

DESIGNING MULTI-SENSORY LEARNING ENVIRONMENTS FOR STUDENTS WHO ARE CHALLENGED BY SENSORY EXPERIENCES

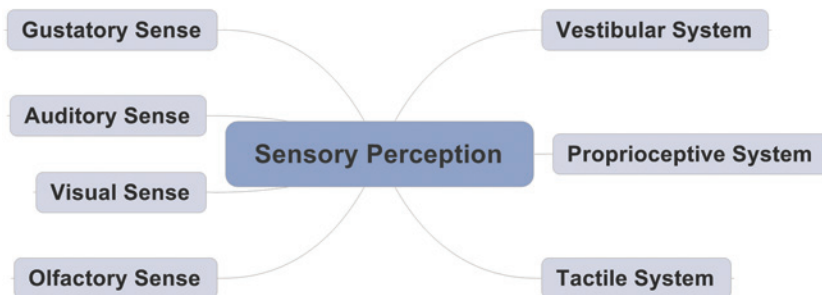
Tania Allan Ross

The workshop on which this paper is based focused on working towards overcoming learning difficulties caused by Sensory Integration Dysfunction (SID) and developing strategies for interaction between student, home, therapists and educators. If a student demonstrates difficulties, such as the inability to stay alert, or the need to be in constant motion, they are unlikely to settle and engage in learning tasks. These behaviours may lead to them being labelled as difficult, inattentive, oversensitive, or awkward. Sometimes these difficulties are caused by SID.

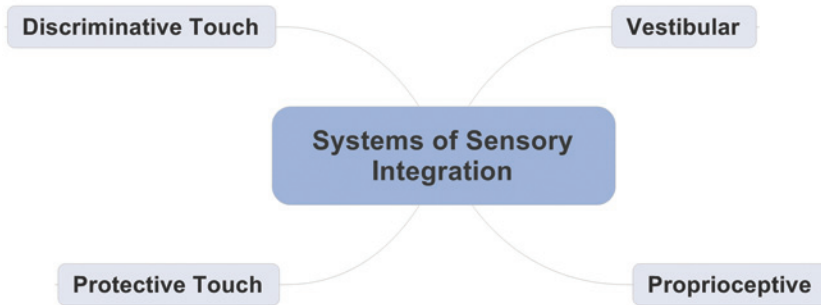
We receive sensory information about our surroundings through smell, vision, sound, taste, touch, movement and gravity. A person with sensory difficulties is frequently unable to organise these sensory messages to respond in a meaningful and consistent way. The nature of visual arts education leads to frequent accommodation and engagement for students with differences, especially through open-ended exploration and multi-sensory skill development experiences.

During the workshop, an overview and understanding of SID was given from a parent's perspective. An understanding of how SID can impact on a student's learning was addressed, along with appropriate support, and suitable environments and creative approaches were discussed, with a focus on the importance of interaction and collaboration between the student, home, therapists and educators. Workshop participants examined sensory issues, then considered implications these may have when designing appropriate sensory experiences and spaces within the creative learning environment.

There are four senses and three systems of sensory integration that we rely on in order to have a sense of ourselves, and to function in the world.



Systems of sensory integration organise and process these sensations for meaningful use in an everyday environment.

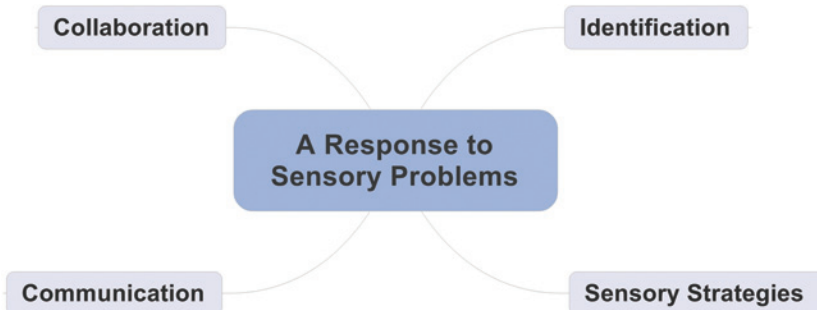


The vestibular system enables us to know where our head is located in space – sensory receptors in our inner ear give information about movement, gravity, and vibration.¹ For example, taking a ride on a roller coaster may cause one to become dizzy and disorientated.

Our proprioceptive sense provides an internal awareness that informs us where our body is situated in space, and is received mainly from our joints and muscle receptors.² For example, if you lift your hands above your head you are most likely to still be aware of where your arms and hands are located without being able to see them.

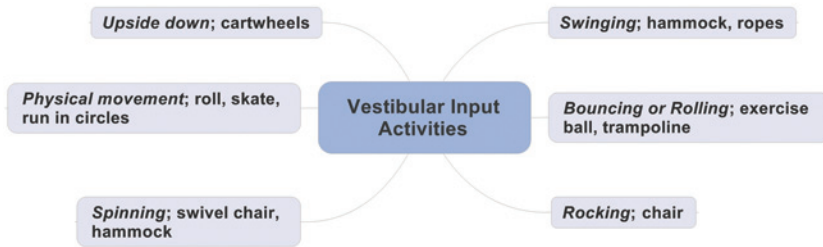
The tactile system involves our sense of touch. The reception and processing of tactile or touch sensation is dealt with by two systems – we have both protective and discriminative mechanisms.³ Our protective touch system responds to light and unexpected touch, whereas our discriminative touch system tells us when we are being touched, what we are touching and where. In order to locate keys inside a bag discriminatory touch is used.

Sensory processing varies from one individual to another. An individual's sensory "portrait" is usually identified and understood through the assessment process of a checklist evaluation, which identifies sensory triggers, patterns and responses. If significant sensory flow disruption is identified, the consequence can be that the world feels confusing, inconsistent and unsafe. Students may show agitation, distress and compensatory behaviour. Following analysis, therapists often prescribe a schedule of sensory activities, which provide the sensory input that the individual's body needs in order to remain in an organised state; best results are recognised if these sensory activities are included within the student's everyday routine.

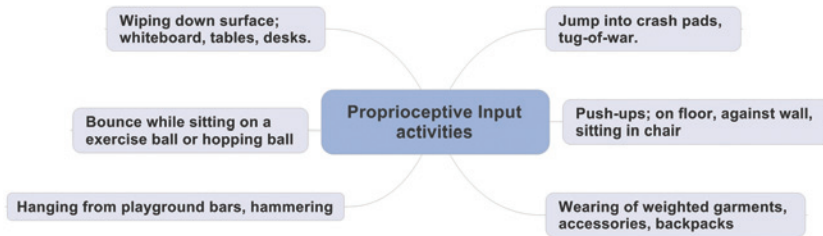


Good communication and collaboration between student, caregivers, and health and education professionals is essential. It is necessary that everyone involved in the education of the student is aware of any unusual sensory needs and the strategies that are in place to help the student feel at ease in a learning environment.

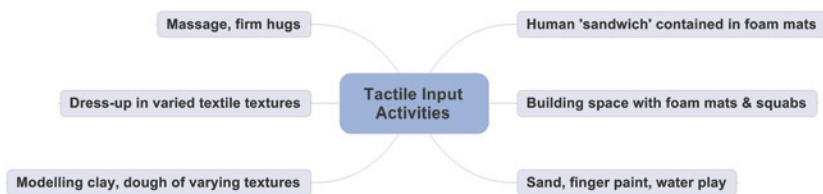
If a disruption to the student's sensory processing system is identified, some of the activities that could assist in stimulating the various sensory systems are identified here. Vestibular input can be gained by any type of movement, in particular swinging, spinning and rocking; often the individual seeks intense and prolonged vestibular input.



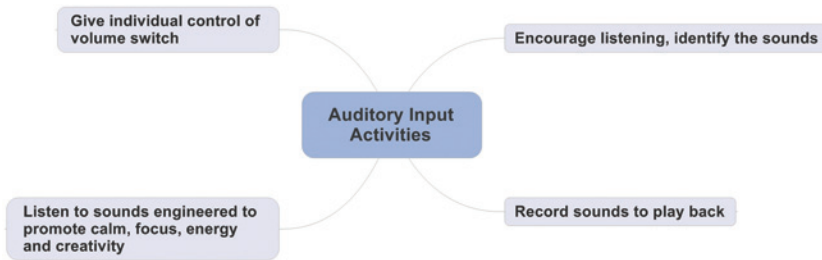
Proprioceptive input activities that provide joint compression and pressure will enable the student to feel grounded and more aware of the body's position in space.



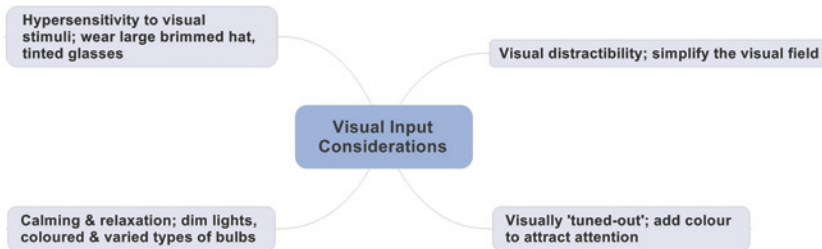
Tactile input can be in the form of texture, temperature and pressure, all of which affect the sense of touch.⁴



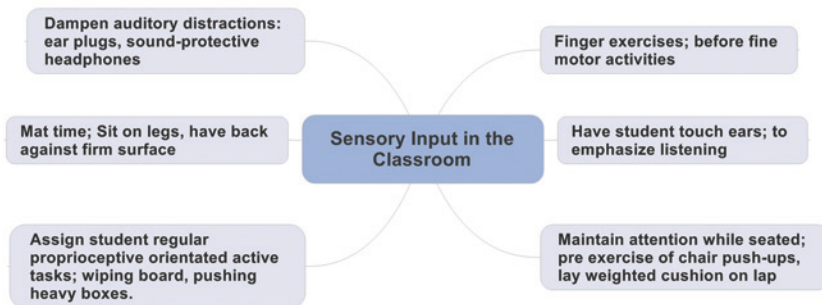
Auditory input, the range of different sounds we hear, relates to the individual's tolerance and preferences for sounds.



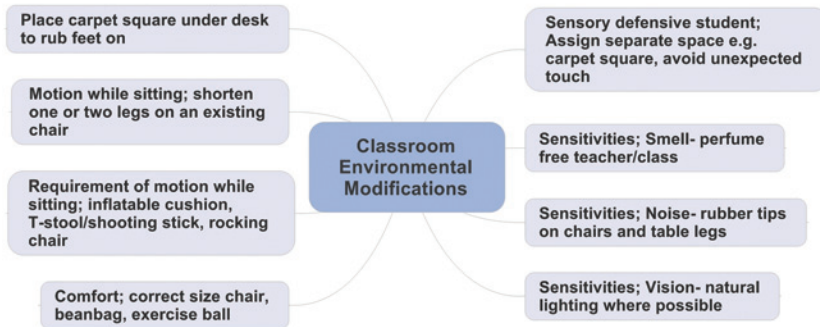
Visual input is gathered through the perception of various sights, colours, contrasts and movement.⁵



Incorporating an individual's sensory activities into a particular learning environment involves creativity and forward planning.



As well as inclusion of sensory input activities, some minor environmental modifications may assist.



A collaborative approach involving gaining an informed understanding of an individual student's sensory needs, followed by the making of small accommodations within the learning environment – such as enabling the student to engage in an unobtrusive sensory activity (e.g. the freedom to work with a small amount of modelling clay when required) – will result in a more relaxed, enjoyable and rewarding learning experience, benefiting all involved.

Tania Allan Ross is a senior lecturer in the School of Design at Otago Polytechnic in Dunedin. She is also the parent of a child with sensory differences. The combination of this experience and an interest in the design of user-centred garments has led to her current postgraduate study within the School of Occupational Therapy at Otago Polytechnic.

- 1 Anita C Bundy, Shelly J Lane and Elizabeth A Murray, eds, *Sensory Integration: Theory and Practice*, eds, 2nd ed., (Philadelphia: FA Davis Company, 2002), 480.
- 2 Carol Stock Kranowitz, *The Out-of-Sync Child: Recognizing and Coping with Sensory Processing Disorder* (New York: Perigee, 2005), 136.
- 3 Lindsey Biel and Nancy Peske, *Raising a Sensory Smart Child: The Definitive Handbook for Helping Your Child with Sensory Integration Issues* (New York: Penguin Books, 2005), 30.
- 4 *Ibid.*, 114.
- 5 *Ibid.*, 120.