Using Storytelling to Develop Context in Social Interaction for Children with Autism

Ban Sasha, Pang Jee Ching, Nurul Salwana M M Khair
Faculty of Education, Languages & Psychology, SEGi University, Malaysia
b.sashaj3.16@gmail.com
pangjeeching@segi.edu.my
nurulsalwanakhair@segi.edu.my

Abstract

Students with autism spectrum disorder (ASD) have been identified with the deficit or dissimilarity regarding their way of social interaction which commonly requires training to increase their social competency. The matter of students with ASD exhibiting social interaction impairment should not be fixated solely on the student's interaction itself. Context blindness is a matter worth paying attention to whenever the topic is related to the social interaction of individuals with ASD. Context takes place within the brain, and functions to produce and interpret meaning revolving all internal and external stimuli, which directly affects any activity of an individual that is controlled by the brain, including social interaction. It is noted that the essential of context awareness in most cognitive activities are impacted in autism spectrum disorder (ASD), especially context in terms of social interaction including emotional behaviour, language and attention fixation and interpretation. In order to build competency of social interaction in students with ASD, the focus on the context in

social interaction is a crucial milestone and research focus. On the other hand, since history, storytelling claims to play effective and positive impacts relating to working with comprehension, expression, perception, language, speech rules, creativity, and so on, which is believed to fall under the scope of context in social interaction. This research seeks to examine the role of storytelling in helping children with autism spectrum disorder (ASD) to learn and cope with context blindness utilising storytelling as a tool to develop context for children with ASD. Findings show that students with ASD exhibit context blindness, hence concluded storytelling is a useful tool to help students with ASD to develop context regarding social interaction.

Keywords: Autism, context blindness, storytelling, social interaction.

1.0 Introduction

As similar to all other cases of neurological diagnosis, the diagnostic protocol for children with autism spectrum disorder (ASD) involves a comparative analysis of an individual displaying attributes with those defined in the established medical model of the disorder. However, the social model shares a different perspective with the definition of ASD as a “disease of the brain”, instead of categorizing it as a “disease” it views the condition as “context blindness” –theory of the brain, meaning people with autism distinctly detects context when comparing with the context detected by the majority (Muskett, 2016, p. 300). Looking beyond the unidisciplinary scope of the medical model,

the condition can rather be comprehended as culturally particular, socially positioned, and subjectively encountered (Muskett, 2016, p. 302). By putting both models side by side, lead towards such acknowledgement that certain structure regarding the overall opinion of how a person is 'required' to function and how a person is 'required' to carry out interaction within a social world that is encyclopedic is existing (Muskett, 2016, p. 301). However, many or almost all children with ASD do not display social interactions that are in sync with the overall opinion of social requirements in the world; it has been presented in numerous studies and clinical prescriptions that diagnostically relevant social and conversational interactions are seen in most children with ASD. For instance, would be pronoun reversal (using third-person pronouns when indicating 'I'), echolalia (an immediate or delayed echo of previous spoken word heard), idiosyncratic (Implicating allegedly self-made-up terms or language; botch to feedback or feedback out of question's context; heterogeneous of non-verbal interactions regarding unfitting eye contact, body position, actions, engagement, expression and so on), as well as inappropriate space of interaction (Muskett, 2016, p. 300; DSM5, 2013). Responses and interactions carried out by individuals with ASD are mostly rational but meanwhile could be somewhat unacceptable or unexpected –"not according to overall's social requirements", due to their distinctness in comprehending the context or in another term –'Context Blindness' (Vermeulen, 2012).

Social understanding can be educated (Som Naidu, Danny R., & Bedgood Jr., 2012; Erickson, 2018). There are multiple aspects under the umbrella of social interaction, such as social comprehension and perception, social conduct or behaviour, verbal and nonverbal indications (Little, 2013). Storytelling has the ability to ignite new viewpoints into one's origin of social conduct and knowledge, revolving directly with context comprehension (Trappe, 2020). Therefore, this research determines to use storytelling as a tool to develop context regarding social interaction for children with ASD.

2.0 Literature Review

The following section will review literature based on two main aspects, namely the context and its influence on emotional and behavioural contexts in social interaction.

2.1 Various Aspects of Context

Regarding the context, one needs to look into first what is context and then explore both internal and external contexts.

2.1.1 The word solely –Context

According to the linguistic monocle, ‘context’ sits at the same throne as ‘co-text’, which is defined as the message contained in a word, sentence or passage. Over the centuries, the interpretation of 'context' has grown to a wider level, even though it still wraps around the key topic of the comprehension of the text, however the term context refers not merely to the co-text, but also to the intent of the authors who were involved in the

contributions. Going forth, the definition becomes more internationally relevant, as in studying the entire text, needing not just the underlying text and intent of the writer, but also the historical heritage, the cultural environment, the place at the moment, etc. In general, all the circumstances wherein the message came into existence. These days, ‘context’ implies not just to explain and interpret written materials. Thus, it applies to whatever one is trying to make sense of, including text, photographs, music, objects, incidents, and so on. In summary, although the range of 'context' was broadened, the central concept remained –to endow meaning (Vermeulen, 2012).

2.1.2 Context Referring Internal & External

The functions of 'context' in the human brain are being divided into two organizations –external context and internal context. The exterior reflects the physical and social atmosphere of the stimuli under attention, an assertion neighboring the humankind's convalescence, which is dependent on the circumstance. Whereas interior refers to the context that takes place in the person’s mind, for example, memories, knowledge, feelings, emotions, strategies, thoughts, experiences and so on (Vermeulen, 2012).

Internal and external contexts have a persistent implication on each other (Vermeulen, 2012). Referring to Jean Piaget’s theory, cognitive growth requires two operational processes, which are assimilation and accommodation. Assimilation: occurs when one modifies or adjusts new

information or stimulus to blend into his or her current systems. Accommodation: exists when one restructures hence strengthens what had already been learned, so that new insight is best fitted (Babaee & Khoshhal, 2017). According to Vermeulen (2012), context made reference to the interpretation of intent and meaning, which naturally draws a connection with the cognitive process. Subsequently, this principle strengthens the standpoint that the surrounding or environment (external context) and knowledge within the mind (internal context) have strong relationship influencing each other.

2.2 Context Influence on Emotion & Behaviour in Social Interaction

It is important to consider the context within the framework in judging the behaviour of other parties with the appropriateness of the response. Successful social contribution entails the incorporation of the context (Klin, et al., 2003; Jones, Vermeulen, 2014). For instance, the behaviour of putting up hands contains various contextual positions: to utter a question, responding to attendance, stretching, ordering food, greeting, and stopping a car, crying for help, and many more. The understanding or purpose underneath a solid behaviour cannot be contained in the action itself, but within the context of the action.

However, there is no precise rubric as to what action is acceptable, rather it is a judgement that relies on the grounds of the situation. Children with ASD are usually capable of telling which behaviour is appropriate according to what was taught, but

context blindness will be found when theyare not able to explain or identify the elements that caused the behaviour to be inappropriate, because they face challenges in referring behaviour to social condition's requirements (Vermeulen, 2012). Such as:

Mr. P, a young man with autism, gets utterly confused in a fast-food restaurant when someone arrives to get his order when he was already in the queue. Mr. P has the knowledge that people line up and wait for their turn to order in a fast-food restaurant. But that day, the restaurant was packed, so the waiter reached out to the people who were still in line to get their orders. Mr. P's friends were able to interpret the context (the restaurant was packed); they were in joy with the adjustment because they did not need to wait so long. But Mr. P was furious and burst into anger while the waiter came towards him, and he decided to send a letter of dissatisfaction to the fast-food head-quarter (Vermeulen, 2012).

The case above demonstrated that Mr. P obtains context blindness, not being able to interpret the situation (the restaurant was crowded) which led him to behave and execute emotions inappropriately (throwing anger). Some other examples of unusual behaviours would be such as repetitive behaviour, temper tantrums, self-harm, rigidness, and so on (Mark & Joseph, 2017; DSM5, 2013).

2.2.1 Storytelling develops context in Social Interaction (Emotion & Behaviour)

Traditionally, storytelling is a social activity that

anticipates interpersonal skills. As time goes by, emphasis on oral history has diminished, but general daily storytelling remains as a core source of societal life. Thus, a simple signal could lead to diverse verbal or non-verbal responses. Even the simplest social interaction's starter – "How are you?" could lead to a specific length of narration (Boorse, et al., 2019). This indicates that storytelling is tied closely with everyday social contact. Theoretically, the storytelling procedure includes functioning through memory, executive behavior and social acceptability, manipulating knowledge, communication skills and decoding non-verbal signals, refining attraction, insights and emotion, as well as tone of voice (Boorse, et al., 2019).

Therefore, opening a platform for children with ASD to be a part of storytelling either in groups or one to one, as tellers or as listeners, can help them to explore social context from the production meanwhile identifying the distinction between their reactions and common reactions relating to signals presented (Boorse, et al., 2019). Videlicet, by experiencing through storytelling as narrator or audience, children with ASD can be taught to determine context about social perception and responses that are different compared to theirs. In addition, enabling them to develop context-sensitivity through context taught within the characters, situations, events, visual presentations and others within the story (Erickson, 2018). The point is, context blindness cannot vanish (internal context) (Vermeulen, op. cit.). Hence, to observe and imitate general responses through the ongoing taken place in the story narration (external context), it is possible to

enable an overall accepted comprehension and behavior relating to typical social expectation to be learned by children with ASD – "new internal context" (Boorse, et al., 2019; Costra, et al., 2015).

2.3 Context Influence on Language & Communication in Social Interaction

Conversation consists of a pattern of initiations and replies, occurring rather spontaneously and reciprocal between 2 or more individuals (McTear, 1985; Doggett, et al., 2013). As mentioned above, storytelling involves different verbal aspects (e.g., intonation, word choice, speech presentation), thus tied closely with social communication, leading to various types of clauses –statement, question, exclamation and commands. Even the most used conversation starter, "How are you?" may lead to a particular volume of narration (Doggett, et al., 2013; Muskett, 2016; Boorse, et al., 2019). However, individuals with ASD exhibit obvious impairments in social pragmatics, followed consequently with social isolation which leads to greater downslope social engagement, even when they are capable of executing fluent speech (Koegel, et al., 1998; Marans, et al., 2005; Vermeulen, 2012; Doggett, et al., 2013). Drilling back to the roots, individuals mostly perform language and conversation out of general expectation relating to areas mentioned due to distinct in context (Muskett, 2016; Vermeulen, 2012; Vermeulen, 2014).

2.3.1 Storytelling develops context in Social Interaction (Language & Communication)

Several researches had suggested storytelling to help students with ASD to cope with context blindness in social interaction, specifically resulting in improved language and communication skills (Doggett, et al., 2013; Chua, 2017; Erikson, 2018; Boorse, et al., 2019; Saylors, 2019).

Segmenting context leading language and communication into 3 areas: [a] Verbal Intelligent –referring to child's identification towards a specific scenario, culture, other parties involved, timing, emotions from words, self and others, vocabulary (nouns, verbs and adjectives), form, words or sentence choice and utterance [b] Verbal Expression –addressing perspectives, suggestions, questions or expressive sounds according to generally accepted context [c] Verbal Interaction – incorporating ([b] and [c]) to manage volunteering engagement, maintaining conversation, turn-taking, closure and many more (Doggett, et al., 2013; Chua, 2017; Erikson, 2018; Boorse, et al., 2019; Saylors, 2019).

Storytelling allows children with ASD to be sensitive to the general context, hence able to detect the situation (for instance: classroom, restaurant, and workplace), culture (such as: speak in whispering level in the library, speak clearly and loudly when presenting in front of the classroom, address elders with polite terms, and so on), using existing vocabulary and grammar structures to form interactions with other peers with the major accepted outcome (for instance: uttering mutual answers with a tone that indicates sentence of statement form, speaking out emotions genuinely and clearly with correct adjectives, speaking within the context such as discussing the proposal during assignment meeting and not the recipe of pizza made for dinner last night and so on) (Doggett, et al., 2013; Chua, 2017; Erikson, 2018; Boorse, et al., 2019; Saylors, 2019).

2.4 Context Influence on Attention in Social Interaction

The movements of the eyes are influenced by context (Vermeulen, 2012). Within the order, humans generally pay attention to a subject that is contextually applicable, hence meaningful (Vermeulen, 2014). Context not only informs us about what we can consider acceptable, as well as of where we can assume, which becomes apparent as we validate the situation for something. One's vision is guided by both the external (encounter) and the internal (experiential) context. Fast identification of a context relates to what we understand about where the subjects are normally placed within the context, ensuring focused and efficient observation. In other words, context drives our attention to the necessary regions concerning the circumstance. However, with context blindness, people with ASD tend to have an eye interaction and focal point that may not be according to what should have taken place in typical terms (Vermeulen, 2012). A poem from a young author with ASD reported in Dr. William's, 1998 elaborates the uncommon focus of an individual with context blindness:

"My bed was surrounded and encased by tiny spots which I called stars, like some kind of mystical glass coffin. I have since learned that they are air particles, yet my vision was so hypersensitive that they often became a hypnotic foreground with the rest of 'the world' fading away."

According to the masterpiece above, it can be seen that the author obtained context that was unique compared to

mainstream (context blindness) that forwarded her vision to an uncommon focal point –dust. In addition, the text articulated the relation between her existing retained awareness (internal context) – 'stars' and the writer's focal point of the particular scenario presented in the poem (external context) – 'dust'.

2.4.1 Storytelling develops context in Social Interaction (Attention/ Eye-Contact)

The study has been published on the use of therapeutic storytelling to reinforce the commonly desired eye contact for children with ASD (Giuliani, et. al., 2016). Therapeutic storytelling is a form of narration that integrates fictional real-life fiction that is personalized to approach the impairment of an individual with ASD's life, offering a chance for standpoint, reaction, and reflection (Perrow, 2012). The research incorporated eye-tracker devices to assess participants' spots of attention and the time period the fixation was made as the storytelling session was going on (Giuliani, et. al., 2016). The eye-tracking readings provided a quantitative estimation of the length of the focus points of the children with ASD. This analysis shows a substantial improvement in children's capacity to observe the central message of the story relative to the pre-test (Giuliani et al., 2019).

3.0 Methodology

The overall research aims of this study was to examine the use of storytelling to help children with ASD develop context specifically regarding social interaction. The data were collected

through a quantitative approach which was presented as primary data in the findings with secondary data to further support the information presented in the literature review. The study adopted an experimental one-group pretest-posttest research design, running the experimental activity; independent variable; storytelling, to draw out results on dependent variable; children with ASD's context in social interaction. Results were collected twice, which is before the activity was carried out and after activity was carried out and are collected into one table for comparison.

X1: Administered with the objective of exploring the condition of participants – context blindness before running through storytelling activity with the children with ASD in the selected school of Selangor.

Y: Applying storytelling during extracurricular sessions with a purpose to develop context regarding social interaction to participants.

X2: Administered with the purpose of measuring context in social interaction of the participants after going through storytelling.

This procedure refers to a one-group pretest posttest experimental research, the single group participants of the experiment being measured twice, before experiencing the treatment or activity (Y) as well as after experiencing (Y). The researcher imposed a pre-test, continued along with a treatment, then a post-test (Creswell, 2014). The procedure of this research is categorized below as pre-test (X1), treatment (Y), and post-test (X2), hence the steps taking

place in each stage is also listed below.

(X1):

1. The researcher asked the same few questions to each Student A and Student B, one on one. To test and explore each student's context blindness in social interaction. Questions involved a mixture of themes, for example moral, personal, proactive and problem-solving. Visual aids will be incorporated by the researcher for some of the questions.

2. Answers or selections of each participant are written down, then rated with scores determining the level of context's general expectedness according to the rubric.

3. Scores of each participant achieved on rubric being totaled up and organized in the tally-table's [(Pre-test) total score] category.

(Y):

4. The researcher conducted storytelling sessions with (2) two participants one-on-one. Each participant A and B will be similarly told the same story. For instance, each participant will experience similar visual aids, narration, tone of voice, and expression during the storytelling session.

5. Activity is conducted twice a week, the whole program takes a month, and each session is 30-40 minutes. The same story will be told throughout every session, with paraphrased narration and different contexts being unfolded each week.

(X2):

6. After the last storytelling session is completed, the researcher asks each student the same questions from (X1), a technique for asking questions that is similar to (X1) as well.

7. New answers are also written down and rated with scores according to the same rubric format.

8. The researcher totaled up X2's scores and inserted them to the tally tables [(Post-test) total score] category.

Lastly,

9. Researcher compare scores from X1 & X2 presented in the tally-table, using a bar chart to provide a different view on the same result drawn from tally-table, inserting descriptive data for further explanations on the results, drawing a conclusion on whether storytelling had effectively helped students with context blindness, ASD, to develop context.

4.0 Findings and Discussion

Table 4.1

Criteria of Scores

No.	Score	Qualification
01.	1	Not acceptable
02.	2	More acceptable
03.	3	Most acceptable

Table 4.2.1

Comparison between Student A's responses before and after participating storytelling sessions

Discussion topic	X1	X2
1. State & Describe feedback		
i. "What one should do when someone greets him/her good morning?"	i. "Sing a song…"	i. The participant answered: "teacher… greeting… good morning, I answer good morning teacher…!"
	ii. The participant did not reply or answer the topic of discussion	ii. The participant answered: "My name is Andy!"
ii. What should one do when someone asks him/her "what is your name?"		
2. Can recall or relate to scenarios when one might feel certain emotions or react in a certain way	"Ayam goreng McD… happy… Ayam goreng McD…"	"When mummy buy Ayam Goreng McD…*Point to self Happy… mummy buy Ayam Goreng McD…"
Think of a situation when you feel happy/satisfy		(Clarify reason) "I like… fried chicken… Ayam Goreng Mcd…"
3. Can identify or feedback of others by emotions, facial expressions or body language		i. "Teacher…Why you cry…?"

***expressed by researcher** **i. Express crying** **ii. Legs on chair** **iii. Raising up of hand**	* The participants did not reply to all demonstration	ii. "Sit with legs down… Must have good manners" iii. *remove himself away (respond similar to reflex action of escaping from someone attempt to hit him)
4. Can identify feedback of others by hearing a description of the action or emotion ***described by researcher** **i. The people are clapping their hands, cheering and having smile one their face** **ii. The boy loves his mum so much; he finishes the food prepared by his mother**	i. "Birthday… angry angry! Baby cry…" *Imitated baby crying sound "Cry cry… baby cry… *exhibited tantrum" ii. "Mummy give fried chicken…"	i. "Clap hands… happy… *Close ear *Point to self Gently walk away… if not comfortable" ii. "Be happy and grateful with other food as well… appreciate mummy… I love you… mummy!"
5. Recall and share certain feedback that goes with or required in certain situation **When or where, one should keep quiet… why? /**	Participant exhibited *humming sound *strong breathing sound and no response or answer were articulated.	"Quiet… shh.. shh… no sound…" "During lesson, Andy does his work quietly" "Why…"

What about in the classroom?		
6. Volunteering in question or opinion regarding to a situation		
i. Throughout discussion, participant exhibited any volunteers in uttering question or opinion	i. Throughout the discussion, the participant asked 'you wanna eat Mcd?' 'Is it biscuit time?' which are not related to discussion and are not elements of conversation topic	i. Throughout discussion, participant *inquired for break time and things he would like to do during the break. *Cooperated with the researcher's answer about the request.
ii. When a student needs to go to the toilet and the teacher is meanwhile conducting the class. **What if you are that student?**	ii. Student answers question b: "go toilet! *Pointed at the direction of toilet"	ii. Student answered: "go toilet (whisper), I want to go toilet, please?"
7. Identifying who is the main character in a particular situation.		
i. Andy and mummy are on their way to school, they are both in the same car, and who do you think is the one driving the car?	Student exhibited *humming sound, and produce no answer or non-verbal indication towards the questions	i. "Mummy is driving in the car…"

		ii. "<JM> friend… waiting for Andy… eat breakfast!
ii. Thestudent has just arrived at the school, a teacher is standing directly in front of the student greeting the student, the dustcart is passing by behind the student, a friend is putting away her shoes at the door, who should the student look at?		
8. Feedback to something dislike		
i. What would you do when someone assigned you for a task you are not comfortable with?	Student exhibited *tantrum	i. "Don't want do… try your best…! Be good boy… try your best!"
ii. When do you feel you dislike and how do you act upon it?		ii. "Daddy drives Andy… I don't want follow daddy… I want mummy drives…"
9. Feedback towards emergency/ unpredictable incidents **What should one do when a stranger insists to**	The participant looked away and produced humming sound	"No… he is a stranger…, cannot follow… home…"

bring him/her home		

Table 4.2.2

Comparison between Student B's responses before and after participating storytelling sessions

Discussion topic	**X1**	**X2**
1. State & Describe a feedback **i. "What one should do when someone greets him/her good morning?"** **ii. What should one do when a stranger insists to bring him/her home**	i. The participant answered: "I say good morning" ii. The participant responded: "Ask… What is your name?"	i. "I say good morning" ii. "My name is Ben!"
2. Can recall or relate to scenarios when one might feel certain emotions or react in a certain way **Think of a situation when you feel happy/satisfy**	The participant did not reply or responded to the topic of discussion	*Sang a birthday song, Then the participant said "happy!" Then *clapping of hands
3. Can identify or feedback of others by emotions, facial expressions		

or body language *expressed by researcher **i. Express crying** **ii. Closing of ear when someone is speaking** **iii. Raising up of hand**	The participant did not reply to all demonstration	i. "Teacher is sad…" ii. *Let go of the hands that are closing the ears, then mention "do not close ear, show listening…" iii. *Gave a high five
4. Can identify feedback of others by hearing a description of the action or emotion *described by researcher **i. The people are clapping their hands, cheering and having smile one their face** **ii. The boy loves his mum so much; he finishes the food prepared by his mother**	i. The participant did not reply or respond to the topic of discussion ii. Participant responded: *started shouting his own name "Yes! Yes!"	i. "Listening to <skip counting by 10>, clap hands… listen …<skip counting by 10>, happy…" *start singing ii. "Finish eating… fast! Don't want… mummy angry"
5. Recall and share certain feedback that goes with or required in certain situation **When or where, one should keep quiet… why? / What about in the classroom?**	Participant answered: "Quiet… friends sleeping… go to sleep! Quiet!" "Classroom, do work, go do work, everyone quiet!"	"Quiet… friends sleeping… go to sleep! Quiet!" "Classroom…, listen to teacher, teacher talk, everyone quiet, then everyone can listen…"

6. Volunteering in question or opinion regarding to a situation **i. Throughout discussion, participant exhibited any volunteers in uttering question or opinion** **ii. When a student needs to go to the toilet and the teacher is meanwhile conducting the class.** **What if you are a student?**	i. Throughout discussion, participant did not volunteer or feedback question or personal opinion ii. Student answered: "I want to go to toilet, please?"	i. Throughout discussion, the participant did not volunteer or feedback questions or personal opinion towards the topic he made responses to. Participants requested personal opinion and uttered questions regarding the situation of discussion. E.g. "Repeat please?" "Wait please, let me finish drink some water" ii. Student answered: "I want to go to toilet, please?"
7. Identifying who is the main character in a particular situation. **i. Ben and his transporter are on their way to school, they are both in the same car, and who do you think is the one driving the car?** **ii. The student has just arrived at the school, a teacheris standing directly in front of the**	i. Student answered: "Ben! Ben…!" ii. Student answered: "Look…! Look at who…? Look! …"	i. "Ben…I want to drive the car…" ii. "Close ears… dustcart passing by…"

student greeting the student, the dustcart is passing by behind the student, a friend is putting away her shoes at the door, who should the student look at?		
8. Feedback to something dislike **i. What would you do when someone assigned you for a task you are not comfortable with?** **ii. When do you feel you dislike and how do you act upon it?**	Student sang loudly without giving any answer to the both questions	"Please… I don't want…"
9. Feedback towards emergency/ unpredictable incidents **What should one do when a stranger insists to bring him/her home**	The participant did not reply or answer to topic of discussion	"Who is stranger?"

Table 4.3

Comparison of Pre-test and Post-test Total Score

	X1	X2
Student A	12	23
Student B	14	24

Figure 4.3

Comparison of Pre-test (X1) and Post-test (X2) Total Score

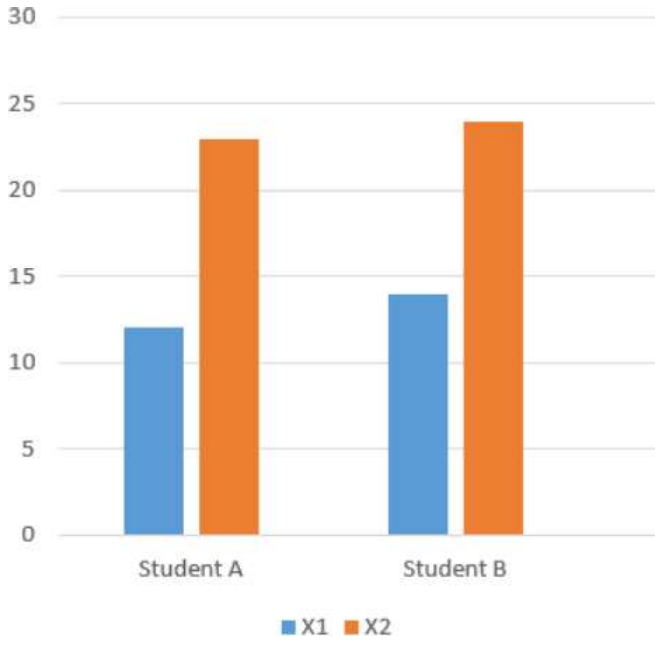

Table 4.4.1

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	X1	13.00	2	1.414	1.000
	X2	23.50	2	.707	.500

Table 4.4.2

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	X1 & X2	2	1.000	.000

Table 4.4.3

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	X1 -	-10.50	.707	.500	-16.85	-4.14	-21.00	1	.030

X2	0		3	7	0

It is shown that, in Student A, the X2 result collected after the storytelling session reflected an increase of 11 scores as compared to the X1 result that was collected before the storytelling session. Meanwhile, for Student B, the X2 result collected after the storytelling session also displayed an increase, it shows an increase of 10 scores as compared to the result found before participants experienced the storytelling session.

4.5.1 Prefatory Findings

The first component, prefatory findings, where the researcher ought to discover students' context blindness in social interaction through the conducting of a pre-test (X1). As provided in Table 4.2.1, the criteria of scores were being classified as 1, 2 and 3, where 1 is the lowest – context in social interaction being not acceptable as compared to the majority and 3 represents the highest –context in social interaction being most acceptable as compared to the majority. If 3 is the highest point, and there were 9 topics of discussion, which means the maximum score would be 27 (3x9). Hence in the pre-test (X1), Student A attained a total score of 12, which is 55.56% further away from the maximum score; where student B at this stage achieved a total score of 14, which is 48.15% further from the maximum point.

Based on the score distributions which explained the representation of different scores included in the rubric of the

discussion topics adapted in this research study, the score ranges from 1 to 3; 1 representing context being 'not acceptable', score 2 representing 'more acceptable', and 3 being 'most acceptable'. It was found that both participants with ASD acquired a score of 1 – 'not acceptable' for most of the discussion topics before experiencing the storytelling sessions. For Student A, as being mentioned, 6 out of 9 discussion topics were achieved with a score of 1 during the Pre-test (X1), such were: discussion topic 1, 3, 5, 7, 8, and 9; on the other hand, Student B as well achieved 6 out of 9 discussion topics with score 1 during the Pre-test, which was discussion topic 2, 3, 4, 7, 8, and 9. Responses made by participants that led to such grading are being demonstrated in the columns under X1
–Pre-test at Table 4.2.1 and 4.2.2.

The point presenting Autism as context blindness, discussed the pretest's findings. Where participants before experiencing storytelling sessions, were not able to detain elements of appropriate behaviours, responses, and intentions, as parallel to Vermeulen (2012) that children with ASD face challenges in referring content of feedback to social condition's requirements and general social expectations.

4.5.2 Treatment

The second component, treatment, wherein this study would be the storytelling sessions or activity. Two participants were presented as one group sample, however, researchers conducted all storytelling sessions according to the arrangement

of one to one with both participants, to ensure the validity of

the results, as feedback from both participants will be genuine and without plagiarism of answers from peers. During the storytelling sessions, students showed a willingness to participate and were interested to approach the study zone and materials available. It was observed that students' familiarity and confidence in following along with the activity over time. The researcher conducted the session 2 times a week, each time 30- 40 minutes, and the treatment stretches out throughout a month or four weeks.

The data collected is further backed-up by a few studies, which recommended using storytelling to help students with ASD to build up context regarding social interaction (Doggett, et al., 2013; Chua, 2017; Erikson, 2018; Boorse, et al., 2019; Saylors, 2019). More so, Boorse et al (2019), further explains that storytelling enables students with ASD to explore social context from what the story may contain and influence, meanwhile identifying the distinction between their reactions and common reactions relating to signals presented within the story.

4.5.3 Final Checking

The final component would be the checking, where a post-test (X2) was administered by the researcher with the participants. Within the post-test (X2), both participants, Student A and Student B were given a test according to the same rubric used in the pre-test (X1) to evaluate their context in social interaction after receiving the storytelling sessions. Thus, it was shown in post-test; Student A's result was 23, which is 14.815%

distanced from the maximum score –27; and Student B's was 24, which is 11.111% away from the maximum score.

Hence, speaking from the point of both participants exhibited score 1 for most of the discussion topics at pre-test (X1) to no score 1 being obtained at post-test (X2); Student A and Student B demonstrated escalation in scores in forms of score 1 being obtained in the pre-test (X1) to score 2 being obtained in post-test (X2); as well as, from score 1 being obtained in the pre-test(X1) to score 3 being obtained in post-test (X2). The increment in score in form of score 1 to score 2 found in Student A would be discussion topic 3, 5, 7 and 8. On the other hand, for Student B would be discussion topic 4, 7, 9. For example, the responses made by Student A and Student B that led the discussion topic to be marked as score 2 after receiving the storytelling sessions would be:

Discussion topic 7 –As the post-test (X2) progressed to this topic regarding identifying the context of focus character during a social situation, the student was able to mention the focus character based on his own point of view with reasonable answer; however, answer the has not reached 'acceptable'; therefore, score 2 was given during the post-test for the 7th discussion topic. Taking participant's response as example, there are different characters within a scenario, hence using participant as the center-point, each of the other characters ranges from the teacher who is greeting the 'center-point' in front of him, dustcart that passes by further behind of 'center-point' and friend who is

putting away her shoes at the door further away from ‘center point’ are interacting differently as well as being in distinct distances with the ‘center point’, thus the question of who should the ‘center point’ be looking at was distributed to Student A, instead of answering ‘teacher’ which is the ‘most acceptable’ context, Student A gave ‘friend’ as his answer, however participant explained his answer with a reasonable backup, which is ‘he is excited to have breakfast together with his friends’ therefore the focal point was based on his excitement and desire within his context in social interaction. So, score 2 was given to Student A’s response for this discussion topic during the post-test, as the response was ‘more acceptable’ rather than being ‘not acceptable’ or ‘most acceptable’.

Meanwhile, Student B also obtained the same changes in score for the 7th discussion topic after he had gone through the storytelling sessions. When the participant was asked to determine the focused character (who is driving the car) within a social activity when a transporter and a child are in the car, Student B responded with his name towards the question, hence explaining that he would love to be the driver. Moreover, when the discussion progressed to having participant as the center-point, and the rest of the characters: teacher who is greeting the ‘center-point’ in front of him, dustcart that passes by further behind of ‘center-point’ and friend who is putting away her shoes at the door further away from ‘center-point’, each character were playing different roles within the same frame of social scenario, and the question given to Student B was “who should the ‘center-

point' be focusing at", rather of having 'teacher' which is the 'most acceptable' context to be his answer, Student B responded 'dustcart' with the explanation of the noise made by the dustcart and caused him to close his ears. Student B's responses were reflected as reasonable but unique from the context of the majority, hence a score of 2 representing 'more acceptable' was given to this part of his post-test.

Furthermore, the increment of having a score of 1 at the pre-test to a score of 3 at post-test was found in Student A's discussion topic 1 and 9; while Student B was discussion topic 2, 3, 8. Responses uttered by both participants that led to such scores were as well located in Table 4.2.1 and 4.2.2. For instances:

Discussion topic 1 –Student A from producing no responses towards greeting and introduction questions during the pre-test (X1) to appropriate answers were produced after the storytelling sessions, post-test (X2) was found. From Student A's post-test results, it was found that he has achieved the context of one should greet back good morning to his teacher when one is being greeted by the teacher, as well as the context of telling own name was required during a self-introduction. Therefore, score 3 was given to Student A's feedback for discussion topic 1 during the post-test, meaning feedback reflected context in social interaction relating to this topic being 'most acceptable'.

Discussion topic 9 –Student A acquired an elevation of the score as compared to the score achieved for this topic during the pre-test (X1) and the post-test (X2). The topic was regarding

taking social action towards emergencies; hence it was found from Student A's response that he has reached the context in social interaction regarding the interpretation of 'stranger' can be a character that is suspicious and dangerous, hence one should not follow a stranger home or trust a 'stranger fully. Therefore, based on the response made by Student A during the post-test (X2) for this discussion topic, the participant's context in social interaction towards emergency was graded with a score of 3, meaning context being 'most acceptable'.

From another perspective, based on the results generated using the SPSS 26.0, the mean score of both participants during the post-test (X2) was 23.5. To be more concise, the context in the social interaction of both participants with Autism –Student A and Student B, lean more towards acceptable to the majority after the storytelling sessions were experienced. Furthermore, as was mentioned before that the T-test shows significance in the Pretest and Posttest scores. The analysis of data was disputed as $p < 0.05$, as it equals to (0.030) which was defined as the alternative hypothesis (Ha) being credited while null hypothesis (Ho) was declined. Hence, the retrieval stipulated that using storytelling is significant in developing context in social interaction for students with ASD. From this and all the collected data above, it is proven that students with Autism showed an increase in their context regarding social interaction after experiencing the storytelling sessions. Hence, the information gathered can be implied as storytelling is effective to be used in developing context regarding social interaction for children with

Autism.

The data above can be further discussed by Giuliani (2016), storytelling can be used to educate context relating to social interaction, as it relates tightly with context learning and the substance of social interaction. As further being mentioned, context out of an already existing context can be developed (Som Naidu, Danny R., & Bedgood Jr., 2012; Erickson, 2018).

5.0 Conclusion

Context refers to a course of factors inside the discerning individual's emotions and cognition, the beliefs within long-term memory and short-term memory, and circumstances within a stimulus's spatial and chronological environment that coalesce to impact the interpretation and relevance of the stimulus. Consequently, context plays a crucial position for one to distribute meaning towards a stimulus and react accordingly (Vermeulen, 2012; Hansen, 2016). Although the law of justifying whether a context is being manipulated correctly or wrongly does not exist; however, it is undeniable that the major context – 'how people perceive in general' does exist towards and within every situation, including especially in social interaction. Connecting hand in hand, storytelling claims to be revolving closely with context learning since historically as well as storytelling involved wide yet relevant essences of social interaction (Giuliani, 2016); thus, being said, context can be educated (Som Naidu, Danny R., & Bedgood Jr., 2012; Erickson, 2018).

Therefore, this research further investigated the relationship between storytelling and context development in social interaction for children with autism, proved that storytelling is a useful material in helping students with Autism to develop context within social interaction – assisting students with autism to escalate in exhibiting context that is most acceptable in general, more so provide deeper insights that children with ASD experience context blindness in social interaction, that further explains the reason behind the condition stated by the medical model 'student with ASD is socially impaired'. In addition, results displayed in the research only serve to inform that the use of storytelling is effective in helping students with ASD to build context in social interaction, not curing context blindness. Thus, being mentioned, there is no exact 'correct' or 'wrong' context, everyone encounters unique points of opinion at times (Vermeulen, 2012; Voyer, et al., 2016). Social interaction is an exchanging process between 2 or more parties (Hansen, 2016); hence, in the researcher's concern, medicate context blindness is never the case, but all individuals regardless of differences should equally be a part in searching "most-acceptable" ground in context during social interaction.

To place it aphoristically, this research concluded that students with Autism Spectrum Disorder (ASD) experience context blindness in social interaction and as well solidified that storytelling can be used to help students with ASD to develop context regarding social interaction.

References

Diagnostic And Statistical Manual of Mental Disorders Edition 5 (Dsm-5. (2013). Washington: American Psychiatric Association.

Chua, S.Y. (2016). Storytelling in the Social Studies Classroom. *HSSE Online, 6*(2), 79-87. Retrieved from https://www.researchgate.net/publication/320552534

Boorse, J., Meredith Cola, Samantha Plate, Lisa Yankowitz, Juhi Pandey, Robert T. Schultz & Julia Parish-Morris. (2019). Linguistic markers of autism in girls: evidence of a "blended phenotype" during storytelling. *Molecular Autism, 10*(14). doi: https://doi.org/10.1186/s13229-019-0268-2

Doggett R. A., Anna M. Krasno, Lynn Kern Koegel, Robert L. Koegel. (2013). Acquisition of Multiple Questions in the Context of Social Conversation in Children with Autism. *Journal of Autism Developmental Disorder, 43*, 2015-2025. doi: 10.1007/s10803-012-1749-8

Donna, William. (1998). *Nobody Nowhere.* London, UK: Jessica Kinsley.

Erickson, E. (2018). Effects of St ects of Storytelling on Emotional De ytelling on Emotional Development. *Education at SOPHIA*, 1-30.

Fabienne Giuliani, Béatrice Couchepin Marchetti, Viviane Perrenoud, Pierre El Korh. (2016). Is Storytelling Therapy Useful for Children with Autism Spectrum Disorders and Severe Mental Retardation? *Advanced Techniques in Biology & Medicine, 4*(1), 1-5. doi:10.4172/2379-1764.1000166

Hamidreza Babaee & Yasin Khoshhal. (2017). The Role of Equilibration in Piaget's Theory of Cognitive Development and Its Implication for Receptive Skills: A Theoretical Study.

Hansen, S. (2016, January 7). *Social interaction is a two-way street: How well do neurotypicals interpret behavior of individuals with autism?* Retrieved April 24, 2020, from Hussman Institute for Autism: https://www.hussmanautism.org/social-interaction-is-a-two-waystreet- neurotypicals-could-better-interpret-mental-states-of-individuals-with-autism/

Klin. A., Warren Jones, Robert T. Schultz, & Fred Volkmar. (2003). The Enactive Mind, or from Actions to Cognition: Lessons from Autism. *Philosophical Transactions of The Royal Society B Biological Sciences, 358*(1430), 345-360. doi:10.1098/rstb.2002.1202

Little, W. (2013). *Introduction to Sociology – 2nd Canadian Edition.* Texas: B.C Open Textbook Project.

Marans, W. D., Rubin, E., & Laurent, A. (2005). Addressing social communication skills in individuals with high-functioning autism and Asperger syndrome: Critical priorities in educational programming. In F. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.), Handbook of autism and pervasive developmental disorders (pp. 42–69). Hoboken, NJ: Wiley.

Mark D. Shen & Joseph Piven. (2017). Brain and behavior development in autism from birth through infancy. *Dialogues Clin Neuroscience, 19*(4), 325-333. doi:10.31887/DCNS.2017.19.4/mshen

McTear, M. F. (1985). Children's conversations. Malden, MA: Blackwell Publishers.

Muskett, T. (2016). Examining Language and Communication in Autism Spectrum Disoerder-In Context. In R.M. Katherine Runswick-Cole, *Re-thinking Autism* (pp. 300-316). London: Jessica Kingsley.

Perrow, S. (2012). *Therapeutic Storytelling: 101 Healing Stories for Children.* Gloucester: Hawthorn Press.

Sandra Costa, Filomena Soare, Ana Paula Pereira, Cristina Santos, Antoine Hiolle. (2015). A Pilot Study using Imitation and Storytelling Scenarios as Activities for Labelling Emotions by Children with Autism using a Humanoid Robot. *The Fourth Joint IEEE International Conference on*

Development and Learning and on Epigenetic Robotics, 1-7. doi:10.1109/DEVLRN.2014.6982997

Saylors, J. (2019). Autism: Storytelling Systems. *The Emerald Handbook of Quantum Storytelling Consulting*, 19-33.

Saylors, J. (2019). Revealing Antenarratives in the Autism of Quantum Storytelling. *The Emerald Handbook of Quantum Storytelling Consulting*, 99-111.

Som Naidu, Danny R., Bedgood Jr. (2012). *Learning in the Social Context.* Boston: Springer.

Trappe, C. (2020). *Content Performance Culture.* United States: Trappe Digital LLC.

Vermeulen, P. (2001). *Autistic Thinking.* United Kingdom: Jessica Kingsley Publisher.

Vermeulen, P. (2012). *Autism as Context Blindness.* Kansas: AAPC Publishing.

Vermeulen, P. (2014). Context Blindness in Autism Spectrum Disorder: Not Using the Forest to See the Trees as Trees. *Focus on Autism and Other Developmental Disabilities*, 1-11. Doi: 10.1177/1088357614528799