

A Phenomenologically Sensitized Analysis of Images Depicting Stressed Embodiment in  
an Adolescent Male with Autism Spectrum Disorder (ASD)

Chris Boyd, B.PhEd., B.Ed.

Department of Graduate and Undergraduate  
Studies in Education

Submitted in partial fulfillment  
of the requirements for the degree of  
Master of Education

Faculty of Education, Brock University  
St. Catharines, Ontario

© Chris Boyd 2014

## **Abstract**

Each person with Autism Spectrum Disorder (ASD) comes with unique characteristics (idiosyncratic) that give clues to the world they know (Connolly, 2008). It is through their body that they (a) know the world they are experiencing, (b) make meaning, and (c) express certain behaviours. I used Laban's Movement Analysis (LMA) to practice an attuned and appreciative approach to describing and understanding the body movement in one severe manifestation of autism in an adolescent male. LMA observes human movement across many disciplines and can be applied in many contexts providing a body honoring discourse for description (Connolly, 2008). The framework examines movement in body, space, quality, and relation. Each theme provides a detailed description of the individual's movement, thus, giving us a richer understanding of patterns and possible triggers to self-injurious behaviours (SIB). During the summer of August 2013, I participated in Brock University's annual Autism Camp and worked with a 15 year old male named "Aaron" who manifests with low functioning autism. The purpose of my research project was to code and analyze a series of photos taken to help gain insight into movement patterns associated with stressed embodiment and self-injury in "Aaron". As I understood more about these embodied expressions, I uncovered valuable information on how to read patterns and discover what triggers these events, thus providing strategies on how to help people do more refined observations and make meaning of the behaviour. Laban's movement analysis provided a sensitized discourse appropriate to the embodied expressions depicted in the photos.

## Table of Contents

	Page
Abstract.....	ii
CHAPTER ONE: INTRODUCTION TO THE STUDY .....	1
CHAPTER TWO: LITERATURE REVIEW .....	3
Self-Injury to Body (SIB) .....	3
Tactile Aggression and Defensiveness .....	4
Prevailing Theories .....	5
Treatment and Intervention.....	6
CHAPTER THREE: METHODOLOGY AND PROCEDURES .....	8
Data Management .....	9
Data Analysis .....	10
CHAPTER FOUR: PRESENTATION OF RESULTS .....	14
Findings – Manifest – Latent .....	14
Embodied Analysis (Sensitized) – Hidden Obvious.....	17
Significance.....	18
Peripheral Vision .....	19
Pitch and Pressure .....	19
Significance.....	20
Power Prose .....	20
SIB Position .....	21
SIB .....	22
CHAPTER FIVE: DISCUSSION AND RECOMMENDATIONS .....	25
References.....	28
Appendix A: Movement Concepts.....	31
Appendix B: Original Template Used for Analysis .....	32

## CHAPTER ONE: INTRODUCTION TO THE STUDY

The human body's sensory input system organizes and processes approximately 10 senses including olfactory, touch and pressure, pain, temperature, vision, vestibular system, taste, audition, and chemical sense (Sherrill, 1998). Children with autism are usually hypersensitive or hyposensitive to one or more sensory stimuli which create either tactile defensiveness or tactile craving or aggression (Sherrill, 1998). One of the main predictors for self-injury in autistic populations is abnormal sensory processing (Duerden et al., 2012). Youth and adults with autism perceive and cope with the world much differently from their fellow counterparts. Therefore, each person with ASD comes with unique characteristics (idiosyncratic) that give clues to the world they know (Connolly, 2008). It is through their body that they (a) know the world they are experiencing, (b) make meaning, and (c) express certain behaviours. Cause and effect examination give insight to this population from a behavioural point of view but may not address embodied clues given by people with ASD. Against the frameworks of behavioural and embodiment approaches, I engaged in a phenomenologically oriented analysis of images depicting stressed embodiment in an adolescent male with autism spectrum disorder. An embodiment approach allows observers to change the way we examine and observe in an attempt to understand "embodied expression of lived experiences" (Connolly, 2008, p. 238). Traditional behavioural approaches allow observers to understand these particular representations of tactile defensiveness and tactile craving as psycho-physiological manifestations. Blending the strengths of these approaches allowed me to formulate and consider more deeply my newly developing interest in possible connections between tactile issues and SIBs in people with ASD.

Over the summer of 2013, I worked with a 15-year-old boy (who I will call Aaron) during the annual Autism Camp run by Dr. Maureen Connolly. Aaron has severe autism, is nonverbal, wears diapers, and averages 1-3 SIBs a day involving hitting of head with two hands close to his ears, elbow hitting against walls, and biting of right wrist/forearm or hand on some occasions. We spent a lot of time in a sensory quiet room to help reduce anxiety so Aaron could participate in daily physical activity. The first 3 days working with Aaron catapulted me into a world of shock and surprise to see the violent nature of his SIB. In the days that followed, I became increasingly curious about why SIBs occur. The 2-week experience with Aaron provided a small introduction into the world of SIBs which will always remain a significant memory. This experience motivated me with an invested interest into investigating the possible reasons for SIBs with people who live with ASD as well as the possible triggers or forecasts associated with this behaviour. This paper closely examines and analyzes images taken by the Autism Camp's resident photographer, Dr. Tom Craig. Dr. Craig is a Communicology scholar who has done extensive research in stressed embodiment and disability. Both he and Dr. Maureen Connolly have extensive publications in movement based programs specifically for persons with disabilities. Tom has worked as a photographer/scholar at Autism Camp for 8 years and has documented through photographs the daily activities and sequenced movements of participants with autism and all aspects of the movement based curriculum. Without the dedicated work of Dr. Craig this unique approach to analyzing images in search of further investigation and understanding of stressed embodiment through a phenomenologically sensitized analysis would not be possible.

## **CHAPTER TWO: LITERATURE REVIEW**

This chapter on the related literature cannot do justice to the many complexities associated with Autism. I decided to be selective regarding the specific literature I consulted and included so that I could align and discuss the findings in relationship with a relevant and manageable research literature base.

### **Self-Injury to Body (SIB)**

SIB is a common behaviour for severe cases of autism spectrum disorder (Banda et al., 2012). The cause of this behaviour is still unknown. The reasons for and what causes self-injury is an area of research not well-studied (Duerden et al., 2012). Most of the research available focuses on the correction of behaviour through intervention strategies developed by behaviour analysts. The most common forms of dealing with SIB are variants of behaviour modifications. The most widely used form of intervention concentrates on the correction of behaviour through self-restraint or contingent application of protective equipment and fewer examples using contingent removal of protective equipment (Banda et al., 2012). There is a trend in the systematic fading of equipment or objects to self-restraint which does show improvement in reduction of self-injury to body but it is not 100% effective. The primary goal of most studies is to reduce self-injury through manipulating behaviour. Most of these studies did not find reasons for self-injury but solely focussed on reducing behaviour for safety and to train for appropriate behaviour in society (Magnusson & Gould, 2007). For example, in one case, the parents communicated the importance of eliminating a blanket from their 14-year-old son because they thought it was not appropriate for his age and, therefore, the purpose

was to eliminate the object because of how society and his peers would react to this behaviour (Banda et al., 2012).

The majority of the studies are single subject cases which, according to the literature, make it difficult to provide a comparison of treatment efficacy (Matson & LoVullo, 2008). The subjects are usually nonverbal and have little to no communication skills placing them low on the autism spectrum. Studying on a case-by-case situation is necessary because of the uniqueness of each subject (Duerden et al., 2012). Earlier studies were done in larger groups but they were primarily measuring common characteristics, movements, and behaviours among adolescents with autism (Iwata et al., 1994). More recent studies focus on the correction of behaviours usually at the request of parents who want their child to be integrated into classrooms to replicate a “normal” life (Banda et al., 2012).

### **Tactile Aggression and Defensiveness**

Tactile defensiveness is defined as a sensory processing problem, resulting in negative response to touch. Its characteristic reactions are seen as negative behaviors that interfere with normal progress throughout development (Sears, 1994). Many youth and adults with ASD demonstrate a number of defensive behaviours preventing the development of social skills and communication. Defensiveness towards smell, taste, texture, auditory, and a variety of other sensations may exist in people with ASD (Kern et al., 2006).

Typically, a low threshold of tolerance when it comes to certain senses results in what appears to be discomfort or at times pain (Kern et al., 2006). Compared to sensorimotor defensiveness, sensorimotor aggressiveness or craving is quite the opposite.

Sensorimotor aggressiveness or craving is defined as having an insensitive or high

threshold to stimulus (Kern et al., 2006) which interferes with development of social skills and communication. The lack of sensation creates a craving effect which results in atypical behaviour. An example would be the repetitive action of tapping or hitting certain parts of the body, usually in sensitive areas such as the head or fingertips. A hypo/hyper-sensitivity to touch leads persons with ASD to become fixated on certain stimuli. Sensory difficulties can have a major effect on activities of daily living (Kern et al., 2006).

### **Prevailing Theories**

ASD is a neurological disorder, medically categorized by impairments in social interaction, language development, and stereotyped patterns of repetitive behaviour in interests and activities (cited in Connolly, 2008). Usually before the age of 3, one of these characteristics is prevalent. Unusual responses to stimuli may be exaggerated or unresponsive depending on particular situations (Belini, 2004; Canavera, Evans, Kleinpeter, Maccubin, & Taga, 2005; Talay-Ongan & Wood, 2000). There are many theories which attempt to explain this complex disability given the volatility of each subject studied. Hobson's (1991) Affective Developmental Theory is well-known and widely used. Baron Cohen's (1988, 1989) Cognitive Theory of Mind Approach and Josef Perner's (1991) distinction between theory of mind and the capacity for meta-representation are commonly explored theories. Psychological and neurological theories in ASD are not as common but are beginning to be more prevalent in research, such as work from Burnette et al. (2005), weak central coherence relating to the theory of Cohen's Cognitive Theory of Mind in correlation to anxiety in autism. Genetic causes are being explored by Dyken and Hodapp's (2000) and Shasty's (2003) molecular



genetics. There is great work being done in the field of autism which gives me great pleasure to contribute to this complicated and still relatively mysterious disability.

### **Treatment and Intervention**

There have been many strategies used to help reduce SIB in adolescents with autism. In most cases, a functional behaviour analysis, a predominantly quantitative approach, is done to record base lines providing researchers with information about their subject's behaviour (Banda et al., 2012). This analysis does not focus on helping researchers understand why certain behaviours occur but focuses instead on more measurable characteristics, such as recording the frequency and duration of episodes. The question of why particular behaviours occur still remains a very important area of research. Most of the studies deal with manipulating or training an individual toward attaining more desired behaviours. The intervention methods used usually follow an "ABAB" (associative) design focussing mainly on self-restraint using various objects such as blankets, ropes, balls, jackets, etc. (Kerth et al., 2009). It is common to have subjects participate in systematic fading or sensory extinction. Recently researchers have been focussing on contingent application of protective equipment, such as padded helmets, but there is a shift in the contingent removal of protective equipment (Banda et al., 2012). Once an object has been removed, subjects tend to gravitate toward other objects to replace what was faded out. There is a high success rate of reducing SIB; however, in most cases, there is a reliance of objects or protective equipment to maintain the desired behaviour. The studies are usually done in a small room away from other people making it easier to control variables. Certain objects are placed in these rooms and verbal instruction or encouragement from the therapist or researcher is implemented.

This reinforces the importance placed on developing an effective behavioural training program, but does not take up the more embodied aspects of self- injury or its precursors (Connolly, 2008).

A traditional approach to addressing this behaviour usually involves developing sensory-based approaches for early detection and intervention (Foss-Feig, Heacock, & Cascio, 2012). But the combination of hypo and hypersensitivities co-existing together keep traditional approaches still searching for clues to further understand SIB in children with ASD.

### **CHAPTER THREE: METHODOLOGY AND PROCEDURES**

My case is a 15-year-old adolescent boy who has been diagnosed with moderate to severe autism. He does not take medication. He self-injures in a variety of ways including hitting his head on the sides and front, biting and tearing skin of right forearm, and clashing knee to ankle. Aaron likes to sit cross-legged and rock back and forth. If he gets too excited or overstimulated, it has been recommended to take him out of the environment so he can calm down. During autism camp, Aaron would reduce anxiety in the sensory room. He is nonverbal but understands some oral language and some sign language. He does not eat gluten but will try to grab other people's food, such as French fries, or anything with starchy carbohydrates. He likes swimming and enjoys riding in cars and on buses. He also has a keen interest in ropes and string-like objects.

The type of research design I have employed is a qualitative, naturalistic, in-depth case study using field notes, profile information, and photos obtained from the ASD Movement Camp taken by Dr. Tom Craig. The data came from three main sources, one being a primary source and two that are unobtrusive sources. The primary source was my retrospective field-notes taken during, immediately after, and in reflective revisiting of the experiences at ASD Movement Camp of the summer of 2013. The two unobtrusive sources were the photographs provided by Dr. Tom Craig, and the several precamp profile forms provided by the parents, with written permission for use as supporting information for the research inquiry. All of these data are tangible sources and are directly related to the single case under study. Both the extensive pictorial information and the profiles are unobtrusive forms of data compared to the field-notes.

The photos were analyzed using LMA (See Appendix A) and were instrumental in finding connections to patterns or triggers to SIB in Aaron. Using LMA categories to guide the analysis was a form of deductive analysis. I focused on revelatory phrases, key words, and patterns within the inductive analysis of the field-notes and profiles and I also did a follow up cross data set analysis across the field-notes and profiles. By using the photos, deductively analyzed using LMA, and the field-notes and profiles, inductively analyzed using manifest and latent content and attentive recursive reading, I built in triangulation which facilitated cross-validation in both data collection as well as data analyses.

### **Data Management**

Several levels of and strategies for analysis were used in this research. Manifest content includes “those elements that are physically present and countable” or are “surface structure” or what is obvious. Latent content refers to “a more interpretive reading of the various meanings underlying the physical data.” Latent content is the “deep structural meaning” or making what is obvious dubious, in order to make the hidden more obvious. Both forms of analysis blend to provide credible and valid analyses resulting in a more trustworthy interpretation of data. Both levels of analysis were also performed on the Laban movement analysis template I created for this case study. Saliency and patterns were noted and recorded. Saliency provides the most noticeable or important aspects to what was recorded on the templates. Pattern was also observed using the template. Patterns refer to a continuous or reoccurring movement(s) which may signify either an obvious or a hidden meaning. I used saliency to identify noteworthy or dramatic descriptions in a variety of environments which led to a thicker

analysis. Patterning helped to understand possible triggers in SIB. The combination of salience and patterns pushed forward possibilities regarding the underlying contributors for SIB as well as possible triggers.

The analyzed photos came in two formats. The first format was several published books containing photos dating back to 2010. Each book was labelled according to page number and colour coded indicating which pages contained Aaron, the young man at the centre of this inquiry. The other format was selected photos from the photographer's archive library of photos taken at the 2013 autism camp. The photos selected were saved onto a USB. All the 2013 autism camp pictures used during analysis combined digital pictures as well as those from books. Each picture on the USB had a date and a number indicating where in the sequence the picture can be located. For classification purposes, I created a template to file and order the pictures with respect to analyzing the sequence of movements demonstrated by Aaron. This information can be seen at the top, left hand corner of the template. The template also has sections describing what and where Aaron is with respect to the potential movement or movement being demonstrated. This area is at the top of the template providing the reader with relevant introductory information. The four categories of movement are titled body, quality, space, and relationship (see Appendix B). Each title has its own place on the template where information was recorded and extracted for analysis.

### **Data Analysis**

Using the theoretical frame work of LMA, I analyzed each photo, in book or digital format, and recorded my observations on a template. Each photo contained information involving body, space, quality, and relationship. Using LMA, I carried out

an analysis of movement in the still photographs and recorded my descriptions under the appropriate title of body, space, quality, or relationship on the self-made template. The photographs were taken in sequence revealing unique and detailed movement patterns and gestures in various environments. From the templates, I was able to determine salience from the previously recorded information located on the template. This analysis focused on noteworthy and dramatic features in the descriptive recordings. Once salience was finished, I performed a second run through the data detailing patterns in movements. This part of the analysis required a thicker description explaining certain patterns. The next analysis involved direct, observable analysis presented using awareness of manifest content. Manifest analysis provided the obvious observations. The final part involved a latent analysis providing more in depth and considered interpretations, or making the obvious dubious and the hidden obvious.

Multiple salient poses and movement patterns were observed and recorded. I created several descriptions regarding specific poses or movements beginning with the “Full Buddha.” The Full Buddha refers to a unique pose occurring when Aaron was seated crossed legged on the floor. During this pose, his left leg is completely off the floor resting on his right leg demonstrating incredible flexibility in his hip flexors. His back is usually slightly curved hunching forward over his crossed legs. His elbows can be resting on his thighs with arms and hands close to the floor positioned in front of him. This particular pose was regularly exercised throughout the day in multiple environments both inside and outside usually on hard flat surfaces. What I refer to as the “Half Buddha” has all the characteristics of a Full Buddha with a slight change in the position of the left leg. During the Half Buddha the left leg is unhinged from resting on the right

leg and is positioned on the floor in front of the right leg. This position usually occurred when Aaron was in a state of stress or during an SIB. Moving into the Half Buddha, Aaron would use his left leg as leverage to bounce or begin a rocking motion. The “Power Position” was titled because of the static hold Aaron would demonstrate during stimulating movement patterns. This pose was observed either standing or seated. The right arm would be raised to a high level forming a fist, internally rotated so the palm was facing the right ear. The left arm would also be raised to the left ear also internally rotating the forearm facing the left ear but the wrist and fingers would be fully flexed allowing the palm of the hand to be opened upward. Aaron regularly flicked and twirled rope-like objects raising his level of stimulation to the point where he would drop the object and move into the “Power Pose.” This position was also observed in the swimming pool where he would flick water forward several times before executing the Power Pose. Aaron became well-known for a certain movement which several volunteers referred to as the “Flop.” Exactly how it sounds, Aaron would be in an upright position or in mid stride while walking when the Flop would be executed. “Flopping” refers to suddenly dropping to the floor usually into the Full Buddha. It may be resistance to moving or a defense to participating in activities. Specific movement frequencies, such as walking and standing, were recorded along with attention to whether Aaron sat on objects or not. Aaron remained in a seated position often demonstrating stillness which means no movement was observed. Patterns in symmetry and asymmetry were observed during movement and stillness. Symmetrical body positions involved all body parts measuring an equal balance made up of exactly similar parts facing each other or around an axis. Asymmetry refers to the lack of equality or equivalence between body

parts. It was interesting to note the head position of Aaron during each pose in an attempt to find salience and pattern. Five positions were recorded, head turned right, left, neutral position, or straight ahead with little to no tilt, downward and upward. The majority of these observations were done while Aaron was seated.



## **CHAPTER FOUR: PRESENTATION OF RESULTS**

The following section describes manifest and latent readings of the data set and reveals insight into Aaron's movement patterns. Based on LMA, I have created a template, recording observations in four specific areas: body, space, quality, and relationship. Manifest analysis was the first to be completed followed by latent analysis. The manifest analysis recorded the obvious descriptors in each of the areas located on the template. Frequency of specific movements and poses were analyzed and recorded on the self-made template which was used to analyze the published books (first photo data set) dating back from 2010 continuing to 2013. The second set of photo data were saved on a USB which provided a rich sequence of pictures, thus, enhancing the quality of analysis. All photo data were made available by photographer Dr. Tom Craig.

### **Findings – Manifest – Latent (content analysis)**

In the case of Aaron during autism camp summer 2013, the results or findings of the manifest analyses with respect to frequency were as follows: Full Buddha on the floor (34x), Half Buddha on the floor (17x), Walking (5x), Standing (5x), Seated on object (7x), Symmetrical Body position (24x), Asymmetrical Body position (41x), Stillness (33x), Movement (28x). Since Aaron's head positioning was an obvious manifest, I have recorded the frequency but at times his head would be facing downward and to the right. In this situation, I have recorded a count for both "head turned right" and "straight downward." Aaron's frequency of head positions was as follows: Head turned right (21x), Head turned left (8x), Head in neutral position (21x), Head tilted downward (14x), and Head tilted upward (11x).

Other obvious manifest findings include Aaron remaining in the wall position or frontal plane with a curled upper back, almost hunched. The Full Buddha seated on the

floor is the most common position. During the “SIB position” he remains in the Full Buddha, however, moving into an SIB, Aaron usually sits in a Half Buddha. His body is mostly still with external body parts consisting of arms and legs moving into the sagittal plane. When seated outside, he sits on hard surfaces, never on grass or soft surfaces. Inside, he is seated on flat surfaces such as the gym floor or thick mats in the sensory room. No leaning or supporting self against walls and other objects. Facial gestures are smooth with little to no flexion in face. Right eye squints with head turned right and tilted upward. Aaron will tap on hard surfaces or objects with mostly index and middle fingers. When walking, Aaron’s left leg widens or bows, opening his stance, noticeable at the knee which affects his gait. Aaron has a waddle in his walk; both toes are pointed outward similar to a duck walk. When walking, Aaron’s arms are down and slightly extended away from body. Aaron often twirls rope like objects in a clockwise direction, such as sticks, ropes, strings, Slinkys, but he likes to play with loose objects on the ground outside such as rocks. He bounces, flicks, and tosses these smaller objects into the air forwards. Aaron holds objects loosely in his hands, never a firm grip. He uses his index finger and thumb creating a pincer-like form to grip objects. The left arm is used to push objects or people away from personal space even though he is right-handed. He is typically right-hand dominated when reaching for objects or sending objects. Right leg leads walking or stepping up onto objects. The right arm from wrist up to mid-forearm appears to have bite marks. Bent elbows raised to shoulder height, hands make a fist placed behind head and head in neutral position in mid SIB. During this pose, Aaron yells and cries. The helmet used to protect Aaron’s head is always taken off. It is common to see Aaron use his index fingers to plug his ears and crying after swimming or

sometimes when entering different environments such as the gym, from outside to inside, and on the bus. His mouth is usually closed when sitting and walking. Coined as the “Helicopter movement,” his right hand is in front of the left hand positioned in front of his face and eyes. With his hands and fingers, there are flicking movements and gazing upwards toward the ceiling while rocking back and forth. Fingers of hands are spread open creating large spaces between each digit. Coined as the “Power Pose,” his right hand makes a fist, the left hand is in full extension, both arms are raised at ear level, bent at elbows, straight posture, and his gaze upwards toward the ceiling. Aaron will press on objects with both hands using fingers only. Seated, he will have curled fingers at a low level. Tilting head to left, right eye squinting, mouth slightly open in what looks like a grin or half smile, his gaze is upwards. His mouth is around his right wrist but only sucking or holding onto skin of arm, this is referred to as “potential SIB.” During this pose, the left-hand wrist makes contact and is held at right-hand wrist. Here we see the left hand with curled fingers which presents his knuckles in a way that is protruding. His gaze looks like it is through his fingers. His pants are usually slipping down. SIB gaze is straight forward looking through knuckles of his left hand. SIB hitting (open palm slapping) is on the side of his head at the ears in sensory room. The sensory room is dark with few dimly lit lights. Blankets, mats, books, and stuffed animals are on the floor. He has closed eyes, palm of hands covering ears, and closed mouth in a Half Buddha sitting position. When outside upon arrival, Aaron points his right index finger up to what appears to be the sky and simultaneously raises a water bottle in the same direction. From his waist, seated, he rocks forwards and backwards leading with his chin. At times, Aaron kisses the forehead of volunteers, with the right hand placed gently at the back of

the volunteer's head. Sometimes he appears to be biting on his lower lip or swishing water around in his mouth. He has different facial expressions (e.g., grin, smile, open mouth when in SIB position or in an SIB). Aaron will walk forward and occasionally look behind himself as he is moving. He regularly lays on his back cross-legged so he cannot be moved. Volunteers grab both arms of Aaron to lift him up to continue moving. Eye contact is made but only for seconds at a time. Aaron will spill water from his water bottle to splash and flick. Aaron will take his shirt off without warning when too hot. Aaron kicks off his shoes but keeps his socks on.

### **Embodied Analysis (Sensitized) – Hidden Obvious**

*(Body in the world)*

Aaron is nonverbal, unable to go to the washroom by himself, limited to no sign language, and does not take any medication. Aaron's loco motor movement entails walking (usually at a slow pace), galloping is the fastest way Aaron will move usually when excited, Aaron will retreat "flop" to avoid moving or participating in physical activity.

**Flop** – This movement has Aaron quickly descending into a seated position on the floor at anytime and anywhere (when referring to the floor, this means the gym floor, hallway floor, dirt hiking trail, mats in the sensory room, but never on grass or wooden decks). The most common sitting position for Aaron is referred to as the Full Buddha. The Full Buddha is when Aaron sits cross-legged with his left leg on top of his right leg. His left leg rests on his right knee with his left foot dangling over the right knee. This position helps him take the left leg completely off the floor. The part of the left leg touching the floor is his left buttocks. He will have a curved upper back with movement

occurring at the waist moving forwards and backwards. His hands are at a low level parallel to or resting on his left leg specifically his left shin. His elbows are bent resting on his left and right thigh. This position seems to be the most comfortable position for Aaron because he remains in this position for great lengths of time. His left hip flexor is very flexible to attain this position. The speed at which he is able to stand up from the Full Buddha and/or Flop is very impressive and seems to be timed perfectly for anticipated movement challenges. The Full Buddha is the starting position for many idiosyncratic movements in Aaron's repertoire. It appears to be the safest and most widely used pose.

### **Significance**

Aaron's extremities are very close to his core which rarely has him perform extensions away from his body. There seems to be a core distal relationship disconnect. When seated in the Full Buddha, his extremities are close to his body but when walking or moving, Aaron's legs and arms almost flop to the sides. His left leg tends to be bow-like which has his left knee slightly extending away from his core. The same is for both arms which are extended away from the body slightly bent at the elbows. It looks as if he is trying to balance himself. When walking up hills or surfaces that require the upper body to lean forward in a natural gait movement, Aaron does not demonstrate any counterbalancing which inhibits his ability to move efficiently. This inefficient gait exhausts much energy which ultimately results in a flop. Weight transfer from upper body to lower body seems disconnected. His gaze seems to be away from the direction he is moving in. However, his spatial awareness is very good. When he moves through a crowd of people or is surrounded by objects covering the floor, he is able to move very

well without bumping into anyone or anything. He has an acute awareness of his surroundings which he is able to negotiate his positioning through space quite well.

### **Peripheral Vision**

Given what was mentioned above concerning the ability to move through crowds or objects without making contact and without slowing down his speed, Aaron may have exceptional peripheral vision. He might be able to scan a room recording what is in front of him and/or move through space with the ability to see peripherally as well as downward toward his feet. Certain lights and or sounds may be of discomfort for Aaron as he frequently squints the right eye. This may be a way of focusing on objects, people, or spaces. If the light is bothersome he could be blocking it out through squinting.

### **Pitch and Pressure**

Aaron regularly plugs his ears with his left and right index finger indicating sensitivity towards certain sounds. High pitch sounds usually coming from other students tend to set Aaron off to the point where he will leave the area or plug his ears. These sounds have triggered Aaron to escape to the sensory room but not necessarily to SIB. Arron's gaze has him focused on the ceiling of the gymnasiums and hallways. The ceiling usually has fluorescent lights and large air vents. He seems to stare, point to, and at times laugh at the vents. Air pressure might play a role in, what seems to be, an agitated state he experiences. After swimming, Aaron regularly plugs his ears and struggles to maintain calmness due to what might be an earache. His SIB involves slapping his head but more specifically his ears. The discomfort might be from an earache which might manifest into headaches or vice versa. Aaron's mother indicated

their family history of headaches and earaches. Hitting the head at the ears may provide temporary relief due to either wax build-up or plugged ears.

### **Significance**

There is speculation at this point as to whether earaches or headaches are the cause of SIB or whether there is something else. If Aaron is experiencing pain, which is assumed at this point, we would not be able to confirm this due to an inability to work with professional medical staff based on parental choice. The barometric pressure did not seem to influence or trigger SIB. However, after swimming Aaron was highly susceptible for SIB. Aaron enjoys bus rides; however, when the windows are open, the air pressure seems to cause him anxiety or discomfort especially when high pitch noises are present. I have observed Aaron in several environments and the environment he most enjoys is the swimming pool; however, ironically, he has experienced some of the worst SIB after swimming. Moving in and out of the swimming pool environment could cause discomfort based on water being trapped in the ears. If his ears are plugged, he may be receiving sounds that will echo in his ears. Another assumption could be moving from a warm environment to a cold environment. Temperature could play a role in being a trigger for SIB.

### **Power Pose**

We see Power Pose taking place standing or sitting. The predominant places where Aaron demonstrates the power pose are in two unique situations. The first situation is standing in the swimming pool after flicking water forwards repeatedly (frequency of flicks is undetermined) Aaron would move into the Power Pose. This flicking of water seems to stimulate Aaron enough for him to perform this pose. The

second area is while seated in the Full Buddha. Once again, once Aaron has reached a certain state of stimulation, he will demonstrate the Power Pose. This stimulation may arise from a variety of external forces. Flicking water and focusing on the trajectory or the landing area is a trigger for Power Pose. While seated and focused on vents, lights, or string-like objects (e.g., ropes, Slinkys, or even twigs) Aaron will shift or transition into the Power Pose. This is still inconclusive but it could be a way of releasing anxiety or a build-up of energy. If overstimulated, this Power Pose may be Aaron's way of harnessing energy only to release it from his body. The Power Pose may be done in rapid succession in order to get rid of unwanted energy. When people exhibit a large yawn, their arms and hands are extended up in the air and a huge release of energy is executed. Aaron does the same movement but positions his hands in a specific formation. Similar to a yawn, his chest and arms extend upward with a slight tilt backwards of the head. The reason for the formation is unknown but the significance could be a way of balancing his system's energy from overstimulation.

### **SIB Position**

After careful examination of what many referred to as SIB, the photos I used for my research show a very different look at Aaron's SIB. I noticed in several pictures that when he "bit down" on his right wrist, he was not really biting down. He was actually placing his lips on the right forearm and it looks as if he was sucking his arm. Most reactions from onlookers would assume this was an SIB but, in fact, I am looking at it as just the *positioning* of SIB or the "SIB position." I believe Aaron is very aware of his surroundings and has learned that if he moves into SIB position, his volunteers or the people who he is with will back away and let him do what he wants. This is a



manipulation of those around him. The position could be a prewarning that something is coming. An overstimulation may come from the environment or from some other external objects. The SIB position would commence followed by Aaron staring deep into the volunteer's eyes and moving into his or her personal space. This was a way of communication; however, as has been discussed, this finding could be either an avoidance tactic or a way of communicating disapproval or discomfort. I believe the SIB position is an avoidance tactic because it usually presents itself when activity is about to commence. Never did I witness Aaron moving into an SIB position while eating a snack or sitting quietly with no one pushing him to do something. This was also the first time I saw the SIB as more of a sucking as opposed to a biting action. It is rare for Aaron to move from an SIB position into a real SIB which I have concluded involves hitting of the head. The SIB position could be a forewarning of what is to come or used simply as an avoidance tactic. More research is needed to observe the pattern of SIB position followed by an SIB. Recording if it happens immediately or at all would be beneficial to know.

### **SIB**

Aaron's SIB is slapping his head and "biting or sucking" his right arm. Here we are talking about a true SIB compared to the SIB position as discussed above. When slapping begins, it is very clear that SIB is in full effect. During extreme moments of SIB, Aaron will slap the side of his head with extreme force around the ears possibly trying to pop them, and/or switch to either biting or sucking on his right forearm with intensity and force. SIB during hitting is fairly straightforward; he begins at a low level and comes up in the frontal place to slap his head. This is an open palmed slap and not a

punch. At this point, his posture is very straight so his head is in a position of being most easily available to make contact with the hands. He is always crying during these moments which may indicate pain which may be the result of either headaches or earaches which we discussed earlier. Looking at the biting or sucking of the right forearm, the position is unique. The right forearm is placed in the mouth. The left hand intersects the wrist of the right hand forming an axis or an intersection. The left hand never grips the right forearm but with curled fingers, presses against the right forearm. What is interesting about this position is that Aaron is looking through his left-hand fingers. He could be dividing his visual space into quadrants by creating an axis with his arms. It could be a way of making sense of his world. We know Aaron is spatially aware of what is happening and this could be a way of either locating or zeroing in on where he is at that moment. This could be a way of honing in on energies or locating certain entities or objects. This action has a function but it is still unknown exactly the reason for this formation. Aaron is usually unhinged into the Half Buddha at this point. This allows him to bounce up and down while in SIB. This bouncing motion may be to exert more force onto the bitten/sucked extremity. His right arm has significant teeth marks but there is no indication of a ripping action. There is extreme pressure placed on the extremity but nothing indicating a bite and pull mechanism. We are looking at the idea that maybe Aaron is actually sucking as opposed to actually biting. When sucking on something, the teeth could get in the way but he is not purposely biting.

Another clue is the discolouration on his right forearm. There is a discoloration that seems to indicate that the skin has been sucked on. Similar to young children sucking

their thumbs, the pigmentation is distinct and Aaron possesses the same pigmentation or discoloration.

The cause of SIB as discussed earlier could be from many things. There seems to be a certain point when there is too much stimulation and if Aaron has not properly released his anxiety, a full SIB could be the result. Another reason could be that he is dealing with pain or discomfort. If Aaron suffers from earaches and headaches, directing pain to another part of his body may provide some kind of temporary relief. Aaron has very specific formations during SIB which serve a purpose. Further investigation and recording of frequency would help understand triggers and patterns.

## **CHAPTR FIVE: DISCUSSION AND RECOMMENDAITONS**

Based on the information found in the literature, most of the empirical research focusses on solving idiosyncratic movements, specifically SIB, commonly found in persons with severe autism. A high percentage of nonverbal adolescents with autism have some form of SIB involving scratching, hitting the head or, in extreme cases, biting. Conventional methods of reducing or eliminating these traits aim to manipulate behaviour. Strategies such as self-restraint, contingent application of protective equipment, and contingent removal of protective equipment are widely practiced by behavioural analysts. These behavioural analysts have documented a high success rate of reducing or eliminating the frequency of SIB. Behavioural approaches help to initially solve the manifestation of SIB through a reductionist strategy but many questions regarding the cause or reason for SIB remain unknown. The fundamental question as to why SIB occurs in adolescents is far from being thoroughly researched or understood. In order to understand the reason for SIB in persons with autism, there must be more done to analyze patterns and triggers leading to self-injurious behaviour to the body. Very little research, with the exception of a few authors, has analyzed those with autism displaying SIB behaviour from an embodiment perspective. Through documenting idiosyncratic behaviour using LMA, we step closer to understanding the embodied and/or expressive purposes of SIB. In the case of Aaron, he demonstrated unique poses and movements which are forms of communication revealing interesting insight into his perception of the outside world. If his movements, no matter how severe or disturbing, are blocked, reduced, or eliminated, we lose valuable information into answering how and why SIB occurs. The majority of the research published is transfixed on solving SIB

for reasons of social acceptance and safety usually requested by the parents of the individuals with ASD. Displaying nontypical behaviour is quickly deemed as negative and socially unacceptable resulting in an urgent request to solve or hide an unusual idiosyncratic movement. However, we lose sight, purpose, and meaning making when such practices exclude the possibility of further understanding how SIB is actually a form of communication which allow persons with ASD to show their position or existence in the world.

ASD comes with unique characteristics (idiosyncratic) that give clues to observers and educators working in disability. The importance of gaining perspective through strategically observing how individuals behave and react in multiple contexts is vital to understanding the how and why SIB occurs in children with autism. Simply reducing socially unaccepted behaviour using behaviourist methods satisfies those working and living with autistic children but does not truly meet the needs of the child. Taking a child-centered approach directly propels the search for what the individual requires to exist in the world. Using LMA encourages researchers and educators to observe specific patterns and behaviours delving deeper into the lived experience. Detailed observations of sensitivities and reactions in various environments and contexts may be more useful to fully understand what children with autism are experiencing. Making note on spatial awareness will help further understand the importance of movements done at the three levels, the direction performed, and the pathways. Effort qualities will help explain movement in time as either sudden or sustained, firm or fine, indicating possible reasons for manipulating objects in certain patterns. Relationships with both objects and people can give insight into how anxiety levels may be increased or reduced. Finally, the body

provides indicators or warning signs of possible discomforts or cravings from various senses which may be hyper/hypo concentrated. Analyzing each movement with respect to body, space, effort, and relationship may be invaluable to all who work in the field of autism especially nonverbal, low functioning children. Activities and exercises can be adapted to suit the needs of those with specific sensitivities to avoid the risk of SIB behaviour. In the case of Aaron, I observed sensitivities to noise which at times required a removal from the environment to a less stimulating one. A heightened sensitivity to noise was also observed after being in the water. Therefore, the amount of time spent in water was controlled depending on how anxious he became. It was not until we examined photos closer that we discovered Aaron moves into an SIB position before an actual SIB occurs. His movements were observed resulting in discovery of possible warning signs as to when an SIB may occur. At the same time, the type of environment was also recorded giving more insight into what Aaron was experiencing. It is crucial for workers, educators, and parents to know what certain movements mean, thus, gaining more information about what children with autism are experiencing.

As difficult as it may seem to witness and be with a child who has SIB, it is important to allow the individual to finish, at times, the violent act. Much can be learned from observing SIB and making connections to what movements were performed prior to and after the incident. Understanding triggers and patterns will provide more information into how children with autism communicate through their body. Every movement has a purpose and discovering the reasons behind certain movements will only lead us closer to understanding the reasons for SIB and the needs of these children.

## References

- Banda, D. R., McAfee, J. K., & Hart, S. L. (2012). Decreasing self-injurious behaviors and fading self-restraint in a student with Autism Spectrum Disorder and Tourette's Syndrome. *Behavioral Interventions, 27*(3), 164-174.
- Baron-Cohen, S. (1988). Social and cognitive deficits in autism: Cognitive or affective? *Journal of Autism and Developmental Disorders, 18*, 379-402.
- Baron-Cohen, S. (1989). The autistic child's theory of mind: A case of specific developmental delay. *Journal of Child Psychology and Psychiatry, 30*, 285-297.
- Bellini, S. (2004). Social skill deficits and anxiety in high functioning adolescents with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 19*, 78-86.
- Burnette, C., Charak, D., Meyer, J., Mundy, P., Sutton, S., & Vaughan, A. (2005). Weak central coherence and its relation to theory of mind and anxiety in autism. *Journal of Autism and Developmental Disorders, 35*, 63-73.
- Canavera, K., Evans, D., Kleinpeter, F., Maccubin, E., & Taga, K. (2005). The fears, phobias and anxieties of children with autism spectrum disorders and down syndrome: Comparisons with developmentally and chronologically age matched children. *Child Psychology and Human Development, 36*, 3-26.
- Connolly, M. (2008). The remarkable logic of autism: Developing and describing an embedded curriculum based in semiotic phenomenology. *Sport, Ethics & Philosophy, 2*(2), 234- 256.

- Duerden, E. G., Oatley, H. K., Mak-Fan, K. M., McGrath, P. A., Taylor, M. J., Szatmari, P., & Roberts, S. W. (2012). Risk factors associated with self-injurious behaviors in children and adolescents with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *42*(11), 2460-2470. doi:10.1007/s10803-012-1497-9
- Dykens, E. M., & Hodapp, R.M. (2000). Applying the new genetics. In E. M. Dykens, R. M. Hodapp, & B. M. Finucane (Eds.), *Genetics and mental retardation syndromes* (pp. 23-66). Baltimore, MD: Brookes.
- Foss-Feig, J. H., Heacock, J. L., & Cascio, C. J. (2012). Tactile responsiveness patterns and their association with core features in autism spectrum disorders. *The Journal of Research in Autism Spectrum Disorders*, *6*, 337–344.
- Hobson, R. P. (1991). What is autism? *Psychiatric Clinician, North America*, *14*, 1-17.
- Iwata, A., Pace, G., Dorsey, M., Zarcone, J., VoufmER, T., Smith, R., ... Kimberly, D. (1994). The Functions of self-injurious behaviour- an experimental-epidemiological analysis. *Journal of applied behaviour analysis*, *27*(2), 215-240.
- Kerns, J. K., Trivedi, M. H., Garver, C. R, Grannemann, B. D., Andrews, A. A., Savla, J. S., ... Schroeder, J. L. (2006). The pattern of sensory processing abnormalities in autism. *The National Autistic Society*, *10*(5) 480–494.
- Kerth, D. M., Progar, P. R., & Morales, S. (2009). The effects of non-contingent self-restraint on self-injury. *Journal of Applied Research in Intellectual Disabilities*, *22*, 187-193.



- Magnusson, A. F., & Gould, D. D. (2007). Reduction of automatically-maintained self-injury using contingent equipment removal. *Behavioral Interventions*, 22, 57–68. Retrieved from [www.interscience.wiley.com](http://www.interscience.wiley.com). doi: 10.1002/bin.23
- Matson, L., & LoVullo, S. (2008). A review of behavioral treatments for self-injurious behaviors of persons with autism spectrum disorders. *Behavior Modification*, 32(1), 61-76. doi:10.1177/014544550730458
- Perner, J. (1991). *The representational mind*. Cambridge, MA: MIT Press.
- Sears, C. J. (1994). Recognizing and coping with tactile defensiveness in young children. *Infants & Young Children: An Interdisciplinary Journal of Special Care Practices (Infants Young Child)*, 6(4), 46-53.
- Shasty, B. (2003). Molecular genetics of autism spectrum disorder. *Journal of Human Genetics*, 48(10), 495-501.
- Sherrill, C. (1998). *Adapted physical activity, recreation and sport. Cross disciplinary and lifespan* (5th ed.). New York, NY: McGraw Hill.
- Talay-Ongan, A., & Wood, K. (2000). Unusual sensory sensitivities in autism: A possible crossroad. *International Journal of Disability, Development and Education*, 47(2), 201-212.

## Appendix A

### Movement Concepts

Body Awareness	Space Awareness	Quality	Relationships
<p><b>1. Basic Body Function:</b> bend, curl, stretch or twist</p> <p>2. Body part can: a) bend, curl, stretch, twist b) lead an action c) be used symmetrically or asymmetrically</p> <p>3. Weight bearing a) support (body parts taking weight) b) transference of weight c) balance – counterbalance – counter resistance – counter tension</p> <p>4. Body Actions a) locomotion b) elevation c) turns d) gestures e) inversion</p> <p>5. Body Shapes: pin, wall, ball, screw</p> <p>6. Symmetrical &amp; Asymmetrical Use of the Body</p> <p>7. Motion and Stillness</p>	<p><b>1. Personal Space-Kinesphere:</b> a) 3 dimensional cross b) diagonals c) planes</p> <p>2. General Space: a) levels – high/medium/low b) pathways – air - floor (straight, angular, curved, twisted) c) extensions – large, small, near, far d) directions</p> <p>3. Space words: over, under, around, near, far, towards, away from, onto, into, above, below</p> <p>4. Using Space: Explore, penetrate, fill, surround, replace</p> <p>5. Spatial Mass</p>	<p><b>1. Qualities:</b> a) weight – firm (strong) fine (light) heavy b) time – sudden (fast) sustained (slow) c) space – direct (straight) flexible (wavy) d) flow – bound (stoppable) free (ongoing)</p> <p>2. Emphasize One Element</p> <p>3. Emphasize Two Elements</p> <p>4. Basic Effort Actions: 3 Elements a) thrust-sudden/firm/direct b) slash-sudden/firm/flexible c) flick-sudden/fine/flexible d) dab-sudden/fine/direct e) press-sustained/firm/flexible f) wring-sustained/firm/flexible g) float-sustained/fine/flexible h) glide-sustained/fine/direct</p>	<p><b>1. With Objects:</b> a) manipulate – send/receive/retrain b) nonmanipulative – obstacle/extension /target/apparatus</p> <p>2. With people a) alone b) alone in a mass c) partners, small groups, large groups (cooperatively or competitively) copy question, answer match action, reaction mirror dance together contrast travel with unison lead/follow conversation cannot send/receive take turns merge/disperse meet/part near/far passing dance to linking d) Intergroup relationships</p>

## Appendix B

### Original Template Used for Analysis

Page Information PG#	Child/Group	Station/Activity/Event Rank:	Movement F/P Rank:
Body			Rank
Space			Rank
Quality			Rank
Relationship			Rank
Thumbnail Description and Notes			