

Children With Disabilities Express Less Concrete Gender-Based Biases: Social Development of Gender Perceptions from Preoperational to Formal Operational Stages

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Abstract

Children with Autism Spectrum Disorder (ASD) and Nonverbal learning disorder (NVLD) may display abnormalities with processing social concepts. The purpose of the study is to observe how children with disabilities and nondisabled children view gender stereotypes. Images of gender-advertised toys and clothing items were utilized to determine gender-biases held by preschoolers (ages 3-6), upper-elementary level students (ages 10-12), and high school level students (ages 15-18). This project raises awareness of cultural stereotypes in society and their impact on childhood perception development. 177 students were shown images of gender-advertised clothing and entertainment items and were asked to categorize each object as a boy, girl, or both. Students with disabilities had less gender bias compared to their nondisabled counterparts. The children in all groups had increased stereotyped responses to clothing items as opposed to toys. The preschoolers displayed the most stereotypical responses, the upper-elementary schoolers responded with the least biased responses as they had gained more exposure to toy and clothing options, and the high schoolers solidified their opinions with moderate stereotypes, notably in clothing items. In students with disabilities that presented with increased non-stereotypical opinions, there was a significant difference in gender perception in students with disabilities. The difference in responses to gender perception between students with and without disabilities assimilated in all categories by high school age, meaning there was no significant difference in gender perception by this stage.

Children With Disabilities Express Less Concrete Gender-Based Biases: Social Development of Gender Perceptions from Preoperational to Formal Operational Stages

Observing the world through a different lens, individuals who possess disabilities are raised to live and perceive the world in a diverse mindset to find accommodations and coping strategies for the individual's difficulties. Disabilities are classified as a condition of impairment that limits the person's activities or increases the difficulty of a task (Centers for Disease Control and Prevention, 2020). As of 2010, there were 5.2 million school-aged children (aged 5 to 17) reported to have a disability (Brault, 2010). Additionally, studies have shown that around 15% of the world lives with a disability (World Health Organization 2018). Under the Individuals with Disabilities Education Act (IDEA), there are 13 categories for disabilities including specific learning disability (SLD), autism spectrum disorder (ASD), deafness, and orthopedic impairment (Lee, 2020). As there is such a vast spectrum that falls under the extensive meaning of having a disability, it is important to recognize the diversity and severity of conditions.

Disabilities and Social Challenges

With incoming research, some disabilities have been correlated with social skill impairments that interfere with comprehending unspoken social constructs such as gender stereotypes. From social cues such as understanding facial expressions and body language to experiencing difficulties with impulse control, children with social communication disorder (SCD), attention-deficit hyperactivity disorder (ADHD), and nonverbal learning disorder (NVLD) encounter various complications and barriers when recognizing and participating in social normalities (Knapp, 2019). Likewise, individuals with ASD experience complications with recognizing social/self-awareness. This can lead to treatments with the goal of improving recognition of facial expressions, incorporating various speech tones, and reading body language (Müller, Schuler, & Yates, 2008). Stereotypes and unspoken cultural normalities may be a hardship to identify and improve with children who experience difficulty recognizing social patterns.

Early Theorized Gender Perception

Cultural expectations are enforced throughout adolescence. From baby showers and routine ultrasounds, a baby's gender may be paired with constructive beliefs. From the moment of birth, a child is placed in a metaphorical blue or pink blanket, and parents purchase toys, clothing, and decorations according to this cultural factor. In the modern day, children are conditioned to act in accordance with westernized gender-based laws. As children are in the preoperational stages of cognitive development (ages 2-7), they are unable to have abstract thought and thus base views on their environment (Piaget, 1972). Beginning in early development, children begin categorizing or "chucking" information collected from their environments. As for categorizing gender, the brain naturally generates schemata of "sex-appropriate" behaviors and patterns for each gender based on the nature of culture (Fagot & Leinbach, 1993). Surrounding a female child with dolls and a male with action figures creates a rigid structure on the early perception of gender. Early gender perception along with fictional characters can cause a hierarchy early on

and segregate children in their early relationships (Orenstein, 2010). For example, young females may base their clothing choice, character, and companionship based on princesses and fairies presented on television while young males may mirror masculine traits from superheroes on television. As children transition into further states of cognitive development (ie. formal and concrete operational), females and males will develop increased independence, complex thought and will gain the ability to formulate their own opinions based on culture (Piaget, 1972).

Traditional boyhood and girlhood are beginning to be challenged through the crumbling and dismantling of these conventional ideas. A child's opinions and perception development during the stages of adolescence mirror their parental guardian's gender beliefs. Although appearance-related gender stereotypes (such as clothing choice, makeup, etc.) are the most recognized within children; traits, social roles, and occupation are less influential when concluding gender (Ruble, et al., 2007). Between the ages of 2 to 3, it has been found that a child can accurately recognize their gender based on their assigned sex; additionally, male children prefer to play with sex-stereotyped toys, rather than toys that are not sex-stereotyped for the males (Huston, 1987). As shown, children as early as their toddler years can identify the rigidity of the gender-oriented social script. Parents are beginning to understand and encourage play and dressing based on the child's preference rather than cultural social ideals, leading to less rigidity in younger generations to gender presentation (Padawar, 2012).

Media Impact on Cognitive Development

Early media exposure can have a profound impact on bias and cognitive development during adolescence. Children-tailored books and television may contain gender-role stereotyping messages that can impact a child's thought processes. The longer children are exposed to stereotyped media, the greater the gender-biased attitudes are enhanced within the child. On the contrary, children who watch non-biased media have significantly fewer stereotypical views (Peterson, 1990).

As emphasized before, the earlier the biases develop, the stronger these stereotypes solidify in the consciousness. Observation (Stage 1) describes how children directly encounter the categories in which different characteristics, clothing, and personalities belong. Children may gain these ideas from books, television shows, and their surroundings. Cognitive representation (Stage 2) explains the process in which an individual recalls observations about cultural manners. As the individual continues to remember culturally acceptable behaviors and presentations, stereotype formation is established and reinforced the more the individual considers their observations. Lastly, social transmission (Stage 3) is the process of expressing behaviors learned in the culture (Martin, et al., 2017). When that individual travels into the public eye, surrounding individuals will observe these social actions and begin the cycle again. Through this pattern, children develop perceptions from their surroundings and continue to learn the cultural script.

Gender-based Diagnosing Disparities

The disability dilemma has been known to describe the sexism in the disability community. Although males are significantly diagnosed as mentally retarded, learning disabled, and

emotionally disabled more frequently than females, recent research has shown that there is no difference in the number of disabilities between males and females. Because females are being diagnosed at a level disproportionate to males, females with disabilities experience difficulty in their education, careers, and are less likely to receive the vital resources and accommodations needed (Ferri & Gregg 1998, Froschl et al., 1999).

This study aimed to observe gender perception differences of children with disabilities. During the research process, there was limited research on gender perception development among children with disabilities. As numerous students with disabilities experience delayed or weakened social skills, it was theorized that understanding of unspoken gender normalities may be deferred as well. This age dynamic is in place to evaluate the growth of gender perception throughout their education years. Age was assessed by utilizing Jean Piaget's cognitive theory of development. Understanding the cognitive stage of the child helps support and understand the child's mental process regarding social constructs. Preschoolers were in the preoperational stage of cognitive development, leading the children to experience egocentrism and theory of mind (ToM). According to Piaget's theory, the children were too young to understand the perspectives through another's lens; ToM measures an individual's level of empathy and emotional understanding of others. In current studies, researchers have found ToM discrepancies in those with hearing impairment (HI), mild intellectual disability (MID), and ASD (Matthews & Goldberg 2018; Meltzoff 1999; Smogorzewska, Szumski, & Grygiel, 2018). As delayed ToM could lead to delayed development of understanding the perspective of others, preschoolers with disabilities may struggle to identify concepts or items that do not align with themselves.

The late-elementary student group is between and/or transitioning from the conventional operational and formal operational stages of cognitive development (Huitt & Hummel, 2003). When children advance to the formal operational, they gain the ability of abstract thought and deductive reasoning to their interpretations of their environment. At this stage, children can examine beyond simple constructs and establish their own opinions on gender perceptions in their environment. By the time the student begins high school, the child should have developed into the formal operational stage completely, meaning the child would be able to reason with their own opinions on conceptual ideas (Piaget, J. 1972).

Research Hypotheses

The following hypotheses were considered: (1) In general, due to the delayed recognition of social skills, the students with disabilities will display fewer concrete views on gender stereotypes compared to their nondisabled peers. (2) By the time children with disabilities have achieved the formal operations stage for a significant period, the gender perception level will equate to their peers without disabilities. As discussed previously, there is a gender divide among the disabled community. (3) It was theorized that female children who live with disabilities will have increased gender perception skills compared to their male counterparts when identifying differences in gender-stereotyped items.

Method

Participants

To assess the relationship of adolescent development of gender perception amongst children with disabilities, three groups were assessed: preschoolers (3-6 years old), late-elementary school (10-12), high schoolers (15-18). Participants were recruited through public and private education institutions in eastern Pennsylvania.

Upon approval from the school, consent forms were dispersed to qualifying students to be signed by a parent, guardian, or themselves if over the age of 18. A total of 177 children (70 of which obtained a diagnosis of a disability and 108 were attending a public education institution with no known diagnosis) participated in the study. Regarding gender, 71 were male (31 disabled, 40 nondisabled) and 101 females (38 disabled, 63 nondisabled). In self-reported gender responses for the high school population, 5 (1 disabled, 4 nondisabled) students identified as “other” for their gender identity and were included in all data excluding the variable of gender. As a result of educational institutions sourced, policies restricted ethnicity information. More demographic information is included in Table 1.

Table 1

Sociodemographic Characteristics of Participants at Baseline

Baseline characteristic	Disability Group		Control Group		Full Sample
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>
<i>Gender</i>					
<i>Female</i>	38	38	63	62	101
<i>Male</i>	31	44	40	56	71
<i>Education Level</i>					
<i>Preschool</i>	21	37	36	63	57
<i>Elementary</i>	15	28	38	72	53
<i>High School</i>	34	50	34	50	68

Due to the Family Educational Rights and Privacy Act (FERPA) laws, school districts were unable to disclose a student’s disabilities or allow a related category to be expressed on permission slips. Understandably, FERPA prevents school districts from releasing private information (e.g. disclosing students’ disabilities) for the safety of their students (Ocr. 2015). Private or special educational institutions were used to collect data for the disability population. Because of the laws in place, public schools were used as a source for students without disabilities, and disabilities could not be categorized based on type when researching through PreK-12 education institutions. Even though the term disabilities is used as a broad terminology

for the diverse group set in this research, this study was not meant to generalize the wide scope of disabilities.

Procedures

This study was approved by the North Museum Science and Engineering Fair (NMSEF) ethical review board. All participants were required to have a complete consent form (signed by parent/guardian if under 18 years old) prior to when the test was administered. Upon receiving a complete consent form, the participant received a test adequate for the age group.

All age levels were presented with age-appropriate, colorless images of clothing and entertainment items. The cards were purposely black and white to avoid color as a variable for bias, allowing the child to categorize each object purely on the object itself. The answer choices for all candidates for each clothing and entertainment item were for a boy, girl, and both. All cards were numbered to ensure the same order to each participant in the age-bracket. The procedure was repeated for each student. It took approximately five minutes per student to complete. The data saved automatically from Google Forms, and the procedure was repeated for each student.

Because of the vast differences in age groups (preschoolers, elementary schoolers, and high schoolers), different items and toys were presented with different administrations to accommodate attention and variation of interests. The preschoolers were presented with the images one-on-one in order to maintain attention. The answers given were documented on a premade, printed chart. The elementary and high school groups utilized an entirely virtual approach. An online, individualized survey was sent to all eligible students with age-appropriate clothing and entertainment images.

Results

When comparing students with and without disabilities, there were larger differences in how each group interpreted clothing and entertainment items throughout their development in the education system. For both groups, there was increased recognition of bias with clothing items compared to entertainment items.

Table 2

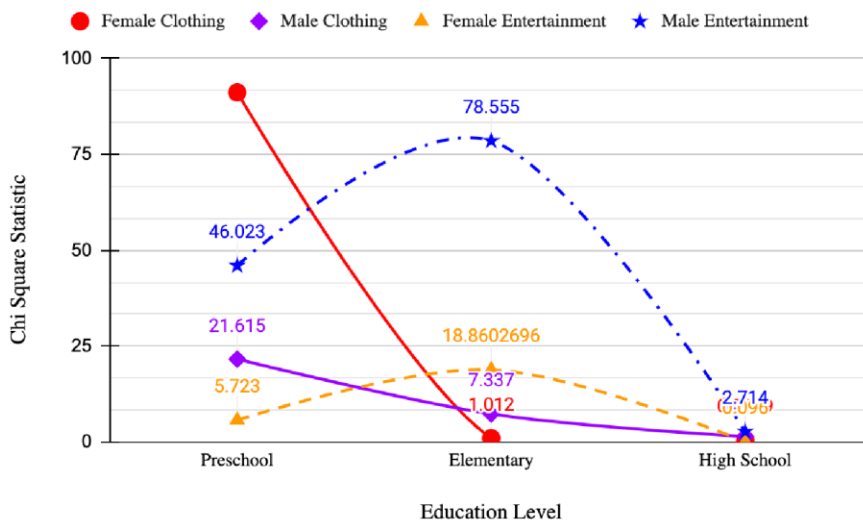
Percentage of Students Who Identified Cultural Stereotypes Option for Clothing and Entertainment Items: Means and Standard Deviations

Item Type	Students with Disabilities						Students without Disabilities					
	Preschool Age		Elementary Age		High School Age		Preschool Age		Elementary Age		High School Age	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Clothing	73.4	9.95	55.55	3.85	60.44	11.47	89.4	7.02	59.6	18.66	60.3	12.18
Entertainment	57.63	14.27	21.21	25.44	30.8	21.75	69.5	24.01	36.81	20.26	31.78	22.56

Beginning in preschool, both groups had the strongest recognition of bias for all categories: students with disabilities ($M_{\text{Clothing}} = 73.4$; $M_{\text{Entertainment}} = 57.63$) and students without disabilities ($M_{\text{Clothing}} = 89.40$; $M_{\text{Entertainment}} = 69.50$). Compared with entertainment items, clothing items have a greater bias associated. The highest bias selection for clothing and entertainment is present in the preschool age group while the lowest bias selection in elementary-school age. By the high school age, the M bias selection balances into homeostasis between preschool and elementary perspectives. In the transition from elementary to high school age for students with disabilities ($M_{\text{Entertainment}} = 36.8$; $M_{\text{Entertainment}} = 31.78$), there is an exception to this growing trend.

Students with disabilities were less likely to choose the stereotypically gendered option for each clothing and entertainment item compared to their nondisabled peers. While an average of 89.40% nondisabled students chose the culturally stereotypical response to each clothing item, students with disabilities selected the choice with an average of 73.40%. This pattern remained consistent for all entertainment and clothing options throughout the different age groups. There was a minor exception where the high school students with disabilities ($M_{\text{Clothing}} = 60.44$) and nondisabled students ($M_{\text{Clothing}} = 60.30$).

Figure 1
Chi-Square Statistic Difference of Gender Perceptions Over Adolescence in Children With/Without Disabilities



Note: When $X^2 \geq 5.99$, the data is significantly different

Figure 1 demonstrates how the chi-square statistic difference test changes along with the different age groups by gender and items. Both the female ($X^2_{\text{Clothing}} = 91.19$) and male clothing ($X^2_{\text{Clothing}} = 21.62$) were interpreted in statistically different perspectives at the preschool age and transitioned into no significant difference ($X^2 < 5.99$) by the high school age group.

Complementary, entertainment items were categorized by the students with disabilities in a significantly different manner at the preschool and elementary age compared to their peers. The students experienced an increased chi-square statistic (X^2) transitioning from preschool ($X^2_{\text{Male Entertainment}} = 46.02$) to elementary-age ($X^2_{\text{Male Entertainment}} = 78.56$). By the time the students reached the high school age group ($X^2_{\text{Male Entertainment}} = 2.71$), there was no significant difference between the children with disabilities and their nondisabled peers. For female entertainment items, it follows the same trend, but the preschool age experienced no significant difference ($X^2 = 5.72$).

Table 3

Percentage of Students with Disabilities Who Identified Culturally Stereotypes: Gender Differences in Perception for Clothing and Entertainment Items

Gender	Preschool		Elementary		High School	
	Toys (M)	Clothes (M)	Toys (M)	Clothes (M)	Toys (M)	Clothes (M)
Male	67.31	75.38	29.41	87.5	40.83	71.25
Females	45.31	70	32.47	23.81	26.92	59.86

Table 3 aimed to display how gender differences in the disabled group differ from how they categorize entertainment (toys) and clothing objects. Females were less culturally biased regarding labeling items. There is one irregularity in the elementary toys section where females ($M_{\text{Female Entertainment}} = 32.47$) had increased biased responses compared to males ($M_{\text{Male Entertainment}} = 29.41$).

Within the male and female groups, there presented a trend in which clothing items overall were ranked with increased selection compared to entertainment items of the culturally accepted response. As for an example, the elementary males ($M_{\text{Entertainment}} = 29.41$; $M_{\text{Clothing}} = 87.50$) labeled clothing items aligning with increased culturally-induced gender-biases. There is an inconsistency in the elementary females where the clothing items ($M_{\text{Clothing}} = 23.81$) were ranked with less bias than the entertainment items ($M_{\text{Entertainment}} = 32.47$).

Discussion

Students with and without disabilities had the opportunity to categorize entertainment and clothing items based on their perceptions and values. Individuals at the preschool level in both groups chose the most culturally stereotyped response for the entertainment and clothing items. Along with this trend, clothing is at increased risk to be selected with more gendered bias throughout the entirety of development. Clothing items are more solidified with bias because there is a greater binary established in department and societal standards. On the contrary, entertainment items are more socially acceptable to cross the boundary. Especially if an individual has a sibling of the opposite sex, the child will have access and be encouraged to play with toys of the opposite sex. If a child has no siblings, it is possible they will not have access to toys advertised for the opposite gender. As a child transitions into preschool, the child has accessibility to a variety of entertainment items (despite possibly being an only child).

While having the opportunity for greater access to non-gender assigned entertainment items during preschool, the opinions became less culturally biased with both entertainment and clothing items. The transition from preoperational to concrete/formal operational stages of development allowed the child to implement abstract thought and deductive reasoning to their interpretations. The children were able to think beyond the constraints of another's thoughts, and they could consider ideas for their own.

As hypothesized, students with disabilities had lower bias responses when categorizing clothing and entertainment items. There was a significant difference in selection in the preschool and elementary-aged disability group compared to the nondisabled students. This could be correlated with the misinterpretation of comprehending unspoken social constructs that children with social communication disorder (SCD), attention-deficit hyperactivity disorder (ADHD), and nonverbal learning disorder (NVLD) experience (Knapp, 2019). Children during elementary and preschool age may experience a time delay with identifying gender social stereotypes. These children encounter complications recognizing facial expressions, incorporating various speech tones, and reading body language (Müller, Schuler, & Yates, 2008).

By the time the students reached the high school education level, the children with disabilities had no significant difference in gender perception in comparison to their nondisabled peers with categorizing entertainment and clothing items. With around 4 years between the elementary and high school age groups, the students had the opportunity to gain social experience and increased access for treatment, therapy, and practice understanding societal constructs. The additional years allowed the students to comprehend and learn the socially acceptable gender perceptions that develop with categorizing the items based on gender.

As female children with disabilities are diagnosed disproportionately to males, it was anticipated that the females with disabilities would have stronger views on gender stereotypes. Males with learning and emotional disabilities are diagnosed at a greater proportion, therefore having access to greater resources and accommodations (Froschl et al., 1999). With this disparity in the disability community, it was observed to see if the gender divide created a difference in gender perception through development. This hypothesis has been proven false showing the females

were less biased regarding labeling entertainment and clothing items. Conversely, these phenomena were reversed for the nondisabled age group. This could be due to delayed treatment for recognizing cultural normalities and social patterns in early adolescence. Early treatments would assist with complications regarding recognizing social cues and concepts, explaining why there is a different gender pattern in the control group.

As early bias is developed through exposure to media and the child's surroundings (Peterson 1990), further understanding of how gender stereotypes develop and evolve throughout adolescence assists to recognize how early biases manifest into adulthood. Preschoolers displayed the most bias in this study, which means that the cultural biases were not initially formed during their education years. Before children were exposed to the education system, children may have gained these biases by attending childcare facilities, observing public areas, and watching media. Through observation, cognitive representation, and social transmission (Martin, Cunningham, et al., 2017), these steps display how stereotypes are formed and developed. Applying this theory to adolescence, children's books, television shows, and their household surroundings could expose and reinforce early gender stereotypes. Biases developed during childhood grow with children as they become as adults. As biases are the root of stereotypes and cultural stigma, it is essential to recognize the advancement and process of beliefs in adolescence to achieve acceptance of those who present or identify outside the cultural script.

Implications and Limitations.

Every clothing or entertainment object may not be relevant to each child. Especially for the preschool children, some of the students were ecstatic by toys such as Elmo but perplexed when it came to the Ken doll. Observing an unfamiliar object could affect how they responded to the toy. Another instance occurred, when the majority of elementary males responded that makeup was for both girls and boys. The boys may have not comprehended from the image that it was a makeup set. Males at the elementary level may not have understood the image of a makeup set and may respond differently or amended their responses if they had recognized the object. As male children often associate makeup with femininity, they probably have limited ideas on what a makeup set entails including its appearance.

In addition, the preschool data and the elementary school data were collected through a random group sampling. Although, due to the inability to interview special needs children in public elementary schools and the shortage of disability-specific institutions, the disability elementary and high school student data was collected through a snowball survey method. This may have caused a discrepancy in the data due to a lack of consistency with data collection and not utilizing a method that was more likely to minimize skew.

Another limitation that was noted was the number of children was restricted due to disability disclosure laws and shortage of disability-specific educational institutions. This made the data restricted, the experimenter continued with the calculations with precaution knowing it did not follow all the requirements needed for it to be significant. The number of children asked was not representative of the group the experimenter was aiming to present.

Due to FERPA laws to ensure the safety and security of private information, public educational facilities were unable to release disability information on their students. This means that there is a confounding variable with the disabled student data being collected exclusively from private institutions. This factor may affect the reliability of the significance of the data. Students who can afford to attend private facilities may have more resources for disability treatment. The cultural environment of public and private education facilities impacts the outcome of biased responses.

Future Directions.

When considering expanding in the future, observing gender perception development during infancy to toddlerhood would provide a greater perspective into the beginning of gender-stereotyped recognition by applying a habituation/dishabituation paradigm preferential looking technique. The implementation of additional categories of occupation/traits to the items would also be beneficial for including more ideas on how gender perception manifests during adolescence. Including toys that are associated with masculine concepts like tool kits or with feminine concepts food-oriented objects like a mini kitchen. It would be interesting to see if children can understand these ideas that manifest themselves into sexism into adulthood.

Documentation on participants' siblings would also be required because it is important to see if they have access to the opposite sex's toys during their childhood before their preschool years. In this study, preschoolers were generally stereotypical until they spent more time in public, mixed-gendered areas (like public childcare centers, etc). It would be fascinating to also encourage the guardians of the participants to answer the survey because they have a major influence on children's early perspectives on gender-stereotypes.

Conclusion

Children with disabilities (ASD, NSLD) may display abnormalities in processing social normalities such as facial expressions, reading body language, and incorporating various speech tones. Unspoken cultural soft skills such as identifying social patterns are difficult for students with disabilities. It was thought that children with deficits in recognizing social patterns possibly would have a delay with understanding gender stereotypes.

To assess the preschool (ages 3-6), upper-elementary level (ages 10-12), and high school level (ages 15-18) students, colorless images of gender-advertised toys and clothing items were utilized to determine gender-biases. The preschoolers expressed the most biased responses, the upper-elementary students answered with the least bias, and the high school students responded with balanced, moderate beliefs. Students with disabilities responded with less bias than the control group. When both groups developed into the concrete operational stage of development, their opinions assimilated in opinion with entertainment and clothing items. By this stage, there presented no significant difference in gender perception. Before preschool years, children have already developed a cultural schema of gendered stereotypes; this means factors such as media and

parental influence (e.g. access to gender-specific toys, etc.) greatly influenced the growth of the children's perception.

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