenance of sensory gardens is essential; therefore, it is important to designate a responsible individual or team to oversee the garden's upkeep and to allocate a maintenance budget as part of the project planning.

In addition, further research in this area could yield valuable insights that could enhance the educational environment for ECD learners. By exploring various design,

implementation, and maintenance strategies for sensory gardens, educators and researchers can better understand how these innovative spaces can be leveraged to improve children's learning outcomes and overall well-being. Collaborative efforts between educational institutions and community organizations could also strengthen the impact of sensory gardens, fostering a deeper appreciation for nature and its role in a child's development.

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Informed Consent

The authors obtained informed consent from all the participants.

Conflict of Interest

The authors declare that there is no conflict of interest.

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