CONTROLLING INAPPROPRIATE SEXUAL BEHAVIOUR AMONG AUTISM SPECTRUM DISORDER TEENAGERS USING VIRTUAL SOCIAL STORY

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

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The way I start writing is not by writing at all. But by living. Yasmin Ahmad once said, "it is not about creating something from thin air, but about documenting our personal feelings about the things that we see. Or to put it crudely, how will you be a storyteller if you have no story to tell?". Therefore, I always believe that to help people, especially the special needs children, perhaps, in the end, there are no such things as creative people; they are only sharp observers with sensitive hearts that may constructively help them.

ABSTRACT

This research aimed to elaborate in detail on the virtual social story usage in controlling the sexual behaviour cues among autistic spectrum disorder (ASD) teenagers. The research objectives are to identify inappropriate sexual behaviour cues, develop a checklist for recognising sexual behaviour cues, modify sexual behaviour using virtual social stories, and analyse the changes in sexual behaviour after using virtual social stories. The research involved 12 ASD male participants between the age of 13 to 18 years old with apparent sexual behaviour problems. This case study was based on observations, interviews, and analytical documentation in collecting the data. The instruments used were interview protocol, checklist, observation notes, and progress reports for data collection. Observation and documentation data were descriptively analysed, whilst interview data was thematically transcribed. The finding shows that the participants displayed several characteristics of sexual behaviour and differing impulsive control depending on the type of practised stimulation, environment and encountered experience. It also shows that communication difficulty is the reactive cause of sexual behaviour among ASD teenagers. Conclusively, virtual social stories may assist ASD teenagers in controlling and modifying sexual behaviour, increasing social communication skills. The implications of this research may serve as a basis for providing an alternative treatment model for ASD children upon which therapists and parents may try new intervention methods using virtual social stories among ASD teenagers in related cases.

Keywords: ASD, sexual behaviour, controlling, social story, virtual learning

PENGAWALAN KETIDAKSESUAIAN TINGKAH LAKU SEKSUAL REMAJA DENGAN GANGGUAN SPEKTRUM AUTISME MENGGUNAKAN CERITA SOSIAL SECARA MAYA

ABSTRAK

Kajian ini bertujuan untuk mengkaji penggunaan penceritaan sosial secara maya untuk mengawal tingkah laku seksual remaja yang mengalami gangguan spektrum autisme. Objektif kajian adalah untuk mengenal pasti petunjuk tingkah laku seksual luar biasa dalam kalangan remaja dengan simtom gangguan spektrum autisme, membina senarai semak petunjuk tingkah laku seksual, mengubah suai tingkah laku seksual menggunakan penceritaan sosial secara maya, dan menganalisis perubahan tingkah laku seksual setelah menggunakan cerita sosial. Penyelidikan melibatkan 12 remaja lelaki yang mengalami gangguan spektrum autisme berusia antara 13 hingga 18 tahun yang mempunyai petunjuk tingkah laku seksual yang ketara. Kajian kes ini menggunakan kaedah pemerhatian, temu bual dan analisis dokumentasi untuk mengumpul data. Instrumen yang digunakan adalah protokol temu bual, senarai semak, catatan pemerhatian, dan laporan kemajuan untuk pengumpulan data. Data pemerhatian dan data dokumen dianalisis secara deskriptif, manakala data temu bual ditranskripsikan secara tematik. Hasil kajian menunjukkan peserta kajian memperlihatkan beberapa ciri tingkah laku seksual dan daya kawalan impulsif adalah berbeza mengikut jenis rangsangan yang dipraktikkan, persekitaran, dan pengalaman yang mereka hadapi. Dapatan kajian menunjukkan kesukaran komunikasi adalah satu tindak balas penyebab tingkah laku seksual bagi remaja yang mengalami gangguan spektrum autisme. Kesimpulannya, penceritaan sosial secara maya membantu remaja yang mengalami gangguan spektrum autisme mengawal dan mengubah suai tingkah laku seksual serta meningkatkan kemahiran komunikasi sosial. Implikasi kajian ini dapat digunakan sebagai model rawatan alternatif kepada perawat atau ibubapa untuk mencuba kaedah intervensi baharu menggunakan cerita sosial secara maya terhadap remaja yang mengalami gangguan spektrum autisme dalam kes-kes yang berkaitan.

Kata kunci: ASD, kelakuan seksual, pengawalan, cerita sosial, pembelajaran maya

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LIST OF ABBREVIATIONS

ASD	Autism Spectrum Disorder
UCCC	UTAR Community Counselling Centre
UTAR	Universiti Tunku Abdul Rahman
VLE	Virtual Learning Environment
VL	Virtual Learning
VR	Virtual Reality

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Individuals and young people with Autism Spectrum Disorder (ASD) have impairments in three main domains. The three domains are communication, restricted behaviour and interest, and social interaction (American Psychiatric Association, 2013). Some impairments may influence sexual development and contribute to concerns about such behaviour. Sexuality and sexual behaviour among ASD have recently caught parents, society, and professionals by surprise. Many often ask about the difference between standard and not normal sexual behaviour, the deviant ones, and the signs of such

behaviours as minors or adolescents. According to Tolman & McClelland (2011), the term routine or normality has been functionally and differentially defined by researchers in many disciplines, and the term is complex and still contested.

ASD teenagers who display sexual behaviour are often concerned if these behaviours are socially inappropriate or harmful to others. In this sense, parents of ASD teenagers with such sexual behaviour problems are primarily concerned with teenagers' safety and others' misunderstanding of their teenager's behaviour (Nicholas & Blakeley-Smith, 2010). Although individuals with ASD may mature physically and sexually according to normal development stages, an ASD teenager can generally develop in some social and emotional understanding areas whilst having difficulties in others (Abrams, 2017). As ASD individuals have difficulties in social understanding (Travers & Tincani, 2010), their emotional changes and increasing sexual urges may be delayed or prolonged (Huwaidi & Daghustani, 2013). Moreover, families, therapists or caregivers are often concerned about the growing sexual behaviour in ASD teenagers. However, it is generally not accompanied by a corresponding growth in social knowledge, leading to socially embarrassing behaviour.

Adolescence is the development stage where humans learn about and generally have that first experience of sexuality. It is not exceptional in individuals with autism (Huwaidi & Daghustani, 2013). As supported by Hartman (2014) is convinced that ASD teenagers have the same sexual desires and fantasies as the rest of the people without ASD. Therefore, their success or failure during their sexual developmental

challenges may impact their ability to effectively transiting into adulthood (Reynolds, 2014). One primary concern in autism is the sexuality of adolescents as they tend to display sexual interest and a wide range of sexual behaviour problems (Hellemans, Colson, Verbraeken, Vermeiren, & Deboutte, 2010). Hence, sexual education among ASD individuals must teach them appropriate sexual behaviour in private and public. Whenever an intervention leads to a behavioural change, it is meaningful to everybody (Amirrudin, Rahim, Halim, & Jalaludin, 2019).

ASD can occur in association with any level of cognitive ability and functionality. Regardless of any type of ASD, they may display inappropriate sexual behaviour due to their deficit, which is the most remarkable feature of ASD (Holmes & Himle, 2014). Unfortunately, only a few studies have addressed the problems and the questions of sexual behaviour and the social skills associated with ASD (Corr & Santos, 2017). Therefore, this research is deemed vital and timely to create social awareness. This social awareness is unrelated to teaching and learning in its entirety. The research ultimately aims to assist in understanding the sexual behaviour problems in corrective institutions like the school and the open public area. Teaching about sexuality is not the sole duty of schools and teachers; thus, by conducting this research, it is expected that parents, caregivers, and therapists may also take up the responsibility to educate ASD individuals about appropriate behaviour.

Lacking interpersonal skills will affect ASD teenagers in most ways. Hence, they may involve unnecessary sexual behaviour problems. Sexual harassment among

ASD teenagers, for instance, is disturbingly common. However, it cannot worsen when the victims vilified in such mishaps do not know sexual education, especially sexual harassment (Numhauser-Henning & Laulom, 2012). According to Krohn (2014), sexual harassment is defined as unwelcome sexual advances, requests for sexual favours and other verbal or physical conduct of a sexual nature. Sexual harassment is not the main issue in the discussion. Elementally, however, due to the low comprehension of autism and the disadvantages in social skills, especially in sexual education, it would entrench societal problems.

A study in Malaysia shows that the community has an ignorant perception of autism (Adli, et al., 2017). Unsurprisingly, the misconception on this matter is severe due to the lack of seriousness in imparting sexual education, especially about sexual harassment of the public or special needs (Corr & Santos, 2017). In some cases, if ASD teenagers touch their private parts, like touching their buttocks in public profusely, according to Huwaidi & Daghustani (2013), since ASD individuals have insufficient knowledge of social skills in displaying normally acceptable sexual behaviour, thus it would warrant the so-called victim of such event to straightaway accuse the perpetrator because they look normal to the victim in all ways, as a sexual pervert to harass the victim. People with disabilities, significantly ASD teenagers, might suffer the most due to the exclusivity of such a law that derives its sources of authority from normal society in a standard setting. Without any notion of such loopholes may warrant ignorance among the public and authorities on the issues as specialised as sexual education among ASD teenagers. Therefore, when they display their deficit in sexual behaviour cues, the

public will quickly perceive that they are trying to harass them despite their like-normal features.

1.1   Background of Study

Sexual behaviours include self-image, emotion, value, attitude, belief, behaviour, and relationship (Lee, 2011). The most observable behaviour commonly related to sexual behaviour problems is masturbation (Ahmad, 2015). Approximately 75% of ASD individuals display sexual behaviour, and most tend to masturbate (Sullivan & Caterino, 2008), as masturbation is the most reported sexual expression for people with ASD (Gaus, 2011). Sexual behaviour problems among ASD teenagers are by now too obvious to ignore. Therefore, it is necessary to constructively teach ASD teenagers before adolescence to control themselves from displaying inappropriate sexual behaviours.

Masturbation is the usual action among teenagers in the transitions of puberty (Vernacchio, 2014) and can be mentally addictive if it is habitually practised. While normal teenagers tend to express it privately due to self-dignity, it may not be so for ASD individuals who suffer deficits in understanding such social norms. Therefore, it is necessary to rectify other outlets besides masturbation for sexual expression to assist them in controlling their sexual behaviour problems before it becomes too habitual to alter. Although ASD teenagers undergo normal physical development at puberty, they

cognitively do not know how to express themselves sexually and tend to display it through inappropriate sexual behaviour (Yaakub & Kusrin, 2015). Even though the emotional changes and increasing sexual urges accompanying teenagers may be delayed or prolonged (Huwaidi & Daghustani, 2013), teaching them to control their sexual behaviour is crucial. It prevents them from being sexually, physically, or mentally abused.

The inappropriate sexual behaviour and social interaction aptitudes among teenagers with ASD vary widely, from ASD who fail to develop any speech and remain mute throughout their lives to those more mildly affected who have well-developed speech (Adams, Gouvousis, VanLue, & Waldron, 2004). The difficulties persist in the pragmatics or meaningful use of language and the social aspects of the conversation. In verbal and non-verbal communication, individuals and teenagers with ASD face verbalisation problems, where the delay or lack of learning to talk (McPartland & Volkmar, 2012). About 40% of people with autism never speak (Aston, 2014). Even though they can speak or verbalise some words, they still have problems with echolalia; repetitive use of language as they will repeat over and over the phrases they have heard before (Prizant & Rydell, 1984; Quill, 1995; Bowman, 2020). Despite these deficits, most parents want to put their ASD individuals under constructive speech therapy to communicate the least that they can request something and express their feelings.

Socialising and communicating can become challenges for many ASD individuals. Some can speak very fluently, as others are speech impaired to varying degrees, whilst there are ASD individuals who cannot speak at all. Those who can speak will often use language in a limited or unusual way (Foggo & Webster, 2017). With this discrepancy, the way they interact with others will be them behaving abnormally. Impaired communication includes delayed language development, difficulties sustaining conversations, and stereotyped and repetitive use of language such as repeating phrases heard on television, radio, video, etcetera (Gordon, Pasco, Wade, Howlin, & Charman, 2011). This communication impairment leads to social interaction problems. Things can get uglier when related to sexual behaviour problems because most do not express it acceptably.

In order to modify sexual behaviour problems, ASD individuals need to be taught social behaviour skills. Postponement in social behaviour skills is one of the early indications of ASD. It is often apparent in the minor's lack of response to their name and the absence of joint attention behaviours (Keen & Rodger, 2012). In addition, most parents with ASD face communication failure with their individuals, as they do not fully understand the message conveyed by the individuals. Hence, two-way communication does not exist between them. Actions such as pointing, showing, and shifts in eye gaze are examples of non-verbal communication cues among ASD individuals (Keen & Rodger, 2012; Rubin, Prizant, Laurent, & Wetherby, 2013). However, so subjective are the cues that the receiver often interprets imprecisely. For example, although pointing or showing something helps form communication between

ASD individuals and their parents, it is ineffective as what they show or point to is not necessarily the things they want (Gordon, et al., 2011). This evidence of the absence of joint attention might be critical to later language development and may affect their behaviour simultaneously.

1.1.1 Common and Uncommon Social Behaviour among ASD

ASD individuals commonly think that what is in their minds is similar to what is in everybody else's mind, which results in their actions being expressed abnormally at certain levels. Conventionally, they do not understand that other people may have different viewpoints or opinions (Bardhan-Quallen, 2005; Pantelis & Kennedy, 2016). Furthermore, they do not understand that other people might lie, hide something, or even try to control situations (Boucher, 2009). Therefore, as they think what is in their minds is the same as others, especially among peers, they will act the way they want, disregarding others' thoughts or feelings. Ultimately, they will feel socially rejected, as others may perceive the ASD individuals as deviant. Besides, cases where these abnormalities in social interaction among ASD individuals may make them vulnerable to bullying cases. If not contained, they could let them suffer lower self-esteem, lack of confidence, and a tendency to be assertive (Aston, 2014).

Despite many years of study, there is still limited and inconclusive information regarding the underlying abnormalities associated with ASD. Most researchers

discussed the language and communication issues but neglected the need to reduce abnormal social behaviour. Nevertheless, an accepted foundation for this understanding has been recently developed. Firstly, abnormal sensitivity to sensory stimuli is considered stereotyped behaviour and can include excessive smelling or touching of objects and avoidance of specific textures, sounds or smells (Trauner, 2014). As an illustration of the issue, most ASD individuals will bite their t-shirt's collar, bite other people close by, and close their ears with their palms or hum.

Secondly is about hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD) among ASD. They can hardly concentrate and jump quickly from one activity to another, disturbing other peers around them simultaneously, struggle to get organised and finish the tasks, and have difficulty learning new things and following directions. In addition, many researchers like Bardhan-Quallen (2005), Rabi (2015), Zulkefli & Rabi (2018) and Bolte, Girdler, & Marschik (2019) agreed that if they get bored with the activity planned for them, the tendency to react abnormally is very high such as disturbing other individuals. Besides, the ASD person will also overreact to feelings and emotional situations if their therapists or teachers try to stop them from behaving or having trouble sitting still for meals and other quiet activities (Morin, 2017).

At the time, abnormal social interaction is seen as a problem in understanding the situation in interacting with others. Usually, what has been done is not merely regarded as 'normal' by the normal society as sometimes ASD individuals or even teenagers will suddenly laugh it out (Norfishah Mat Rabi, 2015). Sometimes they do

not make good eye contact (Bardhan-Quallen, 2005). Even though they are not deaf, sometimes they scream very loudly in public (Dunlop, Knott, & MacKay, 2008). Moreover, most of them have a problem with assessing social cues expressed by others around them. For example, when their family members are sad, they are happy; when they are happy, they get mad, and so forth.

In such cases, due to the impairment in social behaviour, soon, when ASD individuals grow older or reach puberty, they will exhibit inappropriate sexual behaviour. If there is severe social behaviour impairment, inappropriate sexual behaviour may occur in its vilest (Abrams, 2017). According to Huwaidi and Daghustani (2013), sexual desires typically arise when one reaches puberty, and it does so in the case of ASD individuals. Therefore, social skills are essential, and a new mechanism is needed to educate them before problems get out of hand. According to Sullivan and Caterino (2008), how sexual desire is dealt with and expressed is one of the many challenges parents and caregivers face. It is supported by Wehman, Schall, & Carr (2014) that reaching the adolescent stage increases the problems the ASD individuals in terms of physical changes, environmental changes, and societal expectations.

1.1.2 Sexual Behaviour Problems among ASD Individuals

Inappropriate sexual behaviours arise in the stage of transition to puberty. According to Huwaidi and Daghustani (2013), one of many such behaviours is undressing in public. Therefore, the problems faced by ASD teenagers regarding their sexuality stem from the lack of understanding of social rules and misconceptions of their personal feelings that lead to the immature expression of sexual desires. In order to help ASD individuals in terms of sexual behaviour, an observation of minor hood characteristics should be observed before the transition to adulthood.

Rabi (2015) explained that ASD individuals could have a problem with sexual behaviour because they typically have a spoiled nature. However, the situation is hard to change when they grow up. At this stage, they will reach puberty as most people start to experience sexual urges. Likewise, it is typical for individuals on the spectrum to feel aroused (Detar, Fox, & Koegel, 2014). Besides, ASD individuals who are reaching puberty, these new sensations can cause anxiety, and they will start to act abnormally to a shocking public such as undressing, touching private parts and talking about sexuality shamelessly and openly with teachers or caretakers and known people alike, such as they would like to get married.

As the sexual urge increases, they will start to masturbate anywhere they want and, like others typically experience, but with much exaggeration, the sexual urge may be triggered by merely encountering someone to whom they are sexually attracted.

According to Hayward and Saunders (2010), sexual behaviour problems vary, including touching private body parts, removing clothes, or masturbating in public areas. Inappropriate sexual behaviour happens because most on the spectrum lack the social awareness to know when and where it is appropriate (Hellemans et al., 2010). In addition, as they reach puberty, some other deviant behaviours may occur, such as scratching their private part using their hands repeatedly, rubbing their private part at something which can trigger their sexual urge, and keep touching their private part just to have that sensual feeling (Detar, Fox, & Koegel, 2014; Hellemans, Roeyers, Leplae, Dewaele, & Deboutte, 2010). These sexuality problems in ASD individuals relate to an obsessive quality of sexual behaviour.

It is also crucial to explore the understanding and application of the social skills linked to positive social behaviour that may contribute to a better outcome in modifying inappropriate sexual behaviour. According to Ilias et al. (2017), multidimensional approaches to intervention are recommended. It may involve decreasing inappropriate behaviour whilst increasing appropriate behaviour, increasing social skills, and teaching self-management skills (Reynolds, 2014; Ilias et al., 2017). These skills may include washing the genitals, general hygiene and self-care, knowing whom one can kiss or hug, knowing with whom and when one can talk about sexual matters and knowing that it is not proper to touch the genitals in public. These are important to have a positive outcome in reducing abnormal social behaviour and supporting positive social interaction.

Besides, ASD individuals also need to be taught about proxemic distances. Proxemics distances is a theory developed by Hall (1959, 1963, 1966) explaining the distance that a communicator (sender and receiver) maintains between each other in their interactions, corresponding closely to the major types of relationships such as intimate, personal, social, and public distances (DeVito, 2016). By teaching this, ASD individuals understand how to behave in public when it comes to managing sexual urges, but they will also learn about the idea of controlling their sexual behaviour problems and cautioning out the vulnerability of sexual harassment. Simultaneously, it will protect them from exploiting others who may intentionally take advantage of ASD teenagers.

1.1.3 Technological Advancement as Intervention in Controlling Sexual Behaviour Problem among ASD Teenagers

In the globalisation and connectivity era, computer-based technology has become the need of the day for various reasons. Moreover, technological advancement has brought about sophisticated hardware and software like radio, television, films, and transparency in education. The educators of the day engage with numerous information and communication technologies (ICT) as supporting methods and materials to enhance the teaching and learning process more effectively (Ahmad et al., 2012). Computer-mediated communication technologies are available for use in educational programs. In many parts of the world, education ministries and universities have invested much

effort into increasing the use of the web in all its forms, such as e-books, simulations, podcasting and many more, to meet the demands of competitive markets and bring about a variety of learning choices to their learners (Riasati, Allahyar, & Tan, 2012).

We no longer live in a world where information is limited, and the teacher's role is to hand-deliver content to students. Overwhelmed by information from many sources, students desperately need to create new knowledge and not just consume the old. Giving advanced education is not merely for mainstream students. Despite the complexity, ASD students also need these technological skills for self-actualisation. Ahmad et al. (2012) stated that educating all students by today's standards for tomorrow's living most certainly includes the use of technology. Their relationships to provide essential support for a person with ASD in self-care, education, employment, recreation or leisure, and community living are acceptable. Additionally, access to technology can provide meaningful learning experiences to develop problem-solving, and higher-order thinking skills (Ilias et al., 2017) and functions in the world beyond the classroom not only for mainstream students but also for special needs case autistic students.

Many things that are feasible now were not possible more than ten years ago, even if we tried our hardest to make them happen. Formerly audio-visual experiences in Virtual Learning (VL) were believed to be difficult to up to today's world. Opportunistically, the issue remains if the VL can aid in promoting healthy social interaction among ASD individuals to minimise their aberrant sexual behaviour. On the

question of reality, is it as realistic as reality itself? Nowadays, Virtual Reality (VR) and Augmented Reality (AR) are a part of VL and are commonly used in education. Back in the 1990s, VR and AR were on the lips of everyone as multiple companies tried and failed to make it happen (McKalin, 2014). Besides, VR and AR are similar in immersing the users or learners and making them more easily understand the concept taught.

However, to make it happen, VR and AR users are isolated from the world while immersed in a completely fabricated world (Greenwald, 2021). Despite their similar designs, VR and AR achieve two very different things in two very different ways. VR replaces reality by transporting users to another world. AR augments reality by superimposing data on top of what users are already experiencing. They are both robust technologies that have yet to make an impression on consumers but show much potential. They have the potential to transform how we use computers in the future fundamentally, but whether one or both will succeed is still unknown, especially in special education, particularly for ASD students.

Research proves VR is the best computer-based intervention for ASD (Chan, 2014). Computers are used as an intervention for ASD, but VR is a new addition to technology-based intervention. Thus, the effectiveness of using VR has yet to be proven. If it could help normal individuals, could it do well for those with ASD? Brown (2015) argues that VR might help ASD individuals as individuals have the inner potential to develop the skills necessary for independence that people generally take for

granted. A virtual environment is ideal for teaching these skills before encouraging a person with ASD to try these out in the real world (Gordon et al., 2011). Besides, VR is also used to help a person with ASD with social attention problems. An ASD person often finds it difficult to read facial expressions, pick up visual cues, or pay attention to another person while speaking. Thus, VR is believed to help a person with ASD to make sense of the world around them (Brown, 2015). However, since ASD individuals are unique and cannot be generalised (Norfishah Mat Rabi, 2015), VR compatibility with ASD individuals is yet to be explored.

1.2 Problem Statement

Sexual behaviour problems among ASD teenagers are by far too prevalent today. The statistics show that approximately 1 in 6 boys and 1 in 4 girls are implicated by sexual behaviour problems (Holmes & Himle, 2014). A study done in Nebraska showed that 55000 individuals with any intellectual disability were four times more likely to be sexually harassed and abused than a minor without disabilities, causing sexual behaviour problems (Corr & Santos, 2017). Although no specific numbers are reported about the sexual behaviour of autistic teenagers in Malaysia, Tin (2022) suggested this population is highly vulnerable; thus, it is time to teach them about appropriate behaviour concerning sexual behaviour. It is timely that ASD teenagers can control themselves against all mistranslated perceptions and convictions by controlling their sexual behaviour cues. A new mechanism must be endorsed to promote a healthy social

environment to give ASD teenagers the proper and appropriate protection from being abused mentally and physically once they consciously know how to control themselves sexually.

According to Xin, Si, Vy, & Rahman (2017), in Malaysia, it is found that parents of ASD children scored the highest levels of stress and aggravation range (55%) compared to parents of children with other developmental problems (44%), parents of children with special healthcare needs (12%) and parents of typical development (TD) children (11%). In addition, 89% of them also rated that their ASD children were facing emotions, concentration and behaviour impairments in which parents of ASD children are anxious about their children's sexual development. Furthermore, Malaysian parents are hesitant to openly discuss sexuality with their ASD children due to societal taboos (Yaakub, Kusrin, Nasohah, & Yusof, 2020). As a result, it is not surprising that they skip this crucial parent-teacher sharing session to openly talk about the sexual development issue faced by their ASD child. As a result, parents permitted their ASD children to continue improperly acting in public, such as masturbating (Yaakub & Kusrin, 2015).

If this goes unchecked, it will not only cause lousy perception towards the naive, but inappropriate behaviours of the ASD individuals will become worst when their actions perpetuate into mental and physical harassment towards the public, especially to those people they are attracted to (Krohn, 2014; Yaakub & Zuliza, 2015). In addition, seven out of 10 parents in Malaysia living with ASD are worried about their

individuals' long-term future, especially about sexual behaviour issues (Yaakub & Zuliza, 2015). Mothers especially fear their individuals growing up and reaching puberty, which leads to different phases of unprecedented change (Loftin & Hartlage, 2015). Adli et al. (2017) concluded that, since Malaysia does not have a structured and comprehensive sexual education, these parents decided to migrate to Australia, where the government supports both parents and their ASD individuals therapeutically and socially. As a result, these parents, mostly professionals in their respective careers, left Malaysia with their special-need ASD child as there are no specific government support and the lack of relevant facilities and therapist syllabi in teaching appropriate sexual behaviour (Ilias et al., 2017). According to Talib, Mamat, Ibrahim, & Mohamad (2012), based on the data received, 90% of the respondents agreed that sex education had not been taught in Malaysian schools. The respondents explained that the informal information given by most of the teachers was vague, thus defeating the purpose of the students to learn about the issues. Therefore, it justifies that the sexual education for exceptional students, especially among ASD, is also not comprehensive.

Also, parents were concerned for their individuals' well-being and safety after anticipating worrying stories of ASD individuals experiencing bad sexual behaviour problems, with most being incarcerated socially and some being prosecuted criminally (Loftin & Hartlage, 2015 & Adli et al., 2017). The sexual behaviour problem among ASD individuals is disturbingly familiar and observable and always happens in school (Anderson et al., 2009). Despite disturbing experiences, ASD individuals eventually do not know the dos and don'ts of appropriate sexual behaviour, especially in modifying

sexual behaviour cues. As a result, most instances involving sexual behaviour issues, such as harassment, frequently fail to serve both the victim and the perpetrator owing to a lack of solid proof (Numhauser-Henning & Laulom, 2012). Monitoring and preparation for transiting ASD individuals to an adult are needed direly.

According to the Ministry of Health Malaysia (2014), individuals with ASD require clinical monitoring of their physical growth, behaviour, development, comorbidities, related medical conditions, sexuality, and safety concerns. Monitoring is necessary for them to become self-sufficient and capable of caring for themselves. As emphasised before, painstaking and collective efforts towards it should be initiated due to the lack of research and development in ASD sexuality education in Malaysia (Loftin & Hartlage, 2015). The relevant parties should seriously discourse and plan the transitional issues and challenges of ASD individuals. Their sexuality management is crucial to plan at the earliest possible according to their abilities and susceptibility as they transition into adulthood (Anwar, 2016).

1.3 Research Objectives

The research objectives listed below are relevant to the research topic: the modification of sexual behaviour cues using social stories through virtual learning among ASD teenagers.

1. To identify the inappropriate sexual behaviour among ASD teenagers.

2. To develop a checklist for recognising the sexual behaviour cues among ASD teenagers.

3. To modify sexual behaviour cues among ASD teenagers using social stories through VL.

4. To analyse the changes in sexual behaviour after using social stories in VL

1.4 Research Questions

The research questions listed below are relevant to the research topic: the modification of sexual behaviour cues using social stories through virtual learning among ASD teenagers. The research questions of the study are:

1. What are the inappropriate sexual behaviours among ASD teenagers?

2. What are the factors that trigger sexual behaviour among ASD teenagers?

3. What are the motivations for engaging in sexual behaviour?

4.   How do we recognise the sexual behaviour cues among ASD teenagers?

5.   What are the social stories' impacts in helping them modify the sexual behaviour cues?

6.   What kind of social story should be used to modify sexual behaviour cues?

7.   What are the changes in sexual behaviour after using social stories in VL?

1.5   The Rationale of the Study

Sexual behaviour problem seems to differ in their degree of seriousness. Educating about the problem of sexual behaviour is appropriate by making informed responses. If neglected without proper responses, it could be even detrimental to ASD teenagers and carers in the future. We must understand that ASD individuals generally develop in some social and emotional understanding areas but have difficulties in others (Abrams, 2017). As ASD individuals are known to have difficulties in social understanding (Travers & Tincani, 2010), their emotional changes and increasing sexual urges may be delayed or prolonged (Huwaidi & Daghustani, 2013). There are anxious concerns by the families, therapists, or caregivers about the growing sexual behaviour in ASD teenagers. It is generally not accompanied by a corresponding growth in social knowledge that often leads to socially embarrassing behaviour. It confirms that, whilst the emotion changes, the increasing sexual urge may be delayed or prolonged.

ASD teenagers need to be protected with a proper education in sexuality, especially when the chances of being exploited are higher than that of being the exploiter. Their disadvantages, such as their low ability to speak, express, and explain, will cause them to fall into the circle of the probability of getting abused to act aggressively toward others. In such a situation, the researcher never doubts the capability of a slight ripple to bring about the entailing change. Even though it may seem small, the ripple effects of small things are extraordinarily enough. Ergo, the researcher is confident that by conducting this research, parents, teachers, therapists, and caregivers can recognise and be alert to the sexual behaviour cues displayed by the ASD individuals under their care. By initially detecting such cues, we should be prepared with the necessary interventions to help these ASD individuals manage, modifying them before it escalates into an uncontrollable sexual urge that leads to inappropriate display in public.

Assisting ASD teenagers in understanding sexual behaviour cues through sexual education for ASD individuals will prevent them from displaying improper sexual behaviour. It is essential to understand that teaching sexual education to ASD individuals does not mean teaching them about sex and how to do it but beyond that. It teaches them how to protect themselves by avoiding the unnecessary behaviour that courts sexual victimisation. This research will tackle the issue from the ASD individual's behaviour and the perspective of their parents, teachers, therapists, or caregivers. According to Reynolds (2014), past research found that sexual behaviour

problems were not uncommon, with around one in six boys and one in four girls suffering it before age 18.

In order to cope with the issue, an interactive learning environment should be created. According to the current needs of the education field, using technology as a medium to explain sexuality is believed to be the best way to do it. Some researchers maintain that one of the benefits of technology usage is to increase students' motivation. In addition, it is fun as the elements of the game and its excitement are brought into the learning environment (McCann et al., 2008). Moreover, technology such as VL is believed to positively impact the development of a successful approach to understanding and preventing sexual behaviour among ASD teenagers. Ideally, such an approach would consider the needs of the individual to sensibly feel in an actual situation whilst striking a balance between encouraging healthy sexual development and modifying sexual behaviour problems. Simultaneously, it will assist parents, teachers, and caregivers teach ASD individuals about sexuality without fear and embarrassment by reducing unnecessary physical contact.

By conducting this research, a new interactive approach will be produced to provide ASD teenagers with information about appropriate sexual behaviour to modify inappropriate sexual behaviour. Undeniably, each human being undergoes biological, cognitive, and social changes during little hood and upon transiting to adolescence, which includes reaching the puberty phase. Puberty affects hormone changes, resulting in feelings of love, sexual attraction, and sensual feeling (Abrams, 2017). Sexual

behaviour is of the utmost concern to parents and carers as it is directly related to the core impairment of ASD (Krohn, 2014), which includes difficulties in social knowledge, reciprocal interaction, communication and considering the viewpoint of others (Adli et al., 2017; Huwaidi & Daghustani, 2013).

Responses to normal sexual behaviours should be taught to ASD teenagers with appropriate assessment, education, and skill teaching. If discussing and teaching about sexuality remains taboo, it will impede any efforts to acknowledge and remedy the sexual behaviour problems among ASD teenagers. Therefore, we should also stand firm in finding a suitable solution to helping them manage their sexuality and understand to prevent the sexual behaviour problem via interactive and meaningful teaching of sexual education.

1.6   Significance of the Research

Generally, this research is beneficial to all, especially to the bottom billion groups of parents who live with ASD individuals. The outcome of this research will help them as they need not have to invest a massive amount of money just to send their ASD child to different intervention institutions that are very costly, especially when it comes to sexual behaviour intervention. Being the parents of an ASD child who is perceived and labelled as "disabled" brings a range of new societal and personal expectations. It may heighten the parents' desires to protect their ASD child, especially when worrisome

cases of rape and sexual abuse towards less able ASD individuals are highlighted in the media. Guilt is one deep-seated response by parents to realising that they have 'afflicted' this world upon their less-than-abled minor. Ultimately, this research would be as important as it is beneficial to parents in ensuring their ASD child is protected from any dangers afflicted by the social fabric of the society, especially those relating to sexual behaviour problems, which may lead to unnecessary negative social stigma.

This research is equally important to help the teachers, therapists, or caregivers step to the next level of nurturing ASD individuals about positive sexual behaviour with technology and multimedia, which are more disability-friendly and effortless. Furthermore, the technology and multimedia usage would sustain its applicability anywhere. Therefore, parents or caregivers can continually impose it after school at home for further effectiveness whilst supporting the core intervention the teachers or therapists applied in a more institutional setting.

Ultimately, this research would also warrant consultation by the government through its Ministry for Women, Family and Community Development to play their related roles in research and development for good citizenship, especially in inclusively exploring the issues and challenges of autism. Furthermore, through the Ministry of Education, this research can also provide the ever-awaited foundation for shaping a better and inclusive education system, upon which the researcher believes that it would help in rectifying the processes of early identification of special educational needs,

especially relating to sexual education, not only for the disabled but potentially encompassing the abled individuals as well.

In the meantime, it is vital to enhance the degree of flexibility within the curriculum to adapt to special needs individuals' specific requirements, especially in autism. Therefore, this effort is wishful to extend its impact upon a curriculum proper to equip them with essential life skills needed for functional adulthood and healthy working life as aspired in the Malaysia Education Blueprint 2013-2015. Moreover, this research hopes to become one of many efforts in supporting the nation to further expose and educate the public about autism, acting as the agent of change in positive perception, caring attitude, and altruistic behaviour towards ASD individuals and simultaneously quashing the prejudice currently rife in the community.

1.7   Conceptual Framework

A conceptual framework is a kind of framework to explain the development, direction, format, and phases of research. The researcher has developed a conceptual framework inspired by Jasmi (2012), who proposed that a conceptual framework can be developed from existing theories, or the researcher may create their conceptual framework. The following Figure 1.0 shows the conceptual framework of this research.
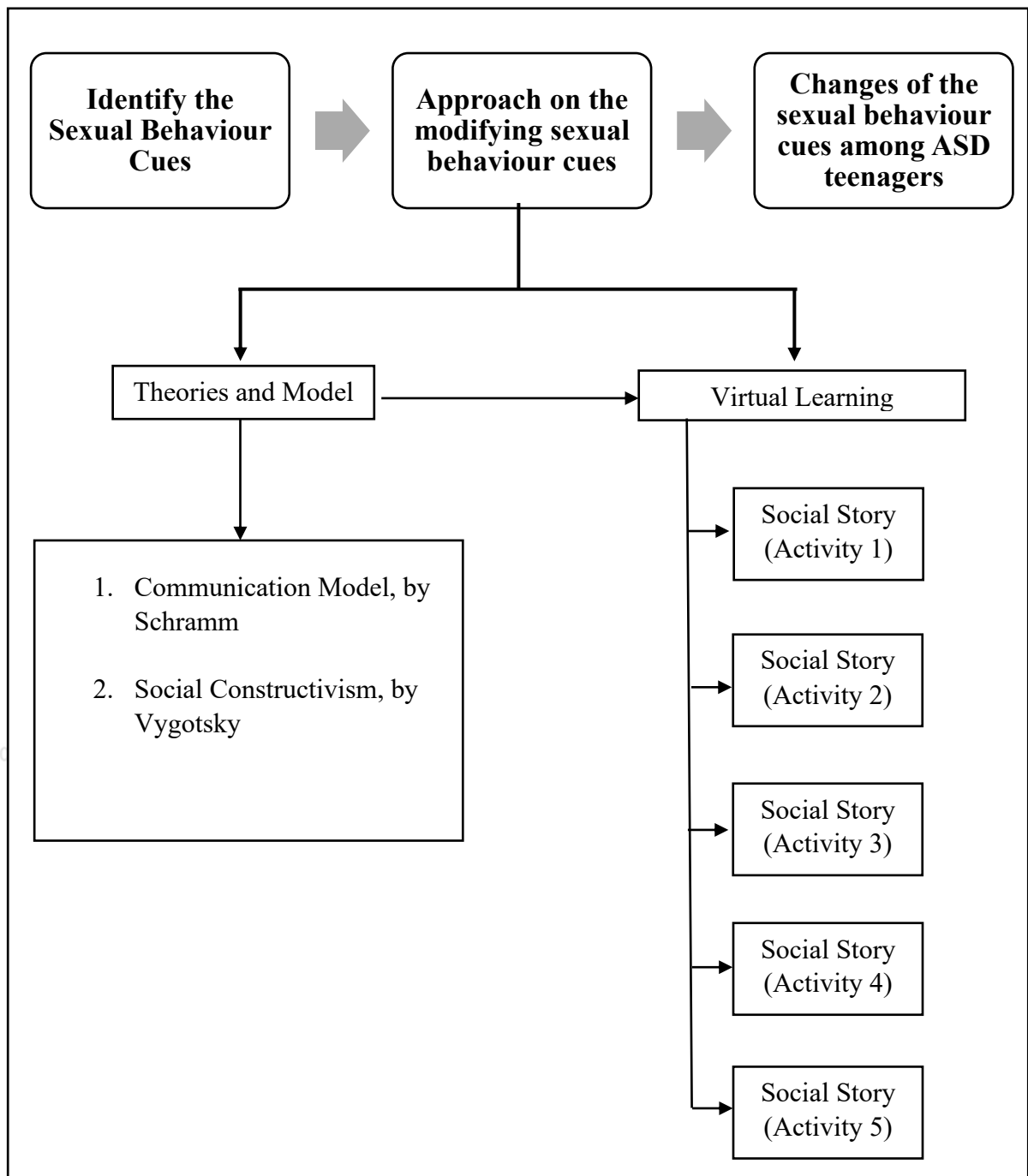
Figure 1.0. Conceptual framework of the research

As shown in Figure 1.0 above, the conceptual framework is a foundation of this research that has been carried out to assist ASD teenagers in understanding sexual

behaviour cues using social stories through virtual learning. Based on the conceptual framework, sexual behaviour cues among ASD teenagers will be initially identified using observation techniques and interviews with parents, clinical psychologists, special education teachers, therapists, or caregivers. Then, based on identifying the sexual behaviour cues, the modifying process will be carried out using social stories integrated with VL via instructional video. Finally, to ensure this execution's effectiveness, Communication Model by Schramm will be adapted by merging it concurrently with the Social Constructivism theory by Vygotsky.

The communication Model by Schramm is chosen as it is the most suitable against all others in the kind of intervention in the research. This model incorporates the study of human behaviour in the communication process (Vivian, 2008). In order to get a good outcome, a wise communication process should be adopted throughout the research to ensure the process of encoding and decoding by the sender will be delivered well to the receiver. Encoding and decoding are significant in any communication process. Schramm's definition of communication is sharing information, ideas, or attitude called communication (Baran, 2007; DeVito, 2016).

Hence, two prominent persons are involved in the therapy process to assist in understanding sexual behaviour cues among ASD teenagers. Firstly, a person as the sender (parent, teacher, therapist, or caregiver) and secondly, the receiver (ASD teenager). Interpersonal communication is critical through this process because the message to be delivered should be decoded well. To deliver the message well, a sender

should understand the receiver's behaviour before sending the message. By adopting this process to exchange the idea about the social norm to imposes the idea of appropriate sexual behaviour and exchange the idea about the social norm, especially on appropriate sexual behaviour, a guide to facilitate it is needed to form and improve the understanding.

Following the idea of Bandura (1971), to assist in understanding and controlling the sexual behaviour cues among ASD individuals, a person is initially more likely to attend to and imitate those he perceives as himself. Consequently, the ASD individual is more prone to emulate the behaviour of others of the same gender. Simultaneously, the others surrounding the individual will reinforce or penalise the behaviour it imitates. If a person imitates a model's behaviour and the rewarding outcomes, the individual is more inclined to repeat the behaviour.

Positive reinforcement should be given to them if they succeed at a skill. Positive reinforcement methods also increase motivation to perform the desired skill again later. Positive reinforcement methods can be given to them by using words of praise such as "good", "excellent", "well done", and so on. Positive reinforcement applied in the modification process is based on which states that a response can be strengthened or eliminated by providing positive or negative reinforcement (Hashim & Rahman, 2014).

In integrating the social story and VL in assisting ASD teenagers in understanding sexual behaviour cues, assistance from the researcher or teachers to the ASD teenagers is required. This approach is based on Vygotsky's Social Constructivism theory, which states that assistance from others may increase people's knowledge to the next level and that active learning happens in the zone of proximal development (ZPD). The aid and direction from adults are known as scaffolding (Harland & Mercer, 2009). However, consistent constructivism poses a severe challenge to the notion that, in an era of variety and difference, a fundamental objective of education may be to assist students in comprehending how knowledge is produced. Therefore, this research will highlight the theory to ensure knowledge is transferred to ASD teenagers about modifying sexual behaviour.

As social constructivism is a process of knowledge construction coherently, this brings to the fore the crucial role of communication in the construction of knowledge, not as a process in which individual constructions of everyday reality are exchanged, but rather as a process in which different realities are in a practical sense made "in common" (Vanderstraeten, 2002). Besides, Piaget believed that learners actively construct cognitive knowledge and that any account of knowledge makes essential references to cognitive structures. Moreover, ts knowledge comprises active systems of intentional mental representations derived from past learning experiences (Liao, 2012). Thus, the learner interprets experiences and information in light of their actual knowledge, stage of cognitive development, cultural background, personal history, etcetera (Duffy & Jonassen, 2013).

ASD teenagers may use these learning experiences to organise their experiences and select and transform new information from this research. Knowledge is, therefore, actively constructed by them rather than passively absorbed. Two-way communication between the instructor and ASD teenager is needed to modify sexual behaviour cues through VL. In the end, by modifying sexual behaviour cues, ASD teenagers should control themselves from displaying their inappropriate sexual behaviour.

1.8   Limitation of the Study

This research has been carried out based on case studies. Thus, some limitations have been established regarding validation and reliability. Firstly, this research was conducted using the purposive sampling technique involving only ASD teenagers aged 13 to 18 in the transitional phase of puberty.

Secondly, the research has been carried out on social awareness, which is not related to teaching and learning settings in school. The reason is that this research ultimately aims to assist ASD teenagers in understanding sexual behaviour cues and reduce sexual behaviour problems in school and public. Hence, teaching about sexuality is not only applicable in school and among teachers only, but through this research, it is expected that parents, caregivers, and therapists may also educate these ASD teenagers by adhering to the instructional template that is going to be constructed by the researcher at the end of this research.

Thirdly, this research was conducted in two stages: identifying the problems faced by ASD teenagers involved in the research sample and observing their sexual behaviour. In the first stage, the researcher will initially identify sexual behaviour problems displayed by the selected ASD teenagers. Then, a checklist will be produced, containing items featuring sexual behaviour problems displayed. The second stage involves the researcher observing their sexual behaviour when they are left alone in a secluded room and subjected to in-group play.

Finally, the observation was carried out among a selected sample of ASD teenagers registered as clients at the UTAR Counselling Community Centre (UCCC), UTAR Kampar Campus. As the researcher is currently a Social Behaviour Consultant for ASD persons at the centre, the subjects are readily available for selection. Fifthly, this research will also involve in-depth interviews with parents, special education teachers, therapists or caregivers and clinical psychologists, personally or professionally related to ASD teenagers.

1.9   Operational Definition

1.9.1 Controlling

Controlling behaviour is when one person expects, compels, or requires others to cater to their needs or even at others' expense. According to (Schmidt, 2017), the control behaviours must be identified to disclose the decision logic and criteria governing a person in processing control flows. Control behaviours must account for all possible conditions encountered throughout a functional scenario. Control behaviours dictate which functional sequence will be enabled among the possible courses of action (Gillebaart, Ybema, & Ridder, 2021). Through this research study, controlling sexual behaviour cues refers to the potential value of the concept of personal control for the field of health promotion. Controlling inappropriate sexual behaviour among ASD teenagers with a problem with sexual behaviour is belief about the degree to bring about good events and avoid bad events.

1.9.2 Autism Spectrum Disorder (ASD)

ASD is a complex disorder in terms of social interaction and learning disabilities. A person diagnosed with ASD has impairments in three domains. Communication, restricted behaviour and interests, and social interaction (American Psychiatric Association, 2013). According to Norfishah Mat Rabi (2015), generally, ASD occurs at the age of three, with severity ranging from mild to primary. Functionally, ASD refers

to a range of conditions characterised by challenges with social skills, repetitive behaviour, speech and nonverbal communication and unique strengths and differences (Bardhan-Quallen, 2005; Rabi, 2015; Autism Speak, 2017). It is not easy to detect a person with ASD because they generally (physically) look normal like other people of the same age, although they can initially be recognised through specific character, but not necessarily so, behaviours. In this research, Autism Spectrum Disorder (ASD) refers to the context of all kinds of autistics diagnosed by experts in Malaysia.

1.9.3 Sexual Behaviour Cues

Sexual behaviour refers to behaviour in which humans display their sexuality. Like all humans, ASD individuals also have the same emotion to display their sexuality. These behavioural expressions contain biological elements and cultural influences involving sexual arousal (Alexander & Marson, 2017). For example, Zipf (2016) stated that sexual behaviour ranges from solitary such as masturbation and autoerotic stimulation, to partnered sex, engaged with others periodically. Often the latter involves frottage or rubbing sexual areas of the body against others through clothing (Reynolds, 2014).

Through research, sexual behaviour can be defined as arousing desire in a potential partner or enhancing sexual experiences. Regarding sexual behaviour cues, the inappropriate cues include touching other people's private body parts such as breasts, buttocks, or genital area. Sometimes ASD teenagers might touch another person who may or may not know whilst touching his or her genital area. It includes

stroking another's hair, which may seem an innocuous thing to do but can be regarded as sexual behaviour cues that warrant an act of sexual harassment if it is done to a stranger or vice versa.

1.9.4 Social Story

Social Stories work to assist the individual in understanding the social rules and expectations of everyday situations that they may find problematic (Gray, 2002). An individual who cannot understand, tolerate, or respond to a situation appropriately is presented in a personalised story (Gray, 2002; Bowen & Plimley, 2008). Moreover, the story will explain what is happening socially in the situation, giving the perspectives of others, some social information, and some guideline on how to manage the situation better (Gray, 2022). Many persons with autism have deficits in social cognition, which is the ability to think in ways necessary for appropriate social interaction (Haggerty, Black, & Smith, 2005; Amirrudin et al., 2019). Therefore, it can be seen that social stories are effective methods to provide guidance and directions for responding to various social situations.

The stories describe social situations specific to individuals and circumstances while promoting self-awareness, self-calming, and self-management. In this research, social stories are not meant to change behaviour; instead, they clarify social expectations. Social stories may use images or words to present the situation. It can be addressed by a technique used to help individuals with ASD 'visually read' and

understand social situations (Amirrudin et al., 2019). In this research, these social stories will be integrated into VL to help ASD teenagers learn the concept of flexibility in terms of time, place, and agility to understand the inappropriate sexual behaviour cue.

1.9.5 Virtual Learning (VL)

The Virtual Learning Environment (VLE) is a technology that facilitates learning and virtual meetings. Craig, Sherman, & Will (2009), Fox, Arena & Bailenson (2009), Chan (2014), and Hamid et al. (2018) mentioned that Virtual Learning (VL) is a learning experience that is enhanced by using computers or the internet both outside and within the educational organisation's premises. The majority of the time, the training takes place online. In addition, the instructional activities are conducted online. Thus, the teacher and students are physically separated in place, time, or both situations.

As for this research, the definition of VL comes naturally from the definitions for both 'virtuality' and 'learn'. The definition of 'virtual' is near, and 'learn' is the process learners experience as human beings. Therefore, the term 'virtual learning' means near to actual physical learning. However, in this research, the researcher only chooses the primary form of VL, an individualised learning method that considers the personal amount of competence, individual requirements, and various learning styles (Alves, Miranda, & Morai, 2017). Furthermore, it means that the researcher will enhance the usage of animation. Because animation plays a crucial role in a typical

learning journey, mixing images, text, and narrative produces a captivating and impactful learning experience that could stimulate the learner's memory (Etim, Itighise, & Ema, 2016).

1.9.6 Teenager

In Malaysia, the teenager is grouped under the adolescent group. The population of Malaysian adolescents ranges from 10-19 years old (UNICEF, 2018). Besides, teenager is also grouped in the youth category too. However, an amendment of the Youth Societies and Youth Development Act (Amendment) 2019 (Act 668) was passed by the Dewan Rakyat changed the definition of "youth" defined as a person between the ages of 15 and 40 (Yunus & Landau, 2019). However, teenagers in this research are adapted between the age of 13 to 18 years. It is because around this age; usually, ASD teenagers face various life challenges and experience distress. According to Hashim, Kuldas, & Ismail (2016), a series of recent studies drew attention that teenagers around the age of 13 to 18 committed inappropriate behaviour and were addicted to pornography and undergoing destructive behaviour.

1.10   Summary

In this chapter, the researcher has introduced a framework of research, which includes the research background, problem statement, research objectives, the rationale of the study, the limitations of the study, the importance of the study, the conceptual framework, and the operational definition of the terms used in this study. In conclusion, sexual behaviour problems among ASD teenagers during the transition to puberty is an important matter of human development that should not be ignored and neglected for the sake of their better adulthood in the family and public. Hence, this research focuses on modifying sexual behaviour problems among ASD teenagers, significantly when inappropriate sexual behaviours might harm them and others.

In carrying out this research, the essential alternative learning mechanism will be used, including integrating social stories and VL via the instructional video in animation. It is an innovative approach to teaching ASD teenagers to enhance a positive attitude toward sexual behaviour. In the era of innovative technology, the researcher believes that, by observing the mass's technological receptivity to ease one's life, we should adopt technology in education by adapting it to various settings and objectives. Although technology is being adopted in various educational settings for ordinary persons, why the ASD individuals should be left behind in benefiting from this technology for special education by opening opportunities for changing the destiny of their lives in a more positive direction?