# S.A.L.A.M.
# AN INCLUSIVE SENSORY INTERVENTION FRAMEWORK WITH LEGO, ART AND MOOD BOARD FOR SPECIAL NEEDS STUDENTS IN MALAYSIAN CLASSROOM

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## ABSTRACT

Previous studies had highlighted that special need individuals have unique sensory sensitivity and may perceive stimulation towards sensory differently, which may lead to maladaptive behaviours and emotions when experiencing sensory discomfort. This phenomenon may also be observed in the classroom setting of special need students, as some of them may have difficulties in adapting to the physical and social conditions. A Multi-Sensory Environment was commonly used in special-needs school, however empirical investigations into how to best use this facility and its effectiveness was limited, especially in Malaysian setting. To address some of the challenges that the students encountered, a specially designed area and integrated with LEGO, art and Mood Board approaches were introduced in a classroom setting to the students. The area was named as S.A.L.A.M., which is an acronym for Sensory Area with Lego, Art and Mood Board. Specific activities were conducted in the S.A.L.A.M. and the Completion of Activity Response Evaluation (CARE), was administered to all the students who participated in the activities. It was acknowledged that students enjoyed the learning processes of the S.A.L.A.M., and they had better understanding of their physical and psychological status when experiencing disturbance in life. Through the activities, it was observed that they become more confident and calmer towards distractions and learned to have more positive behavioural reaction. As a conclusion, the introduction of SALAM in classroom setting for special need students may provide the unique conditions for learning and valuable opportunity for them to live and develop to their maximum potential in education and life.

**Keywords:** Sensory, LEGO, Art, Mood Board, Special Needs, Students



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# INTRODUCTION

Previous studies (Manning et al., 2023; Ranadive et al., 2025) had highlighted that special need individuals have unique sensory sensitivity and may perceive stimulation towards sensory differently, which may lead to maladaptive behaviours and emotions when experiencing sensory discomfort. This phenomenon may also be observed in the classroom setting of special need students, as some of them may have difficulties in adapting to the physical and social conditions.

A Multi-Sensory Environment (De Domenico et al., 2024) was commonly used in special-needs school. Sensory areas, which are designated spaces with specialized tools, have emerged as an effective solution to support the engagement and well-being of students with special needs by creating environments that cater to the diverse sensory, cognitive, and emotional needs of these students (Stephenson & Carter, 2011).

Sensory areas are designated spaces that use visual, tactile, auditory, and proprioceptive stimuli to enhance learning experiences and benefits students with autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), and sensory processing disorder by providing structured opportunities for self-regulation and engagement (Kinnealey et al., 2012). The sensory area can be a sanctuary where they can retreat, relax, and regain focus.

LEGO therapy has gained widespread popularity in special education as an effective tool for promoting social skills, communication, and problem-solving (LeGoff, 2004). The act of building with LEGO pieces offers a hands-on, kinesthetic learning experience that encourages collaboration, cooperative play, creativity, and fine motor skills development (Lew, 2023; Levy & Dunsmuir, 2020).

When incorporated into a sensory area, LEGO therapy becomes an interactive activity where students can work together or individually to create structures, solve puzzles, or follow specific instructions. In a group setting, LEGO builds can encourage teamwork and communication among students, helping them practice taking turns, sharing, and engaging in conversation (Griffiths, 2016). It also helps students to improve their attention to detail, planning, and sequencing—skills that are crucial for academic and personal development.

For many students, particularly those with limited verbal communication skills, art becomes a powerful outlet for self-expression. Art provides a non-verbal way for students to express their emotions, thoughts, and creativity, which is especially important for those who may struggle with traditional communication methods (Regev, 2022). The combination of tactile and visual stimuli in art-based sensory interventions enhances self-awareness and emotional processing.

Mood Board is a visual tool that can help students identify, articulate, and manage their emotions (Geh et al., 2023). Students with special needs often have difficulty identifying and articulating their emotions, especially when they are feeling overwhelmed or anxious. Mood Board provides a non-threatening way for them to explore their emotions and communicate them to teachers or peers.

Incorporating sensory tools such as LEGO, art, and mood board can provide an enriching and supportive environment for these students, addressing their unique learning and emotional



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needs, however empirical investigations into how to best use this facility and its effectiveness was limited, especially in Malaysian setting.

## RESEARCH PURPOSE

Creating an inclusive classroom environment that caters to the diverse needs of students, particularly those with special needs, is paramount to fostering engagement, emotional well-being, and academic success. With the rise of awareness in neurodiversity of special need education (Bailey, 2023; Budy, 2021; McLennan et al., 2025), the main purpose of this study is to explore the integration of sensory areas utilizing potential tools for special need students in classroom setting and identify the effectiveness of this space to address some of the challenges, problems and issues that the students will encounter in their daily life.

## METHODOLOGY

All the participants of this study were special need students who are studying in Program Pendidikan Khas Integrasi (PPKI) Sekolah Menengah Kebangsaan Miharja. The objective of this study was being explained to the participants and informed consent was obtained prior to the commencement of the activity.

A specially designed sensory area, which was integrated with LEGO, art and Mood Board approaches were introduced in a classroom setting to the students to address the challenges that the students experienced in their daily routines.

The area was named as S.A.L.A.M., which is an acronym for Sensory Area with Lego, Art and Mood Board. Specific activities were conducted in the S.A.L.A.M. and the Completion of Activity Response Evaluation (CARE), was administered to all the students who participated in the activities.

Specific information on the respective activities of the S.A.L.A.M. and how to best develop the activities were described as below:

*SA = Sensory Area*

i) Location & setup: Quiet, low-traffic corner of the classroom; soft lighting / natural light
ii) Comfortable seating: Bean bags, floor cushions
iii) Tactile items: LEGO bricks
iv) Visual tools: Mood board, art materials
v) Rules & guidelines: Clear expectation for use, such as time limits, individual use, purpose of usage.

*L = Lego*

i) Set up a variety of LEGO brick sets that cater to different skill and development levels, such as size of bricks.
ii) Include free play options and guide projects, e.g. construction of a specific structure.
iii) Encourage collaboration building and group activities to promote social interaction



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*A = Art*

i) Provide variety of materials, e.g. drawing tools, colouring tools, clay
ii) Allow students to choose the materials that they feel most comfortable with and encourage them to work independently or in small groups
iii) Generating open-ended art activities that allow students to freely express themselves.

*M = Mood Board*

The Mood Board (Geh et al., 2023) was developed by integrating the psychological construct of the Malaysian Mood Scale (MASMS; Lew et al., 2022, 2023), Malaysian Emotion Regulation Questionnaire (M-ERQ; Lew et al., 2021), and Malaysian Perceived Stress Scale (M-PSS; Lew et al., 2021).

The core elements of the Mood Board which consists of mood, emotional regulation, and perceived stress were presented through:

i) The colours of red, yellow, and green using the traffic light analogy (refer Figure 1)
ii) Three emotions icons consist of smiling face with smiling eyes, anxious face, weary face (refer Figure 2)
iii) Numbering from one (1) to (5) with ascending order in sizes (refer Figure 3).

The implementation of the Mood Board can be conducted physically and virtually, through online assessment template that participants can complete on their mobile devices. The educator encourages students to engage the Mood Board daily, either through individualized reflection or group discussions. It helps to facilitate conversations on emotional regulation, coping strategies and social interactions.

**Figure 1:** *Mood Board – Traffic Light*

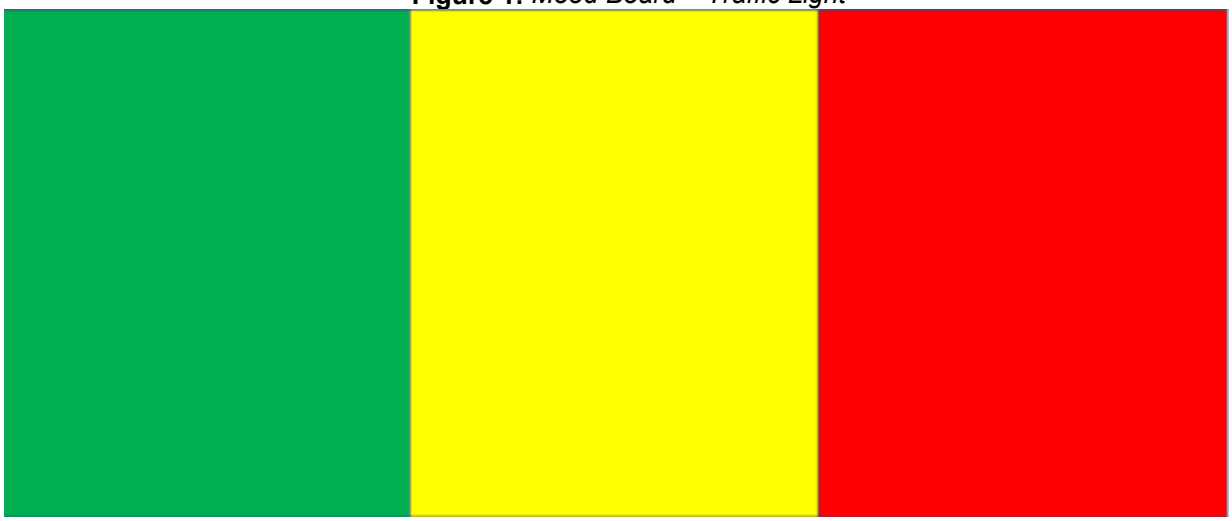



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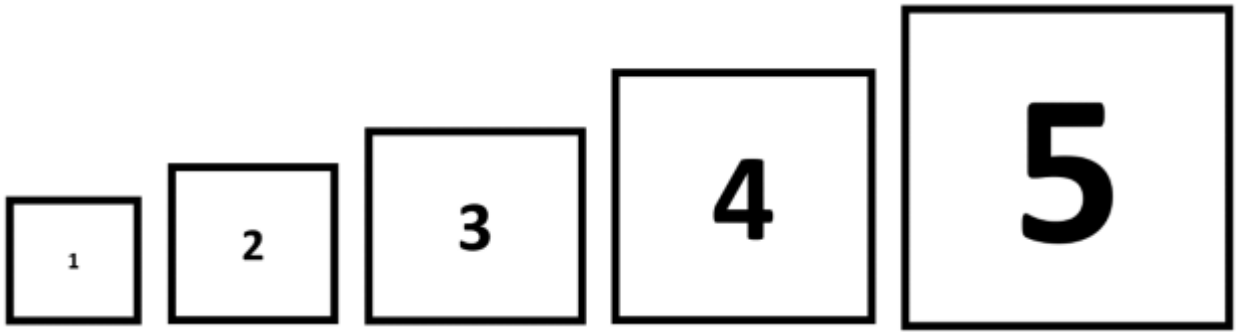
**Figure 2:** *Mood Board – Emotion Icons*

**Figure 3:** *Mood Board – Stress Numbering*




The inclusion of visual aids and the guidance of the researchers on the comprehensibility of items provided better clarity to the participants in completing their respective tasks (Finlay & Lyons, 2001).

### *Completion of Activity Response Evaluation*

A specially designed evaluation form (refer Figure 4), titled Completion of Activity Response Evaluation (CARE) was developed to obtain the perception and feedback of the participants after the completion of the respective tasks. Emphasizing on identifying the participant's experience in understanding the rationale and objective of conducting the activities, CARE consisted of eight easy-to-comprehend statements that are suitable for the special need students aged 13 – 18 years old. Each statement was scored on a 5-Star system, similar to 5-point Likert scale of 1 to 5, with 1 (the lowest) and 5 (the highest).



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**Figure 4:** *Template of Completion of Activity Response Evaluation*

| CARE's Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| I understand the objective of this activity. | | | | | |
| I feel safe and comfortable conducting this activity. | | | | | |
| I enjoy and have fun conducting this activity. | | | | | |
| I improve my ability and skills after completing this activity. | | | | | |
| I learn something beneficial from this activity. | | | | | |
| I am able to comment and contribute my opinion during the activity. | | | | | |
| I connected well with others when conducting this activity. | | | | | |
| I am interested in conducting the activity again in the future. | | | | | |

## RESULTS AND FINDING

The example of potential arrangement of S.A.L.A.M. in classroom setting was presented in Figure 5.

***Figure 5:*** *Example of arrangement of S.A.L.A.M. in classroom setting*




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It was acknowledged that students enjoyed the learning processes of the S.A.L.A.M., and they had better understanding of their physical and psychological status when experiencing disturbance in life. The findings indicated that the well-structured sensory areas fostered engagement among students, reducing anxiety and enhancing communication skills among their fellow classmates. The participants recorded high scores in every CARE statement for their perceived S.A.L.A.M. experiences and their positive responses corresponded the observation of the teachers who are in charge of conducting those sessions.

Through the activities, it was observed that they become more confident and calmer towards distractions and learned to have more positive behavioural reaction. Each element of the SALAM was identified to positively impact on a specific area. The LEGO activity improved the focus of the students and help them to manage sensory overload, through tactile engagement. It also encouraged the students to listen to instructions, follow sequences, think critically and develop problem-solving skills.

Art approaches and the Mood Board enabled students to express their emotions constructively. They provided open-ended creative opportunities for the students to explore their emotions and narratives through visual representations.

Besides the individualized processes, the group activities that were conducted in the SALAM helped to facilitate peer collaboration and learning how to interact optimally among individuals. The LEGO, art and mood board sessions enable other students to further understand the psychological status and current conditions of their peers.

## DISCUSSIONS, RECOMMENDATIONS AND CONCLUSIONS

The current finding supported the integration of sensory area with LEGO, art and mood board approaches for special needs students in classroom setting. The positive impact of these activities on enhancing emotional regulation, social skills development, and academic performance are being recognized.

The effectiveness of S.A.L.A.M. in fostering inclusive, supportive, and engaging classroom environments for all students, especially those with special needs, help educators to create a cohesive environment that better cater to the needs of students with a variety of learning styles and emotional needs.

### Recommendations

The systematic development of a working framework on how to create and implement the S.A.L.A.M. in special education classroom settings will be beneficial in maintaining the consistency and effectiveness of the sensory area.

Professional development programs should also be introduced to further equip fellow educators with the necessary skills and competencies for integrating sensory-based interventions into their teaching strategies.



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To maximize the effectiveness of the respective approaches, schools and educators should collaborate with fellow professionals, such as occupational therapists, psychologists, art therapists to strengthen the quality of the sensory areas. Through periodic consultations and tailored interventions catering to the specific needs of the students, it will positively support the development of the special needs students. Future interventions should explore the potential of integrating techniques in sport psychology and physical activity in special education settings to foster optimal psychosocial health and well-being of the students.

To increase engagement and shareability, a summarized infographic of the benefits of implementing the Sensory Area with Lego, Art and Mood Board (S.A.L.A.M.) in a classroom setting for special need students was presented in Figure 6.

***Figure 6:*** *Summarized infographic of benefits of S.A.L.A.M.*




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## Conclusions

The integration of sensory areas featuring LEGO bricks, art, and mood boards in the S.A.L.A.M. has shown significant potential in enhancing the sensory processing, creativity, emotional regulation, and social interaction among special needs students in Malaysian classrooms. Creating such inclusive environments not only helps students with special needs but also promotes a more empathetic and understanding classroom culture for all students with neurodiversity.

By embracing the power of sensory activities, the introduction of S.A.L.A.M. in classroom setting for special need students may provide the unique conditions for learning and establishing valuable opportunity for them to live and achieve their maximum potential in education and daily life.

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# REFERENCE

Bailey, C. (2023). Neurodivergent literacies': Exploring autistic adults' 'ruling passions' and embracing neurodiversity through classroom literacies. *Literacy*, 57(2), 120–131.

Budy, B. (2021). Embracing neurodiversity by increasing learner agency in nonmajor chemistry classes. *Journal of Chemical Education*, 98(12), 3784–3793.

De Domenico, C., Di Cara, M., Piccolo, A., Settimo, C., Leonardi, S., Giuffrè, G., De Cola, M.C., Cucinotta, F., Tripodi, E., Impallomeni, C., ... (2024). Exploring the usefulness of a multi-sensory environment on sensory behaviors in children with autism spectrum disorder. *Journal of Clinical Medicine*, 13, 4162. https://doi.org/10.3390/jcm13144162

Finlay, W. M. L., & Lyons, E. (2001). Methodological issues in interviewing and using self-report questionnaires with people with mental retardation. *Psychological Assessment*, 13, 319–335.

Geh, C.L., Lew, P.C.F., & Mohamad, S.B. (2023). Mood board: The psychological wellbeing assessment for special needs students in classroom setting. Proceedings of International Conference on Special Education, Vol. 5. https://publication.seameosen.edu.my/index.php/icse/ article/view/359

Griffiths, C. (2016). LEGO-based therapy and social competence: an exploration of parental and teacher perceptions of LEGO-based therapy with pupils diagnosed with Autism Spectrum Disorder (ASD). Ph.D. Thesis, Cardiff University, Cardiff, UK.

Kinnealey, M., Pfeiffer, B., Miller, J., Roan, C., Shoener, R., & Ellner, M. (2012). Effect of classroom modification on attention and engagement of students with autism or dyspraxia. *American Journal of Occupational Therapy*, 66, 511–519.

LeGoff, D. (2004). Use of LEGO as a therapeutic medium for improving social competence. *The Journal of Autism and Developmental Disorders*, 34, 557–571.



DOI: https://zenodo.org/record/16308296
Published by: https://publication.seameosen.edu.my/index.php/icse/issue/view/14

Levy, J., & Dunsmuir, S. (2020). Lego Therapy: Building social skills for adolescents with an autism spectrum disorder. *Educational and Child Psychology, 37*(1), 58–83. https://doi.org/10.53841/bpsecp.2020.37.1.58

Lew, P.C.F., Parsons-Smith, R.L., Lamont-Mills, A., Quartiroli, A, & Terry, P.C. (2022). Development and validation of the Malaysian Mood Scale. FEPSAC 2022. *16th European Congress of Sport & Exercise Psychology Abstract Book*, 541.

Lew, P.C.F., How, P.N., Akmal, S., & Chong, S.K. (2021, June 19–20). *Validation of the Malaysian Emotion Regulation Questionnaire (M-ERQ) in sports & general population*. 4th Malaysian International Psychology Conference, Virtual, Malaysia.

Lew, P.C.F., How, P.N., Akmal, S., & Chong, S.K. (2021, October 27–29). *Malaysian Perceived Stress Scale (M-PSS): Psychometric characteristics among Malaysian sport athletes & general population*. International Sport, Health and Emerging Technologies Summit Conference, Virtual, Malaysia.

Lew, P.C.F. (2023, December 5–7). *Building LEGO® towards exploring and developing psychological qualities in elite sports.* International Conference in Human Performance and Health 2023: Sports, Military and Anti-Doping, Melaka, Malaysia.

Manning, C., Williams, G., & MacLennan, K. (2023). "Sensory-Inclusive Spaces for Autistic People: We Need to Build the Evidence Base." *Autism: The International Journal of Research and Practice,* 27 (6): 1511–1515. https://doi.org/10.1177/13623613231183541.

McLennan, H., Aberdein, R., Saggers, B., & Gillett-Swan, J. (2025). Neurodiversity: A scoping review of empirical research. *Neurodiversity*, 3. https://doi.org/10.1177/27546330251337874

Ranadive, T., Khurana, S., Bhinderwala, A.M., Ramachandran, S., Raghupathy, M.K. & Rao, B.K. (2025). Effect of sensory enriched environment as an intervention on behaviors in children with autism spectrum disorder: a systematic review. *International Journal of Developmental Disabilities*, 1–16, https://doi.org/10.1080/20473869.2024.2443699

Regev, D. (2022). Art Therapy with Special Education Students (1st ed.). Routledge. https://doi.org/10.4324/9781003156918

Stephenson, J., & Carter, M. (2011). The use of multisensory environments in schools for students with severe disabilities: perceptions from teachers. *Journal of Developmental and Physical Disabilities*, 23, 339–357.



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Published by: https://publication.seameosen.edu.my/index.php/icse/issue/view/14