



Effect of Individual Visual Schedule on Problem Behaviours of Children with Autism Spectrum Disorder during Transitions

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Autism Spectrum Disorder (ASD), includes a wide range of symptoms, the effects and severity of which are different in each person. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; 5th ed.), states that individuals with ASD primarily experience deficits in communication, social interaction, and repetitive behaviours. The American Psychiatric Association defines ASD, as a complex developmental disorder that can cause problems with thinking, feeling, language and the ability to relate to others.

A skill in which many students with ASD need support is transitioning between activities (Cohen and Volkmar, 1997), due to the unpredictability of the environment coupled with deficits in receptive communication of auditory input. Transitions can be confusing and unpredictable for students with ASD;

therefore, there may be an increase in behaviours during transition times (Dettmer, Simpson, Brenda, & Ganz, 2000). Behaviours during a transition can take a staff member to manage; visual schedules have been deemed as an antecedent strategy that can be used to prevent behaviours from happening (Piece, Spriggs, Gast & Luscre, 2013). Visual schedules have been used to reduce problem behaviours (Lequia, et al.2012).

Visual Schedule:

Visual schedules are types of visual support systems and one of the evidence-based practices (EBPs), in which a series of images, pictures, photographs, or line drawings are used to depict a sequence of events (Hume et al. 2021).

The purpose of Visual Schedule is to visually prepare the individual with ASD for the next step within an activity or next

activity or chain of activities. Children and adults with ASD process visual information better than auditory information. Students with ASD often have problems with transitions leading to aberrant behaviours such as verbal and physical aggression, and noncompliance (Schreibman et al.2000). Visual cues can increase activity engagement (Bryan and Gast, 2000; MacDuff et al.1993; Massey and Wheeler, 2000; Morrison et al. 2002), and decrease aberrant behaviours (Dettmer et al. 2000; Schmit et al. 2000).

Statement of the Problem

“Effect of Individual Visual Schedule on Problem Behaviours of Children with Autism Spectrum Disorder during Transitions”

Objectives of the Study

- To study the change in number of problem behaviours among Children with Autism Spectrum Disorder before and after intervention of Visual Schedule during transition.
- To compare the change in number of behaviours among Children with Autism Spectrum Disorder studying in primary and secondary class before and after

intervention of Visual Schedule during transition.

Hypotheses

- There is no significant difference in number of problem behaviours of Children with Autism Spectrum Disorder before and after intervention using individualised Visual Schedule during transition.
- There is no significant difference in number of problem behaviours of Children with Autism Spectrum Disorder studying in primary and secondary classes before and after intervention using individualised Visual Schedule during transition.

Methodology

This is an experimental study, single group Pre-Post-Test. It was conducted on total of ten students with ASD attending fulltime special school in Chennai district, Tamil Nadu, five each from primary and secondary classes, age group of 7-10 years and 11-14 years respectively. The researcher noted the problem behaviours of the students during transition between activities throughout the school day. Transitions included transitioning from curricular to the co-curricular activities and vice-versa.

At first the researcher observed the problem behaviours of each student during transitions. The researcher gathered data for a week and noted the problem behaviours during transitions by each of the students selected for the study. The researcher analysed the data and prepared individualized Visual Schedule for all the students selected for the study.

Each individualized Visual Schedule contained pictures or line drawings of all the activities the student would need to do throughout the school day. The researcher displayed the individualized Visual Schedule for each of the students along with name and photo of the respective student. For e.g. if the student 1, has to go for yoga, the individualized Visual Schedule would have a line drawing of a yoga pose.

Every day the researcher set up the student's Visual Schedule after confirming the schedule with the Class teacher. Respective individualized Visual Schedule was displayed to each of the student for 25 days.

The activities were placed on the strip of Velcro pasted on a board in the form of pictures or line drawings in a sequential order. The picture at the top of the student's Visual Schedule would indicate the next activity that in the student's school day. There was a routine established for students to use their individualized Visual Schedule. Once the activity in the schedule is completed it should be dropped in the finish box which is placed next to the schedule.

While using Visual Schedule the researcher regularly observed and noted the problem behaviours of the students during transition between activities.

After 25 days the researcher observed each of the student's behaviour during transitions. The researcher gathered data and noted the problem behaviours (after intervention). Both the data before and after intervention were compared. It was noted that the number of problem behaviours were reduced. The details were discussed in data analysis section.

Data Analysis

In this study, total of 10 students (5 each from primary and secondary) were observed and data was collected regarding behaviours

during transitions. Each of the students had various reasons for their problem behaviour during transition.

Table-1: Number of Problem Behaviours before Intervention

Participant	Class	Problem Behaviour	Number of Problem Behaviours
Student 1	Primary	Inattention Pushing the activity materials Laughing Pushing others	4
Student 2	Primary	Inattention Running away Screaming Making sound Spinning objects	5
Student 3	Primary	Flapping hands Giggling Lying on table Hitting head on the chair Throwing away objects	5
Student 4	Primary	Crying Running away Screaming Jumping Flapping hands	5
Student 5	Primary	Running away Eating crayons Pushing materials Snatching items from others Tearing others notebook	5
Student 6	Secondary	Running away Hitting others Screaming Pushing others Throwing away activity materials Property destruction	6
Student 7	Secondary	Spitting on self Biting self (fingers) Crying Hitting head with hand Screaming Licking fingers	6
Student 8	Secondary	Screaming Biting self (Hand) Crying Running away	4
Student 9	Secondary	Poking eyes Crying Pinching self Pushing materials on the table	4
Student 10	Secondary	Screaming Pushing others Dropping on the floor Crying	4

Table-1 displays each student's problem behaviours before intervention. The data was collected over the period of one week and noted the problem behaviours of each student during transitions throughout the school day.

Table-2: Number of Problem Behaviours after Intervention

Participant	Class	Problem Behaviour	Number of Problem Behaviours
Student 1	Primary	Inattention Pushing the activity materials Laughing	3
Student 2	Primary	Inattention Making sound Spinning objects	3
Student 3	Primary	Flapping hands Giggling	2
Student 4	Primary	Crying Running away Screaming Jumping Flapping hands	5
Student 5	Primary	Running away Eating crayons Pushing materials Snatching items from others	4
Student 6	Secondary	Running away Hitting others Screaming Pushing others Throwing away activity materials	5
Student 7	Secondary	Spitting on self Biting self (fingers) Crying Hitting head with hand Screaming	5
Student 8	Secondary	Screaming Biting self (Hand) Crying Running away	4
Student 9	Secondary	Poking eyes Pinching self	2
Student 10	Secondary	Screaming Crying	2

Table-2 displays each student's problem behaviours after intervention. The data was collected after the intervention and noted the problem behaviours of each student during transitions throughout the school day.

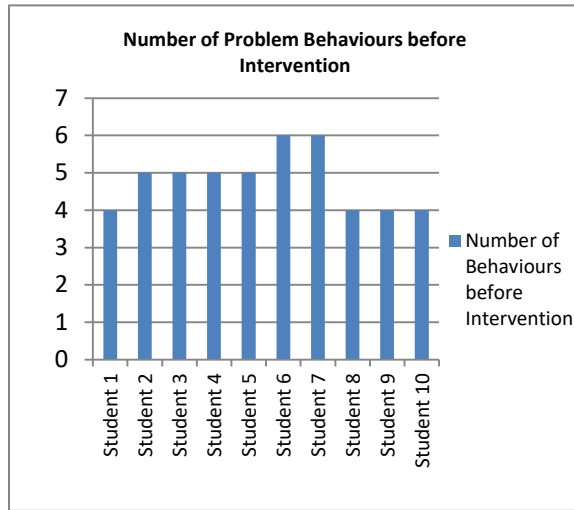
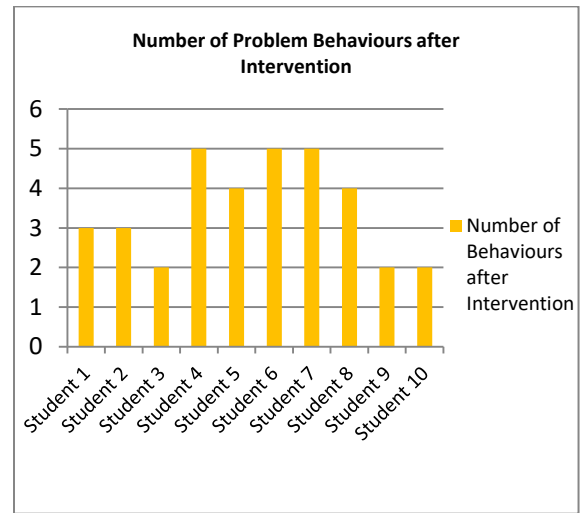
Fig.-1: Number of Problem Behaviours before Intervention**Fig.-2: Number of Problem Behaviours after Intervention**

Fig.-1 shows the number of problem behaviours of students with ASD during transition before the intervention. It shows that, students 1, 8, 9, and 10 had four problem behaviours; students 2, 3, 4, and 5 had five problem behaviours; and students 6 and 7 had six problem behaviours.

Fig.-2 shows the number of problem behaviours of students with ASD during transition after the intervention. It shows that problem behaviours of students after the intervention; students 1 and 2 had three problem behaviours; students 3, 9, and 10 had two problem behaviours; students 5 and 8 had four problem behaviours; students 4, 6, and 7 had five problem behaviours.

Table-3: Comparison of Behaviours before &after Using Visual Schedule

Comparison of Behaviours before and after Using Visual Schedule		
Participant	Number of Behaviours before Intervention	Number of Behaviours after Intervention
Student 1	4	3
Student 2	5	3
Student 3	5	2
Student 4	5	5
Student 5	5	4
Student 6	6	5
Student 7	6	5
Student 8	4	4
Student 9	4	2
Student 10	4	2

Table-4 Percentage of Behaviours before and after Using Visual Schedule

Percentage of Behaviours before and after Using Visual Schedule				
Participant	Number of Behaviours before Intervention	Number of Behaviours after Intervention	Change	% of Change
Student 1	4	3	1	25%
Student 2	5	3	2	40%
Student 3	5	2	3	60%
Student 4	5	5	0	0%
Student 5	5	4	1	20%
Student 6	6	5	1	17%
Student 7	6	5	1	17%
Student 8	4	4	0	0%
Student 9	4	2	2	50%
Student 10	4	2	2	50%

Fig.-3 Comparison of number of Problem Behaviours before and after Using Visual Schedule

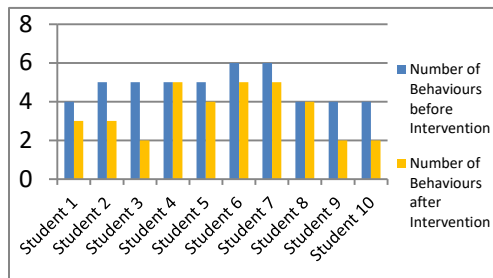


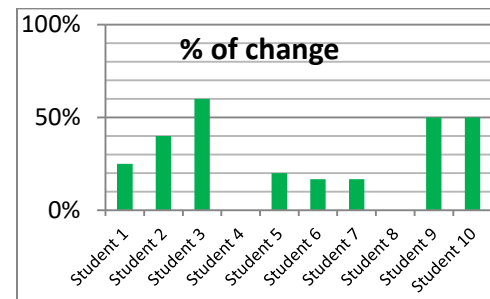
Fig.-3 depicts the comparison of behaviour before and after the use of an individualized Visual Schedule.

It was noted that use of Individualized Visual Schedule during transition between activities, helped to reduce the number of problem behaviours of student 1, 2, 3, 5, 6, 7, 9, and 10; the number of problem behaviours remained the same in the case of students 4 and 8.

Fig. 4 depicts the percentage of change in behaviour before and after the use of an individualized Visual Schedule.

It was noted that use of Individualized Visual Schedule during transition between activities, helped to reduce for student 1 by

Fig.-4: Percentage of Change in Problem Behaviours before and after Using Visual Schedule



25%, 2 by 40%, 3 by 60%, 5 by 20%, 6 and 7 by 17%, 9 and 10 by 50%; no changes noted in the case of student 4 & 8.

Hypothesis 1:

There is no significant difference in number of problem behaviours of Children with Autism Spectrum Disorder before and after intervention using individualised Visual Schedule during transition.

It was noted that, the number of problem behaviours is reduced after intervention using individualised Visual Schedule as compared to number of problem behaviours before intervention. Hence, the Hypothesis 1 is rejected.

Table-5: Total No. of Problem Behaviours before Intervention

Participant	Number of Behaviours before Intervention
Primary	24
Secondary	24

Table-6 Total No. of Problem Behaviours after Intervention

Participant	Number of Behaviours after Intervention
Primary	17
Secondary	18

Table-7: % of Reduction in No. of Problem Behaviours after Intervention

Participant	% of Reduction in No. of Problem Behaviours after Intervention
Primary	29
Secondary	25

Fig. 5

Number of Problem Behaviours before Intervention

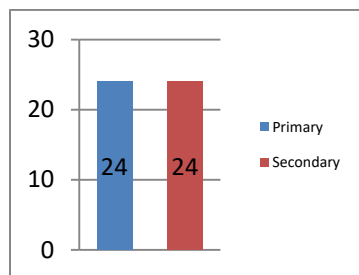


Fig.-5 depicts the total number of problem behaviours by students in Primary and Secondary class, before intervention.

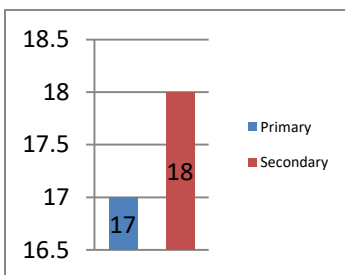
It was noted that, before intervention the total number of problem behaviours by students of both primary and secondary class were 24 each.

Fig.-6 depicts the total number of problem behaviours by students in Primary and Secondary class after intervention.

It was noted that the total number of problem behaviours after introduction of Individualized Visual Schedule is reduced to

Fig. 6

Number of Problem Behaviours after Intervention



17 in the case of Primary class students and 18 in the case of Secondary class students.

Fig. 7

% of Reduction in No. of Problem Behaviours after Intervention

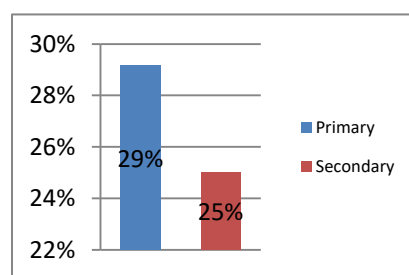


Fig.-7 depicts the percentage of changes in total number of problem behaviours after introduction of Individualized Visual Schedule by students in Primary and Secondary class.

It was noted that the total number of problem behaviours after introduction of Individualized Visual Schedule is reduced by 29% in the case of Primary class students and 25% in the case of Secondary class students.

Hypothesis 2:

There is no significant difference in number of problem behaviours of Children with Autism Spectrum Disorder studying in primary and secondary classes before and after intervention using individualised Visual Schedule during transition.

It was noted that, the number of problem behaviours are reduced after intervention using individualised Visual Schedule as compared to number of problem behaviours before intervention in the case of primary than secondary class students. Hence, the Hypothesis 2 is rejected.

Conclusion

The data collected from the study shows that individualized Visual Schedule can make an impact on student's problem behaviours during transitions. Although the use of individualized Visual Schedule aids many students in decreasing the problem behaviours, it did not have an impact on some of the students.

Looking back at the data from the study, students 4 & 8 did not show any decrease in problem behaviours after the intervention of utilizing an individualized Visual Schedule. Therefore, the use of an individualized Visual Schedule may not be the only intervention, the student needs throughout

the school day to decrease problem behaviours. The use of individualized Visual Schedule help to answer questions for students diagnosed with Autism Spectrum Disorder. As Dettmer, Simpson, Brenda, and Ganz (2000) stated, individualized Visual Schedule can be used as an antecedent strategy. When individualized Visual Schedules are set in place, they can be used to prevent problem behaviours before they happen. Individualized Visual Schedule help to answer the following questions: What do I do? Where do I go? How do I know when I am done? and What do I do next? Being able to answer these types of questions for students with ASD, helps to make their day predictable, this can help to decrease problem behaviours during transitions.

Teachers should consider that individualized Visual Schedule is utilized in the classroom as a support that allow some students to be independent and success throughout the school day. Teacher should also consider for individualized Visual Schedule to be effective, a teacher should utilize the intervention consistently throughout the school day to gain independence in their transitions. The more independent students are in using their schedules, the less likely problem behaviours will occur during

transitions. As stated by, Dettmer, Simpson, Brenda, and Ganz (2000) visual schedules help to make a student's day predictable, and when there is a change in the student's schedule having a routine established will help to ensure the student's daily schedule can remain predictable.

The student may display problem behaviours to escape a task, gain attention, access to tangible, or may have skill deficit. To address the problem behaviours, function of the respective behaviour is to be identified and appropriate behaviour modification techniques to be used in the future research.

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