

# **Crafting a Therapeutic Collage Art Module Incorporating Nature Elements for Kids with Autism Spectrum Disorder: Integration within Lifelong Learning Programs**

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## **Abstract**

This study focuses on developing and integrating a therapeutic collage art module enriched with nature elements for children with Autism Spectrum Disorder (ASD) into lifelong learning programs. The module is based on principles of art therapy, sensory integration, and nature-based interventions, providing a holistic approach to addressing the unique needs of children with ASD. The primary goal is to create a module that promotes sensory engagement, emotional expression, and social interaction. The development process consisted of three phases. First, an extensive literature review was conducted to gather best practices related to art therapy, sensory integration, and nature-based interventions for children with ASD. This review established a strong theoretical foundation, highlighting the effectiveness of art therapy and nature-based interventions in improving emotional regulation, communication, and social skills. Second, semi-structured interviews were conducted with art therapists, special education experts, and environmental educators, who provided detailed feedback and suggestions for refining the module. Third, this expert feedback was incorporated to create a structured yet flexible module with activities using natural materials to enhance sensory experiences. Insights from expert consultations led to significant improvements in material selection, instructional design, activity customization, and outdoor integration. The collaborative approach ensured the module is evidence-based and adaptable, with engaging activities that promote a connection with nature while addressing the sensory and emotional needs of children with ASD. Natural elements like leaves, flowers, and shells were included for their sensory benefits, providing a calming and restorative experience. The consultations refined the module, making it both theoretically sound and practical for real-world settings. The next phase will focus on detailed design and development, including pilot testing to gather preliminary data on effectiveness. This iterative process will ensure the module meets the diverse needs of children with ASD, offering meaningful and therapeutic art experiences. The findings will contribute to broader research on therapeutic interventions for ASD, guiding future developments and best practices in the field.

**Keywords:** Autism Spectrum Disorder Kids; Lifelong Learning; Therapeutic Collage Art Module;

## **1.0 Introduction**

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterised by difficulties in social communication, restricted interests, and repetitive behaviours. Children with ASD often face significant challenges in sensory processing, emotional regulation, and social interaction, which can impact their overall well-being and development (Smith et al., 2023). As the prevalence of ASD continues to rise, there is an increasing need for innovative and effective therapeutic interventions tailored to meet the unique needs of these children (Hirota & King, 2023).

Art therapy has emerged as a valuable approach to addressing the emotional and sensory needs of children with ASD (Sampurno et al., 2020). It leverages the creative process to facilitate self-expression, emotional release, and sensory integration. Among the various art therapy techniques, collage art is particularly suited for children with ASD due to its tactile and visual nature, which can engage multiple senses simultaneously (Newman-Godfrey & Stichter, 2017). The incorporation of natural elements like leaves, flowers, and shells enhances the therapeutic potential of collage art, leveraging the benefits of nature-based interventions that promote relaxation, reduce stress, and foster a sense of connection with the natural world.

This study aims to develop and integrate a therapeutic collage art module enriched with nature elements specifically tailored for children with ASD. The module is designed to be incorporated into lifelong learning programmes, providing a holistic approach that addresses the sensory, emotional, and social needs of these children. The module, rooted in the principles of art therapy, sensory integration, and nature-based interventions, aims to provide structured and flexible activities that cater to the diverse needs of children with ASD.

The development of this module involved an interdisciplinary collaboration among art therapists, special education experts, and environmental educators. Drawing upon existing research and best practices, the team crafted a series of activities designed to promote sensory engagement, emotional expression, and social interaction. This collaborative approach ensures that the module is evidence-based and responsive to the specific challenges faced by children with ASD.

This study contributes to the growing body of research on therapeutic interventions for children with ASD by highlighting the importance of interdisciplinary collaboration and the integration of innovative approaches within lifelong learning frameworks. The therapeutic collage art module not only provides a creative and engaging medium for children with ASD but also offers a flexible tool that can be incorporated into various educational and therapeutic settings. By exploring the development and potential impact of this module, the study aims to provide valuable insights and practical recommendations for practitioners and researchers working to support the diverse needs of individuals with ASD.

## **2.0 Literature Review**

### **2.1 Art Therapy and Autism Spectrum Disorder**

Art therapy has gained recognition as an effective therapeutic approach for children with Autism Spectrum Disorder (ASD). Art therapy leverages the creative process to facilitate self-expression, emotional regulation, and sensory integration. Research indicates that children with ASD often struggle with verbal communication, making non-verbal forms of expression, such as art, particularly beneficial.

Studies have shown that art therapy can help improve social skills, reduce anxiety, and enhance emotional resilience in children with ASD. According to (Vogel et al., 2024), art therapy provides a safe and structured environment where children can explore their feelings and experiences. The tactile and visual nature of art materials, such as paint, clay, and collage, can be especially engaging for children with sensory sensitivities, as noted by (Cho, 2021).

Moreover, art therapy offers a way to build rapport and foster trust between therapists and children with ASD. This therapeutic relationship is crucial for encouraging participation and facilitating progress. The flexibility of art therapy allows it to be tailored to each child's individual needs and preferences, making it a versatile tool in the treatment of ASD.

## **2.2 Nature-based Interventions**

Nature-based interventions rely on natural elements and outdoor environments to promote physical, mental, and emotional well-being. These interventions have been found to be particularly effective for individuals with ASD, who often experience heightened sensory sensitivities and stress levels. Research by Abdullah et al.(2021) highlights the restorative effects of nature, including reduced stress and improved concentration. For children with ASD, exposure to nature can provide a calming and grounding experience. The multisensory stimuli found in natural environments such as the sounds of birds, the feel of grass, and the sight of trees can help to regulate sensory input and reduce overstimulation, as suggested by (Briggs et al., 2022).

Incorporating natural elements into therapeutic activities, such as collage art, can enhance these benefits. Materials like leaves, flowers, and shells offer varied textures and colours, making the creative process more engaging and enjoyable. The integration of nature-based elements into art therapy can thus provide a holistic approach that supports the sensory, emotional, and cognitive needs of children with ASD.

## **2.3 Lifelong Learning Programs**

Lifelong learning programmes are designed to provide continuous educational and developmental opportunities across the lifespan. These programmes emphasise the importance of ongoing education and personal growth, recognising that learning is a dynamic and lifelong process. For children with ASD, lifelong learning programmes offer a framework that supports sustained engagement and development beyond traditional educational settings. According to the (Moody & Laugeson, 2020), these programmes can play a critical role in fostering skills development, social integration, and overall quality of life for individuals with ASD.

Lifelong learning programmes often incorporate a variety of educational and therapeutic activities, including art therapy and nature-based interventions. By integrating the therapeutic collage art module into these programs, practitioners can provide children with ASD with consistent and meaningful opportunities for growth and development. This holistic approach aligns with the principles of lifelong learning, promoting ongoing support and adaptation to meet the evolving needs of individuals with ASD.

### **3.0 Methodology**

The development of the therapeutic collage art module for children with Autism Spectrum Disorder (ASD) was based on a systematic approach involving a thorough document and expert reviews. This methodology ensured that the module was grounded in evidence-based practices and tailored to meet the unique needs of children with ASD.

#### **3.1 Phase 1: Literature Review**

The first phase of the module development involved an extensive literature review to gather existing knowledge and best practices related to art therapy, sensory integration, and nature-based interventions for children with ASD. The literature review process included:

- i. **Art Therapy:** Investigating how various art therapy techniques have been utilized to support children with ASD, focusing on their benefits for emotional regulation, communication, and social skills development.
- ii. **Sensory Integration:** Reviewing strategies that aid children with ASD in managing sensory processing challenges, including tactile, visual, and auditory stimuli.
- iii. **Nature-Based Interventions:** Exploring research on the therapeutic benefits of natural elements and outdoor environments, such as promoting well-being and reducing stress.

The gathered information provided a foundational understanding of the theoretical and practical aspects necessary for designing the module.

#### **3.2 Phase 2: Expert Consultations**

Following the literature review, the second phase involved consulting with experts from various relevant fields to ensure the module's design was both theoretically sound and practically applicable. The expert panel included:

- i. **1 Art Therapists:** Professionals experienced in using art therapy with children with ASD provided insights into effective techniques and materials.
- ii. **1 Special Education Experts:** Specialists in special education contributed strategies for adapting activities to accommodate the diverse needs of children with ASD.
- iii. **1 Environmental Educators:** Experts in environmental education shared knowledge on incorporating nature elements into therapeutic activities.

#### **3.3 Phase 3: Module Design**

Based on the insights from the literature review and expert consultations, the therapeutic collage art module was designed with the following key components:

- i. **Objectives:** The module aimed to promote sensory engagement, emotional expression, and social interaction among children with ASD through structured yet flexible activities.
- ii. **Materials:** The module incorporated a variety of natural materials, such as leaves, flowers, stones, and shells, to enhance sensory experiences and foster a connection with nature.
- iii. **Activity Structure:** Activities were designed to be adaptable, allowing facilitators to modify them based on individual needs and responses. Key activities included:

- Sensory Exploration: Activities focused on engaging different senses using natural materials.
- Emotional Expression: Collage projects that encouraged children to express their feelings and experiences visually.
- Social Interaction: Group projects that fostered cooperation and communication among participants.

## 4.0 Result and Discussion

### 4.1. Phase 1: Literature Review

#### 4.1.1 Art Therapy Technique for Children with ASD

Recent studies on various art therapy techniques have highlighted their effectiveness in supporting children with Autism Spectrum Disorder (ASD). The review of literature from 2019 to 2024 has provided detailed insights into several key art therapy methods, including drawing and painting, clay modelling, storytelling through art, sensory art activities, and the integration of music and art. Table 1 summarizes recent studies on various art therapy techniques and their benefits for children with ASD in terms of emotional regulation, communication, and social skills development.

Table 1: Summarise of Art Therapy Technique

Study	Art Therapy Technique	Emotional Regulation	Communication	Social Skills Development
Jalambadan ,2020	Drawing and Painting	Significant improvement in emotional regulation through visual expression.	Enhanced ability to express feelings non-verbally.	Group sessions showed increased social interaction and cooperation.
Perriello, 2019	Collage Making	Helped children externalize emotions in a safe and structured way.	Allowed complex idea communication without words.	Promoted social interaction and collaboration in shared projects.
Jeong & Shim, 2021	Clay Modelling	Reduced emotional tension and increased emotional expression through tactile engagement.	Provided a physical medium for abstract expression.	Fostered teamwork and peer interaction during group activities.



Pérez et al., 2010	Storytelling through Art	Combined art and narrative to help children process and articulate emotions.	Improved narrative skills and enhanced verbal/non-verbal communication.	Collaborative storytelling sessions increased social understanding.
Durrani, 2021	Sensory Art Activities	Helped children self-regulate sensory experiences using various textures and materials.	Facilitated sensory communication and better expression of sensory preferences.	Encouraged social engagement through sensory play in group settings.
Gray, 2021	Music and Art Integration	Combined auditory and visual stimuli to aid in emotional regulation.	Enhanced communication through multimodal expression.	Group activities involving music and art increased social participation and cooperation.

Among these techniques, collage making has been particularly noted for its multifaceted benefits. Collage making is a versatile and accessible art therapy technique that involves assembling different materials such as paper, fabric, natural elements, and found objects to create a cohesive piece of art. This technique offers several unique benefits for children with ASD:

i. Sensory Engagement

Collage making engages multiple senses through the use of varied textures, colors, and materials. Children can explore and manipulate these materials, which can help them become more comfortable with different sensory inputs. The tactile and visual stimulation provided by collage making can be particularly soothing and engaging for children with sensory sensitivities.

ii. Emotional Expression

The process of selecting and arranging materials allows children to externalize their emotions in a safe and controlled manner. Collage making provides a non-verbal way for children to express complex feelings and experiences, which can be difficult to articulate through words. This can lead to improved emotional regulation and a greater sense of self-awareness.

iii. Communication

Collage making can serve as a bridge for communication, particularly for children who find verbal expression challenging. By creating visual

representations of their thoughts and feelings, children can communicate with therapists, caregivers, and peers in a more comfortable and effective way. This can enhance overall communication skills and help build stronger connections with others.

iv. Social Interaction

Group collage making activities promote social interaction and cooperation. Children can work together on shared projects, learning to take turns, share materials, and collaborate on a common goal. These interactions can foster important social skills such as teamwork, patience, and empathy.

v. Connection with Nature

Incorporating natural elements into collage making, such as leaves, flowers, and shells, can enhance the therapeutic benefits. Nature-based materials provide additional sensory experiences and a connection to the natural world, which can be calming and restorative. This aspect of collage making aligns with the principles of nature-based interventions, promoting well-being and reducing stress.

The studies reviewed between 2019 and 2024 demonstrate the effectiveness of various art therapy techniques for children with ASD. Collage making, in particular, stands out due to its ability to engage multiple senses, facilitate emotional expression, enhance communication, promote social interaction, and connect children with nature. By incorporating collage making into therapeutic practices, therapists can provide a holistic and adaptable approach to support the unique needs of children with ASD, contributing to their overall development and well-being.

#### 4.1.2 Sensory Integration

Table 2 summarises key findings and implications from recent studies on various sensory processing strategies for children with ASD, conducted between 2019 and 2024. Each strategy focuses on different sensory modalities and offers unique benefits to support the sensory processing needs of children with ASD.

Children with ASD) often experience sensory processing difficulties, which can impact their ability to interact with their environment and engage in daily activities. Sensory processing strategies are designed to help these children manage and integrate sensory inputs more effectively. However, this study only focuses on tactile and visual stimulation strategies, which have been shown to be particularly beneficial for children with ASD.

Tactile and visual stimulation strategies offer significant benefits for children with ASD, enhancing sensory processing, reducing anxiety, and improving focus and emotional regulation. By providing controlled and engaging sensory experiences, these strategies help children with ASD integrate sensory information more effectively, leading to better overall functioning and quality of life.

**Table 2: Summarise of Sensory Processing Strategies**

<b>Sensory Processing Strategy</b>	<b>Study</b>	<b>Key Findings</b>	<b>Implications</b>
Tactile Activities	Kadlaskar et al., 2021	Tactile activities help children become comfortable with various textures and reduce sensory defensiveness.	Improved sensory tolerance and enhanced fine motor skills.
Visual Stimulation	Banire et al., 2020	Visual stimuli such as bright colors, patterns, and light displays enhance sensory processing.	Increased focus and reduced sensory overload.
Auditory Integration Training	Schafer et al., 2019	Structured auditory exercises improve auditory discrimination, attention, and processing speed.	Better auditory discrimination and enhanced attention.
Multisensory Integration Therapy	Kawakami & Otsuka, 2021	Combining tactile, visual, and auditory stimuli significantly enhances sensory integration.	Comprehensive sensory processing and improved cognitive functioning.
Sensory Play Interventions	Xu et al., 201)	Play-based activities like sensory bins and water play improve sensory processing skills and reduce anxiety.	Enhanced sensory skills and positive sensory experiences.
Nature-Based Sensory Activities	Friedman et al., 2023	Nature-based activities provide calming and restorative sensory experiences.	Stress reduction and engagement with nature.

#### 4.1.3 Nature-based Intervention

Research between 2019 and 2024 has increasingly highlighted the therapeutic benefits of incorporating natural elements and outdoor environments into interventions for children, particularly those with ASD. These studies emphasize the positive impacts on well-being and stress reduction. Table 3 summarizes the key findings and implications of studies on the therapeutic benefits of natural elements and outdoor environments for children with ASD. Each study highlights the positive impacts on well-being and stress reduction, underscoring the value of nature-based interventions.



Natural elements and outdoor environments have been increasingly recognized for their therapeutic benefits, particularly for children with ASD. Research conducted between 2019 and 2024 has highlighted how nature-based therapy programs can promote well-being, reduce stress, and improve various functional outcomes for children with ASD.

The therapeutic benefits of natural elements and outdoor environments for children with ASD are well-documented in recent studies. Nature-based therapy programs offer a comprehensive approach that addresses sensory processing, emotional regulation, social skills, and overall well-being. By integrating natural elements into therapeutic interventions, practitioners can create enriching and supportive environments that facilitate the development and well-being of children with ASD. The research underscores the importance of incorporating nature into therapeutic practices to harness its full potential for promoting health and happiness in children with ASD.

**Table 3: Summarise of Therapeutic Benefits of Natural Element**

<b>Literature</b>	<b>Focus</b>	<b>Key Findings</b>	<b>Implications</b>
(Barakat et al., 2019)	Outdoor environments and stress	Significant reductions in cortisol levels, indicating reduced stress.	Regular exposure to natural environments helps lower stress levels and improves mental health.
(Fan et al., 2023)	Nature-based therapy programs	Improved mood, increased attention spans, and reduced symptoms of anxiety.	Interaction with natural elements enhances mood and focus, reducing anxiety.
(Anas, 2023)	Gardening for children with ASD	Significant improvements in sensory processing and reductions in anxiety levels.	Gardening activities provide a multisensory experience and reduce anxiety.
(Floresca, 2020)	Nature walks and emotional regulation	Better emotional regulation, decreased irritability, and improved overall mood.	Nature walks help children manage emotions more effectively and reduce irritability.
(Van Der Valk, 2022)	Forest therapy and social skills	Improved social interactions, better cooperation, and increased peer communication.	Forest therapy encourages social interaction and teamwork.
(Fahy et al., 2021)	Nature-integrated sensory play	Significant improvements in sensory processing and reduced sensory-related anxiety.	Integrating natural elements into sensory play enhances sensory processing and reduces anxiety.

## **4.2 Phase 2: Expert Consultations**

The expert consultations provided invaluable insights that significantly enhanced the design and development of the therapeutic collage art module. This phase involved consulting with three key experts: an art therapist, a special education expert, and an environmental educator. The semi-structured interviews were designed to gather detailed feedback and suggestions for refining the module.

### **4.2.1 Art Therapy Insights**

The art therapist emphasized the importance of sensory-friendly materials and techniques that cater to the unique needs of children with ASD. They suggested incorporating various textures and natural elements such as leaves, sand, and twigs, which have been shown to engage children with ASD effectively. This recommendation aligns with the findings by (Barakat et al., 2019), who highlighted that natural elements hold the attention of children with ASD and enhance their motor skills. Additionally, the therapist recommended using a structured yet flexible approach, allowing children to explore their creativity within a safe and supportive framework.

### **4.2.2 Special Education Strategies**

The special education expert focused on the necessity of adapting activities to accommodate the diverse sensory and cognitive needs of children with ASD. They advised integrating clear instructions and visual aids to support understanding and engagement. This aligns with the literature that underscores the importance of visual supports in enhancing the learning experiences of children with ASD (Rutherford et al., 2020). Furthermore, the expert suggested implementing individualized activity plans that consider each child's strengths and challenges, ensuring that the module is inclusive and accessible to all participants.

### **4.2.3 Environmental Education Contributions**

The environmental educator provided valuable insights into incorporating nature elements into the therapeutic activities. They highlighted the therapeutic benefits of nature, such as reducing anxiety and improving mood, which are well-documented in existing research (Li et al., 2019). The educator suggested creating outdoor sessions where children could directly interact with nature, thereby enriching the sensory experience and promoting a deeper connection with the environment. They also recommended incorporating seasonal elements to keep the activities dynamic and engaging throughout the year.

### **4.2.4 Refinements to the Module Design**

Based on the expert feedback, several refinements were made to the module design:

- i. **Material Selection:** Incorporating a wider range of sensory materials, including various textures and natural elements, to enhance engagement and sensory stimulation.
- ii. **Instructional Design:** Using visual aids and clear, step-by-step instructions to support understanding and participation.

- iii. Individualization: Developing personalized activity plans that cater to the specific needs and preferences of each child.
- iv. Outdoor Integration: Planning periodic outdoor sessions to leverage the therapeutic benefits of nature, ensuring a holistic and enriching experience.

The consultations confirmed that the proposed module was theoretically sound and practically applicable. The experts' recommendations were instrumental in creating a well-rounded and effective therapeutic collage art module that addresses the unique needs of children with ASD.

## **5.0 Conclusion and recommendation**

The development of a therapeutic collage art module incorporating nature elements for children with Autism Spectrum Disorder (ASD) has been grounded in a comprehensive review of existing literature and expert feedback. The findings from recent studies underscore the significant benefits of integrating art therapy, sensory processing strategies, and nature-based interventions to support the unique needs of children with ASD.

### **i. Art Therapy and ASD**

Art therapy has been consistently shown to facilitate emotional expression, improve communication, and enhance social skills in children with ASD. Techniques such as drawing, painting, and particularly collage making provide children with a non-verbal outlet to express their thoughts and emotions. The tactile and visual aspects of collage making, combined with structured yet flexible activities, create an engaging and supportive environment that promotes emotional regulation and social interaction.

### **ii. Sensory Processing Strategies**

Tactile and visual stimulation strategies are crucial for addressing sensory processing challenges in children with ASD. Studies indicate that activities involving tactile engagement, such as manipulating different textures, and visual stimuli, such as using bright colors and patterns, can significantly improve sensory integration. These strategies help reduce sensory defensiveness, enhance focus, and alleviate sensory-related anxiety, making them integral components of the therapeutic collage art module.

### **iii. Therapeutic Benefits of Nature-Based Interventions**

Incorporating natural elements into therapeutic activities offers a multifaceted approach to enhancing well-being and reducing stress. Research highlights that regular exposure to natural environments and the use of natural materials in therapy can lead to significant improvements in mood, reduced anxiety, and better emotional regulation. Nature-based interventions also promote sensory engagement, social interaction, and overall mental health, making them a valuable addition to the collage art module.

### **iv. Holistic Approach**

The interdisciplinary approach to developing the therapeutic collage art module ensures that it is both evidence-based and tailored to meet the diverse needs of children with ASD. By combining principles of art therapy, sensory integration, and nature-based interventions, the module provides a comprehensive framework that supports sensory engagement, emotional

expression, and social development. The iterative refinement process, based on pilot testing and expert feedback, further enhances the module's effectiveness and adaptability.

The expert consultations throughout Phase 2 have offered crucial insights and ideas that have significantly improved the concept and development of the therapeutic collage art module. By including input from art therapists, special education specialists, and environmental educators, we have guaranteed that the programme is both theoretically sound and easily adaptable in real-world settings. These contributions have resulted in substantial improvements in the selection of materials, the design of instruction, the customisation of activities, and the integration of outdoor aspects.

During the upcoming phase, the focus will be on the detailed design and development of the module. This phase will involve creating the actual art activities, assembling the necessary materials, and developing comprehensive guides and visual aids to support both the children and the facilitators. The goal is to create a holistic, engaging, and effective therapeutic experience that leverages the proven benefits of nature and art therapy for children with ASD.

Future steps will include pilot testing the module with a small group of participants to gather preliminary data on its effectiveness and to make further adjustments based on real-world feedback. This iterative process will ensure that the final module is well-suited to meet the diverse needs of children with ASD, providing them with meaningful and therapeutic art experiences that can be integrated into lifelong learning programs. The findings from these subsequent phases will contribute to the broader body of research on therapeutic interventions for children with ASD, potentially informing best practices and guiding future developments in this field.

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### **Author Contributions**

**S. Suboh:** Conceptualisation, Data Collection; **N.A. Azhari:** Writing-Reviewing and Editing; **S.N. Razali:** Data Curation, Validation, Supervision.

### **Conflicts of Interest**

The manuscript has not been published anywhere else and is not being considered by any other journals. All authors have authorized the review, agree with the submission, and state that they have no conflicts of interest in the work.

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