

EFFECTIVENESS OF FUNCTIONAL BEHAVIOURAL ASSESSMENT (FBA) AND BEHAVIOURAL INTERVENTION PLAN (BIPS) ON CHALLENGING BEHAVIOUR OF VISUAL IMPAIRED STUDENT WITH AUTISM

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This study examined the effectiveness of Functional Behavioural Assessment (FBA) and Behavioural Intervention Plan (BIP) in decreasing tantrum/ challenging (screaming & sitting on the floor) behaviour and also improved positive behaviour in a student with visual impairment who had autism tendency. A brief overview of FBA and BIP is provided in this study. In addition, some characteristics of children with visual impairment with autism tendency are described. The assessment steps and the intervention are thoroughly discussed. Results showed decreased challenging behaviour across all settings. Implication for practice and research are debated.

Keywords: Functional behavioural assessment, behavioural intervention plan, challenging behaviour, visual impairment, autism

Children with disabilities show complicated behaviour (e.g., tantrum, aggression, self-injuries) due to their frustration with their limitations. Such behaviours are often very challenging as they affect the quality of life not only of the family but the children with disabilities as well. This could lead to social isolation, truancy, and defiance against school rules. To achieve better results, it is useful to understand and manage some of the underlying causes and issues influencing these behavioural problems. Functional Behavioral Assessment (FBA) is the most common form of assessment that identifies the problem behaviour, the antecedents, and the consequences to control problem behaviours. FBA and Behavioural Intervention Plan (BIP) have proved to be effective in the school setting. Therefore, the current Individuals with Disabilities Education Improvement Act (IDEA) 2004 guidelines recommend the use of FBAs and BIPS to address serious problem behaviours of students with disabilities (Yell, Shriner, & Katsiyannis, 2006). In addition, by designing an intervention based on the function of behaviour, a number of benefits are achieved. Moreover, other studies support the previous research and stated that FBA is a practical approach to intervention designing that guides teachers and psychologists to recognise the cause of the student's behaviour and relate it to an applicable BIP to decrease

the occurrence of challenging behaviour (Scott & Caron, 2005; Shogren, Faggella-Luby, Sung Jik Bae, & Wehmeyer, 2004). The functions of the individual's behaviour are often demonstrated either by an unsatisfied need such as seeking attention, task/people avoidance, and satisfying their sensory stimulation (Dunlap & Fox, 2011). FBA allows practitioners to systematically gather information about the antecedents and the consequences of the behaviour to determine the function of the challenging behaviour. Glen Dunlap and Horner (2006) stated that FBA is based on more than half a century of experimental research demonstrating the relationship between environment and behaviour.

When challenging behaviour becomes worse in individuals, BIPs are designed to decrease or prevent occurrence of the behaviour. Implementing an effective intervention plan necessitates some basic principles. First, agreeing on utilising FBA to modify an appropriate replacement or alternative skills is needed. Second, involving manipulation of the student's social and physical environment is essential. Furthermore, repeated interventions in a variety of natural environments and family involvement and participation are other factors used as a strategy in implementing the BIP for challenging behaviours (Dunlap & Horner, 2006).

Although a number of studies on FBA have concentrated on behaviour support for students who required intensive intervention, a function-based approach can be implemented to prevent and address challenging behaviours before they reach this level of severity. Determining function by using the three-tiered Response to Intervention (RTI) model has shown considerable promise in preventing patterns of challenging behaviour among the general population (Scott & Caron, 2005).

Functional Behaviour Assessment in the RTI Framework

Schools are complicated environments where the collective knowledge, skills and practices of a culture are shaped, taught, transmitted and encouraged. In recent years, achieving these goals has become mandatory in schools. Firstly, schools are required to increase their instructional accountability and justification. Secondly, they must improve their alignment between intervention development and assessment information. In response, a general problem-solving framework, RTI, has progressed to address these needs. Although not new or limited to special education, RTI initially appeared as policy in the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004). Jenkins, Hudson, and Johnson (2007) added that RTI is a framework designed for pupils who are unsuccessful in the general education curriculum.

Neitzel (2010) stated that among the three tiers, the primary goal of tier one is to prevent challenging behaviours from occurring. Tier two or "secondary prevention" is designed to provide more targeted support for students who continue exhibiting challenging behaviours despite implementation of the tier one preventive strategies. Finally, tier three is concentrated on providing

individualised instructions to students with special needs. These students often continue to demonstrate disruptive/challenging behaviours despite the preventive strategies and interventions applied in tiers one and two (Neitzel, 2010). Scott and Caron (2005) argued that behaviours that occur repetitively or are potentially dangerous to students and others are considered tier three. Tier two behaviours are not dangerous but they continue to occur despite prevention strategies implemented in tier one (Neitzel, 2010).

The effectiveness of using the FBA procedure goes beyond the value of vigorously participating in the school's effort to implement an RTI structure, which is a research based practice that improves student outcomes (Kern, Gallagher, Starosta, Hickman, & George, 2006). However, most RTI implementation efforts have focused on academic curriculum and instructional practices such as numeracy and literacy. Applications of the RTI framework also are represented in the implementation of School-wide Positive Behavior Support (SWPBS) practices and systems (Sugai et al., 2000). A comparison of RTI applications in early literacy and social behaviour reveals similarities within core RTI characteristics (Sugai et al., 2000).

Horner, Carr, Strain, Todd, and Reed (2002), explained that FBA is at the core of the positive behavioural support (PBS) approach. It detects the variables that consistently predict and maintain challenging behaviours in order to improve and implement interventions to prevent or decrease future occurrences. In the PBS framework, FBA is commonly introduced in tier 3.

Although FBA is highly suggested as an operative and useful assessment process, the majority of studies on FBA have concentrated on individuals with developmental disabilities. (Hoff, Ervin, & Friman, 2005; Murdock, O'Neill, & Cunningham, 2005). With the shift to response to intervention models and the introduction of schoolwide positive behaviour support systems in many schools, researchers have recommended that FBA methods be used for all students through tiers of intervention and prevention planning (Scott & Caron, 2005). However, a study by Sayeski and Brown (2011) suggested that FBA is highly recommended as a tier 3 behavioural management approach which is aimed at decreasing the child's behaviour with the collaborative assistance from different stakeholders.

Challenging Behaviour

Once challenging or interfering behaviours become stabilised in the individual's behavioural repertoire, they are not likely to reduce. However, they are likely to worsen without any implemented intervention (Horner et al., 2002). These challenging behaviours might range from vocalisation to withdrawal or self-stimulating behaviours. They can also include lack of focus or an increase in stereotypes. Moreover, they might also lead to defensive behaviours such as noncompliance, screaming, avoidance and tantrums or even physical aggression such as kicking, biting, hitting or self-harming behaviours (Fucilla, 2005). Based

on research and examination of children with ASD, the most common behaviours targeted for intervention are: tantrums (76%), aggression (59%), stereotype (14%) and self-harm behaviours (11%). Significantly, some of these behaviours occur simultaneously for a number individuals (Horner et al., 2002).

FBA and Autism Spectrum Disorder (ASD)

Significantly, children with ASD are highly at risk for developing challenging behaviour that interferes with their development and learning (Matson & Nebel-Schwalm, 2007). To implement specific behavioural techniques and procedures, the tiered method gradually increases the intensity and nature of support for individuals with ASD as their disruptive behaviours become more challenging. In this approach, FBA recognises probable causes of disruptive behaviours as well as the methods implemented within the context of a comprehensive BIP. Neitzel (2010) explained that communication difficulties and social deficits are predominant in this group of individuals. Hence, developing these skills is the main emphasis across all three tiers of the intervention hierarchy. In addition, determining that these individuals are engaging in challenging behaviours is difficult due to their inability to demonstrate their needs and wants. Therefore, by implementing FBA, practitioners and teachers have to discover the environmental elements that might result in these challenging behaviours. Neitzel (2010) added that FBA is generally initiated in tier 3 of the PBS model. However, it is also initiated in tier 2 for individuals with ASD so practitioners and teachers realise the environmental, social, communication, and sensory variables that can cause the challenging behaviours.

Effectiveness of FBA and BIP

For two reasons most of the responsibility for challenging behaviour/tantrum of children with autism has been placed on schools. Firstly, classrooms are often the primary and singular source for intervention for challenging behaviour. Secondly, the Individuals with Disabilities Education Act (IDEA) of 2004 necessitates schools to utilise FBA to recognise the variables that maintain challenging or tantrum behaviours and to develop a behavioural intervention plan (BIP) for students who are at risk in their educational placement due to their problematic behaviour (IDEA, 2004, as cited in Machalicek, O'Reilly, Beretvas, Sigafoos, & Lancioni, 2007). Machalicek et al. (2007) revealed that 85% of the researchers showed a decrease in challenging behaviours and credited this to the intervention. However, some of the studies did not support their findings with unequivocal data. They showed a decrease in challenging behaviours during the intervention, but when the treatment was removed during the reversal phase, the level of challenging behaviours remained persistent (Agosta, Graetz, Mastropieri, & Scruggs, 2004; Kuoch & Mirenda, 2003).

The effectiveness of an intervention in the classroom might be best defined to include reducing or eliminating the challenging behaviours that ends in a “socially acceptable” level of challenging behaviours (Machalicek et al., 2007).

Visual Impairment and Autism

One-third of completely blind children are described to have a developmental disorder which has many characteristics in common with ASD (Andrews & Wyver, 2005; Cass, 1998). Visual impairment might influence early emotional and social development as well as communication with others and self-awareness (Dale & Salt, 2008). Dale and Salt (2008) added that some children demonstrated developmental trajectories and other developmental setbacks in the early years, including ASD and autistic related behaviours. Autistic tendencies were observed in young and older children with congenital visual impairment such as social isolation, frequent use of echolalic and formulaic speech, non-functional play, stereotyped behaviours, lack of symbolic play and lack of conversation initiation. Sandler and Hobson (2001) observed that blind babies in nurseries seemed satisfied and calm initially but this satisfaction soon became a disquieting apathy and absence of making demands and unresponsiveness. It was concluded that, without early preventative intervention, severe visual impairment could significantly delay the developing child’s ego development and self-representation, with long term consequences. The autistic-like behaviours observed in these children alerted clinicians and practitioners to the personality and social developmental risks for children with visual impairment.

METHODOLOGY

Research Design

In order to collect data for the research, single subject design was chosen as the research methodology. Due to time constraints, the researcher could only implement a two-phase AB design (i.e., baseline and intervention phase). The research aimed at demonstrating the effectiveness of the BIP in reducing the target behaviour (tantrum). By using the FBA in the baseline phase, the study identified the antecedents and the consequences to hypothesise the cause of the challenging behaviour. In addition, BIP was implemented in the second phase using the information gathered from FBA and the agreement among related teachers.

Participant and Setting

The participant in this case study is a 13-year-old girl born from a set of triplets at 27 weeks gestation. At birth she suffered a punctured lung, therefore has been

affected by multiple difficulties including cerebral atrophy (damaged areas may impair motor coordination), visual impairment and autism tendencies. She also has speech and language difficulties, including auditory processing difficulties, phonological disorder and expressive and receptive language delays.

She currently attends a special education school in Kuala Lumpur in the “Transition classroom”. She lives with her family and has a shadow-aid teacher (having a Bachelor Degree in Elementary Education with major in Special Education) and one helper for helping her with “every day” tasks. Her home tutor accompanies her to school from Monday to Wednesday, but she remains outside the classroom. The tutor is asked to assist at times when the class have “community” activities. On Thursdays, the participant is accompanied to school by her family home helper and she attends a gym activity in a centre near the school. Her classroom teachers and peers walk to this gym class.

Her classroom consists of five special needs teenagers. There is a head teacher who has a Bachelor Degree in Special Needs Education and more than five years’ experience in teaching special needs children. Her classroom also has a full time teaching assistant who is currently undertaking her degree program in Special Needs Education.

The study was conducted in the participant’s classroom where the participant was directly observed during the days she attended school.

Target Behavior and the Definition

The participant’s challenging behavior/tantrum included screaming (loud voice which is significantly above the conversational level) and sitting on the floor. These behaviours have been observed in various settings such as when walking in a shopping mall during a community activity, transition times to speech sessions, walking to the playground and especially when walking along the street to Gym class. Sitting on the floor was a problematic behaviour for this individual because it occurred excessively (a couple of times per day) and at inappropriate times (e.g., while crossing the street). The behaviour interfered with the participant’s daily routine and completion of her work tasks. Her screaming behaviour also disrupted the other students and was found to trigger their tantrums/challenging behaviours as well. In addition, screaming has a negative social context in the community.

Procedure

After obtaining approval from the Research Ethics Review Board from the University, the official information sheets and consent forms specified for the participant’s parents, the school principal, classroom teacher, and her home teacher were distributed for them to read and sign their agreement to start the action research as follows:

After receiving their consent, a revised Functional Assessment Interview Tool for Parents/Guardian (FAIT-R) and a revised Functional Assessment Checklist for Teachers and Staff (FACTS-R) were administered to the parents, classroom teacher and home teacher. Furthermore, the researcher conducted multiple observations to collect baseline-intervention phase data by using the ABC charts and Competing Behaviour Pathway. During each occurrence of the behaviour, the researcher measured and recorded the duration and the intensity of the behaviour (tantrum). Baseline data were collected over the period of seven days, whereby the student was observed in her classroom and also during activities with her peers outside the school. Each observation lasts 30 minutes. No changes were made to the student's timetable or instructional method during the base line phase. Based on the identified function, a BIP was designed to promote the replacement behaviours. The complete explanation of this section is brought in to the Intervention Result (BIP phase).

RESULTS

Gym Activity

According to the ABC chart, when the participant was walking to the gym (approximately 10 minutes walking distance from school) her most dangerous tantrum behaviour (sitting on the street floor and screaming) occurred. The person assisting her during this time was her home helper (not the home teacher) and as she was the only blind student in the classroom she needed additional assistance whilst walking. Compared to her peers she also walked very slowly. Therefore, her peers walked as a group separately from the participant with the assistance of one of their two classroom teachers. During the baseline phase the observer (the teaching assistant) accompanied the participant and her helper. On one occasion the participant was aware of the teaching assistant's presence and on the other occasion the participant was unaware as she was observed from a distance. During both of these instances the student displayed tantrum behaviour whilst transitioning from the gym to school. No tantrum behaviour was observed during the activities in the gym. Before her tantrum, the participant consistently used one of the following statements;

*“Don't want to go to the class”, “Don't want to walk with nanny”
or “I am tired. I want to eat.”*

She also sat down on the pavement or in the middle of the street and screamed. According to the ABC charts the consequences of the tantrum behaviour which occurred during these periods were: sitting on the floor and inconsistently screaming until the classroom teachers approached her, talked to her firmly to make her stand up and walk or forced her and tried to lift her up to walk.

Playground Time

The participant's playground time is from 2 pm to 2:30 pm. When the teacher announces "It's time to go to the playground" the students leave the classroom and go to the playground independently. During the observation, the participant ignored the instruction to go with her peers and when prompted to do the task she sat on the floor and screamed to avoid going to the playground. The teachers used the "extinction" strategy and left her to sit on the floor but the tantrum behaviour continued (approximately 20 minutes) until she became tired or when it was almost time for dismissal.

Transition to *Speech Class*

From 2:30-3:00 pm the participant has a one-to-one speech therapy session. Her therapist comes to the playground or into the classroom to assist her in the transition to the speech therapy room. The therapist and the teachers ask the participant to stand up and walk to the speech therapy room and she is handed her walking cane. On the occasion she was observed, the participant was verbally prompted to stand and walk to the speech therapy room. She took a couple of steps and then suddenly sat on the floor and screamed to avoid going there. The consequence of this behavior as registered in the ABC charts was carrying the participant to the speech room by her classroom teachers.

Community Day Shopping Mall

Throughout the observation sessions, the participant demonstrated tantrum behaviour once in the shopping mall during a community day which was scheduled for her class on Tuesdays. According to the observer (teaching assistant), who worked with her for more than six months, the participant had been observed to display tantrum behaviour (sitting on the floor and screaming) in the mall on numerous occasions. During the observation day she was walking with her home teacher (not her peers and class teachers) to purchase specific items on a shopping list. At the end of the shopping trip when coming out of the supermarket, the participant began to complain about her tiredness. She started screaming but did not sit as she was pushing the trolley whilst walking to the school van. The teachers warned her not to scream and gave her "timeout".

Additional Community Activity

On Monday mornings the participant's class will play basketball in a venue outside the school. The participant is interested in attending this activity and during the activity she is asked to stand in certain positions in order to throw, bounce and catch the ball with one of the teachers. No tantrum behaviour such as sitting on the floor or screaming was observed during this activity. This

activity has been included in the study to demonstrate there were times during transitioning or with high mobility tasks when the participant displayed no tantrum behaviour.

Function of the Behaviour

From the analysis of the collected ABC charts, it was determined that the function of the participant's behaviour was to avoid her helper (hypothetically during the school time) and simultaneously seek her teacher's attention while walking to her gym class on Mondays. Meanwhile, avoiding going to her speech class was hypothesised as the participant having difficulty in change and transitioning. In addition, the tantrum occurrence in the shopping mall which happened once during the baseline (but was also observed previously) was also correlated to both previous functions.

Intervention Result (BIP phase)

One of the methods to change the environment is to focus on events that instantly precede problematic behavioural or academic performance. The intervention used in this nature is known as antecedent strategies (Kern & Clemens, 2007; Mueller, Wilczynski, Moore, Fusilier, & Trahan, 2001). To improve antecedent interventions, information about environmental events that seem to trigger challenging behaviours will be gathered, including those associated with desirable behaviour. Modifications will be implemented such that events triggering the challenging behaviour will be anticipated and eliminated or changed prior to the occurrence (Kern & Clemens, 2007).

According to previous procedures which first were focused on addressing the environmental conditions and second found the specific stimulus, the intervention of manipulating the antecedent stimulus was used to decrease the tantrum behaviour. This intervention was implemented to ameliorate setting events within the community and the environment of the provocations that triggered her tantrum behaviour. The behavioural intervention plan was designed so that the teaching assistant, instead of the home helper, aided the student as she walked to the gym activity. Furthermore, as for strategies to change antecedent events, the teacher assistant used the methods of contingent attention and verbal interaction (based on the Assessment Interview Tools gathered from the parents and the classroom teacher) to explain about the environment and other changes during the student's walk. The goal was to reduce the unpredictability of the situation. Some statements the teaching assistant used were: "We are going to cross the street now" or "On our left hand side there is a restaurant...." and singing a song to her, and so forth. The BIP was implemented for the participant's community days in the shopping mall. The intervention strategy was to engage her socialisation with her peer group (not walking alone with her helpers) and verbally interacting with them.

Adapting the environment to support positive student behaviour can be implemented in high quality learning environments to provide individuals with autism with the structure and predictability they need to learn new skills and develop positive relationships with others (Horner et al., 2002). These types of modifications guide students with autism to understand what is expected of them during daily routines and activities (Neitzel, 2010). Hence, for the participant's transition to speech class, the study modified the antecedents by preparing the student at least five minutes before the transition. This was done by using techniques such as telling her the time and explaining what she will do for her next task (reduce unpredictability). In addition, to make the participant feel more secure, the teaching assistant accompanied her to the speech therapy room instead of the speech therapist "picking her up". The teaching assistant works with the participant every day as opposed to the speech therapist who only works with her twice a week for 30 minutes; therefore, the participant is more familiar and comfortable with the teaching assistant. The same design was used for the "playground time". However, for this activity the strategy differed in that she would be given a choice not to participate in the task if she felt tired. This was due to the playground time scheduled at the end of the school day when she was more likely to use the tiredness as an escape function (Romaniuk, Miltenberger, Conyers, Jenner, Jurgens, & Ringenberg, 2002; Shogren et al., 2004).

Duration

Figure 1 illustrates the percentage duration of tantrum behaviour for the participant within the baseline and intervention phases. The participant's behaviour had been observed during four types of different activities over six days and a total of 14 sessions. Gym activity sessions start by the time of transporting the observant for gym activity till the end of activity session. Consequently, Playground and Speech class activities are duration of transition to the activities till the end of activities. The shopping activity indicates the behaviour of observant during each shopping session. To have more comparable and promising results, duration of each activity has been limited to 30 minutes for each session. Approximately 50% of the sessions were conducted before the intervention. Each bar shows the duration of tantrum behaviour in each observed session in comparison to the total session's duration. The participant was observed whilst participating in four different activities which are shown by different colours on the chart. Intervention sessions (8-14) show noticeable improvements over all four activities, while the amount of improvement is higher for some of the activities. The trend lines in Figure 1 reflect the amount of change in behaviour from the baseline to the implementation of intervention for the four different activities. A higher slope of the trend line shows a greater effectiveness of the intervention over the related activity. Following Figure 1, among the four observed activities, intervention for the gym activity was proven to be less effective in comparison to the other three activities.

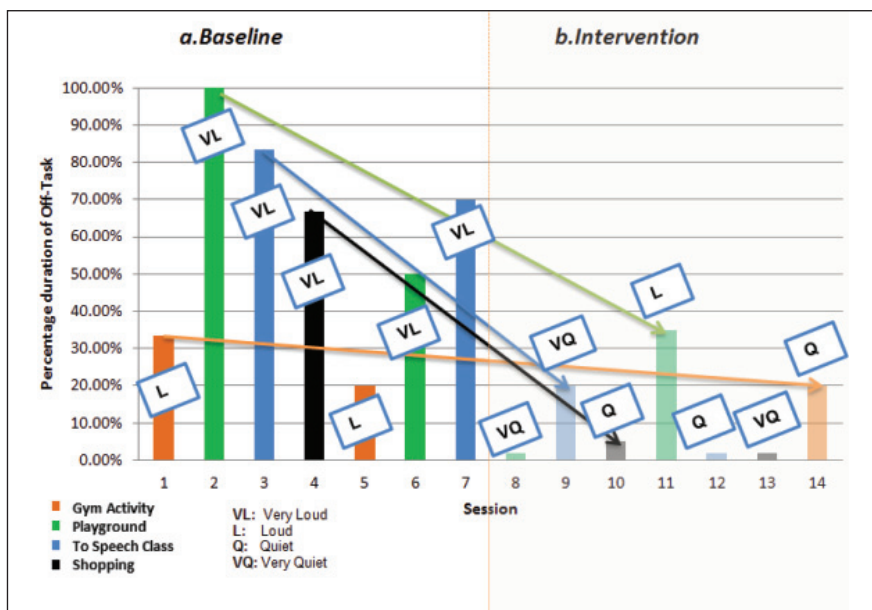


Figure 1. Percentage duration of challenging behaviour across different phases.

Intensity

The intensity and severity of the participant's tantrum behaviour was also observed during each individual session. Intensity has been measured by predetermined qualitative estimation. The applied qualitative scale classifies the intensity of behaviour as: very loud, loud, quiet and very quiet (Zirpoli, 2012). As highlighted in Figure 1, the intensity of the participant's tantrum behaviour during the baseline was in the range of loud to very loud, while in the intervention phase the intensity for almost all of the activities was reduced to exhibit the range of quiet to very quiet. According to Figure 1, among the four observed activities, the intensity of the participant's tantrum behaviour during the playground activity in one session was less reduced in comparison to the other activities. However, considering the limited number of experimented sessions this does not put the effectiveness of the intervention under question.

DISCUSSION

The main purpose of this study was to conduct an FBA to determine the function that maintained the challenging behaviours (tantrum) of a student with autism and visual impairment and also to implement the subsequent use of an appropriate intervention. The second purpose of the study was to observe the

effectiveness of the intervention and the behaviour reduction after implementing the BIP.

Noticeably, the study found similar challenging/tantrum behaviours from the participant in various settings and environments with quite variable functions. The result of the FBA in this study indicated that during the gym and community activity settings the behaviour was maintained by reluctance and, therefore, escape from the person whom the individual was not very attached to. Simultaneously to the participant's escape function, trying to seek attention from the classroom teachers was another function to declare her needs. She also tended to be more engaged with her class teachers and peers during school time as opposed to other individuals with whom she was not as comfortable. According to Love, Carr, and LeBlanc (2009), 88% of their 32 clients with autism had challenging behaviours which were maintained by social attention. Moreover, the study of Craft, Alber, and Heward (1998) supported this result and found that even in the classroom setting one of the most common powerful variables in influencing student behaviour is social attention. Hence, teacher attention is a powerful management tool for classroom teachers. The result of this research was also consistent with these previous notions. One of the successful modified antecedent strategies for this student was altering the helpers from less emotionally attached individuals to the classroom teachers during transitioning time, particularly for the gym activity and at the same time providing the participant with reinforcement in the form of contingent attention.

Meanwhile, the function of the participant's behaviour which was demonstrated prior to going to speech therapy and playground time was avoiding the task due to difficulty in transitioning or hypothetically feeling "tired" at the end of the school time. The study used the term "hypothetically" because if comparing this to the basketball activity which also demands a level of transitioning and requires more mobility, the research cannot insist on the functions of this behaviour with certainty anymore. However, during the BIP condition the observer chose antecedent interventions by modifying the environment for each setting. Moreover, the study found remarkable results in selecting other strategies such as increasing predictability of different situations for the student, choice giving, verbal interaction and verbal praise as reinforcement when she was able to manage her behaviour by not demonstrating tantrum behaviour.

Because of the participant's visual impairment and also her autistic tendencies, increasing the predictability of situations was shown to be very successful in decreasing her tantrum behaviour before going to speech therapy or even during her walk to the gym activity which was when her behaviour put her at risk. The results of the study suggest that when the student could predict the events throughout her school day or in the environment, she was more eager to be engaged and her tantrum behaviour was significantly decreased. Remarkably, because the transitions are often challenging for such individuals, offering them cues and signals about forthcoming changes is likewise effective.

Other tactics to offer predictability in situations for students include providing information about the duration, consequence and content of the upcoming events (Kern & Clemens, 2007).

Another significant result of this study for this specific student was using the verbal interaction and verbal praise strategies. Research has shown that delivering praise to students when they are engaging in desirable behaviour promotes the probability that they will continue to participate in appropriate behaviour in future (Chalk & Bizo, 2004). In addition, providing choices and preferred opportunities for the participant was shown to be an effective intervention in preventing her tantrum behaviour and increasing her engagement in the tasks (Kern, Bambara, & Fogt, 2002; Kern & Clemens, 2007).

Literature indicates that during the last 20 years, outcomes of hundreds of surveys have validated that assessment-based antecedent manipulations can yield rapid and persistent reduction of challenging behaviour and improvements in pro-social behaviour (Dunlap & Fox, 2011; Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991). The result of this study supported the notion of the previous studies and demonstrated a decrease of challenging behaviour (tantrum) of the participant.

LIMITATIONS AND FUTURE DIRECTIONS

This study has several limitations and results must be interpreted with caution. This research used an AB design due to time constraints. AB research design is generally considered as a weak design. Hence, future research needs to be conducted using multiple baselines or other designs that show a strong functional relation such as ABA or ABAB design.

Unfortunately, during the study the stakeholders were not collaborative as much as expected. This matter can be hypothesised due to the lack of time that each party was supposed to spend in discussing the steps in order to choose the most effective intervention for the participant.

Moreover, the disbelief of the teachers in implementing FBA was also considered as another limitation in this study which can be reflected as their lack of information on the methodology of FBA. Thus, for maximum success the study suggests that all teachers involved with the student should support the need for the intervention, comprehend the basic mechanism used in the behaviour plan and commit to using the intervention (Banda, Hart, & Kercood, 2012).

Even though FBA remains an important activity in tier 3 and identifies a clear antecedent or function of the behaviour, it might not continuously be apparent. Therefore, at this point other team members are suggested to be included in the assessment process such as a school psychologist, specialists and administrator to provide a more comprehensive understanding of the behaviour and the reason for its occurrence. In tier 3, team members reassess identified variables that may be triggering the behaviour, collect additional

assessment information, assess the individual's behaviour before implementing interventions and develop a more detailed hypothesis regarding the function of the student's behaviour (Scott & Caron, 2005). This study also could be more successful if more teachers and specialists were involved, developed more thoughts and were more consistent in implementing the intervention.

In addition, by allocating more time for the study, the collection of long term data would have been more reliable in determining whether intervention was effective and durable over time. After the research was completed, it was difficult to determine with certainty if the BIP was still responsible for reducing the challenging behaviours. From the critical point of view, most of the previous mentioned studies were successful in producing short-term positive effects on challenging behaviour. However, there is little to no literature examining whether behaviour change from the BIP produced new behaviour patterns over the long term.

The present study also suggests more recognition in identifying antecedents and consequences that maintain such challenging behaviours (tantrum) in order to deliver more valuable data that can be used in schoolwide positive behaviour programs. Furthermore, it is essential that teachers evaluate their own FBA skills as well. Many tools used are in the FBA procedure such as Functional Assessment Interviews, the Student Behaviour Interview or Motivation Assessment Scale which are interview-based and can be conducted without previous training. However, the observation-based FBA tools such as ABC recordings require minimal training which is often obtainable from a behaviour specialist or school psychologist.

According to the study of Turnbull et al. (2002), by expanding knowledge including journals and websites there is an opportunity to develop a schoolwide Positive Behavioural Support (PBS) model. One of the recommended websites in this study is www.pbis.org. This website has very helpful information on all three components of schoolwide PBS.

CONCLUSION

This study was consistent with the research of Banda et al. (2012) which used the old adage of "prevention is better than cure". Despite the limitations of the study and using FBA data across different settings, the results demonstrated that the participant's challenging behaviour (tantrum) decreased considerably to levels of few or no challenging behaviours. By using antecedent intervention strategies the result held several distinct advantages over reactive approaches. The results were consistent with the research of Kern and Clemens (2007) with three advantages. First, by modifying or removing the environment or events that precede the behaviour, the strategies can reduce or eliminate their occurrence. This modification strategy was also significant for the participant of this study; it not only created a safe environment for her, but it also generated

an atmosphere for learning. Secondly, antecedent strategies remove or alter the events that occasion challenging behaviours and frequently lead to an immediate reduction of challenging behaviour (Kern et al., 2002). The third advantage of antecedent interventions for this study was the ability to adapt an environment that was contributing to challenging behaviour (Kern et al., 2006).

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