Integrated Social Story-Based Video Modelling as a Tool to Promote Air Travel Skills among Youngsters with Autism Spectrum Disorder

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Abstract

Travel and tourism are beneficial in numerous facets of life, including recreation, familial relationships, and work, spirituality, cultural and social interactions. Travelling is a necessity and a social privilege due to the aforementioned benefits. There is evidence that travel makes people happier, but many people with disabilities, such as families with children who have autism spectrum disorder, encounter obstacles that make air travel difficult or impossible. The thrill of air travel is accompanied by a healthy amount of anxiety. A youngster with autism spectrum disorder (ASD) may find travelling particularly challenging due to sensory overload, disruption of routine, and the need to acclimatize to novel environments. The difficulties associated with air travel for these families have been recognized, but there have been few studies on the subject. Social story-based video modelling (SVM) is a skill-building intervention supported by empirical evidence. Social Narrative Video modelling illustrates a scenario, competence, or concept by employing pertinent social signals, perspectives, and typical responses.

The current investigation centred on utilising video models based on social narratives to instruct youngsters who have autism on the intricacies of travel by plane. The selection of the sample was done by the use of a convenient sampling procedure. The current cohort included two children who experienced anxiety during flight trips. Following a period of twenty-one days of initiation, the efficacy of the intervention was evaluated within the context of real-world environments. The results of the study showed that using social stories based on video modelling made it easier for ASD to travel by plane. Youngsters diagnosed with autism spectrum disorder (ASD) benefited substantially from social story-based on video modelling (SVM).

Keywords: Social Stories, Air Travelling Skills, Autism Spectrum Disorder (ASD).

Introduction

Tourism has been found to improve the livelihoods of tourists in the general population (Uysal, 2016). The term "quality of life" coined by the WHO's Quality of Life Assessment (WHOQOL, 1995) to describe the extent to which a person's mental and physical health, autonomy, social connections, and convictions remained stable over time.(Skevington & Tucker, 1999). There is evidence that tourism can have both short-term and long-term positive effects on quality of life. These advantages can be evident not just in life satisfaction as a whole but also across specific aspects of life such as leisure, family, employment, religious faith, relationship, and interpersonal and cultural interactions. (Choe et al., 2021).It has been argued that in light of these positive outcomes, travel may be viewed as a social right and not a luxury (McCabe, 2015). However, it has been found that people with disabilities experience a variety of obstacles during the travel process that negatively impact their tourism participation (Tecău, 2019).

Difficulties experienced by Persons with Autism Spectrum Disorder (ASD)

Deficits in social communication and engagement, as well as confined and repetitive behaviours, are hallmarks of children with ASD (APA, 2013). In general, autism prevalence estimates continue to raise worldwide (Zeidan

et al., 2022). People with Autism Spectrum Disorder often have problems with anxiety, understanding, and executive functioning, and they may also be sensitive to sensory stimuli (South & Rodgers, 2017). Due to the unpredictability of air travel, the length of time spent waiting, and the need to tolerate a variety of sensory stimulation, persons with autism and their families may find it challenging to take part in vacations that entail air travel. (Rodger, 2011)

Households in whom an individual has been diagnosed with Autism Spectrum Disorder have a lower rate of participation in tourism than families in which children of the same age have neuro-typically developed brains (Rodger, 2011). Waiting times, crowds, and sensory inputs all appeared as significantly important stresses during the entire plane travel procedure for youngsters with ASD. Additional stressors of significance encompassed adherence to instructions and protocols during security screenings, enduring prolonged periods of sitting in a confined space while fastened with a seatbelt during the flight, access to lavatory facilities, restricted food alternatives on board, and the process of deplaning. Anxieties about being apart from loved ones, the presence and actions of strangers, and the vastness, activity level, and unfamiliarity of the airport as a whole (Schaaf, 2011). These results confirm earlier hypotheses that the unpredictability, waiting, and sensory stimuli associated with air travel would be difficult for persons with autism to tolerate (Alallawi et al., 2020; Lerner-Baron, 2007) and they expand on the scant prior research that looked at persons with autism's experiences with air travel.

Miller study suggests that interventions targeting the stressors identified may be more pertinent and efficacious than current interventions. This could enhance participation in air travel-related tourism and provide opportunities for learning and enrichment in novel environments. Previous research has also highlighted the potential benefits of such interventions (Miller, 2020). Stress-inducing elements such as line-ups, large crowds, and visual and auditory stimuli are not limited to air travel, but can also be applied to other means of transportation and commuting. Interventions that aim to improve an individual's ability to tolerate stressful circumstances while honing coping abilities might boast the capability to increase participation in other activities, resulting in higher quality of life outcomes. (Boyd, 2014).

Air travel could potentially facilitate access to novel environments, enable engagement in unexplored activities, and foster the acquisition of fresh skills for individuals with autism and their families (Cerdan, 2021). Consequently, there is a possibility that they could encounter enhancements in their quality of life indicators. The acquisition of skills such as managing uncertainty, adapting to unexpected circumstances, and exhibiting tolerance towards diverse sensory inputs are some of the potential benefits that could be derived from air travel experiences. These skills may have practical applications beyond the context of air travel. Interventions targeted towards enhancing the readiness of individuals with autism for air travel have the potential to facilitate their engagement in a multitude of other activities, which may result in better quality-of-life outcomes. The advantages of these benefits may enhance the involvement of families in various activities and the overall quality of life of families (Boyd, 2014). The context of air travel amalgamates numerous crucial skills that can be acquired and implemented in other high-pressure scenarios, ultimately benefiting the individual and their family well beyond their air travel experience.

The academic literature has emphasised the high occurrence of social skill difficulties among persons with intellectual disabilities. The aforementioned challenges are distinguished by the incapacity to attain novel social abilities or competently employ previously acquired social abilities in suitable contexts and settings.(McCabe, 2015). The prevalence of sensory over-sensitivity or under-sensitivity is high among children diagnosed with ASD, with auditory and kinaesthetic modalities being the most commonly affected (Robertson & Simmons, 2015).The child's tendency towards stimulation-seeking or tactile senses-avoidance behaviours can pose a challenge for parents and carers, who may consequently refrain from visiting public places and participating in recreational endeavours (Nyman et al., 2017).

Empirical data indicates that caretakers of children with ASD experience significantly elevated levels of stress in comparison to caretakers of individuals with alternative disorders or typically developing children. (Dillenburger, 2010; Higgins, 2022). Family vacations and interruptions from daily routines provide relief from employment, school, and typical obligations, making them especially crucial for household members with a child who has autism. Families may choose to abstain from vacationing due to their child's inclination towards established routines and the uncertain nature of travel, which may involve disruptive airport environments, congested public spaces, lengthy wait times, and inconsistent scheduling (Dempsey, 2021). Overload of sensory input or anxiety may bring about challenges, potentially impeding children's ability to manage such circumstances(Van Steensel et al., 2011). Research suggests that enhancing the holiday experience can be achieved by establishing autism-friendly settings with proficient personnel and unambiguous instructions on how to assist children with autism. With appropriate preparation, a significant number of children diagnosed with autism spectrum disorder can learn to appreciate the pleasure of travel (Amet, L., 2013).

SOCIAL STORIES-BASED VIDEO MODELLING

Social story-based video modelling (SVM) is an intervention supported by empirical evidence that facilitates the development of targeted skills. SVM utilises a combination of visual and narrative elements to achieve its objectives. The utilisation of Social Story video modelling involves the portrayal of a specific scenario, skill, or concept through the inclusion of relevant social cues, viewpoints, and customary reactions(Litras et al., 2010). A Social Story is a tool that effectively conveys authentic social information in a gentle, soothing, and readily understandable way. Approximately 50% of Social Stories centre on the favourable attributes of the main character (Marshall et al., 2016).

In the current study, an attempt was made to train youngsters with ASD to board an airliner by using social stories that were incorporated into a video model. Implementation of social stories and video models can be an effective method for teaching social skills to children with autism (Miller, 2020; Rodger, 2011). When used with autistic children, the evidence-based intervention known as video modelling (VM) promotes the growth of target skills by having the student, a peer, or an adult model them (Bross, 2021). The video model was developed using the premises of the observational learning theory(*Psychology, Behavior & Cognitive Processes*, n.d.). Many studies indicate that the utilisation of video models as a teaching tool for the social skills investigated in the research yielded positive outcomes. The present study centred on utilising video models based on social narratives to instruct youngsters who have autism on the intricacies of travel by plane.

LITERATURE REVIEW

The literature evaluation focused on air travel issues of Individuals with ASD and their families and video modelling-based social storytelling. Travel improves the quality of life, yet disabled individuals confront several hurdles to tourism. Few studies have addressed these families' difficulties flying. Air travel was discussed with 97 autistic parents. Participants identified stressors and enablers. Flight delays, crowding, and sensory inputs were important problems. Enhancing air travel experiences could assist people with autism and their families to enjoy the greater quality of life observed by general population travellers and boost family participation. Customer experience can attract new flyers and boost return trips (Dempsey, 2021).

Sensory processing difficulties in autism can enhance or reduce arousal (Healy, 2021). These issues can affect how a person reacts to stressors. Sedgley, 2017 questioned six autistic mothers about their tourist experiences. The study found that unpredictability, sensory overstimulation, and passenger bias stress mothers and children with ASD during air travel. The study revealed that the presence of volatility, impulsiveness, and disrupted schedules resulted in considerable distress for families, necessitating meticulous planning of all aspects of travel.

According to SHI, 2022, airport unfamiliarity, passenger behaviour, auditory overstimulation, security procedures, and waiting were major stresses for participants. A survey of persons with autism and their families found that flying is the hardest part (Faulkner, 2020). These studies show that plane travel is difficult for persons with autism and their families, notwithstanding their limits. Air travel may be difficult for persons with autism and their families, despite the lack of actual research. Airport unfamiliarity, passenger behaviour, auditory

overstimulation, security checks, and waiting caused anxiety in three autistic adult air travellers (Cerdan, 2021). Faulkner, 2020suggested that flying travel is challenging for autistic families. Based on the facts, air travel may limit autism-related tourism for families. Understanding these issues will improve this cohort's flying experience. Few research has examined how autistic families fly. Thus, what influences these experiences is mostly unknown. This study examined autism families' air travel experiences to identify stresses and protective factors. This study used social story-based video modelling to help two autistic students fly.

VIDEO MODELLING-BASED SOCIAL STORIES

Frolli, 2020 investigated the teaching of social skills through video models in ASD. In comparison to the peer video model, these results in slower performance in participants with ASD, the use of the self-video model speeds up the development of abilities to complete communicative/social interaction. Olcay-Gul, 2019claims that using audiovisual representations and social narratives into the instruction of interpersonal abilities for those with cognitive impairments is highly effective. The results showed that each participant obtained their intended interpersonal abilities, retained them over the years, and employed them to interact with a variety of people and situations.

Miller et al., 2020claimed that realistic methods of instruction and audiovisual modelling approaches assisted youngsters with ASD in making adjustments to unfamiliar environments. This approach lowers anxiety and enhances the whole experience by assisting people in understanding what to anticipate and how to act in such circumstances. In accordance to the study, the aforementioned changes may make it easier for individuals with ASD to access dental and hair services, public spaces, and recreational facilities. These strategies are helpful beyond planning for travel by plane.

The current state of resources available for air travel interactions of individuals with autism and their families seems to exhibit a dearth of attention towards a distinct set of difficulties and facilitator(Ruddy, 2015; Miller, 2020). Potentially helpful interventions designed to enhance air travel for autistic children and youth and their families are the enablers highlighted by participants in the current research investigation. The reviewed literature highlights the necessity of an efficacious intervention to facilitate air travel for children and adolescents diagnosed with ASD and their families.

METHODOLOGY

The study's cohort consisted of young individuals diagnosed with ASD who were enrolled in a vocational training programme at a rehabilitation centre. The parents of ten students were interviewed. The study involved the selection of two students, whose parents had requested an intervention for their youngster in air travel, based on the information obtained from the interview.

The research comprised a cohort of two individuals diagnosed with Autism Spectrum Disorder (ASD). The chosen participants were mandated to exhibit competence in four essential aptitudes, specifically: (a) the capacity to replicate actions non-verbally, (b) the aptitude to emulate verbal abilities, (c) the ability to sustain concentration on an iPod for a period of sixty seconds, and (d) the a capacity to adhere to directives that entail an object and an action. The requisite competencies for executing directives and establishing and sustaining communication were ascertained by incorporating feedback from their educators.

RESEARCH TOOLS

Before the implementation of the intervention, a survey instrument was developed to assess the distinct requirements and obstacles encountered by persons with Autism Spectrum Disorder in the context of Air travel procedure. The objective of the investigation was to obtain viewpoints from parents concerning their air transport encounters with their offspring, as well as their inclinations for helpful measures. The research examined the proclivity of the family towards air transport as a potential encounter and scrutinised the fundamental factors that had hindered their prior air travel undertakings. The survey was disseminated to the

complete populace of households who were registered in the adult vocational education establishment within the designated timeframe.

Post-intervention, a questionnaire directed at parents was used to evaluate the study's effectiveness. Using this questionnaire, an effort was made to collect the perspectives of parents and investigate the emotions they experienced regarding the impact the event had on their children.

PROCEDURE

The methodology was divided into four distinct phases, namely: articulating the objective of the research and the task model, presenting the skill to be acquired, providing a demonstration by executing the correct response, engaging in role-playing, and conducting a trial. The study was designed using the methodologies of action research and case study analysis.

PREPARATION OF THE MODULE

Six briefs (less than five minutes each) of video sequences were filmed by the video production unit of the Centre for Differently Abled Persons, Bharathidasan University, with faculty and students playing the roles of parents, airport customers, and airport employees. The videos were constructed using the youngster's photographs and the DAZ3D software. The participants were able to relate to the particular situation as a result. The sequences were captured using a high-tech digital video camera and a professional sound system. The storyboard was meticulously crafted. The developed module takes the form of a brief video that illustrates the standard air travel procedure. The depicted scenes include a variety of significant phases of air travel, such as packing, commuting to the airport, completing the check-in process, undergoing security procedures, waiting in the designated lounge area, boarding the aircraft, attentively listening to safety instructions, using the restrooms, disembarking the plane, and retrieving luggage from the designated carousel. Although it was prohibited to record within the security zone, the footage documented the process of passing through an alternative security zone. The scenes depicted in the video provide an exhaustive representation of the typical experiences associated with air travel.

The module was evaluated by special education and air travel specialists. Twenty days were devoted to the simulation, and with special permission, students were taken to a nearby airport to gain firsthand experience with air travel.

CASE HISTORY OF THE PARTICIPANTS

Participant 1

Case A describes a man who is currently 21 years old and is actively pursuing occupational training at present. Both his primary and middle schooling were completed at a school that offered open education. It has been assessed that he has a moderate level of ASD. In his younger years, he displayed motor skills in both the gross and fine-motor domains that were on par with those of his contemporaries in the same age range. He was able to imitate actions both with and without the use of props, but in terms of vocabulary, he was well behind his peers. In addition, he was able to concentrate on a single activity for around fifteen minutes and follow a set of instructions that involved three or more separate activities. The subject's parents worked in IT, and they lived in a home with only close family members. The foetal movements were consistent with those expected, and there were no obvious signs of abnormality when the baby was delivered. Although he had been diagnosed with Autism Spectrum Disorder, his adaptability and his ability to socialise with other children was less like those of children who were typically developing. Despite a propensity towards emotional reactivity, the participant showed a predilection towards engaging in recreational activities, which is a positive sign. He lacked the social skills necessary for interacting with his classmates, expressing emotions, posing questions, and using appropriate idioms. According to Case A's parents and other relatives, he has a difficult time navigating social situations and sticking to routines, and he also has a tough time flying on aeroplanes. He also has difficulty going by other modes of transportation. In addition, they claimed that they were unable to take paid vacations even during the holidays since their son had difficulty adjusting to new social environments and flying in an aeroplane.

Participant 2

The next participant is as follows: Case B had an 18-year-old individual who was non-verbal and had been identified as having a moderate level of autism spectrum disorder (ASD). He participated in an individualised educational course that was designed specifically for him. Both his large and small movement skills were about the same as those of his peers. His mother worked in the field of architecture, while his father worked as an engineer. They were part of a blended family that also included his grandparents and had more than one parent. CASE B experienced a delay in the development of their language and speech, as well as weak motor abilities. He focused on his technological devices and viewed them intently for ten minutes. During childbirth, he encountered complications. His social abilities were approximately average, but when faced with unfamiliar situations, he tended to become emotionally unstable. Due to his lack of social skills, he had difficulty collaborating with his classmates, requesting information, expressing his emotions, and employing expressions that were appropriate for social situations. They have never dared to take him on a journey because the routines and practises making him more uncomfortable and restless, although air travel is more convenient for them.

FINDINGS OF THE STUDY

The execution of the intervention in natural settings served as the basis for the evaluation of its effectiveness. The introduction of animated video storytelling into the project made it possible for parents and children to have an experience that was conducive to preparation in advance of air travel. This was made possible by allowing them to watch the videos in advance of making their way to the airport. The students were provided with digital versions of the instructional videos, which could be viewed on an iPod device. These digital copies were handed to the learners. Before their airport visit, participants were able to view the videos multiple times, both independently and with their parents, due to the videos' accessible availability. The parents valued the availability of videos for their children.

According to parental reports, the use of scenarios boosted their self-assurance when it came to handling a family vacation. In line with the findings of previous research on video priming, the researchers allowed the youngsters to view the events from their perspective and as they would normally take place. The results of the feedback indicated that the children exhibited a positive response to the videos, as evidenced by their repeated voluntary viewing and successful implementation of newly acquired skills throughout the environmental Instruction component of the study.

Youngsters were exposed to atypical olfactory and auditory stimuli, as well as novel routines, and were able to exercise skills that prepared them for actual travel as a result of learning opportunities provided during a visit to the airport and on board the aeroplane. They were allowed to experience true, unscripted settings and conditions as opposed to participating in a fictitious story that revolved around flying. This was done to give the youngsters a more authentic learning environment. The presence of highly experienced professionals in the field of autism facilitated the direct reinforcement of target behaviours, such as queuing, waiting, and tolerating unusual schedules, sounds, and odours, in their natural environments. This method insured that the habits were properly acquired and that they could be applied to a variety of other settings where they were applicable. After careful consideration, it was discovered which reinforcements—such as praise, prizes, and play—were used most effectively in each programme for the participant.

To evaluate the efficacy of the video-based story modelling technique, both the participants and their parents embarked on an air travel excursion. The young individuals were provided with positive reinforcement to encourage the utilisation of the video prompts that were created. The feedback obtained from parents was used to draw an inference. "I thoroughly enjoy air travel. For a prolonged period, I refrained from travelling due to my son's inability to endure the customary procedures associated with air travel. I have consistently yearned for periods of respite, and it has been a longstanding aspiration of mine to embark on a vacation. The utilisation of a video-based social story has proven effective in mitigating the challenges associated with air travel. Thanks to this, my offspring was able to embrace air transport".

"It came as a surprise to me that my son, who has a history of being hostile towards new experiences and is reluctant to adapt to unfamiliar settings, was able to adjust to the consistent routines and constant shifts that come with air travel".

The findings of this study indicate that the integration of video priming and natural environment instruction can yield favourable outcomes. It is plausible that this approach could be employed in diverse contexts beyond air transportation, which constitutes the central point of emphasis in this discourse. There is a potential for enhancing the travel experiences for individuals diagnosed with autism through the exploration of techniques aimed at facilitating their utilisation of diverse modes of transportation, including buses, trains, and ferries. These pathways present possible avenues for future investigation. Furthermore, it is recommended that forthcoming studies explore strategies for enhancing the availability of public and leisure amenities, such as shopping centres and aquatic centres, as well as medical and healthcare establishments, including hospitals, optometry clinics, and dental clinics. The expectation is that augmenting the participation of parents and other primary carers in the intervention process will amplify the applicability of acquired skills to home and other non-clinical settings.

DISCUSSION

Tourism has been found to improve the livelihoods of tourists in the general population (Uysal, 2016). Air travel may be especially hard for people with Autism Spectrum Disorder because of these problems. In particular, waiting hours, crowds, and sensory inputs were stresses throughout the air travel process. Adhering to security checks, sitting in a small space with a safety belt for long periods of the trip, the lavatory, the plane's limited food options, and boarding and descending the aircraft were other major stressors. General stressors include the airport's expanse, hustle, and strangeness, the fear of being apart from family, another person's proximity and behaviour, and other variables. The present findings provide evidence for previous hypotheses positing that fundamental traits of Autism Spectrum Disorder (ASD), such as heightened anxiety and hypersensitivity to sensory input, may impede the ability of individuals with ASD to endure the capriciousness of air travel, prolonged waiting periods, and sensory stimuli. (Hamed, 2013) Interventions tailored to the stressors found may increase air travel-related tourism and provide access to new environments where knowledge acquisition and enrichment may occur (Chen, 2013; Uysal, 2016; Chen, 2022). Given that factors like waiting, crowds, and visual and auditory stimulation are not unique to air travel, interventions designed to build a tolerance to them and coping mechanisms may also increase engagement in other activities, which may improve quality of life (Boyd, 2014; Schaaf, 2011).

Stressors like waiting, crowds, and sensory stimuli are not unique to the context of air travel, interventions aiming to build a tolerance to these stressors and coping mechanisms may also increase participation in other activities, which may lead to improved quality of life outcomes (Boyd, 2014;Schaaf, 2011). The results corroborate earlier conjecture that fundamental characteristics of ASD and accompanying conditions, such as anxiety and/or sensory sensitivities, may impede the ability of individuals with autism to endure the unpredictability, waiting, and sensory stimuli inherent in air travel (Hamed, 2013; Lerner-Baron, 2007; Faulkner, 2020; SHI, 2022; Sedgley, 2017).

Certain enablers identified in the study exhibit similarities with the interventions carried out by Miller, 2020 and Ruddy, 2015 while others remain untested through systematic evaluation. The present study suggests that the enablers identified by respondents could potentially enhance the effectiveness of interventions designed to enhance the air travel experiences of autistic children and young individuals and their families. Certain air terminal adaptations and programmes make air travel more tolerable for individuals with cognitive and behavioural impairments. The implementation and scaling of these initiatives and alterations in airports

nationwide and globally should be considered. Whilst airports and organisations have made efforts to tackle certain obstacles, this research underscores the necessity of devising novel strategies to overcome the remaining barriers and enhance the travel experience among people diagnosed with an ASD(*How Airlines Are Making Travel Easier for Autistic Passengers*, 2021).

LIMITATION

This investigation contained several limitations. Convenient sample was selected. Only parental responses to a pre-and post-intervention survey served as the basis for evaluating the outcomes.

CONCLUSION

The domain of air travel encompasses a variety of factors that can potentially impact the engagement of families with autistic children/adolescents in tourism activities that involve air travel. Indeed, certain families opt out of air travel with their autistic family members due to apprehensions.

Furthermore, a majority of participants who possessed pertinent air travel familiarity indicated that they solely accompanied their children with autism on brief flights occurring once a year or less frequently. Individuals with autism may experience substantial distress during air travel. To alleviate this problem, airlines may offer specialised services designed to improve the individual's experience and comfort while reducing tension. It is recommended to acquire knowledge regarding the air transportation procedure beforehand, in addition to conducting preliminary visits and undertaking travel simulations within the airport premises. Further suggestions entail the utilisation of sensory-assistive equipment, such as spectacles or earphones, to mitigate the visual and auditory necessities of air transportation.

By strengthening such interactions with technological and emotive domains, a community of people with autism along with their relatives may be able to enjoy the identical standard of life as travellers. Moreover, it possesses the potential to enhance family engagement to a greater extent. Tourist destinations should be designed with all people in mind, including those with physical or mental impairments, thus further study is needed in this area.

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