

The Effects of Creating a News Broadcast on the Prosody of Four Students with Developmental Disabilities

By

Alleyne Knudson

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Abstract

The goal of this study was to examine what effect creating a news broadcast would have on the prosody of two students diagnosed with autism and two students diagnosed with Down syndrome. Students produced seven news broadcasts in the study. In the last three broadcasts two elements were added to the class: Firstly, students began graphing their prosody scores, and secondly, teachers used video modeling to give students feedback on their prosody when they practiced reading their news stories. Two of the four students made significant improvements with their prosody. With the addition of video modeling, students continued to make gains with their prosody, but not as strongly as they did in the first four broadcasts. Graphing prosody scores had a negative effect on student motivation. Differences were noted in the motivation and prosody of students with autism and students with Down syndrome.

As a special education teacher working with students with autism, I see a range of abilities in the students with whom I work. One of the commonalities, however, that I see among almost all of my students is their difficulty with prosody. Almost all of my students find it challenging to recognize and use the appropriate tone of voice, voice-level, expression, and inflection when communicating. This single indicator can be recognized instantly, making each of them stand out as a person with a disability. It also causes communication difficulties.

I've tried various instructional approaches, from small social skills groups to individual student meetings, to try to address student prosody difficulties. One of the largest obstacles that I have encountered when trying to help students, is that they often don't recognize that their prosody is abnormal and/or interfering with their communication. It's often difficult to replicate or rehearse the communication and language error(s) that occurred and students often become defensive. Without the awareness or motivation to improve their prosody, it is very difficult to address.

In an attempt to help my students with their prosody in a way that is both motivating and meaningful to them, I started a class where students participate in a news broadcast experience using weekly current events. The goal of this class is to provide a meaningful context in which students can practice, review, and reflect on their prosody. I began this class several years ago with a group of six students with ASD (Autism Spectrum Disorder). I was very happy with the improvements students made with their prosody and their motivation to improve it. I have now included creating a news broadcast as part of my reading class that I teach with students with mixed disabilities. The news broadcast serves a dual purpose with this class. It is designed to improve prosody as well as reading skills for students.

Literature Review

Autism and Downs Syndrome

Two of the four students in this study are diagnosed with Autism. Autism is a neurobiological disorder that causes discrepancies and differences in multiple areas of an individual's development (Janzen 2003). Autism is characterized by impairments in the areas of socialization, communication, and ritualistic behavior (Minnesota Autism Society, 2008). The impairments caused by autism can range from mild to severe, depending on the individuals intellectual ability, other co-occurring conditions, and experiences (Janzen). Communication and language are often cited as the most prevalent areas of difficulty in individuals with autism (Quill, 1995).

The other two students in the study have been diagnosed with Down syndrome. Down syndrome (DS) is a chromosomal condition characterized by the presence of an extra copy of genetic material on the 21st chromosome (Canadian Down Syndrome Society, 2011). DS is one of the most common causes of developmental delay and learning disabilities. DS results in a number of physical and cognitive abnormalities, such as short stature, hypothyroidism, hypotonia, congenital heart disease and mild to moderate learning difficulties, with an average IQ range between 40 and 60 (Prasher & Cunningham, 2001). Studies vary with regard to the incidence, but it is believed to occur in approximately 1 in 800 live births (Canadian Down Syndrome Society, 2011).

Prosody

Prosody is defined as the supra-segmental aspects of speech that modulate and enhance its meaning (Paul, Augustyn, Klin, & Volkmanr, 2005). In the realm of social

communication, using and understanding prosodic cues is vital for effective communication. Prosody can change the message in statements by emphasizing specific words or statements or using a specific tone to infer a meaning that does not always match the actual words spoken, it is used to express an emotional state or attitude, and to regulate conversational behavior (Stojanvoik, 2011).

When autism was initially studied and identified as a syndrome, “abnormal prosody was frequently identified as the core feature of the syndrome” (Paul et al., 2005, p. 205). A study done by McCann, Peppe, Gibbon, O’Hare & Rutherford (2007) found that all of the children with high functioning autism in their study, regardless of mental age, had difficulty with at least one aspect of prosody when compared to a control group. Although, not all individuals with autism have abnormal prosody, “when it is present, abnormal prosody characteristics constitute one of the most significant obstacles to his or her social integration and vocational acceptance” (Paul et al. 2005, p. 205). Examining the perception and production of prosody by speakers with autism spectrum disorders (ASD), Paul et al. (2005) also found that speakers with ASD exhibited differences in prosody when compared to their same age peers. This study found that stress, both in production and perception, were the most affected. They also noted qualitative differences in the two groups, which were not quantifiable in the data presented, such as embarrassment in delivering child-directed speech and the method in which individuals with ASD used pace and stress when they spoke.

Acquiring speech and language skills is a challenge for most individuals with DS and few ever attain full mastery of language (Stojanovik, 2011). Although it has been noted that DS is more detrimental to speech and language than other types of learning difficulties, there has not

been a lot of research on speech and language in DS compared to other disorders such as autism or Williams syndrome. Nonsegmental phonology (prosody, intonation, accents, pauses in speech), has been minimally studied in persons with DS, however, a few limited indications suggest that it may be slightly in advance of other linguistic skills (Rondal, 2009).

Stojanovik (2011) found in her study that comprehension and production of prosody in children with DS was severely impaired when compared to others of their chronological age. When compared to children who have similar receptive language abilities and similar non-verbal abilities, the children with DS showed marked deficits when asked to use prosody to express affective states, use prosody in order to mark the most prominent word in an utterance, and distinguish between different prosodic patterns (2011). In a study conducted by Reilly & Bellugi (1991) comparing s MA-matched adolescents with Williams Syndrome and adolescents with Downs-syndrome, they found that the adolescents with Downs-syndrome exhibited difficulties in their affective prosody when asked to construct a story from a wordless picture book.

Comparing the studies done by Paul et al. (2005) and Stojanovik (2011), both groups (students with ASD and students with DS) exhibited difficulty in their production and understanding of prosody. There may be a difference between the two groups, however, in their use of prosody in nonsegmental speech. This may be a relative strength for individuals with DS, but was cited as a core feature for Asperger's syndrome.

Purposeful Contexts and Engagement

It is essential that students are engaged in learning and understand the purpose of why they're learning. In my previous strategies to address prosody with my students, purpose and

engagement were missing and this adversely affected our lessons. As cited in Guthrie (1996), a study done by (Newby, 1991) found that students showed greater sustained interest in classroom work when they perceived the activities as relevant. Guthrie went on to further describe one of the seven dimensions that promote literacy engagement as “real-world interaction” (p. 422). An excellent example of an application of this idea is a study done by Hobbs (2005), which found that using media as part of her language arts instruction increased student’s motivation and media literacy skills. Also, supporting the importance of engagement is a case study, done by Ranker (2007) which found that incorporating digital video production as part of his student’s assignments “gave them a clear and motivating purpose for their research and writing” (p. 79).

Examining reading fluency using engaging and purposeful contexts, Keehn (2003) found that using Reader’s Theater with elementary students dramatically improved their oral reading fluency. Keehn also found that student’s oral reading improved even if they did not receive explicit fluency instruction, indicating practice, in an appropriate context, is a key factor in fluency growth.

Visual Supports and Video Modeling

In a study done by Andrade & Ying (2007), researcher used rubrics as a visual tool to help students self-assess their work. The students in this study reported that using the rubric as a tool for their self-assessment helped improve their grades, quality of work, motivation and learning. Researchers also noted that the rubric helped give students clear expectations so that they could measure their own progress.

Prosody is an abstract concept and I frequently found myself struggling to effectively explain prosody and how it affected my students. One reason my verbal explanations were not effective could be attributed to the difficulty students with ASD have with processing auditory information (Janzen, 2003). In her book, Janzen recommends providing visual supports to help students with autism process and organize information. She notes that visual supports help motivate students with ASD and foster stronger learning environments. Using a rubric as a visual tool has the potential to help students better understand their prosody.

Video modeling is an instructional process of videotaping behaviors in a specific way and showing them to students to help them memorize, imitate and generalize those behaviors (Buggey, 2009). Research has found that the use of video modeling, including the use of self-modeling and peer modeling, can have a great positive effect in the areas of social communication, daily functioning skills, and academic performance on children with various disabilities (Apple, Billingsley & Schwartz, 2005). Video modeling has been found to be an effective instructional medium to use with individuals with disabilities because “watching skills” are modeled (Browning & White, 1986) and the video format creates opportunities for repeated viewings (Charlop & Walsh, 1986). Charlop-Christy & Freeman (2000) found video modeling to actually be more effective than in-vivo (live) modeling in that it had faster rates of acquisition and was more effective in promoting generalization.

Conclusion

Prosody is a complex language device that is used to infer and emphasize meaning, express and emotional state or attitude and regulate conversation. Many individuals with autism have difficulty with prosody and this can create challenges both socially and

vocationally. Although prosody has not been studied as extensively in individuals with DS, research suggests that they also exhibit difficulties with their prosody skills as well.

Understanding the struggles that both groups face with prosody and using research based teaching tools such as providing a purposeful context, engaging learners, and using visual supports and video modeling has great potential for improving the prosody of both groups.

Creating and producing a final and meaningful product in a news broadcast is an excellent way to use these strategies in a classroom setting to address the prosody issues with which individuals with developmental disabilities have difficulty.

Purpose of the Study

The purpose of this study is to examine what effect creating a news broadcast will have on the prosody of students with developmental disabilities. My research question is, will providing a meaningful instructional context, by recording news stories as part of a news broadcast, improve the prosody of four students with developmental disabilities? I will also examine the following sub-topics in my research:

1. Will video-modeling help improve students prosody?
2. What effect will graphing prosody scores have on student motivation?
3. What are the differences in motivation and prosody for students with developmental disabilities vs. students who have autism?

Methodology

Participants and Setting

This study took place in a suburban high school in western Wisconsin. Four students participated in the news broadcast class. All of the students in the study are male and are

diagnosed with a developmental disability. Two of the students are diagnosed with ASD (Ryan and Warren) and two have Downs-syndrome (Dustin and Alex). Students' age ranged from 16-17 years-old.

The students receive special education services at their high school and were participating in a small group, special education reading class when creating, filming and reviewing their news broadcasts. Another special education teacher and a speech and language pathologist assisted students with their news stories and provided feedback on students prosody.

Design

Students participated in seven news broadcast experiences over the course of three months. Our news broadcast class met two to three days per week for 50 minutes. Before starting their first news broadcast, I discussed the project with students and told them that we would be practicing how they read. We made a list of things that news anchors do when they read their stories and wrote these on the board. We categorized students and teachers feedback to elements of prosody and listed three areas that we were going to be practicing: pace, volume, and tone.

Each week the students worked on creating their news broadcast. In five of the seven broadcasts, students used a modified newspaper published for special education students (news-2-you) to obtain the content for writing. This newspaper is published weekly and is divided into several sections: lead story, joke page, people, places, and sports that all follow the same theme of the newspaper that week. In the other two broadcasts, students chose to do a special news story where they interviewed people and a news broadcast on the

country music awards. The entire process of creating and reviewing our news broadcasts typically took one to two weeks depending on how often we were able to meet each week.

At the beginning of the week we read the newspaper together and discussed the different topics in each section. After this, students chose the section that they would like to report on. Students were also given the option to report on the weather if they did not choose one of the sections in the newspaper. Students then wrote their news story for their news segment. All of the students had staff assistance in writing their news stories. This process would usually take the entire class time.

The next time our class met, students would practice reading their news stories. In the first four broadcasts, students read their stories to a teacher and then the teachers would give the students feedback using a prosody rubric (appendix A). In the last three broadcasts, I filmed the students reading their broadcasts, then we reviewed the film and discussed how the students reading sounded using the prosody rubric. I was able to do this privately with each student, using a separate room in our classroom.

We filmed our news broadcast during our next class meeting. Students wore special news anchor suit coats on our filming days. We re-arranged desks to create a news anchor table in our room and usually filmed the broadcast twice.

Lastly, we reviewed our broadcast. We made this an important event so we typically made a special snack and called it our news broadcast 'debut'. In the first four broadcasts, we did not give students any negative constructive feedback with their prosody. During the final three broadcasts, we discussed student's prosody scores using the rubric and had them graph their scores.

Data Collection and Analysis

While reviewing the news broadcasts with the class, the other special education teacher and I rated the student's prosody scores separately using the prosody rubric. Student's were given a rating from 1-3 for their pace, volume, and tone when reading their news story (see prosody rubric in Appendix A). After reviewing the broadcasts and recording the scores we discussed what we gave each student. Our prosody ratings were typically very close to one another's and our ratings never varied greater than one point. If our scores did differ, I averaged the numbers we gave the student for that area. Students were assigned a prosody score (the average of our ratings for student's pace, volume, and tone) for each news broadcast and this score was used to determine if student's prosody changed throughout the class.

When rating the student's prosody, the teacher and I assigned prosody scores relative to each student's individual abilities. For example, a perfect score (3) for Alex would look and sound differently than a perfect score for Ryan as Alex does not have the same reading or voice level abilities as Ryan does. We were able to objectively rate the students using the prosody rubric in this manner because we have both worked with each of the students for two to three years and are very familiar with the students strengths and areas of need. Rating the students in this way allowed us to use the prosody rubric, and also tailor our feedback and scoring to best match the student's abilities and needs.

Throughout the data collection period, I observed students and kept notes on behavior, comments, body language, work samples, and prosody. I also made note of any comments or concerns the other special education teacher and the speech and language pathologist made

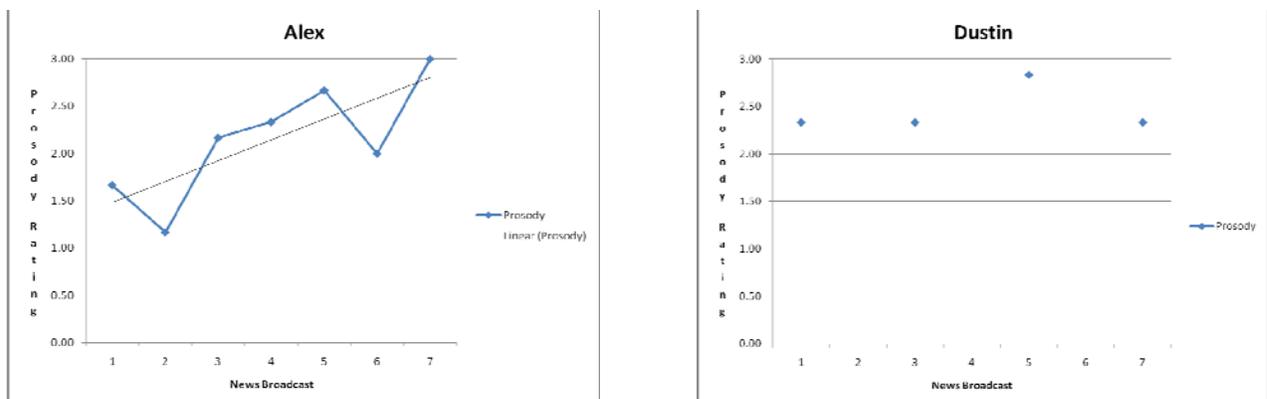
during the course of the study. Observations and notes were used to reflect on the overall research question and all of the sub-questions presented in the study.

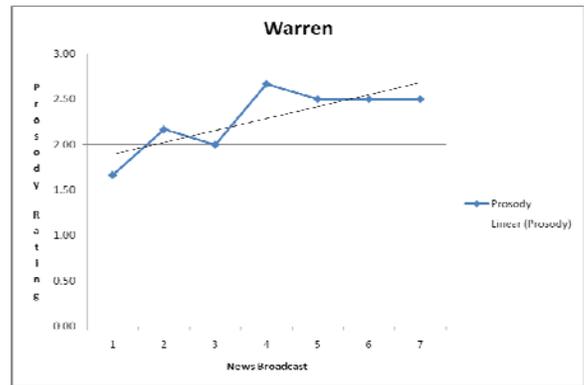
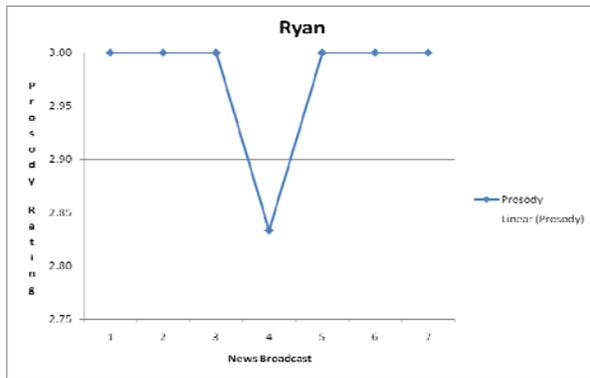
Results

Will providing a meaningful instructional context by recording news stories as part of a news broadcast, improve the prosody of four students with developmental disabilities?

Two of the four students showed strong improvements in their reading prosody throughout the news broadcasts. Alex showed the strongest improvements in his reading prosody. His prosody score during our first broadcast was 1.67 and improved to 3 in our final news broadcast. Warren’s prosody score also showed great improvement. His initial prosody score was also 1.67 and improved to 2.5 in our final news broadcast. Ryan maintained his reading prosody throughout the broadcasts. He had excellent reading prosody skills and received the highest prosody ratings in all but one of the news broadcasts. Dustin’s prosody remained about the same as well, maintaining a prosody score of 2.33 in three broadcasts and scoring 2.83 in one of the last broadcasts. Figure 1 shows each student’s prosody ratings across all seven news broadcasts. It should be noted that Dustin was only present on four of the seven news broadcast recordings and as a result he has fewer data points than the other three students.

Figure 1. Individual student prosody ratings across seven news broadcasts.





Will video-modeling help improve student prosody?

All of the teachers felt that the process of video modeling helped challenge students and improve their prosody. This strategy was particularly effective with one student, Alec. He enjoyed watching and listening to himself after practicing and recording his news broadcasts and was very motivated to improve. Warren was very cooperative while we recorded and reviewed his broadcasts, but had difficulty sustaining his attention when we played his broadcasts back to him. Ryan and Dustin were both very apprehensive about reviewing their broadcasts individually. Ryan did review his broadcasts but was very hesitant. We were only able to do video modeling once with Dustin as he was absent on the other days we practiced.

From the first to the fourth news broadcast (before we started video modeling), Alex’s prosody rating increased from 1.67 to 2.33, a .66 increase and Warren’s increased from 1.67 to 2.67, a 1.0 increase. Ryan’s prosody rating was consistent in the first three broadcasts at 3.0 but fell slightly when we did our interview segment in our fourth broadcast. Although this indicates a decrease in Ryan’s prosody when comparing his first to his fourth broadcast, we felt that this was due to the social interview style of the fourth broadcast, and with this format, Richard’s tone was rated lower. With this, we did not feel that Richard’s prosody showed an

What effect will graphing prosody scores have on student motivation?

After the fourth news broadcast, we began having students graph their prosody scores after viewing them. We introduced the new step by modeling the skill and explained to the group that they would be graphing their scores so they can see how their reading sounds from broadcast to broadcast. We found that graphing was a difficult task for our students, and remained so as we attempted this in our final three broadcasts. The students would complete the process of graphing their scores with assistance from staff, but students required a great deal of prompting and one to one assistance to complete the task. One of the students often complained and the others tried to rush to complete their graphs. Graphing prosody scores did not appear to have a positive effect on student motivation.

An observation that the teachers and I discussed later, was that with graphing prosody scores, we also began to give students constructive feedback about their prosody after viewing the broadcasts. In our first four broadcasts we did not share the prosody scores we gave students; instead we would celebrate and congratulate students after viewing them. We gave students little constructive criticism, as they were very happy and proud of their news reports. It did not seem like the appropriate teachable moment to discuss areas they could improve on. After the fourth broadcast, when we began graphing scores, we continued to praise students and celebrate, but also gave constructive feedback using the rubric and told students what their prosody scores were. Although we tried to still celebrate the broadcasts, discussing and graphing their prosody ratings did seem to take away from the celebration. In our discussions we felt that this contributed to the student's lack of motivation when graphing their scores.

What is the difference in motivation and prosody for students with developmental disabilities vs. students who have autism?

In examining the differences between the two groups of students in their motivation and prosody when creating our news broadcasts it was very interesting to reflect on how the two groups approached this project. Both student's with DS showed overt signs of being proud of their work. They were always very interested in watching our news broadcasts and would smile and give each other high fives afterwards. One of the students with Downs-syndrome was so pleased with his work that he asked to show a friend and his parent a recording of one of the news broadcasts.

Although the other student with DS showed enjoyment watching the recordings he would not read a news story for our broadcast. We assigned him special roles such as closing the news broadcast, holding the pictures, reading portions of the weather with another student, and playing a song on the guitar. Although this degree of participation may seem minimal, we were happy with the ways in which he joined us as this has been a struggle for him across his school day. He worked on elements of speaking using some of the prosody skills such as tone of voice and volume and was proud of the part that he played in our news broadcast.

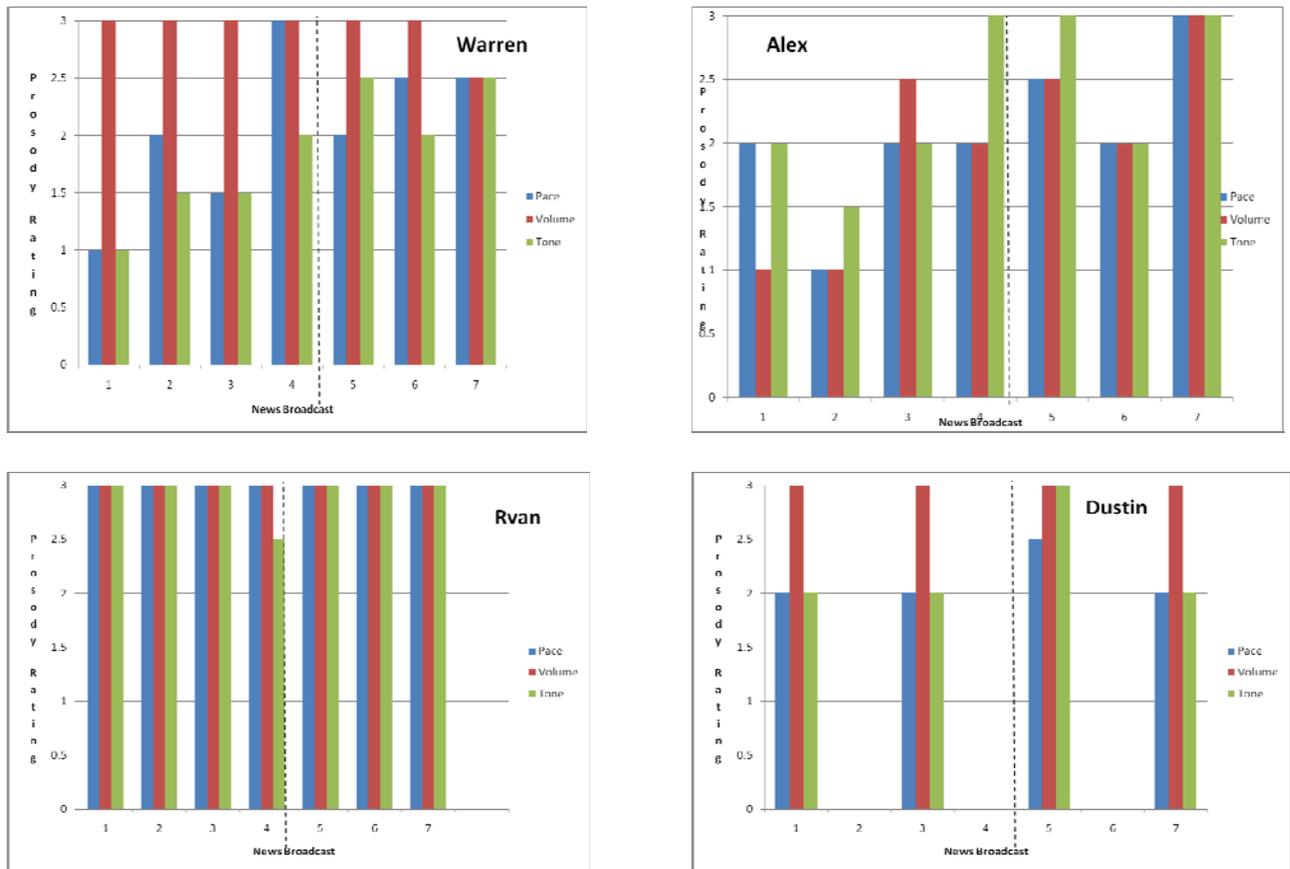
The two students with autism demonstrated less overt signs of being motivated by the class but did show signs that they enjoyed it. During our end of day journal prompts, one of the students often journaled that he had a good day at school because he had his news broadcast class that day. The other student with autism always chose to be the lead anchor and made sure that he gave the closing statement on our news broadcast. Interestingly, although this

student had excellent reading prosody and became the leader of the group, he never liked watching himself while we reviewed the broadcasts and during our video-modeling.

An interesting observation that we did not expect to find with this class, was that the group of students seemed to bond throughout the process. Although much of the work was independent, the students had to work together to create the broadcast. They were part of a team and shared a common goal and worked together to accomplish it. The special bond that formed with the group was often noticed by all of us and was a wonderful addition to the gains that students made.

Figure 3 shows the prosody ratings given to each student with their pace, volume, and tone for all of the broadcasts that were produced. The students with Autism, Warren and Ryan, had more difficulty with their tone when compared to the students with Downs-syndrome throughout the broadcasts. This was evident in Warren's score more so than Ryan's as his tone was often rated significantly lower than his pace and volume with the exception of his last broadcast. Ryan was rated lower in tone when the students interviewed staff for the news segment, and this was the only area that he ever received a rating lower than three. Although Ryan's tone was rated highly in almost all of the broadcasts we did notice a gradual change in his tone. Ryan's tone slowly changed from a very formal news broadcast tone, to a friendlier tone. Throughout the broadcasts Ryan was never advised to change his tone by any of the teachers, he did this naturally over time on his own.

Figure 3. Student's pace, volume and tone prosody ratings.



Alex and Dustin both had some difficulty with their tone as well, but it was not to the same degree as Warren's. Alex's tone was often his strongest rating and was often rated as one of his highest areas. Although Dan's tone was very gruff (similar to how he speaks) it was never rated lower than the other areas. Alex and Warren both struggled with their pace but in different ways. In the first several broadcasts Warren would pause too long at periods and emphasize irrelevant words in the story. Although he could read the words fluently, his unusual pace made it difficult to follow his stories. Alec had more difficulty reading his story fluently, and read his stories very slowly in the first several broadcasts. In our last broadcasts both Alex and Warren made strong improvements in their pace.

Alex was the only student that consistently struggled with his volume. He would often read his stories in a very quiet voice and they were difficult to hear. In our observations of Alex, we thought that his low voice volume was due to him concentrating so much on the words of the story, that he read them in a very quiet voice. As Alex became more comfortable with his reading, he was able to adjust his voice volume as his pace improved.

Discussion

This study suggests that providing a meaningful instructional context, by recording news stories as part of a news broadcast, improved the prosody of students diagnosed with autism and Downs-syndrome. Of the four students that participated in the study, two students (one diagnosed with autism and the other with Downs-syndrome) showed strong improvements in their prosody scores in all areas measured: pace, volume, and tone. Alex's prosody improved from a prosody rating of 1.67 to 3.0, and Warren's prosody rating improved from 1.67 to 2.5. Ryan showed excellent reading prosody skills, and he maintained his prosody. His prosody ratings were 3.0 for all but one of the news broadcasts. Dustin also maintained his prosody score of 2.33 in three broadcasts of the four broadcasts that he was present for, and improved his prosody slightly in the third broadcast with a rating of 2.83.

All of the teachers felt that the process of video modeling helped challenge students and improve their prosody. From the first to the fourth broadcast (before we started video modeling), Alex's prosody rating increased by .66 and Warren's increased by 1.0. Ryan's prosody decrease slightly, but we felt that this was due to the format of the fourth interview and not a decline in his reading prosody. Dustin's prosody remained the same. From the fifth to the seventh broadcast (after video modeling was introduced), Alex' prosody increased by .33

and Warren's and Ryan's prosody remained the same. Dustin's prosody fell slightly. Although Alex and Warren did not increase their prosody scores as much as after video modeling was introduced, we felt that the video modeling contributed to the gains that they continued to make in the later broadcasts.

Having students participate in graphing their prosody scores had a negative effect on student motivation. We began doing this with students after the fourth broadcast, and students often complained and rushed through the process of graphing their scores. The teachers felt that graphing scores was difficult for students, and that students did not appear to connect their prosody rating with their graphs. We also noted that sharing students' prosody ratings and giving students constructive criticism after reviewing the tapes took away from the celebration and pride of creating their news stories.

Both students with DS showed overt signs of being proud of their news broadcasts. They enjoyed watching the news broadcasts and would smile and give each other high fives when they were done. The students with Autism demonstrated less overt signs of being motivated by the class but did show signs that they enjoyed it. During our end of day journal writing one of the students would often write that he had a good day at school because he had his news broadcast class. The other students always chose to be the lead anchor and made sure that he gave the closing statements on our news broadcast. An interesting observation that we did not expect, was that the group of students bonded throughout the process and worked together. This did not occur in the previous news broadcast class, where all of the students were diagnosed with an Autism Spectrum Disorder.

The two students with autism had more difficulty with their tone when compared to the student's DS. Warren's tone was almost always rated as his lowest prosody element and Ryan had difficulty with tone when we interviewed staff. We did note that although Ryan's tone was almost always rated highly, that it slowly changed from a very formal news broadcast tone, to a friendlier tone in our final broadcasts.

Both Alex and Warren struggled with their pace but in different ways. Warren had an awkward pace that made it difficult to follow his stories, while Alex had more difficulty reading his story fluently. Alex was the only student that consistently struggled with his voice volume. We felt that this was linked to his difficulty with fluency. Alex would concentrate so hard on reading the words that he would forget to read in a louder voice.

Conclusion

This study has taught me a great deal about the differences and similarities of students diagnosed with autism and students diagnosed with Down syndrome. I've learned that using similar educational approaches with both groups can be very effective and that these approaches do not necessarily need to be tailored to the disability, but to the individual. I believe that prosody instruction can take place in an instructionally realistic environment for high school age students, and that this can positively impact student's prosody. Witnessing the teamwork and comradely that developed among the group of students has supported my previous observations that mixed disability groups can have a positive social effect on students with autism. Examining the difference in the prosody of student's diagnosed with autism compared to the students diagnosed with DS, the students had different challenges with their prosody, however, the same approach helped both students improve their prosody. In

continuing the class in the future I will need to adjust the activities to fit the class's needs. For example, some students may need more praise and less constructive criticism when they complete their broadcasts and I will modify my teaching approach and activities based on these needs. As a result of this study, I have decided to continue teaching reading prosody using the news broadcast model in future reading classes and look forward to continuing my work in this area.

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