Some teachers are innovatively using tools of technology such as iPods to teach the required curriculum. When connected with literature, iPods can provide unique reading experiences to students. Through listening to stories, young children are able to develop auditory perception skills that allow them to think about how words sound, increase their language skills, build vocabulary, use longer sentences, increase their attention spans, and gain a desire to read (Gisler & Eberts, *n.d.*, para. 4). Using iPods to share stories with students can be convenient and beneficial because iPods are portable, small in size; have the potential to foster literacy; and possess the ability to promote collaborative, independent, and differentiated learning (Pasnik, 2006). In addition, teachers can promote parent involvement by allowing students to share the iPods with their family members at home. In a 2016 digital education survey of a large, demographically-diverse set of teachers, parents, and students, 88% of the parents were interested in using more digital content at home to supplement what was taught in school (Deloitte, 2016). The kindergarten teacher/researcher in this study sought to investigate how listening to audio stories, participating in literacy experiences with family members, and utilizing iPods to learn can be combined to encourage literacy experiences at home.

Review of Literature

According to a survey conducted by Scholastic and YouGov (2016), the frequency of reading aloud has increased since 2014 among parents with children between three to five years of age (55% to 62%); however, the frequency of reading aloud decreased among parents with children between five to eight years of age (Ages 0-5: 59%, Ages 6-8: 38%, Ages 9-11: 17%). Hutton, Horowitz-Kraus, Mendelsohn, DeWitt, and Holland (2015) studied children in the emergent literacy phase and found that the children who listened to more stories at home with family members showed significantly higher activation in the brain areas that support narrative

comprehension and mental imagery. When Rodero (2012) studied how the presentation structure of audio stories determined how the listeners responded, she found that listeners created more mental images and paid more attention when they listened to more dramatic stories with dialogues, inflection, and sound effects. Stephen and Plowman (2008) observed preschool children as they attempted to listen to audio stories in the classroom. The children gained new knowledge in several curriculum areas including the ability to link written and spoken language, retell stories, and use language to respond to text; however, they often struggled with operating the equipment. For example, the preschoolers often could not determine how to rewind the audio tapes to play the stories from the beginning and struggled to utilize the headphones. Stephen and Plowman (2008) noticed that preschoolers often needed guided interactions with adults to utilize the equipment necessary to listen to the audio stories and to keep them engaged.

Teachers are using iPods to motivate students through activities that include recording and listening to podcasts; practicing vocabulary; acquiring the English language; and listening to classroom discussions, lectures, and audio books (Shen, 2005). For example, a large school district allowed English Language Learners (ELLs) in elementary and middle school to take home iPods to learn language and increase content knowledge (Liu, Navarrete, & Wivagg, 2014). In several elementary and middle schools in Middle Tennessee, ELLs who used iPods in the ELL classroom achieved proficient scores on end of the year reading and writing benchmark assessments and Accelerated Reading tests; however, ELLs who stayed in the regular classroom for reading instruction did not achieve proficient scores on these tests (Patten & Craig, 2006). An additional set of elementary school teachers provided students with iPods over a two-year period to model oral reading with high levels of phrasing and fluency that the students used to evaluate and critique their own oral texts (Kervin & Vardy, 2007). A school district in Texas provided

iPod lessons to struggling pre-kindergarten students to increase language skills through repetition of instruction, opportunities to hear language spoken correctly, and practice correcting mispronounced words (Work, 2007). In a high-poverty school district in California, kindergarten ELLs who used iPod Shuffles to assist them while reading fictional and nonfictional texts displayed longer attention spans during silent reading time (Boeglin-Quintana & Donovan, 2013).

Previous research has documented positive outcomes when students listen to audio stories, participate in literacy experiences with family members, and utilize iPods to learn. Therefore, the kindergarten teacher/researcher in this study sought to investigate how these activities can be combined to encourage literacy experiences at home. The study was guided by three overarching research questions:

1. What preferences with regard to books, specific genres, and stories emerged as students worked with iPods?
2. Did any patterns appear that indicate equipment preferences, difficulties, and reading habits when working with iPods?
3. What information may be gleaned from the findings that may assist teachers and parents in promoting reading, literacy, and technology use?

Methods

A kindergarten teacher in Middle Tennessee sought to improve her teaching practice by using action research to investigate effective strategies for promoting literacy, family involvement, and technology use (Sagor, 2000). The 16 research participants were five and six years of age and enrolled in the researcher's kindergarten class. The participants represented various backgrounds and cultures but shared a common connection to the kindergarten

classroom. The students included nine boys and seven girls from middle class families who represented the following ethnicities: Caucasian American, African American, African/Caucasian American, Hispanic, Indian, and Arabic. The teacher/researcher loaded four Apple iPod Shuffles with 29 audio stories. Table 1 displays the titles, authors, and lengths of the audio stories. The books were sourced from the teacher's classroom. Some of the books and audio stories were donated, and the teacher purchased the other resources based on cost, availability, and ease of read.

Table 1: *The Stories on the iPods*

Stories	Length of Audio Story (Minutes: Seconds)
Aaron's Hair by Robert Munsch	4:16
Arthur Goes to Camp by Marc Brown	11:04
Caps for Sale by Esphyr Slobodkina	14:05
Chicka Chicka Boom Boom by Bill Martin Jr. & John Archambault	7:14
Click Clack Moo by Doreen Cronin	4:45
Clifford: The Big Red Dog by Norman Bridwell	4:25
Corduroy by Don Freeman	8:41
Curious George by H.A. Rey	12:24
Curious George Rides a Bike by H.A. Rey	16:21
Fox in Socks by Dr. Seuss	9:07
Franklin Has a Sleepover by Paulette Bourgeois & Brenda Clark	7:39
Morris Goes to School by B. Wiseman	12:18
Morris the Moose by B. Wiseman	3:55
If You Give a Mouse a Cookie by Laura Joffe Numeroff	9:53
If You Give a Pig a Pancake by Laura Joffe Numeroff	3:40
Playhouse by Robert Munsch	4:38
Up, Up, Down by Robert Munsch	3:53
We Share Everything! by Robert Munsch	4:27
Alligator Baby by Robert Munsch	6:09
Andrew's Loose Tooth by Robert Munsch	4:50
Love You, Forever by Robert Munsch	6:27
Paper Bag Princess by Robert Munsch	4:11
Stephanie's Ponytail by Robert Munsch	3:51
More Pies! by Robert Munsch	4:21
Get Out of Bed! by Robert Munsch	3:35
Makeup Mess by Robert Munsch	3:39
Mmm, Cookies by Robert Munsch	3:57
Ribbon Rescue by Robert Munsch	4:10
Moira's Birthday by Robert Munsch	4:33

The kindergarten students checked out the Shuffle Lit project materials for one week. Each student took home a tote bag with an iPod Shuffle, print books, two types of headphones

(stereo headphones and Apple earbuds), an iPod listening/reading log, and directions on how to use the iPod. The sources of data used to answer the three overarching research questions included iPod listening/reading logs, student informal interviews, and parent surveys (Table 2).

Table 2**:** *Triangulation Matrix*

Overarching Research Question	Data Source #1	Data Source #2	Data Source #3
1. What preferences with regard to books, specific genres, and stories emerged as students worked with iPods?	iPod logs	Student interviews	Parent surveys
2. Did any patterns appear that indicate equipment preferences, difficulties, and reading habits when working with iPods?	iPod logs	Student interviews	Parent surveys
3. What information may be gleaned from the findings that may assist teachers and parents in promoting reading, literacy, and technology use?	iPod logs	Student interviews	Parent surveys

Students were encouraged to read/listen to the books and audio stories as many times as they preferred during the week that they checked out the project materials. There was not a requirement for the number of times the students should listen/read. Each time a student used the iPod, a parent recorded the following information on the log: date, time, location, story title, whether or not the print book was used to follow along with the audio story, the set of headphones used, and student comments. The parents who did not understand English well enough to complete the logs and surveys were assisted by family members who were more fluent in the English language. Then, the teacher/researcher conducted informal interviews with the students to record their favorite stories and comments. Interview instruments were used to guide the interviews; however, due to the young age of the students, the interviews consisted of open-ended questions and the teacher/researcher extended the interviews based on the students' responses (Maykut & Morehouse, 1994). Finally, the parents of the kindergarten students completed surveys that were used to determine the perceptions of the parents and students. Due to the young age of the students, there were many descriptions, details, feelings, and perceptions

that the students could not accurately record; therefore, the surveys helped to collect this type of data.

The data was coded using the data coding strategies described by Maykut and Morehouse (1994) who suggest that the researcher provide a code for each type of data, the source of the data, and the page number in the upper right-hand corner of each data page. The teacher/researcher carefully matched each participant's data source to his/her assigned number code to achieve accurate and anonymous results. The teacher/researcher analyzed the iPod logs, student interviews, and parent surveys by using the constant comparative method in an attempt to find relationships and patterns of information across categories to chunk together and gain conclusions (Maykut & Morehouse, 1994). As new units of meaning were selected for analysis, they were compared to other units of meaning and categorized and coded with similar units of meaning. Finally, the similar units of meaning that were chunked together were used to answer the study's three overarching questions. By comparing each child's three data sources and categorizing the types of questions before sorting the data into three types, the teacher/researcher ensured that the data was triangulated accurately to achieve valid, trustworthy results.

Findings

iPod Experience

The participants were not required to have experience utilizing iPod Shuffles to qualify for participation in the Shuffle Lit project. The teacher/researcher provided the parents and students with written information and graphics that explained how to operate the iPods. When the parents were asked to rate their iPod skills, 12% of the parents had no experience with iPods, 38% of the parents knew the basics, 25% of the parents were moderately skilled, and 25% of the parents were advanced. In addition, the parents were asked to rate the following statement: It was

easy for us to operate the iPod Shuffle to listen to the stories. While one parent disagreed with the statement, 15 parents agreed with the statement. Therefore, most parents seemed comfortable using the iPods with their children.

Book Preferences

The students took home print books to follow along with the stories as they listened to the iPod. The teacher/researcher utilized surveys and iPod logs to determine which books should accompany the audio recordings in the future. During the student informal interviews, the students described their favorite stories to the teacher. These story preferences helped the teacher determine which stories to load on the iPods in the future. The students preferred the following print books and audio stories: *Curious George* by H.A. Rey, *Fox in Socks* by Dr. Seuss, *If You Give a Mouse a Cookie* by Laura Joffe Numeroff, *If You Give a Pig a Pancake* by Laura Joffe Numeroff, *Clifford* by Norman Bridwell, *Aaron's Hair* by Robert Munsch, and *Arthur* by Marc Brown.

Earphone Preferences

The iPod logs indicated that students used the headphones more than they used the Apple earbuds (68% of the time). During the student informal interviews, the students were asked to describe why they preferred one set of earphones over the other set. Many of the students explained that the headphones were more comfortable, softer, fit better, and were big enough for their ears. Several students were frustrated while using the earbuds because they often fell out of the students' ears; however, some students preferred the earbuds because family members could listen along with them.

Length of Time to Complete Project

The parents were surveyed to determine the appropriate time period that the students needed to complete the Shuffle Lit project. When the parents were asked if one week was long enough to complete the project, 76% of the parents agreed. Some of the parents stated that the students should be given two weeks to complete the project.

Convenient Times and Locations to Use the iPods and Books

On the surveys, the parents were asked to select the most convenient time for the students to use the iPods and books. The responses indicated that 55% of the families preferred to listen/read before dinner, 30% of the families preferred to listen/read before bedtime, and 15% of the families preferred to listen/read on the weekends. The iPod logs required the parents to list the location that their child listened to the stories. Most of the students preferred using the iPods in the living room (63%); however, sometimes the students listened to the iPods in the bedroom (21%), the kitchen (10%), the bonus room (3%), the car (2%), or a friend's house (1%).

Parent and Student Reactions to the Project

The survey data revealed that 94% of the parents agreed with the following statement: Overall, I feel that the Shuffle Lit project helped to encourage literacy experiences within my home. Most of the parents indicated that their children listened attentively and enjoyed the stories. Many of the students could easily operate the iPod; however, some of students needed help from a family member because they had trouble following along with the books while listening to the stories. A few of the parents indicated that their children laughed and made comments as they listened to the stories and songs. The audio recordings often prompted the children to discuss the books with family members. One student requested that his parents read the book to him again; therefore, the project encouraged additional family bonding and literacy

experiences. During the student informal interviews, all of the students indicated that they enjoyed listening to the iPods at home.

The pros, cons, and suggestions section of the surveys gleaned some of the best information for improving the iPod project in the future. Table 3 displays information gleaned from the parents' survey responses.

Table 3: *Pros, Cons, and Suggestions*

Benefits of the Project (Pros)	Problems with the Project (Cons)	Suggestions to Improve
Improved vocabulary	A few students struggled to listen due to short attention spans	Include more books
Encouraged reading; helped introduce books to children	Some students could not operate iPods without help	Provide a screen on the iPod
Encouraged imagination	One student took home an empty iPod and the teacher had to reload stories	Allow more time
Improved listening skills	Sometimes, it was difficult to determine which stories the students already heard	Offer various reading levels
Offered a resource for independent work	Sometimes, it was hard to match the audio stories to the books	Record stories using the same audio level
Provided a sense of accomplishment upon completion	A few of the stories were read really fast; it was hard for the students to follow	
Reinforced reading skills learned at school	Several students were frustrated with the earbuds	
Promoted independence and allowed students to choose stories	Some students needed more time to complete the project (especially ELLs)	
Provided a variety of appropriate, enjoyable stories	Stories were recorded at different audio levels; adjusted volume before each story	
Offered different narrators		
Some students could easily operate the iPods		
Music engaged students more		
Exposed students to books they did not have at home		
Encouraged excitement about reading		
Engaged students and helped eliminate distractions; students were more focused		
Provided family bonding time; students listened with family members using earbuds		
Offered cues to aid in learning to read		
Helped students to understand stories through pictures and audio		
Helped students read tricky words		

Conclusions

Teachers and parents can use this research to support, implement, and/or improve educational techniques that allow students to utilize iPods to learn more effectively. While listening to audio books, the kindergarten students enjoyed following along with the corresponding print books. Therefore, if teachers can provide more books that accompany the iPods, students may be encouraged to listen to more stories. When selecting books and audio for an iPod project, teachers need to include age appropriate materials that are interesting to the students. In this study, students preferred the following stories: *Curious George* by H.A. Rey,

Fox in Socks by Dr. Seuss, *If You Give a Mouse a Cookie* by Laura Joffe Numeroff, *If You Give a Pig a Pancake* by Laura Joffe Numeroff, *Clifford* by Norman Bridwell*, Aaron's Hair* by Robert Munsch, and *Arthur* by Marc Brown. The audio stories that the kindergarten students selected as their favorite stories incorporated dramatic narrative with repetition and rhyming words. The stereo headphones provided more comfort to the students and eliminated some frustration; however, the Apple earbuds allowed the students to share the listening experiences with other family members. Therefore, teachers could provide the students with both types of earphones to ensure project success.

It is imperative for teachers to maintain close communication with the parents of the students to reduce potential problems. Some of the parents indicated that their children needed assistance while trying to determine the order of the stories; however, the inability of the students to operate the iPod helped achieve a more family-centered learning experience. The written instructions and graphics on how to utilize the iPods and related equipment helped the parents and students who were not digital natives. One parent suggested that a screen on the iPod would help her child follow the order of the stories. This project utilized iPod Shuffles that were already purchased and nicer iPods would have required more money that was not necessary to spend at the onset of the project. However, teachers could provide a training course to the students and parents to help them successfully operate the iPods. Some parents explained that the various audio levels of the stories required them to adjust the sound between each story. If teachers are able to gain more money and resources, audio levels can be improved.

A parent of an ELL suggested that leveled reading books be provided for the students who have a difficult time understanding the English language. Teachers could provide all students with leveled reading books from the school's adopted reading series. Students could

listen to the pronunciation of words and match auditory words to visual words. In addition, teachers could load iPods with stories in other languages and translations in English.

Many of the parents indicated that one week was not long enough to complete the Shuffle Lit project; therefore, students should be given at least two weeks to complete the project. Teachers may have to provide the parents with reminders to prevent the project materials from getting misplaced or damaged during this extended time period. Since many of the students listened to the iPods more during the week than on the weekends, teachers may choose to collect the project materials each Friday and send them back home each Monday to maintain the materials and recharge the iPods.

Implications for Future Research

Future research is needed to determine the reading/listening preferences of older students. In addition, researchers could track how students' reading/listening preferences change as they get older. Then, student preferences could be used to determine the books, audio stories, and technology to include in home literacy kits.

Implications for Teachers and Parents

The Shuffle Lit iPod project provided unique learning experiences that bridged the learning gap between home and school while encouraging literacy experiences at home. Through the iPod project, parents were provided with a way to reinforce literacy skills taught in the classroom while spending quality time with their children. Teachers can utilize iPods as instructional tools to engage and motivate students, increase attention spans, improve listening skills, broaden vocabulary, and expose students to new literature at home and school; therefore, teachers should consider incorporating an iPod project into their teaching plans. The Shuffle Lit iPod project provides teachers with a creative way to engage students in meaningful learning

experiences; however, with an increasing demand to strengthen education and an ever-changing world of new technology, the possibilities and ways to improve learning are endless!

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