COMPARATIVE INVESTIGATION OF DIFFERENCES BETWEEN SPECIAL AND GENERAL EDUCATION TEACHERS' PERCEPTIONS ABOUT STUDENTS WITH AUTISM IN TURKEY

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Increased rates of students with Autism Spectrum Disorders (ASD) are documented throughout the world. In Turkey, there are currently 100,000 students under the age of 14 with ASD and increasing each year by approximately 5,000 students. As a result of the current population and increased prevalence, special education and general education teachers are providing educational services to increasing numbers of students with ASD. The purpose of this study is to examine teachers' perceptions of students with ASD. The Autism Attitude Scale for Teachers was administered to 117 general education (n= 53) and special education (n= 63) teachers in 19 Education Centers for Children with Autism in Turkey. Results indicate both groups are receptive to students with autism, but special education teachers have more positive perceptions of students with ASD. Implications for teacher certification programs and continued professional development initiatives are presented.

Autism Spectrum Disorder (ASD) is a developmental disability with a neurological basis that affects the normal functioning of the brain (Leblanc, Richardson, & Burns, 2009). Since Leo Kanner first described it in 1943, the disorder has garnered a great deal of interest in the field and research environment. Although many questions remain unanswered, our understanding of 'autism' has significantly progressed to the point where it seen as a spectrum of difficulties rather than a singular condition (Humphrey, 2008). Prevalence findings are of particular interest to researchers around the world.

Researchers identified significant increases in the prevalence of ASD over time within certain populations and across many regions of the world (Oulette-Kuntz, Coo, Lloyd, Kasmara, Holden, & Lewis, 2006). The Turkish educational system is one region experiencing increased rates of students with ASD. According to the Turkish Ministry of Education, there are currently about 500,000 people with ASD and 100,000 are children under the age of 14. This means that one in 80 children in Turkey is diagnosed with ASD. Moreover, these numbers are increasing by approximately 5,000 per year.

In response to the growing numbers of students with ASD, the Educational Centers for Children with Autism (OCEMs) were established in 1999 by the Turkish Ministry of Education as part of the Education Project for Students with Autism. OCEMs are independent schools that include one-on-one and group education classrooms for students with ASD who are between three and 15 years old. Each OCEM includes preschool education (ages 3-6), elementary education (ages 7-11), and secondary education (12-15). The general purposes of the OCEMs include: 1) to provide the least restrictive environment possible for students with ASD while helping these students to improve their educational performances, social skills, and practical skills with the support of their families; 2) to provide supportive services to improve students' Individualized Education Plan's (IEP) and help students reach their goals; and 3) to provide and perform family education programs to fortify families and their perspective about students and/or school. The OCEM teachers are special education teachers who have graduated from special education programs and general education teachers who have obtained special education certificates or have earned graduate

degrees in the field of special education.

A central aspect to the effectiveness of teachers delivering education programs to students with ASD is the teacher's perceptions of their students. Teachers' perceptions of students with ASD are important for many reasons, including a teacher's perception may positively or negatively influence their own expectations for students, and in turn, influence students' success both academically and socially (Silverman, 2007). Teachers who have negative perceptions of students with autism may negatively impact their students. It is likely that there is a difference in perceptions between general education teachers and special education teachers due to the varied training and experiences of teachers.

Typically, special education teachers have more educational training, knowledge of and experience with students with ASD than general education teachers. Demographic variables (e.g., age and gender) and types of exposure to children with disabilities can impact individuals' attitudes towards children with autism (Rosenbaum, Armstrong, & King, 1988). Since students with ASD receive educational services in OCEMs from both general and special education teachers, it is logical to investigate the potential differences in teacher's perceptions of students with ASD. The information that is ascertained about current teachers' perceptions can be used to inform teacher certification programs and continued education initiatives.

The overall purpose of this study was to examine general and special education teachers' perception of students with ASD to better inform teacher education programs in Turkey. The research questions addressed are:

1. What are the Special Education and General Education teachers' perceptions of students with ASD in OCEMs?
2. What differences exist between Special and General Education Teachers based on the Autism Attitude Scale for teachers?

Method

The Autism Attitude Scale for Teachers (AAST) was used to measure teachers' perceptions of students with ASD and to investigate the perceptions of both general and special education teachers in OCEM's in Turkey. All participants completed the same survey anonymously across nineteen different locations. Participants' survey responses were analyzed at three levels using descriptive statistics and ANOVAs to determine similarities and differences between general and special education teachers.

Setting and Participants

This study took place in 19 different OCEM's across 10 different cities in Turkey. At the time of this study, there were approximately 70 OCEMs in operation. All of the OCEMs provided educational services to children with ASD ranging in age from three to 15 years. One hundred thirty five teachers consented to participate in this study. Due to incompleteness or incorrect markings, 18 surveys were excluded from the analysis and included 53 general educators and 64 special educators. Demographics of respondents including the number of teachers who previously had a student with Autism in their classes are presented in Table 1.

Table 1.Demographics of Respondents

Demographics	General Educators	Special Educators
Female	37	44
Male	16	20
Mean Age	32.16	28.25
Previously had a student with Autism in class	9	46

Measures

Teacher Survey. The AAST is a well-established and widely used survey by educational researchers. The AAST scale was developed in order to determine teachers' beliefs about students with autism and their involvement in public schools (Olley, DeVellis, DeVellis, Wall, & Long, 1981). The AAST has two parts and each part contains seven questions for a total of 14 questions including positively and negatively worded questions. According to the authors, this design prevents respondents from indicating the same number on the Likert scale for every question (Olley, et al., 1981). The highest score possible is 70 and a higher score indicates more positive attitudes about

students with ASD.
The AAST survey was translated to Turkish by the lead researcher. In addition, the researchers developed a questionnaire for gathering information specifically related to issues in Turkey from participants who completed the AAST form.
Open-Ended Questions. Two open-ended questions asked participants to give advice to general education teachers who work in public schools. They asked to provide their opinions on the importance of OCEMs in the field of special education in Turkey.

Procedures
After contacting and explaining the purpose of this research to the principals at each OCEM, a date was scheduled for administration of the survey. On the scheduled date the lead researcher, returned to the OCEM. The researcher distributed both forms to teachers during a regularly-scheduled meeting. After explaining the forms and the purpose of the study, the researcher asked participants to complete the forms. The forms were then collected. Teachers were not asked to identify themselves on the survey to maintain confidentiality and anonymity.
The researcher than scored all completed surveys following the scoring guides described by Olley, et.al., (1981). Reliability was completed by a trained research assistant. Reliability check was completed on 100% of both surveys and scoring reliability was demonstrated at 100%.

Results
To determine if there were differences between general education and special education teacher data was analyzed at three levels: (1) overall AAST survey scores were examined, (2) scores by question was compared, and (3) responses to open-ended questions were analyzed to determine differences by question.

General education and special education teachers provided different responses on the AAST, which led to a statistically significant difference between the two groups. Special education teachers generally exhibited higher mean scores than general education teachers did on the 14 questions of the AAST.
General education teachers' responses (n=53) to the AAST revealed that the teachers generally had positive perceptions (M=40.91, SD=.516) of students with autism. However, special education teachers' responses (n=64) to the AAST (M=50.13, SD=.426) showed that the special education teachers were more receptive to students with autism enrolled in OCEMs compared to general education teachers. Special education teachers had higher mean scores on the 14 questions of the AAST than general educators had indicated, as shown in Table 2.

Table 2.Overall Response Data on AAST

Teacher Group	N	M	SD
General Education Teachers	53	40.91	.516
Special Education Teachers	64	50.13	.426

The means and standard deviations for each teacher group per question were calculated. The closer the mean score to 5.00, the more positive the teacher group was in answering the specific question. Table 3 displays each question on the AAST and the means and standard deviations for each teacher group. The t-score and p-value for each survey question was also included in the Table 3 after calculating using a two-sample t-test. There was significant difference between teacher groups on 10 out of 14 questions which is 71.42% of the questions on the AAST. The overall mean scores for the two groups may suggest possible tendencies toward positive perceptions by teachers

Table 3.Teachers' Scores by Survey Questions

AAST Questions	Special Ed. M (SD)	General Ed. M (SD)	T	p
1. Only teachers with extensive special education can help a child with autism	1.88 (1.00)	2.74 (1.22)	-4.18	<0.001*
1. Mealtime behaviors of children with autism are disruptive and negatively influence the behavior of	2.91 (1.16)	2.70 (1.04)	1.006	0.31

children around them.				
1. Schools with both normal and autistic children enhance the learning experience of the normal children	3.64 (1.04)	2.66 (1.10)	4.91	<0.001*
1. Normal children and children with autism should be taught in separate schools.	3.59 (1.12)	2.15 (1.18)	6.75	<0.001*
1. Children with autism can learn from a good teacher.	4.36 (0.76)	3.98 (0.88)	2.47	0.015*
1. Regular schools are too advanced for children with autism.	3.72 (1.33)	2.66 (1.45)	4.09	<0.001*
1. I would not want the children in my class to have to put up with classmates who have autism.	3.53 (1.30)	2.32 (1.26)	5.05	<0.001*
1. Teachers not specifically trained in special education should not be expected to deal with a child with autism.	2.50 (1.40)	2.74 (1.36)	-0.91	0.36
1. Children with autism are too impaired to benefit from the activities of a normal school.	3.48 (1.12)	2.81 (1.14)	3.19	0.002*
1. Schools with both normal and autistic children enhance the learning experience of the autistic children.	4.09 (1.00)	3.04 (1.12)	5.36	<0.001*
1. If I had a choice, I would teach in a school where there were no children with autism.	4.05 (1.07)	3.06 (1.27)	4.55	<0.001*
1. A good teacher can do a lot to help a child with autism	4.34 (0.91)	3.98 (0.90)	2.14	0.034*
1. Children with autism cannot socialize well enough to profit from contact with normal children	3.75 (1.02)	2.98 (1.16)	3.79	<0.001*
1. 14. It is unfair to ask teacher to accept children with autism at their school.	4.28 (0.91)	3.09 (1.31)	5.72	<0.001*

*indicates significant difference at .05 level

The mean differences between the two teacher groups were analyzed, and the researcher used ANOVA analysis to compare general education teachers' and special education teachers' reported mean scores on the 14 questions of the AAST. Table 4 shows the descriptive statistics associated with the ANOVA results. The sample size, means, standard deviation, standard error, confidence interval, minimum score, and maximum score of general education and special education teachers on the 14 questions of the AAST are displayed in Table 4.

Table 4.Descriptive Statistics Associated with ANOVA Results

95 % CI								
Teacher Group	N	M	SD	SE	LL	UL	Min	
Special Ed. Teachers	64	3.58	.426	.05	3.47	3.68	2.50	
General Ed. Teachers	53	2.92	.516	.07	2.77	3.06	1.86	

In order to compare the means of the general education teachers and special education teachers on the 14 questions

of the AAST, an ANOVA analysis using an alpha coefficient of .05 was completed. ANOVA determines whether a statistically significant difference exists between the means of two or more groups. Table 5 shows the ANOVA results when comparing the means of special and general education teachers on the 14 questions of the AAST.
The overall ANOVA results indicate that there is a statistically significant difference (p-value= <.001) between the mean scores of the general education and special education teachers. This suggests that the groups differed more than would be expected. According to the comparison of the means of the groups, special education teachers were more receptive to students with autism enrolled in OCEMs than were general education teachers.

Table 5.ANOVA Results on the AAST

	SS	df	MS	F	p-value
Between groups	12.572	1	12.572	57.138	<.001
Within groups	25.304	115	.220		
Total	37.876	116			

During the research, some of the participants asked general clarification questions, but the most frequently asked question related to the *good teacher* term used in questions 5 and 12. The researcher noted the difference about the perceptions of the *good teacher* term among teachers. In addition, there is a major difference in the results of standard deviations between special education and general education teachers on AAST question 14. To further clarify and explore these differences, cross tabulation and chi-square analysis were completed for these three questions (5, 12 and 14) to determine the differences between special education and general education teachers' responses. The cross tabulations state the observed and expected frequencies between teacher groups. Chi-square results indicated whether there was a difference between them for the observed frequencies of responses.
All cross tabulation results were reported with the actual response given on the survey, not taking into account reversed scoring for the 14th question to prevent confusion. However, in Chi-square analysis, results used reversed scoring for the 14th question, because it was negatively worded question. For instance, if the participant scored 4 on the 14th question, the response was recorded as a 2. The Likert scale used in the scoring of the AAST was as follows; 5= strongly agree, 4= agree, 3= uncertain, 2= disagree, 1= strongly disagree.

Question 5 on the AAST stated, *Children with Autism can learn from a good teacher*. The scores for question 5 were analyzed based on observed count and expected count for each teacher group. There was a difference between the special education teachers (n=30) and general education teachers (n=15) who scored strongly disagree (5) on question 5. There is no large difference in standard deviations between special education (0.76) and general education teachers (0.88), the chi-square statistic (0.058) indicated there was not statistically significant difference between teacher groups. However, there is insufficient evidence to support this as 50% of the cells have expected frequencies less than 5, which means one of the assumptions of the chi-square was violated and the results may not be meaningful. Table 6 shows the chi-square tests for question 5 on the AAST.

Table 6.Chi-Square Tests for Question 5

	Value	Df	Asymp. Sig. (2-sided)
Pearson chi-square	9.120[a]	4	.058
Likelihood ratio	9.505	4	.050
Linear-by-linear association	5.877	1	.015
N of valid cases	117		

[a] Five cells (50.0%) have expected counts less than 5. The minimum expected count is .91.

Question 12 on the AAST stated, *A good teacher can do a lot to help a child with Autism.* There is also no large difference on the standard deviations between special education (0.91) and general education teachers (0.90). The reported answers on the AAST were explored further using cross tabulation and chi-square statistics. As in question 5, the results for question 12 state a large observed difference between the frequency of responses of special education teachers (n=34) and general education teachers (n=15) who entered strongly agree (5). Table 7 shows the chi-square statistics for question 12 on the AAST. According to the statistics reported, a statistical significance exists between the answers by special education and general education teachers as p (0.024) < α (0.05). However, there is insufficient evidence to support this as 60% of the cells have expected frequencies less than 5, which means one of the assumptions of chi-square was violated and the results may not be meaningful.

Table 7.Chi-Square Tests for Question 12

	Value	Df	Asymp. Sig. (2-sided)
Pearson chi-square	11.252[a]	4	.024
Likelihood ratio	11.910	4	.018
Linear-by-linear association	4.456	1	.035
N of valid cases	117		

[a] Six cells (60.0%) have expected counts less than 5. The minimum expected count is .91.

Question 14 on the AAST stated, *It is unfair to ask teachers to accept children with Autism at their school*. This question was the last question to be analyzed using cross tabulation and chi-square statistics. Question 14 was chosen for the difference in standard deviations between special education (0.91) and general education teachers (1.31) was greater than for other questions. In the strongly disagree category (1), 34 special education teachers responded while 9 special education teachers responded. The chi-square statistics for question 14 show that there was a likely difference between the responses of special education and general education teachers (Table 8). There was statistically significant difference between the response of special education and general education teachers on question14. The evidence of this is p (.000) < α (0.05). Moreover, there is an evidence to support this as 20% of the cells have expected frequencies less than 5, which means one of the assumptions of chi-square was violated and the results may not be meaningful.

Table 8.Chi-Square Tests for Question 14

	Value	Df	Asymp. Sig. (2-sided)
Pearson chi-square	26.302[a]	4	.000
Likelihood ratio	30.213	4	.000
Linear-by-linear association	25.705	1	.000
N of valid cases	117		

[a] Two cells (20.0%) have expected counts less than 5. The minimum expected count is 3.62.

In open-ended questions, both groups offered suggestions to other teachers who work with students with autism; they also provide their opinions on the importance of OCEMs. Generally speaking, the teachers focused on the importance of collaboration. Collaboration among professionals and cooperative work between all members during educational processes are necessary within the field of special education. The respondents wrote responses indicating the advices they would need to successfully include students with Autism in their classroom. The top five suggestions identified by educators are listed in the Table 9 in order of frequency of the responses.

Table 9.Top 5 Suggestions to Other Teachers

Frequency of Response	Support
22	Prepare IEP for each student
21	Information and reading materials
19	Being patient
13	Special education teachers help
9	Training specifically about Autism

Discussion

General education and special education teachers working at Educational Centers for Children with Autism

(OCEMs) reported positive, neutral, and negative perceptions about students with autism in their classrooms and schools. Their perceptions are significant for students with autism as well as the overall atmosphere of OCEMs. The results of this study indicate that general education and special education teachers are positively receptive to students with autism; however, a significant differences exists between general education teachers' and special education teachers' perceptions of students with ASD. Special education teachers are more receptive than general education teachers to the students with autism in the OCEMs.

It was expected that special education teachers would have more positive perceptions because of the differences between their educational background, training, and experiences. For locations providing services to students with ASD, it is imperative that all teachers, both general and special education, regardless of their education background, training, and experiences have positive perceptions of their students. Our results indicate this is not necessarily true and highlights potentially important implications for teacher certification programs and continuing education initiatives at OCEMs.

Specialized Training and Experiences

Special education teachers in Turkey, especially those who graduated from special education programs received more specialized training about the learning characteristics, instructional needs, behavior challenges, and evidenced based practices for students with ASD during their education program. This more specialized and in-depth training likely influences teachers' perceptions in a positive fashion because they have the knowledge, background, and specialized training to feel confident and prepared to teach students with ASD.

Providing specialized training to pre-service teachers and practicing teachers warrants more attention. Specifically, education training programs should focus on providing teachers more information related to students with ASD in three areas: (a) learning characteristics, (b) behavioral characteristics, and (c) evidence-based practices.

Based on our experiences, we recognize that what works for one student may not work for another, and students with ASD have their own individual personalities that we need to take into consideration (Marks, et al., 2003). However, there are learning characteristics of student with ASD that teachers should know. Researchers identified that some of the important characteristics are: a) deficits in paying attention to relevant cues and information, b) receptive and expressive language impairments, c) deficits in abstract reasoning, d) impairment in social cognition including deficits in the capacity to share attention and emotion with others, and understand the feelings of others, e) inability to plan, organize and solve problems (Minshew & Goldstein, 1998; Minshew, Goldstein, Taylor & Siegel, 1994). The more information and expertise that teachers have about the specific characteristics of students with ASD, the more likely teachers will have the necessary skills to more effectively work with students with ASD and increase their students' positive outcomes.

Besides learning characteristics, there are also behavioral characteristics of students with ASD. Individuals with ASD may have challenging behaviors, such as aggression, self-injurious behaviors, and/or tantrums. Given that most individuals with ASD have difficulties in effectively communication, it is not surprising that they rely on their behavior to convey specific messages (Alberta Learning, 2003). Teacher should understand that students with ASD have their unique behavioral characteristics. Teachers need to look below the surface to identify the message a student is trying to convey (Alberta Learning, 2003). Awareness and familiarity with communication strategies focused specifically to students with ASD will increase the appropriateness and efficacy of strategies to develop communication skills in students ASD.

Another essential aspect for teachers to develop expertise is with the evidence-based practices for students with ASD highlighted in the literature base. There are many evidence-based practices with demonstrated effectiveness through high quality scientific research such as functional behavior assessment (Blair, Lee, Cho, & Dunlap, 2011; Kodak, Fisher, Clements, Paden, & Dickes, 2011), functional communication training (Gibson, Pennington, Stenhoff, & Hopper, 2010; Kuhn, Hardesty, & Sweeney, 2009), prompting (Ingvarsson, & Hollobaugh, 2011; Ostryn, C., & Wolfe, P. S., 2011; Thomas, Lafasakis, & Sturmey, 2010), video modeling (e.g., Plavnick, MacFarland, & Ferreri, 2015; Yakubova, Hughes, & Hornberger, 2015), visual support (Angell, Nicholson, Watts, & Blum, 2011; Cihak, 2011; Stringfield, Luscre, & Gast, 2011). Bringing evidence-based practices to classrooms increases teachers effectiveness and will increase the likelihood of more positive outcomes for students with ASD. Although translating research into classroom practices is a major challenge, teachers' understanding and familiarity with these research based practices will better facilitate the implementation of these practices into classroom. The movement from science to practice is a continuous challenge for implementers/teachers and also an important step

for the field of education (Wong, et al., 2014) continued and focused professional development is necessary to address this ongoing challenge.

Implications for Practice

Both teacher groups and other members of the special education field in Turkey may benefit from the results of this research by broadening their knowledge and ultimately improving the services for students with ASD. We learned both general and special education teachers in general have positive perceptions about students with ASD; although, special education teachers, as expected, tended to be more receptive. It is important for future and current teachers to receive additional specialized training opportunities focused on practices to better support students with ASD in their classrooms. Specialized training on learning characteristics, behavioral challenges, and evidenced practices for students with exceptional needs is advantageous for general education teachers by providing the necessary background, knowledge and improved understating of educational needs of students with ASD.

In addition to improving teachers' knowledge and perceptions of students with ASD, it is important to help ensure collaboration between special and general education teachers. Collaboration between special and general education teachers has at least three benefits for students with ASD. First, increased collaboration facilitates the blending of special education teachers' knowledge and content knowledge of general education teachers. Second, collaboration can bring students closer to achieving their short and long term academic goals. Besides the impression on blending knowledge and helping students to perform better in academic tasks, collaboration also increase the quality of instruction by increasing productivity and cooperative working over time.

One obvious barrier to increased collaboration and co-teaching classrooms is the limited number of special education teachers at most OCEMs. The smaller number of special education teachers makes it very difficult to create co-teaching classrooms. Improving collaboration to the maximum extent possible given the limitations is highly recommended to better facilitate the sharing of knowledge, resolution of challenges, and planning as a team.

Limitations

There are at least three limitations to this analysis that are important to consider in combination of the results. First, the AAST was developed in 1981, when autism was not a well-known category of special education. Second, the definition of Autism Spectrum Disorder may vary and teachers' interpretations often differ. The difference in interpretation may have influenced the way general and special education teachers answered the survey and open ended questions. Third, the AAST survey was translated from English to Turkish and may have impacted our results. The difference between the effect of English and Turkish languages may cause misunderstandings in the wording of the questions. One of the most important implications for future studies is to develop a new survey with more recent and Turkish specific educational terminology. Despite these limitations, the results of this study have important and useful implications for the Turkish Educational system.

Conclusion

This study has important implications for educational practices in OCEMs and public schools. There are many inclusion classes for students with ASD in public and private schools as well as OCEMs. These inclusion classroom settings are increasing each year as more and more students are identified with ASD and therefore, teachers in these inclusive classrooms must exhibit positive perceptions about students with ASD. While educational programs and continuing educational opportunities focused on students with ASD are becoming more widespread, the hope is that special and general education teachers' perceptions will continue to improve not just in OCEMs, but in every part of the education system.

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