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Using Young Adult Fiction in Teacher Education Programs: Pre-service Educator's Understanding and Perceptions of Autism Spectrum Disorder

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Pre-service teachers and other educators are expected to understand and teach students from diverse backgrounds and varying abilities. One group that is growing in all classrooms across the U.S. are students with autism spectrum disorder (ASD). As such, it is essential that teacher preparation programs prepare pre-service teachers and educators to teach students with ASD. The purpose of the research was to examine the effects of pre-service teachers understanding and perceptions about ASD before and after reading young adult literature about characters with ASD. Results of parallel mixed-method research showed an increase of positive attitudes of pre-service teachers and educators' perceptions concerning people with ASD after reading young adult fiction. In light of these findings, we recommend that teacher preparation programs provide experiential opportunities, in this case through authentic fictional books, to enhance the perceptions and understanding of students with ASD and their families.

Keywords: Autism Spectrum Disorder, young adult literature, pre-service teachers, narrative fiction, mixed methods research

Introduction

In the last decade, schools have seen an increasing number of children with an autism spectrum disorder (ASD) and the current estimated average of children in the United States who are diagnosed with an ASD is one out of 59 (Centers for Disease Control and Prevention, 2018). ASD is defined as "a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance" (IDEA, 2004). Although children with ASD qualify for special education services, there is a strong impetus to include the students in inclusive general education classrooms (Able, Sreckovic, Schultz, Garwood, & Sherman, 2015; Campbell, 2007; Harrower & Dunlap, 2001; Reiter & Vitani, 2007). As such, the chances that a general education classroom teacher will teach students with ASD is becoming more and more prevalent; however, educators face many challenges when working with students who have ASD such as

accommodating their academic work, teaching social skills, building inclusive spaces (Emam & Farrell, 2009; Harrower & Dunlap, 2001; Humphrey & Lewis, 2008; Mintz, 2008; Reiter & Vitani, 2007). As a result, many researchers (e.g., Barnhill et al., 2000; Brewin, Renwick, & Schormans, 2008; Campbell, 2007; Starr & Foy, 2010) suggest further investigations to help educators understand ASD. Hence, the purpose of this study was to explore pre-service teachers' understanding and knowledge of students with ASD before and after reading young adult narrative fiction. More specifically, this study sought to answer the following research questions: a) what are the effects of young adult books based on authentic characters with ASD on pre-service teachers' knowledge, attitudes, and perceptions about students with ASD, and b) are there any differences between pre-service teachers' perceptions of people with ASD after reading young-adult literature books based on authentic characters with ASD and factors that may contribute to those differences.

Helping educators understand autism

Currently, there is a plethora of resources (e.g. Attwood, 2005; Grandin & Panek, 2013; Norall & Brust, 2009) that provide suggestions about how to help people with ASD. Despite the abundance of educator resources and recommendations of how to teach and assist people with ASD, there continues to be confusion and/or reluctance to adjust teaching practices both instructionally and discursively. For example, an educator whose background knowledge on ASD is minimal due to the lack of professional development and/or educational background may misinterpret quirky behavior as being oppositionally defiant, stubborn, obstinate, non-compliant and/or antisocial, when in reality, it is due to the student's deficits in social awareness, communication, and/or heightened repetitive behaviors. Further, ASD is a spectrum disorder, thus it can encompass diverse characteristics that are unique and individual for each person. What one teacher knows about a student with ASD may not easily transfer to another student with ASD. As such, teachers will need to be self-reflective practitioners (Kelley & Roe, 2007) and vary instructional strategies, or differentiate instruction (Leach & Duffy, 2009; Vakil, Welton, O'Connor, & Kline, 2009) as well as reconsider communication experiences (Nielsen, 2011) in order to meet the needs of students with ASD.

While all disabilities have unique attributes, the characteristics and behaviors of ASD often perplex people without autism. Much of the confusion could stem from misunderstandings and misperceptions of people with ASD. For example, a middle school student with ASD experiencing sensory over-sensitivity when walking through a loud, crowded school hallway may choose to pass to the next class after the bell rings. The teacher might assume that the student is purposely tardy and provide a consequence that includes eating lunch in an isolation room. However, a student with ASD might not consider this a consequence and actually revel in the opportunity of eating in a quiet place rather than in a noisy cafeteria. Hence, the teacher may misperceive or believe that the isolation room is a consequence, whereas a student with ASD might welcome the quiet solitude. In contrast, a teacher who understands that sensory over-sensitivity could be the cause of the tardiness would have made an accommodation to help the student deal with the problem (Grandin, 2011). All in all, our own perceptions, beliefs, and even cultural or religious backgrounds can play a key role in the way we interpret characteristics of students with ASD (Jegatheesan, Miller, & Fowler, 2010).

According to research, one of the most influential challenges for students with ASD and their families is the stigma and negative perception from others due to the lack of knowledge about ASD (Chambres, Auxiette, Vansingle, & Gil, 2008; Gray, 1993; Park, Chitiyo, & Choi,

2010). Specifically, teacher's perceptions and attitudes toward children with ASD can play a large role in addressing this challenge (Helps, Newsom-Davis, & Callias, 1999; Gregor & Campbell, 2001). With this in mind, teacher preparation programs could hold the key to improving teachers' perceptions and attitudes toward children with ASD. According to Park, Chitiyo, and Choi (2010), pre-service teachers majoring in special education had more positive attitudes toward students with ASD than those majoring in general education ($n = 131$). The authors theorize that these differences may be due to the exposure or past experiences of pre-service teachers. In addition, the findings show that those pre-service teachers who had some type of experience or exposure to students with ASD have more favorable attitudes toward their inclusion in general education settings. These authors conclude that the more extensive learning experiences and contact that pre-service teachers have with children with ASD, the more positive perceptions and attitudes they can have toward them (Park, Chitiyo, & Choi, 2010). For example, they recommend pre-service teachers have more exposure and experiences working with students with ASD. They suggest teacher preparation programs provide these types of experiences for pre-service teachers.

Fictional narratives as a conduit for understanding

Given that teachers' attitudes can influence student achievement (Good & Brophy, 2008), finding a catalyst that might shift educators' perspectives is imperative. As mentioned above, pre-service teachers who have experience with individuals who have autism can often develop positive attitudes; however, finding those opportunities can be difficult. Although college level courses about disabilities may provide necessary content information, these courses tend to have little effect on changing teacher attitudes (Tait & Purdie, 2000; Woolfson & Brady, 2009). That said, we will explore the possibility of using fictional narratives as a catalyst to help educators understand their students, especially students with special needs. Moreover, in addition to developing knowledge, we hope that fictional narratives will help develop empathy (e.g., Masko & Bloem, 2017; Mohammadzadeh, Kayhan & Dimililer, 2017).

In Lousie Rosenblatt's (1994) iconoclastic book *Literature as Exploration*, she theorizes that there is a transaction between readers and the text; this phenomenon is known as transactional reader-response. Rosenblatt (1995) describes reader-response on a continuum in which readers take the *efferent* stance or the *aesthetic* stance. Put simply, the purpose of the efferent stance is to absorb and take away information whereas the aesthetic stance is to experience the story. Rosenblatt (1982) explains the elements of a story "will be allowed to rise into consciousness, not simply the abstract concepts that the words point to, but also what those objects or referents stir up of personal feelings, ideas, and attitudes" (p. 269). As such, narratives may allow educators to "walk in their students' shoes" and gain a new understanding of their struggles and point of view. Conversely, informational texts that provide an abundance of resources and recommendations (e.g., Attwood, 2005; Grandin & Panek, 2013; Norall & Brust, 2009) would be less likely to encourage readers to put themselves into the shoes of someone else, especially someone with autism.

Like Rosenblatt, Mar and Oatley (2008) argue that narrative fiction can serve as simulations, or learning experiences, that can guide us in real-life situations. "Engaging in the simulative experiences of fiction literature can facilitate the understanding of others who are different from ourselves and can augment our capacity for empathy and social inference" (p. 173). Albeit, an attribute of pre-service teachers should be empathy, and one could argue that given the above information that educators should read fiction to help them gain experience

about all learners. As Cochran-Smith and Lytle (1999) discuss, integrated experiences, including reading literature, can help future teachers gain information and learn from examples.

If educators had an understanding about ASD from an aesthetic stance, through narrative fiction perhaps, and the educator *lived through* the experiences of someone with autism, then it is possible that the educator may adjust instructional practices (Winter-Messiers, et al., 2007), classroom and school management techniques (Osburne & Reed, 2011), as well as reconsider communication experiences (Nielsen, 2011) in order to meet the needs of students with ASD. Though empirical research supports the notion of using narrative fiction to help readers empathize with others (Brindley & Laframboise, 2002; Marable, Leavitt-Noble, & Grande, 2010), only a few research studies demonstrate how fiction can be a conduit to help pre-service teachers understand students with an ASD (e.g., Hughes, Hunt-Barron, Wagner, & Evering, 2014). A large gap within the literature regarding pre-service teachers' perceptions about ASD (Park, Chitiyo, & Choi, 2010) is evident. Whereas Park, Chitiyo, and Choi (2010) focused on the attitudes and perceptions of pre-service teachers toward students with ASD based on their previous experiences, this study focuses on the impact of young adult literature on pre-service teachers' knowledge and understanding of students with ASD.

Purpose of the Study

With the increase in inclusive models in public schools and the increase of students with ASD in general education classrooms, it is imperative for teachers to be prepared to understand, teach, and learn from students with ASD in various settings (Power & Costley, 2014). This new challenge is especially relevant for teacher preparation programs as they foster pre-service teachers' experiences that improve inclusive models. Therefore, the purpose of this study was to explore pre-service teachers' understanding and knowledge of students with ASD after reading young adult narrative fiction. More specifically, we pursued answering the following research questions:

1. What are the effects of young adult books based on authentic characters with ASD on pre-service teachers' knowledge and perceptions about students with ASD?
2. Are there any differences between pre-service teachers' perceptions of people with ASD after reading young-adult literature books based on authentic characters with ASD.
 - a. If there are differences, what factors may contribute to those differences?

Methods and Materials

Research Design

A parallel mixed-method research design (Teddlie & Tashakkori, 2009) was conducted to better understand pre-service teachers' perceptions of people with ASD based on their readings of young-adult fictional books focused on characters with ASD. More specifically, a quantitative strand (i.e., surveys) and a qualitative strand (i.e., open ended questionnaires) was used as data collection simultaneously. The use of a parallel mixed methods research design begins with an overarching question (i.e., research question 1) that is then split into two traditional strands, quantitative and qualitative. Both strands use traditional methods for the collection of data, data analysis, and inference of the results. Once data was collected and analyzed, a meta-inference was developed in order to better understand the results in a holistic and robust manner.

Participants

A sample of 186 pre-service teachers from several institutions of higher education in the Northwest region of the United States participated in this study. Pre-service teachers included those seeking elementary education ($n = 71$), secondary education ($n = 73$), early childhood ($n = 12$), and special education ($n = 8$) teacher certifications. In addition, a small number of other educators (i.e., Speech and Language Pathologist majors) participated in this study ($n = 22$). The sample was split between gender with 86.6% identifying as female and 13.4% as male. At the time of the study, participants were enrolled in either an undergraduate or graduate program and data was collected over several months with different cohorts of pre-service teachers. A total of 24 pre-service teachers participated in the qualitative portion of the study. All participants volunteered to answer the open-ended questions. Participants in the qualitative strand of the study had also participated in the quantitative strand, therefore, guidelines for the mixed methods design were met. At the time the data was collected, the participants were enrolled in either a special education course or a course that focused on students with disabilities.

Measures

An initial ASD Narrative Fiction Perceptions survey (i.e., pre-reading) and a post-reading survey, meant to collect data and better understand Research Question 2, included four sections: background information, behavior or characteristics of autism, perceptions of autism, and depictions of ASD in media. A total of 44 questions were included in the pre- and post-surveys and 24 items in the book specific questionnaire. Although the 24 item questionnaire included diverse topics and questions, for the purpose of this study, we only used three of those (i.e., Understanding of ASD, Accuracy of Characteristics, Awareness) to answer both research questions. The first section consisted of background information, educational training, professional development about autism, and experience with autism. The second section focused on behaviors/characteristics of young adults with ASD and was adapted from the survey created by Imran et al. (2011). The third section about perceptions was adapted from the questionnaire/survey for healthcare professionals developed by Stone (1987) and redesigned by Imran et al. (2011), as they utilized the criteria for ASD from the Diagnostic Statistical Manual of Mental Disorders (DSM-III and DSM-IV respectively). Adaptations to this section were made following the recent changes in the characteristics of ASD as stated in the DSM-5 (APA, 2013). All adaptations also included the use of people-first language and were tailored to educators, rather than healthcare professionals. The fourth section focused on depictions of ASD in the media and consisted of children's literature, young adult literature, TV shows, movies, and films. Reliability of the measure resulted in a moderately high Cronbach's alpha at .78 ($n=186$; Litwin, 1995).

Materials

Materials were selected in four phases and based on a previous study (Kelley, Algeo-Nichols, & Cardon, 2015). In phase one, researchers conducted a search for children's and young adult literature about ASD through various resources (e.g., library indices, websites, Google, etc.) and yielded 166 books. In phase two, researchers selected books with the following criteria: 1) realistic fiction, 2) a main character with ASD between 2-18 years old, 3) focuses on K-12th grade audience, and 4) recently printed (i.e., past 10 years). Only 58 books met the aforementioned criteria. In phase three, the books were analyzed for accuracy, disability discourse, and literary qualities by two literary experts (i.e., conduct research about children's and young adult literature) and two ASD experts (i.e., hold a graduate degree in an ASD related

field and have over 10 years of experience with this population). The top 12 ranked books in phase three were moved to phase four. In phase four, focus groups were conducted in order to validate these analyses. Based on results from the focus groups analyses (Cardon & Kelley, 2016), only seven books were selected for this study: a) *Anything but Typical* (Baskin, 2009), b) *Better than Weird* (Kerz, 2011), c) *The Half-Life of Planets: A Novel* (Franklin & Halpin, 2010), d) *Mindblind* (Roy, 2010), e) *Mockingbird* (Erskine, 2010), f) *The Reinvention of Edison Thomas* (Houtman, 2010), and g) *Rules* (Lord, 2006). The books were utilized in a special education introductory course at a pre-service teacher preparation program as supplementary teaching tools in addition to introductory information about characteristics of students with ASD and other disabilities.

Data collection

Quantitative data was collected through a web-based adapted survey (Imran et al., 2011; Stone, 1987). First, the pre-service teachers completed the ASD Narrative Fiction Perceptions survey. Next, the pre-service teachers selected and read one of the seven books. After reading the book, these participants completed the post-survey. Simultaneous to the post-survey, qualitative data was collected regarding questions about the content of the books. Qualitative data was also web-based in the form of an open-ended questionnaire. Quantitative and qualitative data were collected through separate questionnaires over a period of 18 months.

Data analyses

Quantitative analyses. Analysis of the quantitative data was conducted utilizing Analysis of Variances (ANOVAs) in order to explore the differences between groups (e.g., those with or without experiences with people with ASD) utilizing quantitative data. Additionally, descriptive statistics were conducted in order to provide an overall perspective of the number of respondents within groups.

Qualitative analysis. Qualitative data was analyzed utilizing theoretical thematic analysis (Braun & Clarke, 2006). Theoretical thematic analysis provides themes based on the literature prior to the collection or analysis of the data. Predetermined themes were established based on the literature (i.e., Understanding of ASD, Accuracy of Characteristics, Awareness). Using Miles, Huberman, and Saldaña's (2013) descriptive coding methods, we summarized the content of the answers by using short phrases or words. These were then organized within each theme and quotes were selected to match the specific themes. Each quote was reviewed separately by the researchers in order to increase reliability of the findings using the coder triangulation as described by Brantlinger et al. (2005). Once the quotes were selected and coded separately, the researchers came together to discuss the results.

Using grounded theory, researchers in this study placed emphasis on understanding the effects of young adult books based on authentic characters with ASD on pre-service teachers' knowledge and perceptions about this population, rather than generalizing it to a broader population (Corbin & Strauss, 1990). Most importantly, we used grounded theory with a lens of its underpinning of pragmatism and thinking about context as an evolving condition rather than a specific philosophical condition.

Mixed methods. Finally, a mixed methods meta-inference (Teddlie & Tashakkori, 2009) was conducted with the results of both the quantitative and qualitative data analyses in order to

provide well-rounded and in-depth conclusions. As previously mentioned, the mixed methods design was drawn from a single overarching research question that was split into the two parallel strands (i.e., quantitative and qualitative). Once the strands were complete and inferences were made based on the results, these inferences were joined together or mixed, connecting it back to answering the overarching research question.

Findings

Quantitative findings

An initial paired samples t-test showed significant differences ($p < .05$ and $p < .10$) between the initial ASD Narrative Fiction Perceptions survey and the post- survey (i.e., before and after reading the books) among pre-service teachers. These differences were shown in 10 out of the 21 variables ($p < .05$). We then proceeded to test for these differences through ANOVAs. After various ANOVAs were conducted, quantitative findings from post-surveys show pre-service teachers' group differences (with experiences, without experiences) declined after reading the young adult fiction books except in two variables (i.e., parental counseling as an intervention, dietary intervention) compared to great differences in pre-service teachers' perceptions prior to reading the books (ASD Narrative Fiction Perceptions survey). See Tables 2 and 3 for further information.

Initial Perceptions. In order to investigate the differences in perceptions between groups of pre-service teachers, various ANOVAs were conducted. First, the ASD Narrative Fiction Perceptions survey was conducted and the results were analyzed to better understand pre-service teacher's perceptions prior to reading the young-adult fiction books. The ASD Narrative Fiction Perceptions survey results ($n=186$) comparing pre-service teachers' perceptions (i.e., agree, disagree, I don't know) depending on their experiences (i.e., no experience, little to much experience) showed differences in ASD being under-recognized by health professionals ($p < .05$) when they had experience at the family/self level and parental counseling on training techniques as effective treatments for ASD ($p < .01$) at the friend level. Additionally, at having experience at the acquaintance level, the results show differences in groups regarding the perceptions of the following: a) children with ASD usually grow up to have Schizophrenia ($p < .05$), b) ASD is under-recognized by health professionals ($p < .05$), c) even with early interventions, the prognosis for independent community functioning of individuals with ASD is poor ($p < .01$), and d) children with ASD are "untestable" ($p < .05$). Finally, pre-service teachers' perceptions differed by level of experience when talking about a student in the following manners: a) ASD occurs more commonly among higher socioeconomic and educational levels ($p < .05$), b) even with early interventions, the prognosis for independent community functioning of individuals with ASD is poor ($p < .05$), and c) children with ASD are "untestable" ($p < .05$). There were no clear differences in their perceptions based on the experiences of having a co-worker with ASD as most of them did not have such experience (see Table 1).

Table 1

Differences among Pre-Service Teachers Depending on their Level of Experience with People with ASD (Analyses of Variance ASD Narrative Fiction Perceptions survey)

Variable	Level of Experience	<i>F</i>	<i>Sig.</i>
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Underrecog	Family/Self	3.327	.012
ParentCouns	Friend	3.581	.008
Schizoph	Acquaintance	2.701	.033
Underrecog	Acquaintance	3.022	.020
PoorFunct	Acquaintance	4.085	.004
Untestable	Acquaintance	3.409	.011
HighSESED	Student	2.626	.037
PoorFunct	Student	2.597	.039
Untestable	Student	2.566	.041

Note. n = 186

When pre-service teachers were asked about their perceptions based on professional development a statistical significance in difference between groups (i.e., had not attended professional development, had attended at least 1-5 hours) was found in the following statements: a) ASD is under-recognized by health professionals ($p < .01$), b) ASD is a communication disorder ($p < .05$), c) even with early interventions, the prognosis for independent community functioning of individuals with ASD is poor ($p < .01$), and d) dietary intervention is one type of treatment option ($p < .01$) (see Table 2). Furthermore, there was no statistically significant difference between groups when the difference was a type of training (e.g., elementary education teacher preparation program, secondary education teacher preparation program, special education teacher preparation program, etc.).

Table 2

Differences among Pre-Service Teachers Depending on their Professional Development

Variable	<i>F</i>	<i>Sig.</i>
Underrecog ^a	2.981	.006
CommDis ^a	2.215	.035
PoorFunct ^a	2.933	.006
DietInt ^a	2.844	.008
ParentCouns ^b	2.303	.050
DietInt ^b	2.886	.017

Note. a) ANOVA ASD Narrative Fiction Perceptions survey: n = 186: b) ANOVA Post-Survey: n=115

Post-reading survey. After completing the ASD Narrative Fiction Perceptions survey (pre-survey), pre-service teachers read a book on the predetermined list of young adult fiction titles. The books were read within a three-month period; however, we cannot establish the time it took the participants to read the books. After reading the book, pre-service teachers' finished a post-reading survey in which the exact questions from the ASD Narrative Fiction Perceptions survey were asked. Results of the post-survey (n = 115) showed a difference in perceptions between groups (i.e., agree, disagree, I don't know) on the following statements only: a) parental counseling on training techniques is one effective treatment for ASD ($p = .050$), and b) dietary intervention is one type of treatment option ($p < .05$) (see Table 2).

Survey results (i.e., initial perceptions pre-reading and post-reading) were compared to the difference between group level in order to better understand the possible impact of reading young-adult fictional books on pre-service teachers' perceptions, which provides evidence for Research Question 2. The results showed a decrease in the difference between groups after the books were read, except for two treatment options (parental counseling, dietary intervention) as effective treatments for people with ASD. In other words, differences were not observed between the groups, except in the two treatment options stated above. In addition to the quantitative results, qualitative data supported the impact of reading young adult fictional books about characters with ASD on the perceptions of pre-service teachers.

Qualitative Findings

Qualitative data was collected simultaneously as the quantitative data, organized as parallel-mixed method study (Teddlie & Tashakkori, 2009). A theoretical thematic analysis (Braun & Clarke, 2006) was conducted for each one of the questionnaires' answers and focused on specific themes about each book (i.e., Understanding of ASD, Accuracy of Characteristics, Awareness). Some subthemes were also included to support the differences in perceptions of people with an ASD according to the literature (see Figure 1). A total of 8 pre-service teachers per book (56 total) participated in the qualitative strand of the study. The following themes and direct quotes from the participants are representative of the majority of the answers.

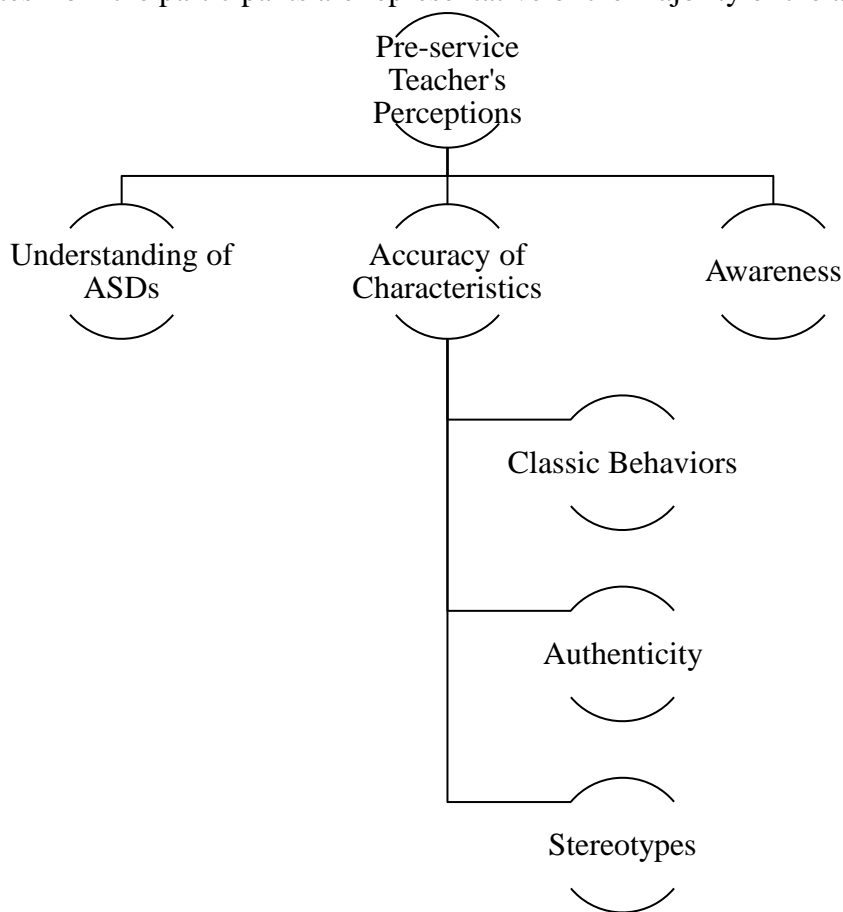


Figure 1. Themes selected to analyze impact of young-adult fiction books on pre-service teachers' perceptions

The first theme, *Understanding of ASD's*, focused on not only the characters (children or young adults with ASD) but they also focused on their families. After reading *Mockingbird*, a pre-service teacher stated, "I loved reading from the character's point of view. It made me realize how difficult [it is for them to] understand [what] social interactions and emotions are." Similarly, when reading *Rules*, another future teacher said, "From this book, I understand autism not only affects those with autism, but the families as well." This student's quote was a great example of the connection made between learning about students with ASD but also expand it to how it could impact their families by discussing empathy as an educator. Another example after reading the book *The Reinvention of Edison Thomas*, a pre-service teacher reflected,

I understand more about how there is a different way of thinking...Children with ASD may also recognize a certain social situation but not fully understand the situation. For example, Eddy knew that Mitch was acting differently but he could not figure out what it was.

The above example provided a great insight on the pre-service teacher's increase in knowledge and understanding of children with ASD from reading the book.

The second theme, *Accuracy of Characteristics*, delves into pre-service teachers' perceptions about the way characters are presented in the books. Subthemes for this topic include classic behaviors, authenticity, and stereotypes. One pre-service teacher compares his/her cousin to the main character, Jason, in *Anything but Typical* by explaining, "My cousin has autism and the character in this book is very similar to him...they both get overwhelmed sometimes when things go differently than they have planned. They like having structure, such as schedules and predictable events." Another pre-service teacher also expressed, "The book describes sensory overloading and how this can lead to panic attacks. It talked about compulsive honesty, melt downs, retreating into their own world, being experts or major aficionados of one specific thing." When discussing the authenticity of ASD in *Mindblind*, a participant stated,

I have been around a person with ASD and have witnessed an "episode" much like the one described in the book. It was interesting to be inside Nathaniel's mind while it was happening because from the outside (my experience), it looks like they are intentionally hitting themselves and are somewhere far away.

Regarding stereotypes in these books, after reading *Half-Life of Planets*, a pre-service teacher wrote, "I haven't noticed any real stereotypes. We get to be inside Hank's head. He is written as a real person who just happens to also have trouble with social interactions." In different ways, all four pre-service teachers were able to describe their connection to their knowledge but also clarification within their perceived understanding characteristics.

Finally, the third theme, *Awareness*, refers to pre-service teachers' reflections about the characters working through their problems, and where unexpected awareness for the participants surfaced naturally and appropriately through the story. This theme was built to observe participants' knowledge, understanding, and perceptions through the storyline that leads to increased awareness of characteristics of ASD. For example, when discussing the main character in *The Reinvention of Edison Thomas* a pre-service teacher explained "...by the end of the book he [Edison] was making friends and sharing with his friend why he felt the way he did about

certain sandwiches or scenarios.” Similarly, after reading *Mockingbird* a pre-service teacher discussed “This book helped me to understand how the environment affects individuals with autism...When Caitlin had 'episodes' the progression of her feelings and thought process was explained from her perspective...” Quotes from other participants depicted similar moments of awareness, understandings, and connections to recently gained knowledge.

Mixed Methods Meta-Inference

A meta-inference of the results is interpreted as the complimentary justification in mixed-methods and has been proposed to follow a framework in which clarification and elaboration of the results are made (Greene, Caracelli, & Graham, 1989; Teddlie & Tashakkori, 2009). In this meta-inference process, the results are linked from each strand to address agreements or contradictions within the findings (Teddlie & Tashakkori, 2009). In this study, quantitative results from the pre- and post- survey showed great differences in certain perceptions from different groups of pre-service teachers. Most of those differences were due to the lack of experience or professional development. As presented in the post-survey quantitative results, many of these differences between groups were no longer observed. These findings indicate that reading a book about the experiences of young adults with ASD, helped pre-service teachers without experiences have similar perceptions to those pre-service teachers that had previous experiences with people with ASD. Also, these results were supported by the qualitative thematic analysis results. An inference can be made that pre-service teachers perceptions of people with ASD can be positively changed after reading young-adult fiction books in which the main character is a person with an ASD. Providing experiential opportunities, in this case through authentic fictional books, showed to enhance the perceptions and understanding of people with ASD and their families.

Discussion

As part of the parallel mixed-method research design (Teddlie & Tashakkori, 2009), in order to better understand pre-service teachers' perceptions of people with ASD based on their readings of young adult fiction books focused on characters with ASD a meta-inference was constructed from both the quantitative and qualitative results. The research examined the effects of narrative fiction reading on pre-service teachers knowledge, attitudes, and perceptions surrounding ASD. In addition, differences in perception were analyzed pre and post exposure to the narrative fiction. Pre-service teachers did experience a change in their understanding of ASD after reading and perceptions were changed to reflect deeper understanding of ASD. In particular, pre-service teachers with less understanding of ASD moved closer in their level of understanding to pre-service teachers who had previous exposure (i.e., training, work experience) to ASD.

The change in perspectives experienced by the pre-service teachers engaged in this research is the type of “reader-response” that could be very beneficial to promote further understanding of ASD in public school classrooms. In this work, pre-service teachers demonstrated and increased understanding of ASD based on their experiences with the narrative fiction, thereby indicating that engaging with narrative fiction is a valid tool to increase understanding which could potentially alter the way in which pre-service teachers discuss and engage with ASD in their classrooms. With the increase of students with ASD in public school classrooms across the country, using narrative fiction as a teaching tool to increase pre-service teachers' awareness and change their perceptions surrounding ASD should be considered.

Over the years, narratives have provided a diverse range of pre-service teacher attitudes toward students with ASD ranging from negative to positive (Avramidis & Norwich, 2002; Horrocks, White, & Roberts, 2008; Park, Chitiyo, & Choi, 2010; Royal & Roberts, 1987). What is important in this conversation, and is indicated by the results of this study, is to dedicate time and efforts to provide pre-service teachers with experiences (Cochran-Smith & Lytle, 1999) that could help enhance their attitudes and perceptions of people with ASD in a positive manner (Park, Chitiyo, & Choi, 2010). With regard to pre-service teachers' reader-response, when engaging with narrative fiction and a character with autism, these books can help pre-service teachers empathize and potentially "live through" the characters. In this way, they are able to translate this reader-response to support the empathy and experiential learning of the students in their classrooms (Rosenblatt, 1982). It is key that pre-service teachers are provided with examples and information through teacher preparation programs, as well as through integrative experiences, such as reading literature and participating in practicum opportunities (Cochran-Smith & Lytle, 1999; Goodwin et al., 2014). The results of this study provide added support for educators of pre-service teachers to use targeted, authentic readings of fictional books to enhance pre-service teachers' perceptions of people with ASD in order to better serve them in schools and other educational settings.

Moreover, the lack of knowledge of characteristics, behaviors, and the wide-range of differences of people with ASD is important to address, discuss, and learn about through authentic experiences. Although the books presented to the pre-service teachers in this study were fictional, the books were previously screened to secure authenticity (Cardon & Kelley, 2016). As supported by the qualitative and post-book survey, pre-service teachers' perceptions were positive and showed growth after reading the book. Some were even able to relate the characters of the books to people with ASD whom they knew, providing a deeper connection and authentic experiences through young adult fiction books. It is especially important to take these types of experiential opportunities (reading books) for pre-service teachers as many teacher preparation programs only have a limited space to disseminate information about characteristics, behaviors, and evidence-based practices regarding students with ASD. For example, the teacher preparation programs in which the pre-service teachers were active participants only had one course in which the topic of working with students with ASD was addressed. Young adult books or other types of fiction books could be an innovative way to bridge between topics in special education only courses, as well as general education courses such as literacy, diversity, human/child development, and classroom management, because narrative fiction has the potential of providing moments of awareness.

Limitations

The moderate number of participants in the quantitative (pre and post-surveys) and qualitative strands could be considered as a limitation for generalization (Stevens, 2009). Additionally, when conducting an ANOVA, balanced grouping is key and in many cases during this study, some results were inconclusive due to the lack of balancing in grouping. For example, results about pre-service teachers' perceptions were not statistically significance when comparing the type of training because most of the pre-service teachers were only seeking a general education certification. Regarding book selection, biases from the researchers can be considered in this case. All of the books selected had met specific criteria made by the researchers. Therefore, more positive perceptions about people with ASD could have been formed due to

positive interpretations of the characters within the books. Also, other factors could have contributed to the changes in perception, including their gain of knowledge from courses in other teacher preparation courses. Although these factors were not accounted for, participants attributed the books as a large part of their change in perceptions. Finally, this study was only conducted in a small part of the U.S. and in specific teacher preparation programs. A larger-scale study including all regions of the U.S. could provide a more accurate view of pre-service teachers' perceptions and the state of teacher preparation programs.

Conclusion

Reading narrative fiction is a helpful way for people to learn about disabilities. Given the importance of literature in educational settings, finding good narrative fiction that can educate and inspire students is critical. The pre-service teachers in this study identified books that they felt were educational and authentic and similar to Park, Chitiyo, and Choi (2010), the preservice teachers showed, albeit a slight difference, some more understanding of people with ASD. It is necessary to disseminate these findings to encourage educators and students to engage with unique literature that can bridge the neurodiversity gap. More specifically following the definition of neurodiversity, educators should view ASD from a strengths-based perspective as another type of human diversity (Baker, 2011). University programs should introduce authentic narrative fiction to pre-service teachers that covers a variety of topics, including stories about individuals with special needs, several times during their tenure as students. If teacher preparation programs incorporate this type of instructional practice into their programming, pre-service teachers will learn to use narrative fiction in their own classrooms. When students and teachers learn to engage with stories that raise their awareness and increase the level of discourse, educational settings benefit by becoming more diverse and responsive to the unique students they serve.

Furthermore, future research should focus on the use of narrative fiction as means to discuss topics around students with disabilities as part of the curricula in teacher education. Similarly, empirical studies could explore the impact of narrative fiction using picture books, YAL, and/or case-based instruction to provide pre-service teachers the opportunity to learn about students with disabilities (Kelley et al., 2018) in combination with authentic experiences and reflections. Finally and most importantly, researchers and practitioners should focus on the most effective and authentic way to introduce individuals with ASD in teacher preparation programs without falling into stereotypes and a deficit perspective.

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Appendix A

List of Young Adult Literature Books with an More Authentic Depiction of ASD¹

- Baskin, N. R. (2009). *Anything but typical*. New York: Simon & Schuster Books for Young Readers.
- Brenna, B. (2011). *Waiting for no one*. Markham, ON: Red Deer Press.
- Dowd, S. (2008). *The London Eye mystery*. New York: David Fickling Books.
- Erskine, K. (2010). *Mockingbird (Mok'ing-bu'rd)*. New York: Philomel Books.
- Haddon, M. (2004). *The curious incident of the dog in the night-time*. New York: Vintage Books
- Lord, C. (2006). *Rules*. New York: Scholastic Press.
- Martin, A. M. (2014). *Rain reign*. New York: Feiwei and Friends.
- Stork, F. X. (2009). *Marcelo in the real world*. New York: Arthur A. Levine Books.
- Vernick, S. R. (2013). *Remember Dippy*. El Paso, Texas: Cinco Puntos Press.

¹ Although the authors of this article believe there are no perfect depictions of ASD exist in books, there are depictions that are indicative of the spectrum. Just like the spectrum is wide ranging, so are the books and the coverage in them.