Benefits of Using an Activity Schedule with a Student with Autism

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Abstract

This study used a single-subject Caucasian male from an autistic classroom in a rural Midwest school to determine the benefits of implementing an activity schedule with a student with autism. The purpose of this project was to determine the benefits of implementing an activity schedule with a student with autism. The results of the study showed that the male subject with autism improved in his ability to transition between subjects, display more appropriate behaviors, and improve on his academic scores after consistent use of the activity schedule. Results of this study supported the existing literature on using a picture activity schedule to increase the desirable behaviors, transitional skills, and academic skills of students with autism.
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Chapter I: Introduction

As a substitute teacher, the researcher noticed that students with autism had difficulty transitioning between activities. The researcher observed that the students appeared frustrated and unsure of when to start the next activity. The professional literature was reviewed and activity schedules were one strategy that demonstrated multiple benefits with students with autism, including transitional skills. The researcher decided to collect data to determine how using an activity schedule would be beneficial with students with autism.

Statement of the Problem

The purpose of this project was to determine the benefits of implementing an activity schedule with students with autism. The research questions that guided this project were:

1. How was an activity schedule defined in the professional literature?
2. According to the literature, what were the benefits of implementing an activity schedule with students with autism?
3. In what ways were activity schedules used according to the professional literature?
4. What were the benefits of implementing an activity schedule with students with autism?

Justification

The justification for choosing this action research project was based on the researcher’s desire to improve academic performance, socialization, and independence for students with autism. The researcher wanted to examine activity schedules to determine the effectiveness of activity schedules as a strategy for helping students with autism transition from one activity to another without disrupting the classroom and other students, improve academic performance, and increase appropriate behaviors. The information and research derived from this project will assist the researcher in determining the benefits of using activity schedules. Additionally, the
results of this study provided other teachers with an intervention that could be implemented to meet the academic, social, and behavioral needs of students with autism.

**Definition of Terms**

**Activity schedules:** Activity schedules are a set of pictures or written words, which are used to enable children with autism to engage in activities with greater independence.

**Benefits:** Benefits are what the student with autism will gain from using an activity schedule and the positive results that that were observed by the researcher during this study.

**Autism:** IDEA defines autism as “a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3 that adversely affects a child’s educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences (IDEA, 300.8).”

**Limitations and Appropriate Use of Results**

This project had several limitations. These limitations were that the study was limited to one rural classroom in Northwest Ohio. The participation group was small and the participants were not ethnically diverse. In addition, time was limited due to the researcher conducting the study as a substitute teacher. The small size of the group used for the project may have influenced the results and therefore, may not be applicable to classes with more children.
Chapter II: Review of the Literature

The purpose of this project was to determine the benefits of implementing an activity schedule with students with autism. The research questions that guided this project were:

1. How was an activity schedule defined in the professional literature?

2. According to the literature, what were the benefits of implementing an activity schedule with students with autism?

3. In what ways were activity schedules used according to the professional literature?

4. What were the benefits of implementing an activity schedule with students with autism?

Research Question #1: How was an activity schedule defined in the professional literature?

In order to answer question one, a literature review was conducted. Activity schedules were defined as a flexible teaching strategy that communicated a series of activities or steps of a specific activity. Activity schedules were used to teach students with autism independent play, communication skills, daily living skills, on-task behaviors, inappropriate behaviors, and transitional skills (Krantz, MacDuff, & McClannahan, 1993; Pierce & Schreibman, 1994; Banda, Grimmett, & Hart, 2009; Swanson, 2005). In addition, activity schedules were also a visual support system that combined photographs, images, written words, drawings (colored or black and white), or even lightweight objects in a sequential format. What’s more, Bryan and Gast (2000) asserted that activity schedules required individuals to transition from one activity to another, in sequence, in order to complete assigned tasks.

Banda et al. (2009) further indicated that there were two types of activity schedules: between-activity and within-activity. A between-activity schedule showed each activity of the day in sequential order and listed the time for each activity. A within-in activity schedule showed the steps of a single activity in sequential order. Similarly, Schopler, and Mesibov
(1994) reported that there were two types of schedules: the general classroom schedule and the individual student schedule. The general classroom schedule outlined the day for the entire class, whereas the individual student schedule includes specific activities for individual students. The general classroom schedule was consistent from week to week except for field trips or special events and was posted for the entire class to see. Individual schedules helped students understand what to do during activities. The most important point of an individual schedule was to make it meaningful to the student.

Further research suggested that activity schedules presented on computers provided additional resources (Stromer, Kimball, Kinney, & Taylor, 2006; Dauphin, Kinney, & Stromer, 2004; Kimball, Kinney, Taylor, & Stromer, 2004), such as audio, visual recordings, and multimedia software. Activity schedules on computers were used to teach social skills and facilitate on-task behaviors. Computers had a positive effect on attention and performance in students with autism when compared to other forms of instruction. Activity schedules generated on a computer enabled precise and contingent presentation of the videos and photos associated with particular activities.

Schopler and Mesibov (1994) reported that the purpose of an activity schedule was to help students with autism to understand differences between discrete events and their relationships to one another. Schedules also helped students anticipate and predict both daily and weekly activities and events. Furthermore, Bryan and Gast (2000) indicated that the purpose of an activity schedule was to provide the student with a way to predict or understand upcoming events in order to reduce problem behavior and increase independence.

In summary, Bryan and Gast (2000) and Schopler and Mesibov (1994) indicated that the purpose of an activity schedule was to provide students with autism a strategy to predict or
understand upcoming events in order to reduce problem behavior and increase independence. Krantz et al. (1993), Pierce and Schreibman (1994), Banda et al. (2009) and Swanson (2005) defined activity schedules as a flexible teaching strategy that communicated a series of activities or steps of a specific activity. Activity schedules were also used to teach students with autism independent play, communication skills, daily living skills, on-task behaviors, inappropriate behaviors, and transitional skills. What’s more, activity schedules were also a visual support system that combined photographs, images, written words, drawings (colored or black and white), or even lightweight objects in a sequential format. In addition, Banda et al. (2009) and Schopler et al. (1995) indicated that there was more than one type of activity schedule. Furthermore, activity schedules on computers had a positive effect on attention and performance in students with autism when compared to other forms of instruction (Stromer et al., 2006; Dauphin et al., 2004; and Kimball et al., 2004).

Research Question #2: According to the literature, what were the benefits of implementing an activity schedule with students with autism?

In order to answer question two, a review of the literature was conducted. The research indicated that activity schedules had a positive effect when used with students with autism. Dettmer, Simpson, Myles, and Ganz (2000) indicated that students with autism displayed fewer behavioral problems and increased compliance when activity schedules were used to communicate expectations. In a related fashion, O’Reilly, Sigafoos, Lancioni, Edrisinha, and Andrews (2005) suggested that individualized activity schedules acted as a form of antecedent intervention to reduce challenging behavior as they limited the impact of stressful situations and unpredictable transitions between activities.
Morrison, Sainato, Benchaaban, and Endo (2002) also suggested that the benefits of using an activity schedule resulted in the student’s independent performance, increased instructional time, efficient and effective learning, and decreased teacher supervision. In a related study conducted by Bryan and Gast (2000), picture activity schedules increased on-task and on-schedule performance of four students with autism in an elementary resource room. Ganz (2007) and Pierce and Schreibman (1994) both agreed, but further indicated that visual activity schedules assisted learners to understand play sequences.

Additionally, Schopler and Mesibov (1994) indicated that activity schedules benefit students with autism because their anxiety and frustration diminishes when they know how often each activity or event will occur. Schedules also motivated students to complete difficult or dreaded tasks because the student can see on their schedules that a more enjoyable activity will follow. Additionally, students with autism would benefit from a backup schedule in case of school delays, early dismissals, or any other change in their daily activities.

According to Dettmer et al., (2000) visual aids, such as an activity schedule, were used to aid children with autism to maintain attention, understand spoken language, sequencing and organizing their environments. In a related fashion, O’Reilly et al., (2005), as well as, Krantz, et al., (1993) indicated that the use of activity schedules was associated with increases in engagement, maintenance, and generalization of responding, as well as reductions in challenging behavior.

In addition, Bryan and Gast (2000) and Sterling-Turner and Jordan (2007) suggested that the use of an activity schedule helped students independently transition from one activity to another by using visual prompts that provided clear expectations and lessened the need for continuous adult prompting. Moreover, Ganz (2007) reported that activity schedules provided
concrete, stationary instruments and illustrations for students. Furthermore, activity schedules
told students what activities to anticipate, when the activities would occur, and the order of the
activities. They were also used to provide information regarding unusual activities or changes in
the student’s daily schedule.

Equally important, Downing and Peckham-Hardin (2001) proclaimed that academic skills
(reading, math, and writing skills), were embedded into activity schedules. It was suggested that
schedules contain words as well as pictures to expose the student to reading skills, regardless of
their age or ability level. Once the student was able to read the word, the picture was removed,
and a new picture and word was added in its place. If the student was not currently identifying
numbers, an activity schedule provided an opportunity to learn this valuable skill. Numbers were
added to represent the order of the activities, thus exposing the student to math. Number
sequencing skills were also used (first, second, third, before, after, and next). Students used
similar strategies for writing. Students expressed writing in different ways. Some students
copied words or letters from their schedule, while others traced them with their fingers. Students
also matched words from their schedule with a corresponding card with the same word.

Stromer et al. (2006), as well as, Kimball et al. (2004) reported that the use of visual
media (computers, videos, and audio tapes), instead of or along with pictures contributed to
learning and reducing undesirable behavior. Access to computer activity schedules also
increased social and communication skills. Students with autism also preferred computer-based
instruction to instruction presented by the teacher. In addition, videos were used to teach
children to ask questions about events they encounter throughout the day.

In summary, an activity schedule was a useful teaching strategy for addressing problem
behaviors during transitions, especially for students with communication problems. Another
advantage was that an activity schedule was more readily available to promote independent functioning, unlike auditory or verbal cues, because they did not require constant monitoring from another individual to implement (Dettmer et al., 2000; O’Reilly, et al., 2005; Morrison et al., 2002). In addition, using computers with audio and visual sequencing benefited students with autism by modeling timely and appropriate transition behaviors (Stromer et al., 2006; Kimball et al., 2004). Furthermore, Downing and Peckham-Hardin (2001) claimed that reading, writing, and math skills improved with the use of activity schedules.

Research Question #3: In what ways were activity schedules used according to the professional literature?

In order to answer question three, a review of the literature was conducted. Schopler and Mesibov (1994) made a number of recommendations regarding the use of activity schedules. The teacher could indicate which schedule belonged to each student through color coding, placing a symbol or the student’s picture by his or her schedule, or by placing their name on the schedule for those who could read. Some students were able to comprehend and follow schedules for an entire day, whereas others were able to comprehend only one activity at a time.

In a related fashion, Ganz (2007) made several recommendations for using schedules in the classroom. First, she indicated that the teacher should over-teach how to follow the schedule. It was more important to provide more prompts initially than to allow students to use their schedule incorrectly. Second, physical prompts and gestures were easier to fade than verbal prompts. Third, she expressed that the teacher should use a natural signal to indicate when it was time to check the schedule instead of verbally telling the student. Fourth, if a student did not quickly learn to independently use his or her schedule, adaptations could be used, such as: shortening the schedule to contain one or two pictures at a time, making the pictures larger,
switch from abstract to concrete representations, or change the schedule frequently to get the
student used to the idea of change. Dettmer et al., (2000) agreed with Ganz and added a timer to
signal the end of activities to decrease time spent on transitions.

Downing and Peckham-Hardin (2001) reported that schedules came in a variety of
formats: pictures, tactile, books, part of a school notebook, Velcro symbols on a board, symbols
in a slide holder, or objects in boxes. It was recommended that loose symbols be used so that
students could remove an activity when finished and place it in a finished folder or box. It was
also suggested that teachers keep extra symbols on hand to anticipate changes in the schedule.

In addition, Krantz et al., (1993), as well as, Stromer et al. (2006), Bryan and Gast
(2000), Dettmer et al. (2000), and Kimball et al. (2004) indicated that the most common format
for activity schedules was a notebook or three ring binders that were made using pictures,
symbols, or text to cue an individual to perform specific activities. Notebook activity schedules
were used to promote independence and reduce undesirable behaviors around transitions. The
notebooks generally displayed one picture per page, with teachers guiding the students to learn
the picture, obtain the desired materials, complete the picture activity, put materials away, return
to their schedule, turn the page, and proceed to the next activity.

Banda et al. (2009) agreed with using notebooks, and added that sentence strips were
used by attaching pictures with Velcro and placing the pictures in sequential order. The student
was able to remove the picture as he or she completed the activity and place the picture in a
completed folder attached to the strip. Students with high-functioning autism were able to use
multiple pictures with words labeled under each picture to facilitate reading skills.

In a study conducted by Machalicek et al. (2009), the authors used colored photographs
of playground activities to teach three students with autism appropriate behavior on the
playground. Photographs were taken of eight major playground activities. Each of the photographs was placed on the corresponding playground structures with Velcro ties. Smaller pictures were placed on a clipboard for each student’s activity schedule. These activity schedules were used to teach the students to follow a schedule of activities to improve their behavior during play.

Dauphin et al., (2004) used activity schedules combined with video to teach a three-year-old with autism to perform a variety of sociodramatic play sequences. The results of their study showed that gains were maintained over time. Kimball et al. (2004) also suggested that video could be used with peer models to demonstrate to students with autism how typical students manage their behavior during activities. What’s more, there were two main phases in developing a computer activity schedule discussed. Phase one consisted of gathering digital pictures, video clips, and sound files of people, places, and things with which the students will interact with in their individual schedule. Phase two consisted of using PowerPoint to create an activity schedule for each individual student. Generally, each slide would contain two pictures per activity. The student was then taught how to use the computer to obtain his or his daily activity schedule.

Downing and Peckham-Hardin (2001) also explained that when creating an activity schedule, a student’s physical, visual, cognitive, and chronological age needed to be considered. If a student was ambulatory, it was recommended that the schedule be small enough to fit into their pocket, wallet, or backpack. Physical abilities would determine the size of symbols and how they were manipulated. For visually impaired students, it was suggested that a tactile or auditory schedule be used. In a tactile schedule, objects were used to represent an activity. In an auditory schedule, a cassette tape was used to record the day’s schedule for the student to play. For students with cognitive problems, abstract or concrete symbols were used depending on the
cognitive ability of the student. It was important to note that the symbols used would change to reflect the progress of the student. Finally, with chronological age, the age of the student determined the types of symbols, the design of the schedule, and the words or phrases used.

In summary, it was determined that there were multiple ways that a teacher could use and implement activity schedules. Schopler and Mesibov (1994) suggested using color coding, symbols, or the student’s picture to indicate which schedule belonged to each student. Ganz (2007) made several recommendations using schedules, including making adaptations to the schedule to meet individual student’s needs. Downing and Peckham-Hardin (2001) reported that schedules came in a variety of formats: pictures, tactile, notebooks, Velcro symbols, or objects. The most common way to use an activity schedule was in a notebook with one picture displayed per page (Krantz et al., 1993; Stromer et al., 2006; Bryan and Gast, 2000; Dettmer et al., 2000). In addition, Dauphin et al., (2004), as well as, Kimball et al., (2004) suggested using computers with digital pictures, video clips, and sound files along with typical students to model appropriate behavior and transition skills to students with autism.

In conclusion, the benefits of using activity schedules were well supported in the literature for students with autism. There were indications that activity schedules increased engagement and on-task behaviors, decreased disruptive and stereotypical behaviors, increased desired social skills, and helped students’ transitional skills (Bryan & Gast, 2000; Schopler & Mesibov, 1994). What’s more, an activity schedule was a useful teaching strategy for addressing problem behaviors during transitions, especially for students with communication problems. Another benefit was that an activity schedule was more readily available to promote independent functioning, unlike auditory or verbal cues, because they did not require constant monitoring from another individual to implement (Dettmer et al., 2000; O’Reilly, et al., 2005; Morrison et
al., 2002). In addition, using computers with audio and visual sequencing benefited students with autism by modeling timely and appropriate transition behaviors (Stromer et al., 2006; Kimball et al., 2004). Furthermore, Downing and Peckham-Hardin (2001) claimed that reading, writing, and math skills improved with the use of activity schedules.

After reviewing the professional literature, the researcher became familiar with activity schedules and believed them to be a beneficial strategy for students with autism. To that end, the researcher began to develop methods and procedures to gather data to answer research question number four, “What were the benefits of implementing an activity schedule with students with autism?”
Chapter III: Methods and Procedures

As a substitute teacher, the researcher noticed that students with autism had difficulty transitioning between activities. Students appeared frustrated and unsure of when to start the next activity. After the professional literature was reviewed, activity schedules were determined as one strategy that demonstrated multiple benefits with students with autism, including transitional skills. The researcher decided to collect data to determine how using an activity schedule would be beneficial with a student with autism.

The purpose of this project was to determine the benefits of implementing an activity schedule with a student with autism. The research questions that guided this project were:

5. How was an activity schedule defined in the professional literature?
6. According to the literature, what were the benefits of implementing an activity schedule with students with autism?
7. In what ways were activity schedules used according to the professional literature?
8. What were the benefits of implementing an activity schedule with a student with autism?

Participants/Settings

This study used a single-subject to determine the benefits of implementing an activity schedule with a student with autism. The student (pseudo-named John) was a nine-year-old Caucasian male. The student (a) had a current diagnosis of autism; (b) possessed the ability to communicate orally with others; and (c) was given daily opportunities for interaction with his peers during specials, lunch, and recess. The student was selected from an autistic classroom in a rural school in a Midwestern state. The student was on an IEP and received free lunches.

Figure 1 represented information on the student at the time of the study. This student was chosen for this study because he was dependent on teacher supervision and verbal prompts to
complete academic activities. The student's IEP indicated the need for extra adult supervision to complete assignments, stay on task, and stay on schedule. The student also had inappropriate behaviors, which required additional attention from the teacher. The student had no experience with using an activity schedule.

<table>
<thead>
<tr>
<th>Student name &amp; Chronological age (years-months)</th>
<th>Grade level</th>
<th>Special Education Support (Autism Classroom)</th>
<th>Special Education Support (In-Class)</th>
</tr>
</thead>
<tbody>
<tr>
<td>John (9-4)</td>
<td>3</td>
<td>Phonics</td>
<td>Recess</td>
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<tr>
<td></td>
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<td>Spelling</td>
<td>Lunch</td>
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<td>Social Studies</td>
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<td></td>
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<td>Handwriting</td>
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</table>

Figure 1: Student Information

The study took place in a classroom of students with autism and during recess, lunch, and specials on seventeen separate occasions from September through October. The classroom was located in the student's local elementary school. The classroom was set up in the shape of a horseshoe. Individual desks were spaced so that the students were unable to disturb the student beside them. Small-group tables were positioned at the back and side of the classroom. There were two paraprofessionals in this classroom. The paraprofessionals sat where they could observe all the students at all times.

There were four centers throughout the classroom: writing center, reading center, listening center, and computer center. The writing center was a table that contained ruled paper, blank paper, pencils, and crayons. It was positioned so that the students could see the word wall that contained high-frequency words. The reading center consisted of a large selection of children's books at different reading levels and beanbag chairs. The listening center consisted of two desks that contained various children's books on tape. The computer center was a row of five computers with a variety of activities installed.
Treatment/Intervention

The following materials were needed to determine the benefits of using an activity schedule with a student with autism. The first six materials listed were needed to create an individualized activity schedule for John. The remaining three materials were needed to determine if John's inappropriate behavior, transitional skills, and grades improved after being introduced to his activity schedule.

Materials:

- Colored stock paper
- Laminator and laminator sheets
- Velcro dots
- Pictures and words relevant to John's daily activities
- Small photo or symbol to represent something that is of interest to John
- Pocket to place completed activities
- Behavior and Transition Charts
- Teacher log for recording field notes
- Grade book

Activity Schedule: Pictures with words were chosen to represent John's classroom schedule. The pictures and the colored stock paper were laminated to protect them from constant use. Velcro dots were applied to the stock paper and the back of the pictures. A pocket was made in which to place the completed activities. Then, the researcher created a spiral bound book so that John could take the schedule with him to all of his classes. There was only one picture per page in his book. The schedule was changed daily to accommodate special subjects,
school delays, class trips, fire drills, etc. The activity schedule was kept at John’s desk so that he could have access to it at all times.

Modeling and prompting were used to demonstrate to the student how to use his activity schedule. The student was redirected to use the activity schedule if he was off-task. After completion of each activity or subject, verbal or physical prompts were used to help the student remove the picture of the completed activity and place it in the completed pocket. Verbal praise was used after the student completed an activity and the student was directed towards the next activity or step of an activity on the schedule. Verbal and physical prompts were stopped once the student was able to use the activity schedule independently.

**Instruments/Protocols**

John’s teachers were interviewed prior to completing the study. The researcher wanted to identify and define if there were difficult transition behaviors during the day or during specific activities. A behavior chart was developed to monitor inappropriate behaviors. A transitions chart was created to document when the student was having difficulty transitioning between subjects, activities, or if the student refused to use his activity schedule. Observations were recorded in a daily log to document additional information about John’s daily activities. Grades were kept in a grade book and compared to the students grades before and after this study.

**Procedures**

The information obtained from the interviews with John’s teachers was used to obtain a baseline of behaviors prior to completing the study. Observation and field notes were used to monitor the student regularly to determine what benefits were displayed when using an activity schedule.
A letter was given to the principal to obtain consent to conduct the study in the school and classroom. A letter of consent was sent home with the student to obtain parental consent to use John in the study. The classroom teacher was also asked if the study could be completed in the classroom.

John was introduced to his activity schedule on September 4, 2009. The researcher observed John on seventeen separate days. The regular classroom teacher and paraprofessional continued using the activity schedule in the absence of the researcher. Modeling and prompting were used to demonstrate to the student how to use his activity schedule. John used his activity schedule every day. The schedule was portable so John was able to take it to each of his classes. Once John completed an activity or subject, verbal or physical prompts were used to help the student remove the picture of the completed activity and place it in the completed pocket. Verbal praise was used after the student completed an activity and the student was directed towards the next activity or step of an activity on the schedule. Verbal and physical prompts were stopped once the student was able to use the activity schedule independently.

Data Analysis

The data from the transition chart was analyzed by counting the number of tally marks when the student had trouble transitioning and comparing it to the number of times the student was able to transition independently to determine if the student’s transitional skills between or within activities improved, if the student was working independently, and if the student accepted the activity schedule (first time, second time, third time, etc.). Information from the behavior chart was analyzed by comparing the days of inappropriate behavior to the days when behavior was not an issue to determine whether the student’s behavior improved. The grade book with the student’s grades was used to compare the average of John’s grades before the study to the
average of John’s grades after the study was completed to determine if there was any academic improvement. Data from the observations, charts, and daily logs was analyzed by comparing the student’s grades, inappropriate behaviors, and transitional skills before and after the study to determine if the student benefited from using the activity schedule and if so, what the benefits were, if any. The following chapter displayed and explained the results of these analyses.
Chapter IV: Results

As a substitute teacher, the researcher noticed that students with autism had difficulty transitioning between activities. Students appeared frustrated and unsure of when to start the next activity. After the professional literature was reviewed, activity schedules were determined as one strategy that demonstrated multiple benefits with students with autism, including transitional skills. The researcher decided to collect data to determine how using an activity schedule would be beneficial with a student with autism.

The purpose of this project was to determine the benefits of implementing an activity schedule with a student with autism. The research questions that guided this project were:

1. How was an activity schedule defined in the professional literature?
2. According to the literature, what were the benefits of implementing an activity schedule with students with autism?
3. In what ways were activity schedules used according to the professional literature?
4. What were the benefits of implementing an activity schedule with a student with autism?

Permission to complete the study and to have John participate in the study was obtained from the principal. A letter of consent was sent to the parents and permission for John to participate in the study was obtained. The classroom teacher also gave permission for the study to be completed in her classroom.

Timeline

September 1 - Letter was sent home with student for parental consent
September 1 - Consent was obtained from the principal and classroom teacher
September 3 - Interviewed teachers to determine what problems John was having in class
September 4 - Parental consent was obtained

September 4 - John was introduced to the activity schedule and instructed on its use

September 9 through October 23 – The student was observed for inappropriate behaviors, transitional skills, and academic skills throughout the entire school day. A daily log was kept to document inappropriate behaviors, problems transitioning, and any difficulty with classroom activities. The regular classroom teacher agreed to use the activity schedule whenever the researcher was not in the classroom.

October 24 – December 1 – The data collected during the duration of the study was analyzed to determine if the student benefited from using the activity schedule and if so, what the benefits were, if any

Results

The first analysis was to display changes in John’s behavior across the study. At the beginning of the study, John had difficulty with touching others, hitting, yelling, kicking, humming, talking out of turn, and refusing to complete work or follow directions. To document the time and frequency of these inappropriate behaviors, an analysis of this data showed that most of John’s behavioral problems occurred during lunch, after lunch, or following a school delay. See Figure 1 for a display of the frequency of inappropriate behaviors across the length of the study. John’s inappropriate behavior gradually decreased after John was introduced to his activity schedule. However, at times, John still showed inappropriate behaviors on days with school delays as shown in Figure 2 on September 29.
The second analysis was to determine changes in John’s transitional skills across the study. To document the frequency of his transitional skills, an analysis of this data showed that John had the most difficulty transitioning between subjects, especially ones that he did not like.

In Figure 3, the tally marks indicated those times that John had difficulty transitioning. A tally mark was given anytime John had difficulty transitioning between subjects or if he refused to complete his work independently using his activity schedule. At the beginning of the study, John had difficulty transitioning between subjects or activities, working independently, and accepting his activity schedule as shown in Figure 3 from September 3 through September 16. If he had problems at lunch or recess, he tended to have problems during the rest of the day. After John was introduced to his activity schedule, his transitional skills improved, as shown in Figure 3 from September 17 through October 23. With the use of the activity schedule, John learned how
to transition between subjects with more success. The number of difficulties the student had with transitioning was compared for the weeks of 9/3 to 9/24 to the weeks of 9/25 to 10/23. John showed inappropriate behavior 36 times from September 3 to September 24, whereas, he only showed inappropriate behavior 5 times from September 25 to October 23, which was a 44% decrease in inappropriate behaviors. There was a definite decrease in inappropriate behavior from the first two weeks to the last two weeks as shown in this study.

**Transitions Chart**

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<td>Morning Work</td>
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**Figure 3:** Transitional skills exhibited from the beginning of the study to the end of the study.

The final analysis was to show changes in John's average grades per subject. Prior to implementing the study, John's grades were averaged in each subject for a two-week period, as shown in column 1 of, pre-study average grades percentile shown in Figure 4. These grades averaged from forty-nine to seventy percent. Figure 4 also showed that handwriting was the subject where John had the most problems. After implementation of the activity schedule, John's grades were once again averaged in each subject for the duration of the study as seen in the column 2, post-study average grades percentile shown in Figure 4. At the end of the case
study, John averaged from sixty-nine percent to eighty percent in all subjects. Figure 4 presented improvement in all subject areas across the duration of the study.

As indicated in the above graph, with the use of the activity schedule and some prompting from the researcher, John was able to stay on task so that there was academic improvement in all areas. Figures 2, 3 and 4 all confirmed that John was showing improvement in his behavior, transitions, and academic scores.
Chapter V: Discussion

As a substitute teacher, the researcher noticed that students with autism had difficulty transitioning between activities. The students appeared frustrated and unsure of when to start the next activity. After the professional literature was reviewed, activity schedules were determined as one strategy that demonstrated multiple benefits with students with autism, including transitional skills. The researcher decided to collect data to determine how using an activity schedule would be beneficial with a student with autism.

The purpose of this project was to determine the benefits of implementing an activity schedule with students with autism. The research questions that guided this project were:

1. How was an activity schedule defined in the professional literature?
2. According to the literature, what were the benefits of implementing an activity schedule with students with autism?
3. In what ways were activity schedules used according to the professional literature?
4. What were the benefits of implementing an activity schedule with a student with autism?

Meaning of Findings

This study provided a demonstration of how an activity schedule was used to facilitate transitional skills, behavior skills, and academic skills for a student with autism. The present study extended past findings by demonstrating that: (a) John quickly learned the mechanics of the picture activity schedule; (b) picture prompts were shown to be an effective strategy for student independence in the complete absence of the teacher or paraprofessional; and (c) high levels of on-task behavior with the activity schedule correlated with a decrease in inappropriate behaviors.
This study indicated that the benefits of using an activity schedule with pictures were many. This included that the activity book was small and easily transported to and from other classrooms, that the student was able to remove a completed picture independently so that he could move onto the next activity or subject, and transitional skills, behavioral skills, and academic skills of the student all improved with the use of the activity schedule.

Summary

In summary, the researcher examined inappropriate behaviors, transitional skills, and academic skills with a student with autism using an activity schedule within an autistic classroom setting and during specials, recess, and lunch with typical students. The student seemed frustrated with academic demands and engaged in inappropriate behaviors. Further manipulations using the activity schedule indicated that inappropriate behaviors and problems transitioning between subjects or activities occurred most often when the student did not like the subject or activity or when there was a school delay or change in his daily activities. John’s activity schedule was modified based on changes in his classroom schedule, such as school delays, pep rallies, etc. This modified activity schedule resulted in substantial reductions in inappropriate behavior and increases in transitional skills and academic skills. This intervention also promoted John’s independence because he did not require assistance from the teacher or paraprofessional for implementation. These positive results were maintained throughout the intervention. This study presented evidence that an activity schedule might be useful in helping students with autism transition easier between subjects or activities.
Recommendations

Educators are challenged every day to find strategies for promoting the success of students with disabilities in the least restrictive environments. This study involved only one student with autism in an autistic classroom, so future studies should incorporate more students to see if the results are the same. Further research should also be conducted to examine the usefulness of an activity schedule to develop individualized schedules for students with other disabilities as well. However, it may be difficult in some cases to determine an individualized schedule for students with severe disabilities (i.e., severe autism) who engage in high rates of challenging behavior. Finally, research should be conducted to see if this strategy could be used in inclusive classroom environments.

Conclusions

In conclusion, the use of an activity schedule to increase appropriate behaviors, academic achievement, and the transitional skills of students with autism was well supported in the literature. Activity schedules were shown to be an effective intervention for students with autism and considered an evidence-based teaching strategy that may help students transition easier from one subject or activity to another. Activity schedules, when personalized to meet the specific needs of a student, acted as a powerful intervention. Results of this study supported the existing literature on using a picture activity schedule to increase the desirable behaviors, transitional skills, and academic skills of students with autism.
References


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