The Seventh Study

**The Effectiveness of PowerPoint in Teaching Sight
Words to Individuals with Autism
Running Head: PowerPoint to Teach Sight Words to
Individuals with Autism.
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Abstract

Background and Aims: Teaching sight words are powerful for students with autism to improve their reading skills. Moreover, learning of autistic student might enhance rapidly, by using some computer program. The present study aimed to conduct a multiple baseline design study to investigate the effectiveness of using PowerPoint to teach sight words. Methods: The sample for this study included three students diagnosed with autism and were attending a public elementary school. Flash cards were used as a pretest/baseline phase. After a couple sessions of teaching using PowerPoint, a post-test was conducted to investigate the effectiveness of PowerPoint. Ten sight words were selected based on each student's individualized education program (IEP), and they had never learned these words before. Results: The results showed that child 1 and child 2 met the criteria of reading 8 out of 10 sights words correctly; while, the third child 3 failed to do so. All the three children did not know the sight words; however, in probe condition, the data presented a change in the level and trend for child 1, child 2, and child 3, which was in ascending position. The mean of the baseline condition for all subjects was zero; while, the mean for probe condition was 5.83, ranging between 4 and 10.

Conclusion: The results concluded that using PowerPoint greatly aided students to improve their reading sight words.

Implications: PowerPoint need to be included in classroom setting to instruct individual with autism.

Keywords: Autism, Individualized Education Program, PowerPoint, Sight Words.

فاعلية العروض التقديمية PowerPoint في تعليم الكلمات المرئية للأفراد ذوي اضطراب طيف التوحد:

فاعلية العروض التقديمية لتعليم الكلمات المرئية لذوي التوحد Running head :

إعداد

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الملخص:

الخلفية والأهداف: تعليم الكلمات المرئية ذو فائدة للطلاب ذوي اضطراب طيف التوحد لتحسين مهارات القراءة لديهم. بالإضافة على ذلك ، قد يتحسن تعلم الطالب ذوي اضطراب طيف التوحد بسرعة ، باستخدام بعض برامج الكمبيوتر. هدفت الدراسة الحالية إلى إجراء البحث باستخدام تصميم الخطوط القاعدية المتعددة للتأكد من فعالية استخدام العروض التقديمية PowerPoint لتعليم الكلمات المرئية. الطرق: اشتملت عينة الدراسة على ثلاثة طلاب ذوي اضطراب طيف التوحد وكانوا ملتحقين بمدرسة ابتدائية حكومية. تم استخدام البطاقات الورقية كمرحلة اختبار تمهيدي / أساسي. بعد جلستين من التدريس باستخدام العروض التقديمية PowerPoint ، تم إجراء اختبار بعدي للتحقق من فعالية العروض التقديمية PowerPoint. تم اختيار عشر كلمات مرئية بناءً على الخطة التربوية الفردية (IEP) لكل طالب ، ولم يتعلم الطلاب هذه الكلمات من قبل. النتائج: أظهرت النتائج أن الطفل ١ والطفل ٢ استوفوا معايير قراءة ٨ كلمات من كل ١٠ بشكل صحيح. بينما الطفل الثالث ٣ لم يتمكن من القيام بذلك. خلال مرحلة الخط القاعدي لم يتعرف الطلاب جميعهم على الكلمات المرئية ؛ وبعد الانتقال إلى المرحلة التالية ، أكدت البيانات تغييرًا في المستوى والاتجاه للطفل ١ ، والطفل ٢ ، والطفل ٣ ، والذي كان في وضع تصاعدي. كان متوسط الخط القاعدي لجميع الطلاب صفرًا ؛ بينما كان متوسط النتائج خلال مرحلة التدخل (٥.٨٣) ، تتراوح بين(٤ و ١٠).

الخلاصة: خلصت النتائج إلى أن استخدام العروض التقديمية PowerPoint ساعد الطلاب بشكل كبير على تحسين قراءة الكلمات البصرية المرئية.

التوصيات : يجب تضمين العروض التقديمية PowerPoint في إعداد الفصل الدراسي لتعليم الطلاب ذوي اضطراب طيف التوحد.

Introduction:

Continuous increase in the number of people with autism represents an essential issue for professionals to find the best ways and methods to increase participation of autistic students with their peers in school. People with autism need to increase their academic abilities to become more independent, which will help them to integrate in and adapt to their community. Reading is a fundamental skill that the individual must learn. Special education teachers need to work for integrating technology into their instruction to provide autistic individuals with basic skills that might influence their future. Language skills, including reading, are the most basic academic skills that every autistic student should learn as soon as possible. Reading sight words has a great impact on the reading abilities of students as it is the best way to teach hard reading skills like comprehension. It is important for a team to develop and include student academic goals and objectives that will improve student performance in different aspects of their lives (Snell & Brown, 2010). The student's individualized education program (IEP) should include academic goals in elementary age because it will help them to interact and learn more high level of skills to make inclusion easy.

There are many researches investigating various interventions and tools to instruct students with disabilities and especially individuals with autism. The main proposes of these researches was to find what is the effective for students, such as there is increased popularity of using technology or some computer software in the recent years. Moore and Calvert (2000) studied the impact of using computer software on vocabulary acquisition and compared participants attention, motivation, and vocabulary acquisition by using teacher condition versus computer condition. The results concluded that children were more attentive, motivated, and learned better in the computer condition. These positive aspects reinforce to evaluate the effectiveness of using another computer software such as PowerPoint in teaching children with autism critical skills. Therefore, there is need to create more interesting learning environment for children with autism by using one of the easiest software with interactive features.

Teaching sight words, which is a part of language skills, is important for students with severe disabilities and especially with students with autism because they face challenge in their language abilities. Also, sight words are the basic skills, which have a great affect to improve reading ability. Snell and Brown (2010) pointed out that building a strong sight word vocabulary is essential for many students with severe disabilities because many of them will not acquire skills to make decoding strategy to identify word. The importance of learning sight words is to point out that initial vocabulary can provide foundation to build complex skills (Snell & Brown, 2010). Therefore, it is believed that teaching sight words are powerful for students with autism to improve their reading skills. Also, learning of autistic student might enhance rapidly, by using some computer program.

A study by Colman (2009) reviewed many different studies that used PowerPoint software with individuals suffering from disabilities. The results indicated that PowerPoint is not just for business and college lectures presentation, rather it can enhance instruction for students with disabilities. Also, the results mentioned some of the features of PowerPoint to instruct students with disabilities that could be more motivational, as compared to the traditional methods. For example, PowerPoint offers several features that might help to create interesting instruction and allow for interactive instruction especially for reading. Similarly, Parrett et al. (2008) recommended using PowerPoint to support emergent literacy skills for a young child with disabilities. They provide many suggestions on how teachers can better use PowerPoint in their classroom especially for literacy skills such as phonological awareness, comprehension, and vocabulary development. These results suggested that teacher need to select several target words in developing vocabulary and then the features of PowerPoint are used for creating interactive presentation with imitations, colors, and sounds. This is likely to lead to increased proficiency and speed to develop skills. However, there is need to show in practice how this software will be more effective for young children. For instance, the use of PowerPoint in this study might establish a positive point for the teacher to use this software in teaching literacy skills to autistic children.

Another study by Yaw et al. (2011) conducted extensive research using a computer in sight word intervention for autistic students. The effects of a computer program as intervention methods for evaluated for teaching the autistic students. The results showed that using computer has an effect of learning sight words to student with autism. The data was also collected after removing the program, and they found that students are likely to increase their ability in automatic reading. The findings supported the idea of integrated technology in teaching could improve outcomes in the classroom. Also, using the computer often reinforce children which influences their learning positively. In addition, the unique characteristics of children with autism need some strategies that match their style of learning such as their visual ability.

Considering the above discussion about PowerPoint, the present study is likely to consider the impact of this software on teaching important skills to autistic students, as most individuals with autism learned better visually. Moreover, use of computer with interactive PowerPoint presentation might increase their attention on the task. Therefore, the main purpose of the study is to examine the effectiveness of using PowerPoint as computer software in teaching new sights words to the autistic students. The results are would help in figuring out the best ways to improve learning abilities and use of PowerPoint in instructing other skills among the autistic students.

Method
Study Setting
The sample of this study included 3 autistic children attending a public elementary school. All these students were receiving their instruction in a K-2 elementary autism class. The special education classroom was the setting to conduct the baseline and intervention for all students.

Study Sample
Child 1 was a seven-year-old male, 1st grade student. He had a medical and psychologist diagnosis of autism. He was found under the severe range of autism based on his teacher evaluation by the Childhood Autism Rating Scale (CARS2-ST). He was verbal and could speak using two to four-word phrases. Usually, he used his phrases to request, label, and comment. For reading and math skills, he was on 1st grade level for reading sight words recognition. He could use activity schedule and completed task following schedule independently. This was the second year for Child 1 in the program.

Child 2 was a six-year-old male, Kindergarten student. He had medical diagnosis of Autism. However, he has an educational code of developmental delay. He was assessed by his teacher using the Childhood Autism Rating Scale (CARS2-ST) and was found under the severe range of autism. He was verbal and spoke using two to four-word phrases. For communication, he often used words for requests, labels, and comments. Based on the Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP), he was considered being in the 48-60 month range for reading. This was the first year of this child in the special education program.

Child 3 was a seven-year-old male, first-grade student. He had medical and psychologist diagnosis of autism. He was assessed by his teacher using the Childhood Autism Rating Scale, Second Edition (CARS2-ST). He was found under the severe range of autism. He was verbal and typically spoke in two to three-word phrases. Most of his communication interactions were requests or labels. This child's IEP include many reading and math skills goals. Based on the Brigance Inventory of Early Development, he was equivalent to sixty months of age on a developmental scale. Also, he had been in special education program for two years.

Data Collection

The special education teacher arranged special education classroom to conduct the baseline test so that the students are in the one-to-one corner and isolated from the other students. The study was conducted during the first block of the schedule, when all students were in the group circle area. Children were selected randomly to be moved from the circle and participate with the researcher. When the first child finished with researcher, another child was asked to work with researcher.

The intervention phase was conducted in two different areas. For Child 2 and Child 3, the teacher computer was used for intervention. However, for Child 1 a different computer was used which was located at his desk. Both computers areas were isolated from any disruption from other students. In general, the special education classroom was including 7 students, one teacher, and three para-educators. The class was divided into many areas including group area, one-to one, teacher desk, play area, and students' desks. The one-to-one area included a table that allowed teacher and student to face each other. The chairs were small which allowed the teacher and student to sit at the same level.

Dependent and Independent Measure

The dependent variable for this study was the number of sight words that were read correctly. The change in number of sight words that each child was able to read from baseline and after they receive the intervention was the main goal to observe and measure. The researcher used a data sheet to count the number of correct words. As a result, the measurement was the number of correct sight words that students read. The independent variable was the use of PowerPoint program.

Materials

This study was conducted by using many simple materials. Flash cards were used during the baseline sessions. The researcher designed PowerPoint slides to be used during teaching and probe sessions. The researcher decided to use Times New Roman for the font, 180 font size, and black color for the words and lighter colors for the slide background to ensure that the intervention was appropriate. Also, data sheets were designed to collect data for each child.

Study Procedure

A multiple baseline design across subjects was used to measure the effectiveness of using PowerPoint to teach new sight words to autistic students. The criterion of eight sights words was established to measure success. The selection of criteria was based on the discussion between the researcher and special education teacher. The researcher and special education teacher felt that 8 of 10 new sight words in a short time will be a good progress for students, because all the selected sights words were new for children to learn in limited time.

Baseline data were collected continuously for all participants. During the baseline, the sight words were presented on flash cards. The researcher sat in the one-one instruction area and presented each flash card to student. Participants faced the researcher and the rest of the classroom was behind them. This position helped to increase the child's attention. During baseline, students were not given any prompts just the instructional cue "Read this word." Then, researcher recorded on data sheet if students responded correctly or not. Recording was done as follows:

- use of a "+" was used when students read the word correctly
- use of "-" was when students were unable to read the word or read it incorrectly.

Verbal reinforcements were giving such as "You did a great job", "Awesome", and "Excellent", when children completed each session of baseline. Finally, the researcher took each student back to the area, where the special education teacher wanted the child such as a play area, group area, and own desk. In addition, the intervention was introduced for the first subject while other subjects still in baseline phase, when the data showed stability in level and trend for three data points.

The second condition of the study was teaching the sight words using PowerPoint for each subject. The teaching sessions were conducted twice in one day, and the probes were conducted on the following days. In teaching sessions, the researcher read each word twice and asked the child to repeat the word by using verbal modeling. During teaching sessions, no data were collected. The teaching session conducted again after the initial two probes of data showed that each subject did not meet the criteria. A total of four teaching sessions were completed with each child.

Two probes or post-test was conducted to measure the effectiveness of PowerPoint after teaching sessions were conducted. During the probe, the same PowerPoint was used in this session. The probes were first used with Child 1, while the other two participants were still in baseline phase using flash cards. The researcher ensured that each child demonstrated the criteria on at least three data points before start the intervention and probes with other subject. When the first participant achieved the criterion, the intervention was applied for the second participant. The same sequences and procedure were used until the study was completed. After the initial two probes sessions, another teaching session was conducted. During probes session, students were not given any prompts just the instructional cue of "Read this word." The data were recorded by using "+" or "-" for each word. However, verbal reinforcements were given after children completed each session of probes. A total of four probes sessions were conducted with each child. Also, the trend and level of the data was the main consideration of stopping the probes or starting a new teaching session.

For both teaching and probe sessions, the researchers sat in the computer area and prepared the PowerPoint slide on full screen position. Then each child was asked to sit beside the researcher with the computer screen in front of them. Also, the researcher removed the mouse and keyboard from the front of the child to ensure no disruptions in their attention.

Reliability

For reliability purpose, inter-observer agreement was used for the percentage of agreement between the researcher's data and that of an observer. The researcher's goal was that each child learned 8 out of 10 new sights words. The observer was the special education teacher, and she was aware of the purpose of the study as all the students in the study were from her classroom. The observer was asked to collect data when the researcher conducted the baseline and intervention sessions. Inter-observer agreement was calculated by using the formula smaller number divided by the larger number times 100. Reliability agreement was 100% during baseline and for intervention.

Results and Discussion

The overall data for all subjects of this study showed the effectiveness of using PowerPoint in teaching individuals with autism sights words (Figure 1). Both Child 1 and Child 2 met the criteria of reading 8 out of 10 sights words correctly. Child 3 did not meet the criteria, but he got 50% of the sight words correct. For the baseline condition, data on the graph showed that all three subjects did not know the sight words. Also, the graph showed stability for all data points with each subject. However, in probe condition, the data presented a change in the level and trend for Child 1, Child 2, and Child 3. The trend showed an ascending position for all subjects. Moreover, the data showed that Child 1 and Child 2 met the criteria, but Child 3 did not. The mean of the baseline condition for all subjects was zero. The mean for the probe condition was 5.83. The range of the probe data was between 4 and 10.

[Figure 1 about here]

The presents study examined the effectiveness of using PowerPoint in teaching new sight words to autistic students using a multiple baseline design. The results showed that the intervention influenced students learning of new sights words. This finding was supported by Yaw et al. (2011), stating that computer had immediate increases in the learning of sight words by autistic students. Moore and Calvert (2000) stressed that children were more attentive, motivated, and learned more during computer condition. These findings are in agreement with the present study as all the participants learned more sights words using the PowerPoint software. However, the present study failed to examine the areas of attention and motivation did not occur. Moreover, observation of the children's behaviors toward the intervention showed that they seemed more motivated for learning.

The finding of this study also relates to the findings of Colman (2009) and Prarett et al. (2008) stating that the use of PowerPoint in instruction individuals with disabilities was effective. Similarly, Coleman et al. (2012) compared efficiency of computer-assisted instruction with teacher-directed instruction, with the inclusion of digital presentation of words, task directions, controlling prompts, and noncontingent feedback at the end of each session. The results were consistent with the present study stating that although use of computer assisted instructions (such as PowerPoint) is effective, they are slightly less efficient in terms of number of trials to criterion, as compared to the teacher-directed condition.

The present study recommended that PowerPoint software features affected the students by enhancing their learning situation and might be very appropriate for children with disabilities. However, there are many limitations that might have an impact on this study such as the researcher was not one of the school staff, so he was limited on the time of when the study could be conducted. Also, the time frame of completing this study might also have affected the implementation of an extra intervention phase for Child 3 to collect more data points.

Conclusion

The unique needs of individuals with autism encourage the professionals for doing more research and investigation. All research should be based on the culture of autism because it helps to establish appropriate tools to make their future better. The professionals are likely to find positive results considering the individuals with autism a higher expectation. For future research, researchers might select a group of words that can be presented with pictures which would then be included in the PowerPoint because present study just used words without any picture in the PowerPoint. Also, future research might study the impact of using PowerPoint and the Smart Board in instructing children with autism.

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Figure Caption

Figure 1: Effectiveness of using PowerPoint in teaching individuals with autism sights words