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The Development of a New Theatrical Tradition: Sighted Students Audio Describe School Play for a Blind and Low-Vision Audience

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Abstract

In this paper, we discuss our experience of facilitating the development, creation and execution of audio description for an elementary school production of *Fiddler on the Roof* by three grade eight students. The students were supervised by the production's director, their drama teacher, and assisted by the authors. An actor with experience describing a live theatre event provided some feedback for the students. Qualitative insight is gained through a thematic analysis of the describer's student learning journal and an interview with their drama teacher. The strengths and weaknesses of the project as perceived by the students and their drama teacher are discussed. Participant suggestions and solutions are also highlighted.

Introduction



Audio Clip 1: Introduction of Description Project and Team

This is the first time in Canada that a school play will be audio described. We are Maru, Ryan and Sander and we are three grade eight students at Forest Hill Public School. We are participating in a research project called Live Describe which is done by University of Toronto and Ryerson University. We will be using a special kind of audio description that blends colour commentary like in sports with audio description techniques (*Fiddler on the Roof* Description Script, 2007).

The creation of and theory behind productions which include individuals with disabilities as actors and stage crew is well documented within academia. Disability and performance literature relating mostly to community theatre indicates two approaches towards the inclusion of people with disabilities. One approach limits membership to only those with disabilities and these groups tend to present the experience and/or worldview of individuals with disabilities. A second approach is to include individuals with and without disabilities in an effort to promote the idea of disabled and non-disabled performers working together within mainstream theatre. Although these two approaches appear within the context of community theatre, the integrated approach seems to predominate within schools, likely because most mainstream schools follow an integrated education model. Even so, many students who are hard of hearing, deaf, deafened, blind or low-vision attend residential schools and, as such, interaction between these students and mainstream school students is limited.

Brewer (2002), Rigney (2003) and Whitehurst (2005) discuss the outcome of projects which bring together students from mainstream and residential schools to create theatrical productions. However, these research studies tend to focus primarily on the inclusion of students with and without disabilities within the cast and crew. Hence, the question of how school productions can be made enjoyable and understandable for audience members who are disabled is often outside of the scope of these projects.

There are, however, several ways to make theatre and live events accessible to individuals who are disabled. Within mainstream theatre, for example, live captioning, sign language interpretation and audio description (AD) exist as adaptive strategies which have been successfully implemented as inclusive strategies to make theatrical events more accessible.

Sign language interpretation and live captioning requires a high degree of training and a great deal of experience. However, AD has the potential, with basic training and technology, to be used by amateur describers such as mainstream school students as a means to accommodate individuals who are vision impaired.

AD is a verbal description of the important visual events, actions, sets, costumes, facial expressions, etc. that occur within a piece of content (National Assembly of State Arts Agencies, 2003). This description is inserted as a complementary audio track placed in between the dialogue elements of the content (Media Access Australia, 2008). Audience members will often use a wireless headset to receive the AD that is broadcasted in the theatre. For a live event, the describer broadcasts in real-time. In post-production film and television, AD is available through a specialized wireless system in the cinemas or through the secondary audio programming channel on the television.

Branje et al. (2007) showed that amateur describers or those who has never performed AD before were able to learn and apply description techniques with as little as one hour of training and practice. It is possible then that mainstream school students could learn first-hand about this unique theatre-based accessibility strategy and how to implement it within their school productions.

In this paper, we discuss our experience of facilitating the development, creation and execution of the audio description for an elementary school production of *Fiddler on the Roof* at Forest Hill Public School in Toronto, Ontario, Canada. Three grade eight students were tasked with the creation of an AD script and its delivery, supervised by their teacher and assisted by researchers. The describer who worked with Udo & Fels (2009) on a production of *Hamlet* at Hart House Theatre also assisted the students in refining their descriptions. Using a case study methodology, we analyze the learning journals written by the three students as well as the observations and opinions of their teacher to assess what students learned from their description experience. In addition, we present feedback from two blind teachers who teach at an elementary school for children who are blind and who attended the described production.

Audio Description: An Historical Overview

Formalized AD practices and technology for television, film and theatre are relatively new. However, the use of AD to compensate for or replace visual stimuli has existed since the advent of human language (The Play's The Thing, 1985). Until recently, for enjoyment of television, film and live events, blind and low-vision individuals often relied exclusively on friends and family to act as informal describers sharing pertinent information with them in a "whisper mode" (Synder, 2005). As a technology-dependent assistive device for access to media and cultural events, AD processes and procedures were formalized by G. Frazier in the 1970s (Audio Description Coalition, 2007). Two decades later, WGBH Radio & Television

began offering Descriptive Video™ as part of their television broadcasts. Their processes and procedures have since been adopted by other television broadcasters as well as numerous theatre troupes in North America and the United Kingdom.

Audio description for Live Theatre

The process of creating live AD and its impact on audiences has had little attention in the literature. Although a profile of blind and low-vision audiences exists for film and television (Packer & Kirchner, 1997), no publicly available profile exists for blind and low-vision theatergoers. It is important that the live environment be considered separately from the post-production process because in a live environment there is no opportunity to edit, correct, or revise descriptions due to the real-time nature of live events. As a result, there will be errors that cannot be corrected, overlaps with the dialogue, and improvised material. Knowing the impact of these factors on a blind and low-vision audience as well as strategies used to address them is important. Two distinct AD styles exist for live theatre: conventional and unconventional.

Conventional AD Style

Some groups work exclusively within the context of film and video such as The Independent Television Commission (ITC) (2000), The Office of Communication (which enforces the UK Communications Act of 2003) and The Canadian Radio-television and Telecommunications Commission (CRTC). However, Audio Description International (2005) and Audio Description Coalition (ADC) (2008) provide AD guidelines for live and post-production content. The ITC summarizes audio description: "describe what is there, do not give a personal version of what is there and never talk over dialogue or commentary" (p. 9). Often credited as the pioneers of live AD, Pfanstiehl & Pfanstiehl encourage describers "not [to] evaluate or interpret, but rather be like the faithful lens of a camera" (The Play's The Thing, 1985, p. 91). As such, the describer is supposed to be an objective interpreter and translator of the important visual events, costumes, scenes, and effects that cannot be disambiguated through sound. The recommended strategy is to use precise but highly descriptive language that is as objective as possible.

There has been very limited research regarding the effectiveness and impact of conventional AD on audiences and the majority of it has been for television programming. Schmeidler & Kirchner (2001) used enjoyment and performance measures to compare audience reactions to television shows containing description to those without description. Peli & Fine (1996) attempted to measure people's understanding of the content from two different types of content, documentary and mystery. Carmichael & Rabbitt (1993a) reported on the behaviors and attitudes of blind and low-vision senior citizens towards television, asking them what they wanted from AD. They also tested the effect that AD had on comprehension and memory

levels of seniors who are low vision and blind (Carmichael & Rabbitt, 1993b). These studies used the conventional AD approach, and tested limited genres of programming; they did not assess alternative approaches.

Unconventional AD Style

Whereas conventional AD abides by a very strict set of conventions, alternative forms question the validity of applying stringent rules to an inherently creative and wholly subjective process. This subjectivity and the active interpretation that it necessitates is one of the strengths of dramatic performances, as every production and each of its unique performances are different, not only each night, but for each person in attendance (Brockett & Ball, 2004). As such, several theatrical productions have taken an entirely different approach to AD, embracing the subjective nature of human vision rather than working against it. For example, Alex Bulmer, associate artist with Graeae Theatre Company, highlights the importance of AD as an access strategy but also an artistic element. She notes, "we really try and fit the approach with the production, with the play, so that it's as much about art as it is about the access" (2006, p. 35).

A spectator using AD may, therefore, have a viewing experience that is dramatically different from that of their sighted peers. This differs from conventional AD which seeks to provide equal access to visual stimuli as verbal information rather than an interpretation of visual stimuli as audio stimuli. Context is especially important to these individuals, cognizant that theatre-goers attend a performance to be stimulated visually and aurally rather than informed through visual and aural cues. Using an alternative form of AD, directors are given the opportunity to re-interpret visual stimuli, working to create the same affect with aural stimuli that sighted individuals attain visually. Udo & Fels (in press, a) propose that this process better adheres to the tenets of universal design by giving the director, the original designer of the entertainment experience, creative control over how visual aspects of his production are presented to individuals who are vision impaired.

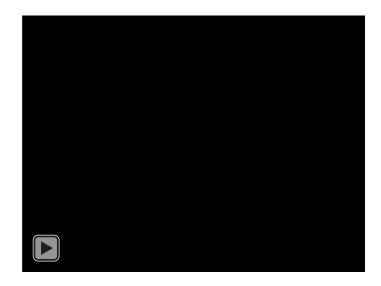
Some formal research exists on the use of alternative strategies to reinterpret visual stimuli into AD. Udo & Fels (2009) report on the practices and processes associated with the creation of AD under directorial control for a production of Hamlet at Hart House Theatre at The University of Toronto University. The describer worked with the director to create an AD strategy unique to the director's vision of *Hamlet*. The describer outlined an AD strategy that included: 1) writing the AD script in Iambic pentameter with language similar to that of Shakespeare; and 2) describing events and actions from the point of view of Horatio.



Audio Clip 2: Horatio/Describer Describes Ballroom

Similarly, Fels et al. (2006a & 2006b) report on the creation process of an AD strategy for an adult animated sitcom called Odd Job Jack where the production team decided to use a first person narrator. The scriptwriter for this show wrote the AD script, using the main protagonist, Jack, as the describer. Jack began each described episode by identifying himself as a first person narrator. Blind and low-vision users reported that this alternative approach to AD was more entertaining, yet less informative.

Udo & Fels (in press, b) facilitated the development, creation and execution of an AD strategy for a live fashion show mounted by fourth year fashion students at Ryerson University. The student selected to be the describer was an upper year student from the School of Fashion who also had theatre based acting experience. In addition, she had also worked on the fashion show in previous years and, therefore, was aware of the "look and feel" of the event.



Video Clip: Describer Comments on Fashion Show

The AD strategy was closer to colour commentary than conventional AD because the researchers and the describer thought it would be conducive to the playful nature of a fashion show. The describer was encouraged to offer her reaction and opinion of what was happening onstage. Researchers compared the AD notes/script made by the describer with what the describer actually said during the show, noting that the describer added many more descriptions than she omitted.

An integrated dance company that includes dancers with and without disabilities, StopGAP has experimented with several description techniques (Woods, 2006). When a piece features multiple performers all doing separate choreography, the describer often describes the actions of a single dancer which enables her to provide a more detailed description. At each performance, the describer describes a different dancer's actions, making each performance unique. Second, instead of choreographing the show and then adding descriptions, StopGAP "reverse engineers" several dances, starting with the descriptions and working backwards. Descriptions focus on the creation of images through descriptive rather than technical words. A third strategy is to interview the dancer and ask him to translate what he is feeling at specific moments into words which helps the describer capture aspects of his or her personality. These aspects were then made evident in the AD. StopGap also explored using AD as a marketing tool to engage new audiences by using descriptions from dances to advertise their performances.

Live AD in its conventional form is often closed, heard only through a wireless headset that receives the broadcasted description. Depending upon the director, this accessibility strategy may work, yet there are some theatre practitioners and theatre groups that are exploring the benefits of open AD which is heard by everyone. O'Reilly (2009) is one of very few theatre practitioners to share her perspective on live AD within the scholarly flora. In a practitioner statement in Research in Drama Education, she asserts that closed audio description keeps accessibility in the "disability ghetto" (34) and creates a divide within the audience, between AD users and non-users, which need not exist. She proposes the development of "alternative dramaturgies...the processes, structures, content and form which reinvent, subvert, or critique traditional or conventional representations and routes" (32). Several theatre troupes are actively creating "alternative dramaturgies" which include AD within the theatre-going experience. For example, Extant (2006), a theatre company of the blind, interwove description into one of their performances. Since the AD was written into the dialogue, the role of the describer and the need for headsets were eliminated. Vision impaired theatre-goers were, therefore, able to access visual stimuli without the need for assistive devices and did not need to overtly identify themselves as blind or low-vision.

There are some obvious stylistic similarities and differences in the strategies used by researchers and theatre practitioners who have broken from the conventional model. Through this paper, we will examine the creation of an unconventional closed audio description strategy developed by three senior elementary school students for a production of Fiddle on the Roof.

Student Described Fiddler on the Roof

The theatre project presented in this paper is unique because the description was created and delivered by children for a school musical, *Fiddler on the Roof*. The director was the school's drama and music teacher and the describers were three grade eight students. The play was produced over a four month period where the actors attended rehearsals after school and on weekends. During the first three months of rehearsals, the description team worked with the teacher on what description approach to take. They decided that the describer should take on the point of view of the Fiddler. The students then had to carry out research on the play to understand the Fiddler's character and the meaning behind that character's presence in the play. To do this, the student describers read the book, and found analyses of the play.

About one month before the play opened, the students began to attend rehearsals making notes regarding the particular approach of the actors and director. They also produced a draft script for review by the teacher and from which to practice and revise during rehearsals.

Approximately one week prior to the opening, the students began to read their script aloud during rehearsals and further refined it. They also decided how to divide the script for each of the three describers and learned how to use the microphone and broadcast equipment. Finally, they worked with the custodial staff and the principal to find an appropriate location from which to provide their description. It was decided that the unused project booth located at the back and on the second level of the auditorium would be used.

The play ran for four nights and one matinee. The matinee was the first full performance of the play and was performed for the whole school. The describer students used this performance as their first dress rehearsal. The describer from Hamlet, who was a teacher but from another school, attended part of this dress rehearsal and was able to provide the students with some new ideas and advice on how to improve their own performance. Only one evening performance was described. Blind children and two blind teachers attended the performance.

Method

Using a case study methodology that includes data from student learning journals and a postplay interview with the teacher/director, we report the process that occurred to produce and deliver AD for the student musical. We present student and teacher reflections on this process and the impact it had on their learning about making drama curriculum and live theatre more accessible for blind students and audiences. One of the students involved in the AD project reviewed this paper to ensure that it accurately reflected their work.

Research Subjects

Three grade eight elementary school students and their teacher participated in the creation of AD for a class production of *Fiddler on the Roof*. However, the creation of AD for the musical developed out of one of the children's inability to engage with the drama curriculum. The student, son of one of the researchers, did not feel comfortable participating in the play as an actor or in a supporting role such as lighting and was, because of this, in a position to fail drama. The researcher approached the teacher and discussed the possibility of having her son create AD for the play. Two of his friends were interested in working with him to create AD which the teacher permitted. The teacher involved in the production had been teaching for many years and had experience directing approximately 15 plays as well as acting in several theatrical productions. In addition, the describer for *Hamlet* assisted the students by offering advice to them as well as some training exercises.

Setting

The children worked in three main locations throughout the project: the main auditorium, the library and the production booth. The class rehearsed in the main auditorium and the AD team observed several of these rehearsals. The AD team spent time in the library researching and writing the script they would use during the show. During the actual performance, the AD team was in a small projection booth located on the second floor of the auditorium. The AD team was at the same level as the lighting equipment and could see the entire stage (see Figure 1).

The hardware technology used to provide AD for live theatre involves use of the FM loop system that is available for hard of hearing users or translation. It consists of a wireless system that transmits an audio feed from the describer microphone to a wireless mono headset, with only one ear phone, used by an audience member. The describers spoke into a microphone which is connected to the FM system using a mixer and FM transmitter. The describers used a stenographer's mask where a semi-soundproof housing covers the describer's mouth or mouth and nose (see Figure 1). The microphone is embedded within the housing.



Figure 1. Student using a stenographer's mask with script and looking through windows of projection booth into the auditorium and stage.

Data Collection and Analysis

As part of their drama mark for participating in the play, each student wrote a learning journal (LJ) which was graded by their teacher. The students shared their learning journals with the researchers and gave permission for them to be used as data for a paper on the AD process. The journals had similar headings, yet differed in length (see Table 1).

Table 1: Student Learning Journals: Headings and Word Count

Student	Headings	Word Count
S	Background, learning process, reflections	1298
R	Background, learning process, reflections, what I would do differently	594
M	Background, learning process, what I would do differently	1157

While the journals shared common headings, they were too broad for the purpose of data analysis. The researchers were interested in collecting data on several themes which included: motivation; writing the AD script; revising the script; equipment and settings; presenting to a blind audience; what students learned; and things they would do differently. The researchers analyzed the learning journals using these themes; however, the themes "writing the script" and "revising the script" were still too broad. These two themes were then divided into several subthemes, only where two or all three of the student addressed the same issue (see Table 2).

Table 2: "Writing the Script" and "Revising the Script" themes and subsequent subthemes

Theme	Subthemes
Writing the Script	Using stage directions
	Attending Rehearsals
Revising the Script	Working with the director
	Getting Feedback from director
	Getting Feedback from Hamlet describer
	Incorporating feedback

Upon identifying these themes within each of the student's learning journals, the researchers created a series of 15 questions to ask the student's drama teacher. The first four questions focused on attaining background information about the teacher, including how many years she had been teaching and her experience/awareness of AD as an access strategy before the project began. The fifth question asked the director to indicate her initial expectations of the

students as describers. The sixth question centered around the director's choice to have the students take on the role of the describer while questions seven to twelve focused on her interaction with the describers such as how much time she spent working with the describers and their incorporation of directorial feedback. Question thirteen asked the teacher to explain what theatre/drama skills the students learned through the creation and execution of an AD strategy. The fourteenth question related to the feelings of needing to have more acknowledgement of their work as all three students expressed in their learning journals. The teacher was asked whether she was aware of this and how she would work to remedy this problem if directing another group of describers. Question fifteen asked the teacher what advice she would give other teachers wanting to participate in a similar project.

Discussion

The drama teacher who directed the grade eight production of *Fiddler on the Roof* did not initially plan on including live AD as part of the show. Instead, the incorporation of AD into the production was more as a means of addressing one of her student's unwillingness to participate in the play as an actor and his disinterest in participating in the set or costume design. Sander recognized that his disinterest in participating in drama could lead to failing the class. He reflects, "I wanted to do something different for drama as I was having difficulty engaging in the drama curriculum." (LJ, June, 2007, p. 1) Having attended an AD version of *Hamlet*, Sander saw the potential inclusion of AD as a means for him to participate in the production. He notes,

I thought that I would like to try the same thing at my school. I asked my mother [Fels] whether her team and the describer from Anonymous theatre would be able to help me with this project. After they agreed, I asked Ms. G whether she would allow me to pursue this idea, and she did (LJ, June, 2007, p. 1).

Sander discussed with his teacher, Ms. G, the possibility of involving some of his peers in the creation and delivery of the AD. Ms. G thought that it would be a good idea. Early on, Ms. G had to develop a way to grade the students and made this assessment clear to them. She recalls, "I assessed them on their presence during rehearsals and the script that they submitted" (personal communication, August 23, 2007). The production was two hours long and she understood that writing such a script would be a big task for just one student. She encouraged Sander to enlist some of his peers to assist. He eventually asked two of his friends who had their own reasons for participating:

Ryan: "I became interested in this when Sander was discussing the possibility of audio describing *Fiddler on the Roof* with Ms. G. He was mentioning that he

needed to raise his mark and that this was one way of doing it. I also needed to raise my grade and thought that this would be exciting. I also wanted to help people who are blind and this was my introduction to doing that." (LJ, June, 2007, p. 1)

Maru: "I approached Ms G. about playing the clarinet for the play at the same time as Sander approached her for doing the audio description for it. During that meeting, Sander asked me whether I could help him, and I asked him to help me. Ms G agreed with both ideas." (LJ, June, 2007, p. 1)

The teacher's willingness to allow her students to find alternative ways to engage within the drama curriculum is admirable, especially considering the lack of research or teaching materials that focus on addressing a student's inability or unwillingness to engage in arts-based activities. In most research, the arts are used as a means through which to energize a potentially dreary topic and motivate students to learn (Ball & Airs, 1995; Eisner, 2004; Udo, 2005). Ms. G was aware that giving these student alternatives to those outlined in the curriculum was one way to keep them engaged. She discusses her knowledge of AD prior to the project, "It sounded very interesting, I wanted to learn about it and I wanted to provide the students with an opportunity to participate in drama this way" (personal communication, August 23, 2007). Ms. G reported that she was not taught about how assistive technologies could be used to make live events more accessible to individuals with disabilities, either formally or informally, as part of her training as an actor, director or as a teacher. With the exception of Sander, the students had an extremely limited understanding and no experience creating or using AD.

As an introduction to AD, the three boys and Ms. G were shown examples of an animated sitcom called *Odd Job Jack*. The two clips were shown three times each: first, with no description; second, with conventional AD; and third, with an alternative style of AD. In addition, Fels took the boys to see a movie with AD. Maru explains,

I learned that audio description is inserted in-between the dialogue and that it was very bland, boring, and monotone – it was interesting but no fun. For *Fiddler on the Roof*, I decided to take a different approach as suggested by Sander's mom...I wanted to put more expression into the descriptions as if I were an audience member enjoying the play (LJ, June, 2007, p. 1).

Before writing the script, the boys divided the *Fiddler on the Roof* script into three equal parts. Each boy was responsible for describing one piece as well as read a piece of the program before the show. One of the boys also described the pre-show dance. The boys

thought that attending rehearsals would allow them to get a better idea of what they should describe. While Sander and Maru started working on their AD scripts early on in the rehearsal process, Ryan waited till a week before the show:

Sander: We went to two of the early play practices to try and get a sense of how the play was going to be directed and unfold. However, the actors were learning their lines and this was not helpful in developing our own script for the audio description. We waited until the play was starting to come together, about one month before the show was to be performed. Then, we started going to it almost every play practice. During these practices, we took notes on where there would be space to add descriptions between the actor's lines, and what those descriptions might be (LJ, June, 2007, p. 1).

Maru: I started my preparation by attending play practices starting in February but the early practices were not very helpful because the actors were still learning their lines. It was very difficult to gain an understanding of how the actors, their actions and their interactions fit together (LJ, June, 2007, p. 1).

Ryan: I prepared for my part in the description by reading the lines in the script while the actors were rehearsing for the play. I started doing this in the auditorium one week before the described performance. I also watched the actors on stage and made notes on what they looked like, what their actions and gestures were, and how Ms. G. was directing them to act on the stage. I also made notes on the different props and scene changes that were used during the different scenes (LJ, June, 2007, p. 1).

All three of the boys mentioned the importance of the director and her unique interpretation of the play. For the students, quality AD needed to reflect the director's interpretation. Early on in the rehearsal process, Sander and Maru found it extremely difficult to assess the director's impact on the production, as the actors were unfamiliar with the play and the director's influence had yet to take root. Sander describes these early rehearsals almost as script readings which were not nearly as helpful as those that took place one month before the show "because it took so long to get the play together" (LJ, June, 2007, p. 3). Working on his portion of the AD script one week before the show, Ryan did not have the same problem. At this later stage in rehearsals, he could see how Ms. G was directing the students and how this direction shaped the production. Sander mentioned using these rehearsals to gauge the amount of AD time that would be available to him and, in turn, what he would describe during these pauses. Before learning their lines, timing would vary greatly and make early rehearsal attendance even less valuable.

The stage directions included in the script did help the student describers understand what the playwright intended to occur on stage. Sander notes, "we found the stage directions in the script very helpful in telling us what was supposed to happen." (LJ, June, 2007, p. 1) Maru explains that his team "used the stage directions in the script to start writing some of our own ideas." (LJ, June, 2007, p. 1) However, as the performance date grew closer, he began to realize how a director's interpretation supersedes the instructions suggested by the playwright. He writes, "later, I started attending more practices. I found out that some of the stage directions in the script were not being used and there were new ones that Ms G. made" (LJ, June, 2007, p. 2). The students seemed to assume that Ms G.'s direction would respect the suggested blocking outlined by the playwright while simultaneously allowing her to impart her own vision on the production. Maru was glad that he was allowed to work with his peers to produce the AD script. He explains, "it was also good that I was able to work with Sander on the script, and have Ryan help us deliver it" (LJ, June, 2007, p. 3).

Early on in the process, as the students were in the process of creating drafts of their AD scripts, Ms. G suggested that the students use the character of the Fiddler as a first person audio describer. She thought that the first person approach used by Fels et al (2006a, 2006b) and Udo & Fels (2009) would work well for her production of *Fiddler on the Roof*. Ms. G explains, "The Fiddler is the spirit of the play who observes all of the events. Since he sees it all, he would be the best to describe what was happening" (personal communication, August 23, 2007). Hence, she encouraged the students to interpret how the Fiddler would have felt as events occurred on stage and to reflect these feelings in the AD.

The students edited the script during the dress rehearsal and the first three shows before performing their descriptions. Sander and Maru noticed that there were important differences in timing from rehearsal to rehearsal but also from performance to performance. The students used the first few performances of the play as AD "dress rehearsals" which gave them the opportunity to revise their scripts:

Maru: I had to revise the notes that we made to be closer to what was happening on the stage. Sander and I then spent 3 evenings writing out the rough draft of the description script to use when we actually did the description. We used this script during the [AD] dress rehearsals to practice our own descriptions. During these dress rehearsals, we made many written revisions to match with the play (LJ, June, 2007, p. 2).

Sander: We made many hand written notes on our script the first night that didn't fit the second night, and also made a number of improvisations that deviated a lot from the script (LJ, June, 2007, p. 2).

Finding time that could be allocated to descriptions during the production proved to be a difficult task which was further exacerbating by two casts who alternated. Sander explains,

About one week before the [described] show, we developed a loose draft of the script and tried to measure the timing with the lines that were delivered by the actors during the dress rehearsals. There were different actors for each show. The timing was drastically different between the shows on Wednesday and those on Thursday because there were two different sets of actors on each day. The script we wrote was timed for the Wednesday shows and so we need to improvise more than we expected for the second show (LJ, June, 2007, p. 1).

The research team asked Paul Leishman, who described *Hamlet* at Anonymous Theatre, to help the students revise their scripts and develop strategies to cope with the changes that occur during live performances. Sander remembers his first session with Paul, "he sat on the front porch with me and had me describe cars as they went past my house and between two trees. We did this so I could learn how to manage the timing and improvise descriptions" (LJ, June, 2007, p. 2).

While the students were at first concerned that whatever they said had to be written in the description script, Paul encouraged them to use their script as a guide, inserting new descriptions were appropriate and modifying those within the script to suit the situation. The students outline how Paul's advice at the Wednesday night AD dress rehearsal helped shape their AD:

Sander: He listened to the descriptions that we were delivering based on our script. He gave us some feedback on what we were doing and how to improve the delivery. His main suggestion was to be more creative and think about how the Fiddler would react. For example, he suggested that during some of the scene changes when we needed more description to hum some of the tunes. He also suggested we use more metaphors of the 'tradition' idea (LJ, June, 2007, p. 2).

Ryan: He suggested that I speak louder and clearer, and articulate the words better. He also suggested that I use more colourful language and try to make my descriptions fit the style of play (LJ, June, 2007, p. 1).

Maru: Paul suggested that we should put in more commentary during the scene changes and make them humourous but fit with the Fiddler's approach. An example that he gave me was to sing/hum one of the main tunes from the play. Another good example is that he suggested I use funny words to describe the actions that made the audience laugh so that the blind audience would laugh too... Paul gave us some great ideas and I would recommend that anyone else trying to create live description get advice from someone who has done it before" (LJ, June, 2007, p. 2).

All three of the students note how they revised the language within their scripted as well as their improvisations to better fit the play after working with Paul. Ryan created excitement by changing some of the language in the script while also experimenting with how he could use his voice. He explains, "I did this by using words like vibrant, trashed and other words that were more descriptive. Also, I used my voice to indicate that things were getting exciting during the fight scene and the wedding" (LJ, June, 2007, p. 1). Maru and Sander really liked Paul's suggestion to use similes to describe characters and their actions. Sander recalls, "when Tevye was signing, 'If I Were a Rich Man', Paul suggested saying something like he was shaking his hips like a plate of jello and that seemed to fit" (LJ, June, 2007, p. 2). During his description of this scene, Maru incorporated this idea, but made it his own, by describing Tevye as having "jelly hips" (LJ, June, 2007, p. 2). However, Sander was frustrated that some of the ideas they developed with Paul didn't work the next day. He notes, "some of the creative ideas we came up for the Wednesday show did not fit the actors or timing in the Thursday show" (LJ, June, 2007, p. 3).

In addition to describing the performance, the student describers sought to provide blind and low-vision AD users with information that they would find helpful as theatre-goers. The students decided that it was important to identify themselves as describers and provided some basic information about themselves (age, grade, that they wrote the descriptions):

Description is brought to you tonight by three grade eight students, Maru, Ryan and Sander. Maru will be describing first. Ryan will take over after Act I, Scene ii and Sander will switch for Act II. We hope you enjoy the show (*Fiddler on the Roof* Description Script, 2007).

In preparing for the performance, Sander thought that some of the AD users might be interested in hearing information about the play. As such, he researched and wrote a short summary about the history of the musical which he delivered during the audio described performance.



Audio Clip 3: Describer Explains History of Production

The play you are about to enjoy is Fiddler on the Roof. The play's title comes from a painting by Marc Chagall, one of many surreal paintings he created of Eastern European Jewish life. The Fiddler is a metaphor of survival, through tradition and joyfulness.

Fiddler on the Roof is a well-known Broadway musical with music by Jerry Bock, lyrics by Sheldon Harnick, and book by American playwright, Joseph Stein that first opened on September 22, 1964. Fiddler on the Roof was the first Broadway musical to surpass the 3,000 performance mark which means that it has more than 3,000 shows, running for 3,242 performances not counting this one, and held the record for longest-running Broadway musical in history for almost 10 years until Grease pushed it down a rank. It earned \$1,574 for every dollar invested in it.

Joseph Stein was co-incidentally born on May 30, 1912 in New York City (which was 95 years ago yesterday). He also wrote other well-known books for musicals such as *Zorba*, *Take Me Along*, and *The Baker's Wife*. He won the Tony Award and the Drama Critics Circle Award for *Fiddler on the Roof* in 1964 when it opened (*Fiddler on the Roof* Description Script, 2007).

In addition, when the house lights went up to signal an intermission, the students alerted AD users, providing them with information that would be useful:

There will be a ten minute intermission. Washrooms are in hallway to your right as you come out of the main auditorium doors. The fourth door along the hallway is the girls and the fifth door is the boys. Snacks and water are available in the hall (Fiddler on the Roof Description Script, 2007).

While sighted theatre-goers would experience little difficulty finding the washrooms or the refreshment table, blind or low-vision theatre-goers would probably require assistance. The students ensured that the visual information that sighted individuals took for granted was relayed verbally to blind and low-vision individuals using AD. Udo & Fels (in press, b) discuss the importance of including blind and low-vision in the theatre-going experience by developing strategies that aurally communicate visual stimuli or information.

During the described performances and the description dress rehearsals, the students were located in a projection booth which was located on the second floor of the school and looked over the auditorium. The three boys noted several problems with the space. Maru describes the initial set-up of the room,

[it was] used as a storage room and it was a mess. We had to clear a path and enough space for our equipment and us. It was hard to work in there because of the cramped space. It was full of dust and it made me cough a lot (LJ, June, 2007, p. 3).

Sander adds, "we also needed room for the equipment table, chairs for us to sit and a music stand to hold our script" (LJ, June, 2007, p. 1). The positioning of the lights obstructed Ryan's view of the stage. He notes, "it was sometimes hard to see. I would suggest that the lighting frame be moved up about 20 centimeters, or a permanent lighting system be placed in the auditorium" (LJ, June, 2007, p. 2). Since the projection booth was not designed for the purposes of description, it is understandable that the first time, ad hoc transformation was problematic. While the describers were unobstructed by audience members and were able to see the entire playing area of the production, the set up of the lighting system interfered with their view. If relocating the lighting grid proves to be impossible, alternative set up has been recommend.

For example, Udo & Fels (in press, b) created a soundproof description booth which was positioned at the back of the auditorium. The booth had a large window which faced the stage. Alternatively, Udo & Fels (2009) positioned their description booth outside of the theatre in the lobby. The describer was able to see and hear what was occurring onstage on a computer monitor that transmitted audio and video gained from onstage microphones and a video camera located at the back of the theatre. While the student describers could be repositioned to mimic either of these setups, there are potential drawbacks, such as obstruction by audience members and an elevated stage, which should be evaluated prior to its implementation. The students were also given the opportunity to learn about the set up of the AD equipment needed for the production. All three helped to organize the equipment within the booth and theatre, although only Sander and Maru provided a breakdown of the process in their learning journals:

Maru: I also learned a lot about the equipment that was used. We used a laptop, a transmitter and antennae, wireless receivers for the audience members, a stenographers microphone (a microphone that covers your mouth), and mixers. We had to put the antennae in the auditorium from the projection booth so that there was better reception for the headsets. I also learned how to tune the headsets

to the right frequency using a small screw driver and taking the headset battery case off. I thought this was a very unnecessarily time consuming task (LJ, June, 2007, p. 2-3).

Sander: We had to run an antenna into the auditorium from the broadcast booth and we were lucky that there was lots of cable. We also ran a cable from the main audio board in the auditorium to the projector booth so we could record the house audio (LJ, June, 2007, p. 2).

The equipment that the students used was similar to that used by Udo & Fels (2009, in press, a), although the describers in these two studies used a push to talk microphone rather than a stenomask (often used in court reporting). Ryan initially thought that AD required a lot of equipment that would be difficult to use during the show. He recalls, "I thought that the equipment would be more complicated such as needing to press a button to talk. It turned out that it wasn't that complicated and the microphone wasn't too uncomfortable to use" (LJ, June, 2007, p. 2). While it may have been easier to use, the stenomask resulted in sound quality that was of lesser quality than other microphones, as is evident in the audio clips presented in this essay (even after undergoing an editing process). However, push to talk microphones also have drawbacks. For example, a clicking noise is produced when the microphone is activated and deactivated and some participants in previous studies found this to be annoying (Udo & Fels, 2009, in press b).

Maru and Ryan had never met an individual who was blind prior to their audio described performance. Afterwards, they met with several teachers from W. Ross MacDonald, a School for the Blind. All of the teachers listened to the AD, although only one of the teachers was blind. Ryan was anxious to hear what the teachers had to say about the AD. He remembers,

I was nervous about presenting my descriptions because I thought that blind people might not like it. I also thought that the process of learning to describe, making up the words and then delivering them was difficult because it was hard to think of the correct way to say things that would be appropriate for a blind audience. I don't know anybody who is blind and I didn't think I had a good understanding of how they needed or wanted things (LJ, June, 2007, p. 2).

As audio describers, the students developed, created and executed an AD strategy which they hoped would make their class's production more enjoyable for blind and low-vision individuals. As such, the students considered not only the information that their listeners would expect, but how it fit into the experiment experience as a whole. Even still, Ryan realized that the ideas that he and his friends implemented might not actually address all the

needs of his audience or do so in a suitable fashion. Interestingly, Ryan also expresses the desire to provide quality AD the "correct way" rather than embracing that alternative means exist to address a single set of needs. Maru describes his meeting with the teachers after the audio described performance. He writes,

I participated in the meeting with the teachers from W. Ross MacDonald the school, one was blind. This was the first blind person I had ever met. I learned that they wanted to audio describe their events too and that they were struggling with getting equipment (LJ, June, 2007, p. 3).

Maru seems to demonstrate an awareness that AD was infrequently offered, even at schools that cater exclusively to students who are blind. Although W. Ross MacDonald School for the Blind was interested in creation audio described performances, they were unable to secure sufficient funding for such a venture. The teachers from W. Ross MacDonald were very intrigued by the notion that three grade eight students were engaged in creating audio descriptions as part of their drama curriculum. Sander recalls, "[they] came to our play and they were very impressed with our work. I think that they will invite us to their school to tell them about our experience" (LJ, June, 2007, p. 3). The students were clearly pleased that their efforts resulted in AD that exceeded user expectations. Even so, Ryan expressed some level of dissatisfaction with his delivery of the descriptions, although he did assert, "I think I learned a lot about this [AD] just by doing it" (LJ, June, 2007, p. 2). It is important to note that Ryan may have been comparing his performance to AD offered for television and film which is prerecorded and undergoes an editing process. As such, student audio describers should be made aware that there is going to be a disparity in quality between the two kinds of AD. Fels & Udo (2009) hold that such comparisons may also affect assessments made by individuals familiar with pre-recorded AD who have little experience with live description.

The uniqueness of this hands-on experience was not lost on any of the student describers. Sander, who was having trouble engaging with the drama curriculum prior to the project, asserted that it "was important to me and made drama more interesting and meaningful for me" (LJ, June, 2007, p. 3). All three students mentioned how the experience transformed their understanding of accessibility and entertainment:

Sander: "I think that it was an important step in making our school more accessible to people with disabilities. I think that our school should encourage other students to do this in the future" (LJ, June, 2007, p. 3).

Ryan: "I learned that theatre can be made accessible for blind people and that children can learn to be describers" (LJ, June, 2007, p. 2).

Maru: "I think that I learned a lot about blind people and how they access plays...I now have some experience that I know only two other kids have which is pretty exciting. We have done something that no other kids in the world have done – I think that is amazing. I think I learned a lot of new and interesting skills that I didn't realize that I had" (LJ, June, 2007, p. 3-4).

In watching the students work and reading their learning journals, Ms. G assessed what the students learned in developing, creating and executing an audio described performance. She asserts,

They learned about the production of a live performance at an elementary school. They learned how to problem solve in order to get the equipment and space that was needed. They wrote a detailed script geared towards an audience... They did learn about creative license as they experience the many alterations that I made to the script (personal communication, August 23, 2007).

After participating in this project, Ms. G was eager to recommend the experience to others. However, she did have some suggestions for the research team. She writes,

I would suggest a meeting with the director and provide a written or visual outline of what it entails. I would make a presentation of what it involves, perhaps bring in a tape or script and make sure that the director understands what is needed. When I was first approached with this proposition, I didn't understand the amount or type of preparation that was required (personal communication, August 23, 2007).

Considering that this was the first time that such a project has been attempted and reported within academic literature, the researchers were unable to provide information specific to student-led AD initiatives. However, they were able to give Ms. G an overview of live AD based on their prior experience working on a production of Hamlet and a live fashion show. In addition, researchers were on hand throughout the process to inform and guide the description projects. Research within the field of live AD is in its infancy; hence, few examples (media files, description scripts, audio tracks) are available to inform potential students, teachers and theatre practitioners. As the field grows, researchers will be able to disseminate accounts (visual, aural and written) of their own experience.

The students also had several suggestions for the research team and any other teachers and students interested in audio describing their school performances. For example, Ryan and

Maru found that many of their teachers did not understand how they could be participating in the play, yet not be acting in it:

Ryan: "I should attend more practices with my group and help them develop the description script more. However, my teacher didn't believe that I was participating so it was difficult for me to leave. Next time, I would ask for a note from an authorized person for me to verify that I was actually part of this process" (LJ, June, 2007, p. 2).

Maru: "I would provide more information for the school about what we are doing" (LJ, June, 2007, p. 4).

Since the students were participating in the production in an unusual role, it is understandable that teachers were hesitant to permit them to leave the classroom, as they were told and/or assumed that participation within the production was limited to being an actor, musician or member of the stage crew. Subsequent projects should ensure that all teachers are informed of such initiatives.

Maru suggested that the describer should be treated the same as any member of the cast and receive the same amount of recognition. He asserts,

I thought that there we didn't receive enough attention on our contribution. For example, we didn't get acknowledged at the end of the play when everyone else was thanked. I also thought it was too much work especially at the end of the process when we were practicing and delivering the description (I worked 13 hours each day from Monday to Thursday during the week of the play). I put in many long hours writing the description script and practicing. I was glad though that I had partners to work with (LJ, June, 2007, p. 4).

After reading the learning journals, the researchers asked Ms. G how she thinks other teachers should modify their productions to ensure that describers are equally recognized. She posits,

Since I had no previous experience with audio description, I felt that I should give them the space and time to do what they felt they needed to do. I simply kept them informed of what the rehearsal schedule was. Now that I have had this experience I would be more involved in decision making and making recommendations. I would also involve them with the rest of the cast during the rehearsals (personal communication, August 23, 2007).

We suggest that the description team is given the same credit as any other performer. This includes listing their name and how they contributed to the performance with the program as well as participation in the curtain call. The students worked extremely hard on their description script and how it was presented, and should thus receive the same credit as their peers.

Unfortunately, few blind or low-vision theatergoers attended the production. Maru reflects, "I would like to invite more blind people to our play and I hope that they would come, especially blind children" (LJ, June, 2007, p. 4). Although this was the intention of the research team, students from W. Ross McDonald were unable to attend due to a previously scheduled school performance on the same night. However, some teachers from W. Ross McDonald were able to attend the production and make use of the AD. They noted how impressed they were with the quality and style of the AD that was written and presented by Maru, Sander and Ryan. The teachers asserted that their students would have enjoyed the production because the AD relayed important visual stimuli, yet did so in a manner that was entertaining, age appropriate and unobtrusive. They also expressed interest in audio describing their own events.

Limitations

There are numerous limitations to this study but there are four that we wish to articulate here. First, the students were coached by a professional actor who had experience describing; however, he was not a professional describer. Further research should examine how training affects an audio describer's experience.

Second, the detailed input of theatre-goers who are low-vision or blind is missing from this paper. In developing this project, it was our goal for Sander, Maru and Ryan to have the opportunity to perform for and gain input from a larger audience, including individuals who are blind and low-vision. However, students from W. Ross McDonald School for the Blind could not attend the audio described performance because they too had a school performance on the same date. We recommend that plans for such performances be made far in advance so that such scheduling conflicts can be avoided.

Third, although a scheduling conflict existed, an audio track of the performance and the audio description was recorded for research purposes as well as to make it available to interested students and teachers at the school so they could enjoy the production on their own. However, the audio track that was recorded was extremely poor in quality, the describers sounding distant and muffled because they were using a stenographer's mask. Adobe Premiere Pro audio effects (such as DeNoiser, DeHummer, and Spectral Noise Reduction) were used to reduce unwanted noise, yet the final result was still poor. We recommend that theatre

practitioners and researchers who make use of a stenographer's mask realize that this can be a problem and find ways prior to recording the performance to account for poor sound quality.

Fourth, this research project made use of a single unconventional style of description which was relayed to AD users via a wireless receiver and headset. Alternative approaches need to be further examined and the perspectives of describers who use these approaches documented. Researchers and theatre practitioners should examine different styles of audio description as well as the method through which AD is disseminated. Whereas individuals such as O'Reilly (2009) argue against closed audio descriptions strategies, we believe that it is important to evaluate as many different strategies as possible and not discount any until they have been assessed by AD users (including sighted, low-vision and blind theatre-goers).

Conclusion

This paper assesses the outcome of a project which gave three senior elementary school students the opportunity to create their own audio descriptions for a school production of Fiddler on the Roof. Each of the students wrote and submitted a learning journal to their teacher while also volunteering copies to the research team for analysis. The students had many positive comments about their description experience. They enjoyed: 1) working as part of a description team; 2) receiving training and feedback from an actor with experience describing; 3) using the voice of the Fiddler as the describer; 4) meeting teachers from W. Ross MacDonald School for the Blind; and 5) being part of a performance that took the needs of blind individuals into consideration. The students had several suggestions as to how the AD process could be modified: 1) inform other teachers that students will be audio describing the production; and 2) ensure that describers are treated as members of the cast and receive the same recognition for their effort. The director of the production, the students' drama teacher, mentioned feeling unsure as to how she was supposed to supervise/oversee/guide students in her role as director. Researchers suggested that the lack of research and best practice guidelines available on the topic resulted in some drawbacks which will be addressed as more research is published in the public domain.

References

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---, Maru. (2007). Student Learning Journal.
---, Ryan. (2007). Student Learning Journal.
---, Sander. (2007). Student Learning Journal.
```

---, Maru, ---, Ryan, & ---, Sander. (2007). Fiddler on the Roof. Description script (2007).

- Audio Description Coalition. (2007). A brief history of audio description in the U.S. Retrieved June 5, 2008 from http://www.audiodescriptioncoalition.org/briefhistory.htm
- Audio Description International. (2005). *Guidelines for audio description*. Retrieved July 18, 2008 from http://www.adinternational.org/ADIguidelines.html
- Ball, C. & Airs. J. (1995). *Taking time to act: A guide to cross-curricular drama*. Heinmann: Portsmouth, NH.
- Bulmer, A. (2006). *Integrated audio description. Envisage audio description symposium*. Retrieved November 17, 2008 from http://www.developingaudiences.com/documents/envisage_transcript.pdf
- Branje, C. (2007). *LiveDescribe Can amateurs create quality video description?* Retrieved November 17, 2008 from http://www.ryerson.ca/clt/publications/pubpaper/Carmen_B_ Thesis.pdf
- Brewer, D. (2002). West side silence: Producing *West Side Story* with deaf and hearing actors. *Theatre Topics*, 12(1), 17-34.
- Brocket, O. S., & Ball, R. J. (2004). The essential theatre (8th ed.). Wadsworth: Belmont, CA.
- Carmichael, A & Rabbitt, P. M. A (1993a). Survey of visually impaired people's behavior and attitudes towards television and their aspirations for audio description (AUDETEL Project Deliverable 18, Part 2 of Final Report). London: Age and Cognitive Performance Research Centre.
- Carmichael, A & Rabbitt, P. M. A (1993b). Audio description of television for the visually disabled elderly: Assessment of the effect of audio description of elderly people's comprehension and memory for a television program. (AUDETEL Project Deliverable 15, Part 2 of Final Report). Brussels: Commission of Europeans Communities Directorate General XIII.
- Eisner, E. (2004). Multiple intelligences: Its tensions and possibilities. *Teachers College Record*, 106 (1), 31-39.
- Extant Theatre Company. (2006). *Annual Report*. Retrieved November 18, 2008 from http://www.extant.cc/text/annual_reports/Extant_Annual_Report_2005_6.doc
- Fels, D. I., Udo, J. P., Diamond, J., & Diamond, J. (2006a). A comparison of alternative narrative approaches to video description for animated comedy. *Journal of Visual Impairment and Blindness*, 100(5), 295-305.
- Fels, D. I., Udo, J. P., Ting, P., Diamond, J., & Diamond, J. (2006b). Odd Job Jack described A first person narrative approach to described video. *Journal of Universal Access in the Information Society*, 5(1), 73-81.

- Media Access Australia. (2008). Retrieved April 29, 2009 from http://www.audiodescription.com.au/~audiod/index.php?option=com_content&view=a rticle&id=1&Itemid=2
- National Assembly of State Arts Agencies (2003). Design for accessibility: a cultural administrator's handbook Retrieved May 1, 2009, from http://www.nea.gov/resources/accessibility/pubs/DesignAccessibility/DesignAccess.p df
- Packer, J. & Kirchner, C. (1997). Who's watching? American Foundation for the Blind. Retrieved 17 November, 2008, from http://www.afb.org/Section.asp?SectionID =3&TopicID=135&DocumentID=1232
- Peli, E., & Fine, E. M. (1996). Evaluating visual information provided by audio description. *Journal of Visual Impairment and Blindness*, 90(5), 378-385.
- Rigney, M. (2003). *Deaf Side Story*. Washington, D.C.: Gallaudet University Press.
- Schmeidler, E., & Kirchner, C. (2001). Adding audio description: Does it make a difference? Journal of Visual Impairment and Blindness, 95(4), 198-212.
- Snyder, J. (2005). Audio description: The visual made verbal. *International Congress* Series, 1282, 935-939.
- The Independent Television Commission. (2000). *ITC guidance on standards for audio description*. Retrieved November 17, 2008 from http://www.ofcom.org.uk/static/archive/itc/uploads/ITC_Guidance_On_Standards_for_Audio_Description.doc.
- Udo, J. P. (2005). *Motivating children to "write" stories through the use of visual arts and technology*. Retrieved June 12, 2009 from http://www.ryerson.ca/clt/publications/pubpaper/JP_Udo_Thesis.pdf
- Udo, J. P. & Fels, D. I. (2009). Suit the action to the word, the word to the action: An unconventional approach to describing Shakespeare's Hamlet. *Journal of Visual Impairment and Blindness*, 103(3), 178-183.
- Udo, J. P. & Fels, D. I. (in press, a). Closed captioning and audio description: The rogue poster children of universal design. *Journal of Engineering Design*.
- Udo, J. P. & Fels, D. I. (in press, b). Re-fashioning fashion: an exploratory study of a live audio described fashion show. *Universal Access in the Information Society*.
- Uncredited. (1985). The play's the thing. British Journal of Visual Impairment, 3(3), 91-92.

- Whitehurst, T. (2005). *Including the excluded though the arts; the Monkey King Project*. Inclusive and Supportive Education Congress International Special Education Conference Inclusion: Celebrating Diversity. Glasgow, Scotland.
- Woods, D. (2006). StopGAP case study report: Audio description with an integrated dance company. *Envisage Audio Description Symposium*. Retrieved November 17, 2006 from http://www.developingaudiences.com/documents/envisage_transcript.pdf

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