

5-2017

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Recommended Citation

Connelly, A. (2017). *The use of visual schedules* (Master's thesis, Northwestern College, Orange City, IA). Retrieved from http://nwcommons.nwciowa.edu/education_masters/40/

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The Use of Visual Schedules

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Abstract

This paper explores the use of visual schedules to support students diagnosed with Autism Spectrum Disorder with transitions throughout the school day. Students diagnosed with Autism Spectrum Disorder have a tough time interpreting verbal directions throughout the school day; therefore, there is an increase in student behaviors during transitions (Dettmer, Simpson, Brenda, & Ganz, 2000). The students utilized in this study are preschool aged students, which means they are between the ages of three to five. All students are in an integrated preschool classroom. The researcher implemented and created individualized visual schedules for each student in this paper. The researcher collected data and analyzed the data to determine the effects individualized visual schedules have on behaviors displayed during transitions throughout the school day. This paper explores whether individualized visual schedules can be used as an intervention to reduce the number of behaviors displayed during transitions throughout the school day.

The Use of Visual Schedules

Students diagnosed with Autism Spectrum Disorder have a tough processing the information that they receive throughout the school day. Students diagnosed with Autism Spectrum Disorder have a tough time processing information during a transition throughout the school day. Therefore, when a student has a tough time processing information during a transition time, there may be an increase in student behaviors. Numerous studies have been conducted to determine the effects individualized visual schedules have on student behavior throughout the school day. Each study has had their own area of focus when it comes to visual schedules. There has been research done that focused on a child's ability to respond to a visual cue, and how long it takes that child to respond. There has been research done that focuses on a specific time of the school day, and there has been research done that focuses on the amount of time it takes a student to transitions after given a visual or verbal cue.

Literature Review

Autism Spectrum Disorder is a developmental disorder that is often coupled with social and communication delays, and Autism is referred as a spectrum disorder (Frith & Happe, 2005). As stated by Dettmer, Simpson, Brenda, and Ganz (2000) students that have been diagnosed with Autism have a tough time organizing their thoughts and processing what they see, which can make transitions a challenging time of the school day. In a classroom, transitions are typically verbally given by the classroom teacher therefore, students with Autism Spectrum Disorder have a tough time processing what the teachers is saying (Pierce, Spriggs, Gast, & Luscre, 2013). Transitions, especially when the direction is given orally can be confusing and unpredictable for students with Autism Spectrum Disorder. When a cue for transition is confusing or unpredicted, there may be an increase in behaviors during a time of transition (Dettmer, Simpson, Brenda, &

Ganz, 2000). Visual supports, such as visual schedules act as a tool to help children with Autism Spectrum Disorder process what the teacher is asking, and visual schedules help students with Autism Spectrum Disorder understand the teacher's expectations.

In a research study done by Pierce, Spriggs, Gast, and Luscre (2013) four students diagnosed with Autism were the participants in a research study. The four students were members of a self-contained classroom, and all students were between the ages of 9-11 years. Students had their own visual schedule book. In each student's book Boardmaker pictures were utilized to represent the activity or task that the student was expected to do. The specific time of the day that Pierce, Spriggs, Gast, and Luscre (2013) were targeting was each student's center time. Each student had their own schedule to follow during the center time, and each schedule guided the students to what activity or task they needed to complete.

Through their intervention, Pierce, Spriggs, Gast, and Luscre (2013) were able to find that students became more independent during their transitions during center time. Before the intervention was put into place, students were not able to transition independently during center time. The students were not able to transition from center to center without adult (verbal and/or physical) prompting. Some aspects that Pierce, Spriggs, Gast, and Luscre believe may have helped them to see more of an increase in independence and decrease in behaviors are factors such as more than verbal reinforcement utilized during their study, and determining the student's communication skills before intervention was utilized.

In a research study done by Dettmer, Simpson, Brenda and Ganz (2000) the authors observed two students diagnosed with Autism Spectrum Disorder. The two students were between the ages of 5 and 7. During this study, students were monitored to determine if they transitioned within one minute of the teachers cue for transition. If the student did not make

movement to follow through with transition, the adult offered assistance through verbal prompts or through visual prompts. The visual prompt was a visual representation of the next activity.

The two students identified as research participants are named Josh and Jeff.

Jeff is a 7 years-old student who functioned at a 32-month-old developmental level. The intervention of utilizing a visual schedule was used with Jeff in the community and outside of a school setting. Some of the settings that Jeff utilized his schedule included going to the zoo, going to get pizza, and getting into the car. During their intervention Dettmer, Simpson, Brenda, and Ganz (2000) found that the time it took Jeff to transition from one activity to another decreased from 6.2 minutes (baseline) to 1.6 minutes at the end of the intervention.

The second participant in this study is Josh. Josh is 5 years-old, and he attends an early childhood program. Although Josh is 5 years-old, it is suspected that he functions like that of a 50-month-old child. Josh had trouble transitioning throughout the school day, and he had a particularly harder time transitioning when he was asked to leave a preferred activity. Before the intervention was implemented with Josh, it would take him 2.5 minutes to transition to the next activity when his caregiver gave him the cue for transition. At the end of the intervention it took Josh 0.7 minutes to transition after the cue was given by the caregiver.

In a research study conducted by Waters, Lerman, and Hovanetz (2009) two research participants were utilized. The two participants were 6 years old, and each participant showed behaviors during transitions. The behaviors that the two participants displayed during transitions can be described as hitting, kicking, biting, pushing over furniture, scratching, and falling to the floor. Waters, Lerman, and Hovanetz (2009) deemed that the behaviors displayed by the two participants were executed to avoid a non-preferred activity. During the baseline, both participants displayed some or all of the behaviors mentioned above 100% of the time during

transitions from a preferred activity to a non-preferred activity. Along with other interventions in place, Waters, Lerman, and Hovanetz (2009) saw a decrease in behaviors when visual schedules were introduced. For one participant, the percentage of behaviors went from 100% occurrence during a transition to 76% occurrence. For the other participant, the percentage of behaviors went from 100% occurrence to 89% occurrence.

In Waters, Lerman, and Hovanetz's study, there was not a significant decrease in problem behaviors during transitions, and the use of a visual schedule were not the only intervention the authors used to decrease problem behaviors during transitions. In Pierce, Spriggs, Gast, and Luscre's study the use of visual schedules helped to reduce the number of prompts students needed during center time transitions. In Dettmer, Simpson, Brenda, and Ganz's study, they were able to find that visual schedules helped to reduce the amount of time it takes a student to transition.

From the three research studies that have been reviewed, it is evident that the use of visual schedules can help students with Autism Spectrum Disorder to become more independent in the classroom when it comes to transitions. The three studies showed that students could reduce the amount of adult assistance they needed during a time of transition. Along with gaining independence, the use of visual schedules can help answer questions for students with Autism Spectrum Disorder such as: What am I to do? How long do I do the task/activity? What do I do when I am done with the activity/task? The use of visual schedules allows students with Autism Spectrum Disorder to process what they are expected to do, which may assist in decreasing problem behaviors during a transition.

The Use of Visual Schedules and Children with Autism

Autism Spectrum Disorder is a developmental disorder that is often coupled with social and communication delays. Autism is referred as a spectrum disorder; therefore, the degree of communication delays, social delays, and other cognitive delays are different for each child (Frith & Happe, 2005). Although there is no current known cause for Autism Spectrum Disorder, many have believed that things such as vaccines can cause a child to develop Autism Spectrum Disorder (Frith & Happe, 2005). As stated by Frith and Happe (2005), there is research that indicates that abnormalities on chromosomes 2q, 7q, and 15q have been linked to children being diagnosed with Autism Spectrum Disorder. Although children diagnosed with Autism Spectrum Disorder typically have cognitive, social, and communication delays there is research that shows that children with Autism Spectrum Disorder have savant-like skills in at least one area. Frith and Happe (2005) share that having savant-like skills means that the child is surprisingly good at a specific skill. For example, a child with Autism Spectrum Disorder may have difficulty communicating with others, but is highly successful in playing and composing music.

As stated by Dettmer, Simpson, Brenda, and Ganz (2000) students that have been diagnosed with Autism have a tough time organizing their thoughts and processing what they see. Many students diagnosed with Autism are visual learners, and may think in pictures or videos (Dettmer, Simpson, Brenda, & Ganz, 2000). Visual supports act as tools to help children with Autism Spectrum Disorder process information and expectations. Students with Autism Spectrum Disorder are less likely to display behaviors when visual tools can be utilized to demonstrate expectations (Dettmer, Simpson, Brenda, & Ganz, 2000).

In a classroom, the teacher typically gives transitions in a verbal manner; therefore, students with Autism Spectrum Disorder have a tough time processing what the teacher is asking (Pierce, Spriggs, Gast, & Luscre, 2013). Transitions can be confusing and unpredictable for students with Autism Spectrum Disorder; therefore, there may be an increase in behaviors during transition times (Dettmer, Simpson, Brenda, & Ganz, 2000). Since behaviors during a transition can take a staff member to manage, visual schedules have been deemed as an antecedent strategy that can be used prevent behaviors from happening (Pierce, Spriggs, Gast & Luscre, 2013).

Along with using a visual schedule to represent a transition, another antecedent strategy that may be helpful is to provide students with Autism Spectrum Disorder with a visual representation of how much time they have left before a transition occurs. As stated by Waters, Lerman, and Hovanetz (2009) providing students with a warning before an upcoming transition may help to decrease behaviors during the actual transition.

Although there is research that shows the use of visual supports helps to aid students with Autism Spectrum Disorder throughout the school day. The use of visual tools to support students with Autism Spectrum Disorder are not consistently being utilized in all classrooms. Therefore, research will be done to determine whether the use of individualized visual schedules within an integrated classroom helps to decrease behaviors shown during a transition.

Data Collection

Throughout this research study, six students were utilized. All the students are preschool age, between ages 3-5, and are in an integrated classroom. Along with being in an integrated classroom, they all receive special education services from a teacher specialized in ABA methodologies such as discrete trial programming, pivotal response, and functional routine.

Discrete trial programming is defined as errorless learning in which students learn a skill in a trial. In discrete trial programming students can display the specified skill in a trial or a session of time. Often, reinforcements are utilized to reinforce the student's ability to display the specified skill. Pivotal response training is defined as a language program that blocks a student's access to a desired toy, edible, or object. Once the student has displayed the appropriate response, then the student will have access to the desired toy, edible, or object. Functional routines are defined as daily routines that are broken down into smaller steps. Functional routines allow teachers to see how students can perform independently on a daily routine. When the steps in a functional routine are broken down into smaller tasks, the teacher will be able to determine what skills the student is still needed.

Throughout the research study, the researchers tallied how many behaviors the students displayed during transitions throughout the school day. The transitions that students experienced throughout the school day included the transition from the integrated classroom to the segregated classroom. Transitions also included transitioning from preferred activities to non-preferred activities, and transitioning from non-preferred activities to preferred activities.

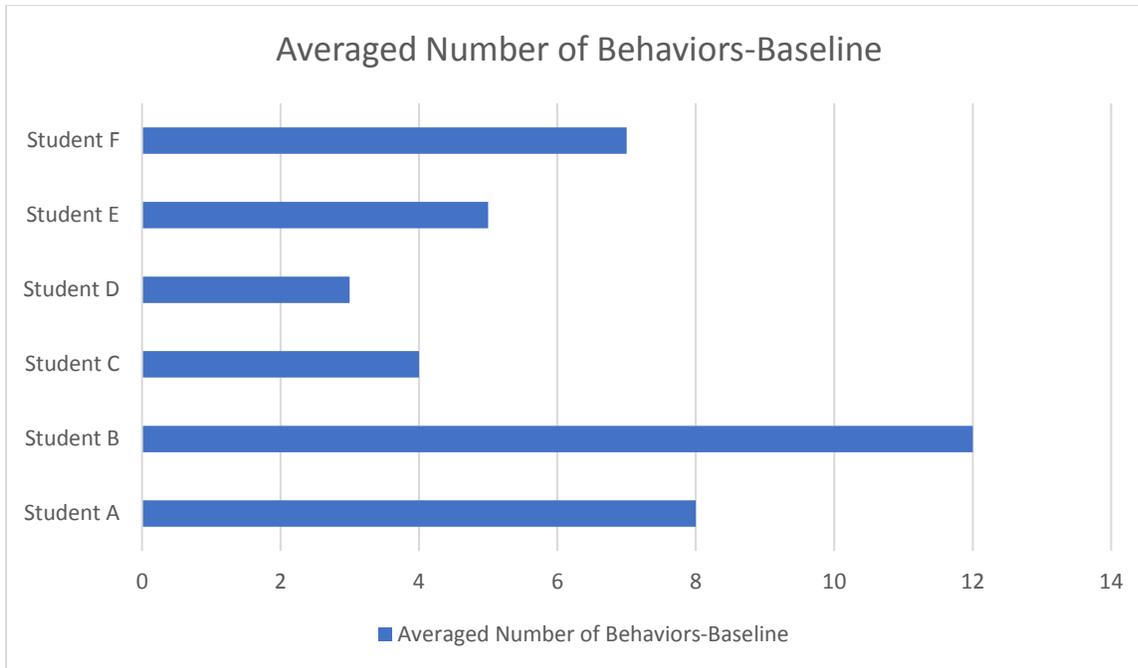
The researcher first collected a baseline of behaviors that each student displayed during transitions. The researcher gathered data for one week to determine a baseline for each student. The baseline showed the average number of behaviors displayed during transitions by each student in the study. After the baseline data was collected, the researcher then tallied daily how many behaviors each student displayed during transitions. During an eighteen-day period, an intervention of using an individualized visual schedule was used with the six students in this study. During the intervention, the researcher collected data regarding the number of behaviors the students displayed during transitions throughout the school day.

Data Analysis

In this study, six students were observed and data was collected regarding behaviors during transitions. Students have their own definition of difficult behavior during transition. During transition behaviors, Student A would display behaviors such as, running away and falling to the ground during transition. Student B displayed behaviors such as, falling to the ground, rolling around, running away, and throwing visual. Student C displayed behaviors such as, screaming, dropping visual, and running away from the teacher. Student D displayed behaviors such as, hitting, dropping visual, and running away from the teacher. Student E displayed behaviors such as, refusal to grab next visual, running away, and screaming. Lastly, Student F displayed behaviors such as, hitting, kicking, running away and hiding, and screaming.

Table 1 displays each student's baseline of behaviors. The baseline data was collected over the course of one week, and was averaged to display how many behaviors each student displayed during transitions throughout the school day.

Table 1: Baseline of Behaviors

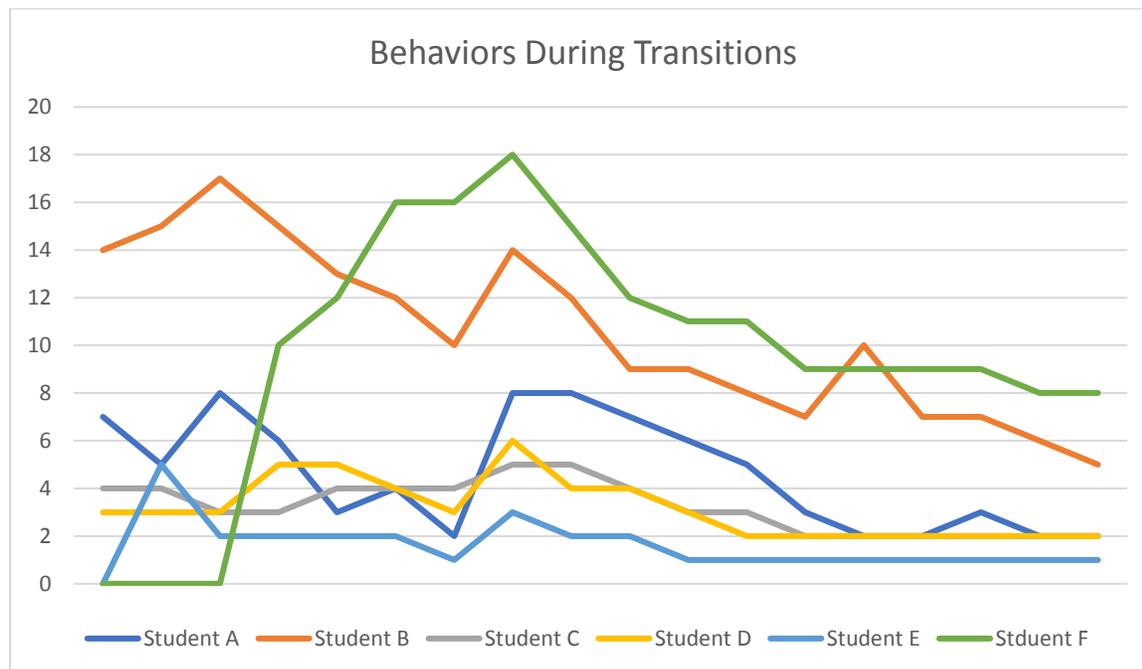


After baseline data was collected, the study then allowed the students to utilize an individualized visual schedule. Each individualized visual schedule contained real photos that showed each student the next activity in their day. For example, if the student was to go outside, the individualized visual schedule would have a real photo of playground where the students had recess. Each student's individualized visual schedule also had real photos of the various places the student would need to go throughout the day. The photos in the students' schedules were for the school day. All the photos the student would need for a school day were in order on a strip of Velcro. The picture at the top of the student's schedule would indicate the next activity that in the student's school day. The students' names and symbols were at the top of each strip of Velcro; this helped to ensure that students could identify their own individualized visual schedule. Teachers and instructional assistants would spend time each morning ensuring that the student's schedules were set up. There was a routine established for students when using their individualized visual schedule.

Use of Visual Schedules 12

To begin a transition, each student was handed a check schedule visual. The student was then expected to match their visual to a pocket next to the individualized visual schedules. After the student matched and put their visual into the pocket, the student was then expected to find their name and symbol. After the students, have identified their name/symbol, they then were expected to find the picture at the top of their schedule. This real photo visual showed the student where they were going next in their day. The student was expected to carry the visual to the designated area. Once in the specified area the student would match their picture to a visual of the area. Lastly, after the student has matched his/her visual, the student is then expected to join the class in the specified area. For example, if the student was going to the large group carpet, the student's schedule would indicate that it is time to go to the carpet. The student would match the picture from their schedule to the picture of the large group carpet. After the student, has matched their visual, the student will then be expected to sit at the large group carpet.

Table 2: Daily Number of Behaviors during Transition



Looking at Table 2, the data shows that individualized visual schedules allowed almost all students to decrease the amount of behaviors that were displayed during transitions throughout the school day. Along with this, it is evident that individualized visual schedules do not consistently assist with behaviors during transitions. To further emphasize how individualized visual schedules impacted behaviors, the chart below shows the student’s baseline of behaviors and the average number of behaviors the student displayed daily during the intervention.

Table 3: Baseline Behaviors versus Behaviors during Intervention (Averaged)

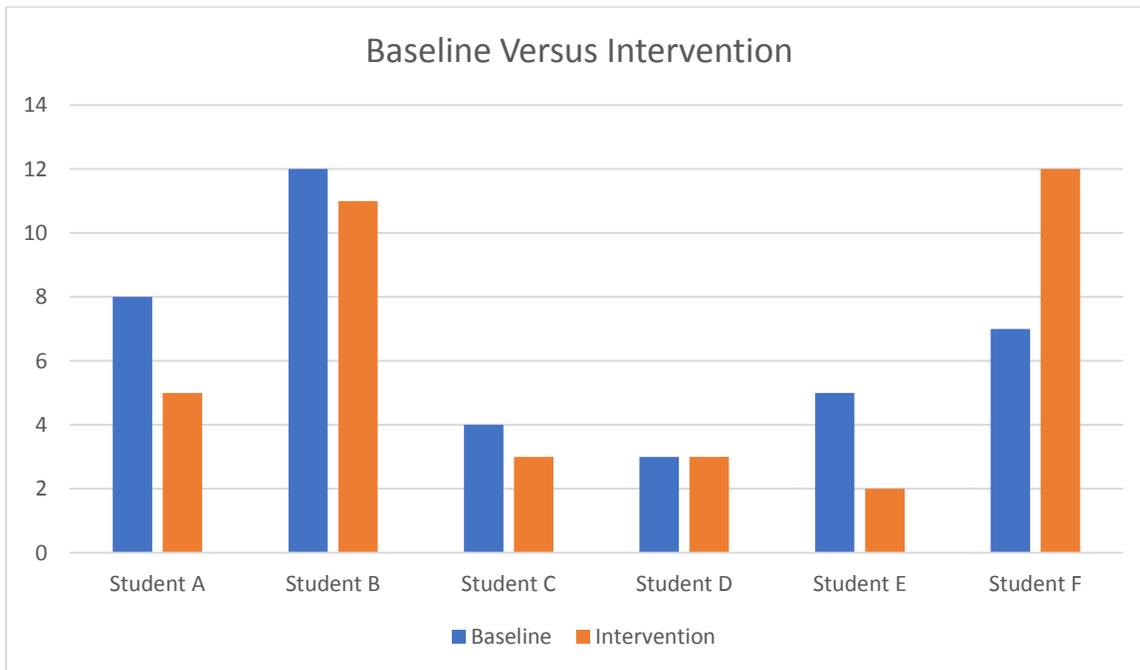


Table 3, displays the use of an individualized visual schedule helped to reduce behaviors shown by Student A, Student B, Student C, and Student E. Student F did not have a decrease in averaged behaviors when using an individualized visual schedule. Instead, the student’s number of behaviors increased when the intervention was utilized. Student D did not have an increase of

decrease in behaviors. Instead, Student D's number of behaviors remained the same while utilizing the intervention.

Conclusion

The data collected from the study shows that individualized visual schedules can make an impact on student behaviors during transitions. The intervention of using an individualized visual schedule may not be the only intervention that some students need. Although the use of individualized visual schedules aid some students in decreasing behaviors, it may not be the only type of support that students need. One thing to consider is the type of behavior the student is having. To assist teachers in analyzing the student's behavior, the teacher can look at the times of the day the student is displaying the behavior. Teachers may need to analyze whether the behaviors are only happening during transition, or throughout multiple times of the school day. The teacher may also need to analyze the data to determine a function of the student's behavior. The student may display behaviors to escape a task, to escape a person, or to escape a direction. The student may also be displaying behavior to gain access to something or to gain attention from peers or adults. Looking back at the data from the study, Student F did not show a decrease in behaviors during 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 behaviors.

The use of individualized visual schedules help to answer questions for students diagnosed with Autism Spectrum Disorder or any other learning disability. As Dettmer, Simpson, Brenda, and Ganz (2000) stated, individualized visual schedules can be used an antecedent strategy. When individualized visual schedules are set in place, they can be used to prevent behaviors before they happen. Individualized visual schedules 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 helps to make their day predictable, which can help to decrease behaviors during transitions.

Teachers should consider that individualized visual schedules are 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 schedules to be effective, a teacher should utilize the intervention consistently throughout the school day. When using an individualized visual schedule, the teacher and instructional assistants should use the same routine each day, and throughout the entire school day. The teacher and instructional assistants should cue to student to check their schedule the same way each day, and the steps the student is expected to complete should be the same every day. When individualized visual schedules are used consistently and in the same routine every day, students will be able to gain independence in their transitions. The more independent students can be in their schedules, the less likely behaviors will occur during transitions. In addition, the more consistently individualized visual schedules are used throughout the school day, the more predictable the student's day will become. Teachers will want to think about establishing a routine for when the daily schedule changes. 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.

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