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Flexibility of Gender Stereotypes: Italian Study on Comparative Gender-consistent and Gender-inconsistent Information

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ABSTRACT

The topic of this study is flexibility in gender stereotyping linked to attribution of toys, socio-cognitive traits, and occupations in 160 Italian children aged 6 to 12 years. We used the Gender Toys Choice, the Gender Traits Choice, and the Gender Jobs Choice, a selected set of colored cards containing masculine and feminine stimuli to assign to a male or female or both male and female silhouette (the flexible-choice technique). In order to verify the change of flexibility in gender stereotyping, we made use of four cartoon stories with male and female characters with typical or atypical traits and performing gender-consistent or gender-inconsistent activities. Results indicated that the exposure to cartoon stories with gender-inconsistent information rather than cartoon stories with gender-consistent information increased flexibility in gender stereotyping, showing age differences in favor of children aged 11-12. Implications in relation to the developmental-constructivist approach were noted.

La flexibilidad de los estereotipos de género: estudio italiano sobre la información comparativa congruente e incongruente con el género

Palabras clave:
Estereotipos de género
Dibujos animados
Niños
Flexibilidad

RESUMEN

Esta investigación aborda la flexibilidad de los estereotipos de género asociados a la atribución de juguetes, rasgos sociocognitivos y ocupaciones en 160 niños italianos de entre 6 y 12 años. Las pruebas utilizadas fueron la elección de juguetes de género, de rasgos de género y de tareas de género, representados en un conjunto seleccionado de tarjetas de colores que utilizan estímulos asociados típicamente al género para asignar a una silueta masculina o femenina o a la vez masculina y femenina (técnica de elección flexible). Para determinar el cambio de flexibilidad de los estereotipos de género, hicimos uso de cuatro historias de dibujos animados con personajes masculinos y femeninos, con rasgos típicos o atípicos, realizando actividades congruentes o incongruentes con el género. Los resultados muestran que la exposición a dibujos animados con información incongruente con el género en lugar de dibujos animados con información congruente con el género aumenta la flexibilidad de los estereotipos de género, habiendo diferencias en los niños entre 11 y 12 años. Se observaron implicaciones en relación con el enfoque del desarrollo constructivista.

Developmental and social researchers consider gender stereotyping an important element in the process of early social categorization in relation to both oneself and others (Martin & Halverson, 1981; Poulin-Dubois, Serbin, & Derbyshire, 1998; Serbin, Powlishta, & Gulko, 1993). Many studies have underlined the presence of different perspectives useful to explain gender roles and gender stereotypes development: the Cognitive-Developmental Model (Kohlberg, 1966; Trautner et al., 2005), the Social Learning Theory (Bandura, 1986; Mischel, 1966), the Gender Schema Theory (Bem, 1981; Martin, 1993; Martin, Ruble, & Szkrybalo, 2002), and the Social Cognitive Theory of Gender Development (Bussey & Bandura, 1999). It is possible to highlight a common idea according to which gender stereotypes are viewed as a constellation of individual and social gender characteristics appropriate to boys or girls, in which children include behaviors, traits, and preferences for toys, based on a developmental trajectory (Blakemore, 2003). It is also a prevailing cross-cultural custom for parental adults and teachers to reinforce gender stereotypes and respond to very young children more positively when they are engaged in activities and behaviors that are gender-consistent, while they tend to express signs of disapproval for

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gender-inconsistent activities (Fitzpatrick & McPherson, 2010; Killen, Park, Lee-Kim, & Shin, 2005). It is possible to consider an activity as gender-inconsistent when a girl is seen to be involved in gender-atypical behavior such as "driving a truck" or "playing with soldiers in competitive and aggressive style"; in the same way, a boy is viewed to be engaged in gender-atypical behavior when he is involved in activities such as "dancing on the stage" or "playing with dolls in nurture style".

In the light of the importance of stereotyping processes in developmental age, researchers have studied gender stereotypes regarding toys, socio-cognitive traits, and occupations using multiple measures of gender stereotypy in a sample of 8-to-12-year-old Italian children attending primary and junior high school (De Caroli & Sagone, 2007). The gender stereotypy was defined in a range between 70% and 100%, as the literature showed agreement on the minimum stereotypy value of a gender attribution (Leinbach, Hort, & Fagot, 1997; Liben & Signorella, 1980; Poulin-Dubois, Serbin, Eichstedt, Sen, & Beissel, 2002). In this way, for example, if over 70% of both boys and girls attributed the make-up set to the female silhouette, it was considered a stereotypically feminine toy. In the Italian context, the results indicated that children attributed toys prevalently connected with the aesthetic aspect and domestic activities to the female silhouette, whilst technology, warfare, and locomotion toys were attributed to the male; they attributed physical and verbal aggressiveness and dominance to the male silhouette whilst the sweetness was exclusively typical of the female one; finally, children associated practical/manual activities and those of high cultural relevance to the male silhouette and domestic activities to the female one.

Effects of Gender-consistent and Gender-inconsistent Information

Researchers have been concerned about the impact and relevance of gender-inconsistent and gender-consistent stimuli on children's gender stereotyping and gendered play behaviors (Abad & Pruden, 2003; Ashton, 1983; Killen et al., 2005; Welch-Ross & Schmidt, 1996), with the utilization of different paradigms and tasks in order to analyze gender schemas and stereotypes in developmental age: the picture recognition tasks (Cann & Newbern, 1984), memory and recall of story content tasks (Cherney & Ryalls, 1999; Liben & Signorella, 1993), sequential-touching tasks (Johnston, Bittinger, Smith & Madole, 2001; Oakes & Plumert, 2002; Thomas & Dahlin, 2000), and reading of counter-stereotypic storybooks and magazine (Abad & Pruden, 2003; Green, Bigler, & Catherwood, 2004; Spinner, Cameron, & Calogero, 2018). For example, in the study of Ashton (1983), 2-to-5-year-old children to whom a storybook about a same-sex child engaged in play with a gender-atypical toy was read were noted to play more with gender-atypical toys (e.g., a girl participant hears a story about a girl playing with a dump truck and immediately increases playing with trucks). In another study realized by Cherney and Ryalls (1999), 3-to-6-year-old children were shown to have better memories for gender-consistent objects than for gender-inconsistent objects. Briefly, results of all these studies agreed on the fact that gender-consistent information is better remembered and recognized than gender-inconsistent one (Boston & Levy, 1991; Cherney, 2005; Liben & Bigler, 2002; Ruble & Martin, 1998) and that reading of gender-atypical storybooks can challenge children's gender stereotypes (Abad & Pruden, 2003; Green et al., 2004), because the processing of counter-stereotyped information is often distorted by children' social and cultural expectations. So, in the study of Green et al. (2004), exposure to gender-atypical characters and play behaviors in storybooks have a significant impact on children's immediate and future play behavior. Additionally, children's exposure to storybooks with female characters in atypical or gender-inconsistent roles (e.g., jobs) is linked to an increase in the number of occupations that children judge appropriate for women (Karniol & Gal-Disegni, 2009). Finally, as reported more recently by Spinner et al. (2018), 4-to-7-year-old children randomly assigned to view a picture of a peer-age boy and girl in a magazine playing with either a gender stereotypic toy (boy with a toy car) or counter-stereotypic toy (girl with a toy car) showed greater gender flexibility in relation to toy play and playmate choices in the counter-stereotypic condition compared to the stereotypic condition. By these clear evidences, it is possible to note that results have been influenced by age differences in children's gender stereotyping (Blakemore, 2003). A few researchers found an interesting developmental trajectory for gender flexibility (Miller, Trautner, & Ruble, 2006; Trautner et al., 2005) according to which, in children aged 5-10 years, the period of rigid gender stereotypes was short-lived and followed by greater flexibility in violation of gendered norms (see Hughes & Seta, 2003); so, children reached a relevant peak of rigidity at age 5-6 and then showed a significant increase of flexibility in gender stereotyping at age 7-8 (Serbin et al., 1993) about the type of toys or activities associated with males and females. This phenomenon has been explained according to developmental-constructivist approaches to gender stereotyping. As noted by Blakemore, Berenbaum, and Liben (2009), these approaches have been focused on processes of endorsement of gender schemas containing gender-appropriate information about toys and activities in relation to the developmental trajectory (see Banse, Gawronski, Rebetez, Gutt, & Morton, 2010; Liben & Bigler, 2002), while cognitive-environmental approaches have been centered on the role played by parents and peers in reinforcing gender-typical behaviors.

Purpose of Study

The purpose of the current study was to verify the change of flexibility in gender stereotyping following the exposure to stories with gender-inconsistent or gender-consistent stimuli in a sample of Italian children aged 6 to 12. The rationale for the analysis of this phenomenon depended on the "two-way change" in flexibility of gender stereotypes: one way regards the decrease in flexibility of gender-typed categories in relation to gender-consistent stimuli, whilst the other way consists of the increase in flexibility of gender-typed categories in relation to gender-inconsistent stimuli.

We expected (H_1) that the exposure to gender-inconsistent stories would increase the flexibility in gender stereotyping, whilst the exposure to gender-consistent stories would enhance the rigidity in gender stereotyping. For example, we expected that gender-typed toys (such as tea sets for female toys or soldiers for male toys) would be judged in a less gender stereotypical way after the exposure to stories containing gender-inconsistent information. On the contrary, we expected that, for example, gender-typed jobs (such as taking care of children for female jobs or piloting an airplane for male jobs) would be judged in a more gender stereotypical or similar way after the exposure to stories containing gender-consistent information.

Furthermore, in relation to age differences, we predicted (H_2) that older and younger children would differ significantly in flexibility in gender stereotyping in the three observed domains (toys, traits, and jobs) in pre-test and post-test; so, using the flexible-choice technique, we expected that older children would attribute each gender-typed toy, trait, and job to both male and female stimuli more than younger ones, with significant differences in relation to gender-consistent or gender-inconsistent information. As reported by Blakemore (2003), Banse et al. (2010), and, in Italian context, Sagone's (2005) empirical study, older children (8-9 yrs.) showed greater flexibility in their gender stereotypes linked to toys, socio-cognitive traits, and jobs than younger ones (4-5 yrs. and 5-6 yrs.).

Method

Participants

One hundred and sixty Italian children from 6 to 12 years of age were randomly recruited from public primary and junior high schools in middle-class neighborhoods of Catania (Sicily, Italy). The sample was divided into four age groups: 6 yr., 0 mo. to 6 yr., 11 mo. (M = 6.6, SD = 0.01; 20 boys, 20 girls); 7 yr., 0 mo. to 7 yr., 11 mo. (M = 7.4, SD = 0.07; 20 boys, 20 girls); 8 yr., 0 mo. to 8 yr., 11 mo. (M = 8.5, SD = 0.02; 20 boys, 20 girls); and 11 yr., 0 mo. to 12 yr., 0 mo (M = 11.7, SD = 0.09; 20 boys, 20 girls). Each child participated individually during school time. Parental consent was requested prior to beginning data collection and it was obtained prior to each child's participation in the study. Researchers followed the ethical code for Italian psychologists (L. 18.02.1989, n. 56), the ethical code for psychological research (reviewed in March 27, 2015) by Italian Psychologists Association, and DL for data privacy (DLGS 196/2003).

Measures and Procedure

For the exploration of flexibility in gender stereotyping, three tasks employed in a previously published research (see De Caroli & Sagone, 2007) were used: the Gender Toys Choice, the Gender Traits Choice, and the Gender Jobs Choice. In the original version, these tasks consisted of 101 colored cards (size: 10 cm x 6 cm) on which pictures of 32 toys, labels of 36 socio-cognitive traits, and pictures with short descriptions of 33 jobs, and one male and one female silhouette were printed. In the present study, we used a selected set of these colored cards in which only those considered typically masculine and typically feminine in relation to "stereotype threshold" (with percentage over 70% of attributions shared by both boys and girls) as indicated by the results of De Caroli and Sagone's (2007) study and those of other researchers (Blakemore & Centers, 2005; Carter & Patterson, 1982; Poulin-Dubois et al., 2002; Serbin & Sprafkin, 1986; Wilbourn & Kee, 2010) were included. The internal consistency of these tasks was widely satisfactory in both sessions (pre-test α = .89, post-test α = .92).

The Gender Toys Choice consisted of 28 selected picture cards of the 32 original toys considered by age comparable children as masculine or feminine toys. These toy picture cards included, for masculine toys, e.g., airplane, toy boat, truck, construction blocks, car, gun, soldiers, train, and for feminine toys, e.g., tea set, doll, pram, hair dryer, rocking horse, brush/mirror, and make-up set.

For Gender Traits Choice, 11 of the 36 original cards, with labels reproducing positive and negative socio-cognitive adjectives, were chosen among those valued by age comparable children as masculine or feminine traits. Each of these cards contained the following adjectives or phrases: for masculine traits, e.g., clever, lonely, strong, liar, bad-mannered, and for feminine traits, sweet.

The Gender Jobs Choice used 25 of the 33 original colored cards with short descriptions and pictures of objects identifying some activities that have been considered by age comparable children to be masculine or feminine jobs. The following activities were included: for masculine jobs, e.g., treating teeth (dentist), driving a truck (truck driver), repairing water pipes (plumber), repairing broken-down cars (mechanic), cleaning the streets (sweeper), judging suspects (judge), putting out fires (fireman), delivering the mail (postman), directing films (film director), directing the traffic (traffic warden), and for feminine jobs, e.g., taking care of children (baby-sitter), dancing on the stage (ballet dancer), curing sick people (doctor), selling flowers (florist), and teaching at school (teacher).

Four types of pictured cartoon stories (sized 20 cm x 15 cm) were specifically elaborated and employed to analyze the change in flexibility of gender stereotyping. They were allocated into four experimental conditions: male character and gender-consistent information (condition I), male character and gender-inconsistent information (condition II), female character and gender-consistent information (condition III), and female character and gender-inconsistent information (condition IV). In addition, for each of these stories, a short description was written in child-friendly language and reported to explain the content.

We reported an example of one story with male character and gender-consistent information and one story with female character and gender-inconsistent information:

Story (condition I): "Once upon a time there was a brave and strong boy, Marco. He played in the park with his airplane, football, and truck. When Marco grew up, he started working in a mechanic's shop. He liked repairing broken-down cars. Marco lived happily ever after".

Story (condition IV): "Once upon a time there was a brave and strong girl, Giulia. She played in the park with her airplane, football, and truck. When Giulia grew up, she started working in a mechanic's shop. She liked repairing broken-down cars. Giulia lived happily ever after".

Children individually answered to these tasks in a room separated from their classrooms in order to minimize possible distractions from other children or teachers. These children were given the opportunity to familiarize themselves with the materials of this study.

The selected set of cards was randomly shown to each child and in two sessions (pre-test and, after two weeks, post-test). For the Gender Toys Choice, children were asked to choose who would be more likely to be acting in a given way (e.g., "who is more likely to play with the truck?"); for the Gender Traits Choice, children were asked to designate who would be more likely to have a given trait (e.g., "who is more likely to be the aggressive one?"); and finally, for the Gender Jobs Choice, children were asked to indicate who would be more likely to perform a given occupation (e.g., "who is more likely to direct the traffic?").

In the pre-test, each child was asked to assign a male or female or both male and female silhouette (the flexible-choice technique) to cards of the three domains (toys, traits, and jobs). The researchers showed and read the stories to each child. Participants could respond verbally or by pointing to the silhouettes of their choice (see Weisgram, Fulcher, & Dinella, 2014). Finally, in the post-test, after the exposure to one of four cartoon stories, the set of cards was shown again for the second time. Participants were divided in a sex-balanced way into four age groups (20 boys and 20 girls for each group) and were randomly assigned to one of the four experimental conditions. For the 6 yr., 0 mo. to 6 yr., 11 mo. group, 5 boys and 5 girls were presented with condition I (the cartoon story with male character and gender-consistent information), 5 boys and 5 girls were presented with condition II (the cartoon story with male character and gender-inconsistent information), 5 boys and 5 girls were presented with condition III (the cartoon story with female character and gender-consistent information), and, finally, 5 boys and 5 girls were presented with condition IV (the cartoon story with female character and gender-inconsistent information). The same procedure for the other age groups was carried out. The answers were recorded on a data sheet for pre-test and post-test.

Flexibility in gender stereotyping of children's choices consisted of the attribution of gender-typed toys, traits, and jobs to both silhouettes. For example, if a child attributed the make-up set to female silhouette or the train to male silhouette then the score was zero; if a child attributed the make up to both silhouettes (flexible choice), then the score was one. Mean value of gender toys flexibility was obtained by dividing the sum of flexible choices into the total number of gender-typed toys. Higher mean values were considered an index of higher levels of flexibility in gender choices. Similar procedures were realized for gender traits and gender jobs flexibility.

The Statistical Package for Social Science (IBM SPSS v20) was used for computing descriptive statistics, analysis of variance, and paired sample t-tests.

Table 1. Flexibility in Gender Stereotyping: Means for Conditions Comparison between Pre-test and Post-test

Type of condition x gender choice		Pre-test means (*SD*)	Post-test means (*SD*)	*t*-test	Sig.
Condition I	Gender toys choice	.16 (.13)	.15 (.13)	0.660	.515
	Gender traits choice	.48 (.28)	.49 (.33)	-0.269	.790
	Gender jobs choice	.33 (.22)	.32 (.22)	0.335	.740
Condition II	Gender toys choice	.19 (.15)	.27 (.23)	-3.205	.003
	Gender traits choice	.41 (.28)	.56 (.31)	-4.331	.000
	Gender jobs choice	.34 (.23)	.42 (.27)	-3.595	.001
Condition III	Gender toys choice	.15 (.14)	.14 (.13)	2.803	.052
	Gender traits choice	.32 (.23)	.33 (.30)	-0.471	.639
	Gender jobs choice	.26 (.23)	.28 (.24)	-1.200	.236
Condition IV	Gender toys choice	.15 (.09)	.22 (.17)	-3.597	.001
	Gender traits choice	.41 (.27)	.46 (.35)	-1.984	.050
	Gender jobs choice	.30 (.22)	.37 (.25)	-2.970	.005

Note. Condition I (cartoon story with male character and gender-consistent information); condition II (cartoon story with male character and gender-inconsistent information); condition III (cartoon story with female character and gender-consistent information); condition IV (cartoon story with female character and gender-inconsistent information).

Table 2. Flexibility in Gender Stereotyping for Type of Story – Differences for Age Groups

Type of story x gender choice: age 6-7		Pre-test means (*SD*)	Post-test means (*SD*)	*t*-test	Sig.
Story with gender-consistent information	Gender toys choice	.09 (.13)	.07 (.10)	1.073	.297
	Gender traits choice	.16 (.20)	.18 (.21)	-0.471	.643
	Gender jobs choice	.11 (.13)	.13 (.14)	-1.584	.130
Story with gender-inconsistent information	Gender toys choice	.10 (.08)	.14 (.12)	-2.146	.049
	Gender traits choice	.21 (.20)	.21 (.24)	0.000	1.000
	Gender jobs choice	.14 (.12)	.15 (.11)	-0.737	.470
Type of story x gender choice: age 7-8		Pre-test means (*SD*)	Post-test means (*SD*)	*t*-test	Sig.
Story with gender-consistent information	Gender toys choice	.09 (.10)	.07 (.09)	1.351	.192
	Gender traits choice	.34 (.31)	.36 (.34)	-0.698	.494
	Gender jobs choice	.16 (.18)	.17 (.22)	-0.413	.684
Story with gender-inconsistent information	Gender toys choice	.12 (.09)	.13 (.10)	-0.567	.577
	Gender traits choice	.38 (.31)	.45 (.34)	-1.435	.167
	Gender jobs choice	.21 (.18)	.27 (.19)	-2.463	.024
Type of story x gender choice: age 8-9		Pre-test means (*SD*)	Post-test means (*SD*)	*t*-test	Sig.
Story with gender-consistent information	Gender toys choice	.26 (.12)	.25 (.12)	0.556	.585
	Gender traits choice	.49 (.19)	.51 (.27)	-0.431	.671
	Gender jobs choice	.42 (.13)	.43 (.12)	-0.242	.812
Story with gender-inconsistent information	Gender toys choice	.26 (.13)	.38 (.19)	-3.470	.003
	Gender traits choice	.47 (.23)	.59 (.27)	-3.170	.005
	Gender jobs choice	.51 (.18)	.59 (.23)	-1.699	.106
Type of story x gender choice: age 11-12		Pre-test means (*SD*)	Post-test means (*SD*)	*t*-test	Sig.
Story with gender-consistent information	Gender toys choice	.20 (.10)	.19 (.10)	1.035	.314
	Gender traits choice	.51 (.29)	.49 (.33)	0.730	.474
	Gender jobs choice	.45 (.22)	.44 (.21)	0.119	.906
Story with gender-inconsistent information	Gender toys choice	.21 (.10)	.34 (.22)	-3.249	.004
	Gender traits choice	.60 (.23)	.76 (.21)	-4.297	.000
	Gender jobs choice	.41 (.17)	.55 (.20)	-4.768	.000

Results

Generally, we found that statistical analyses of flexibility in gender stereotyping revealed significant differences among the three gender-typed domains in both sessions (pre-test: $F_{(2, 318)} = 95.44$, $p < .001$; post-test: $F_{(2, 318)} = 86.62$, $p < .001$). In total sample, flexibility in gender traits choice (pre-test: $M = .39$, $SD = .28$; post-test: $M = .44$, $SD = .33$) and gender jobs choice (pre-test: $M = .30$, $SD = .22$; post-test: $M = .34$, $SD = .25$) resulted higher than that in gender toys choice (pre-test: $M = .16$, $SD = .13$; post-test: $M = .19$, $SD = .17$). Results indicated that children were more flexible in the choices of gender-typed traits and jobs rather than in that of gender-typed toys.

In relation to H_1, using the paired sample *t*-test (see Table 1), we analyzed differences between flexibility in gender stereotyping in the three domains obtained in pre-test and that expressed in post-test, controlling for the four conditions. In condition I and condition III, statistical analyses revealed the absence of significant differences between pre-test and post-test in all domains. In condition II, statistical analyses showed a significant increase of flexibility in gender stereotyping in all three domains after the exposure to gender-inconsistent information included into the cartoon story with male character: for toys, $t(33) = -3.205$, $p = .003$, Cohen's $d = 0.60$; for traits, $t(33) = -4.331$, $p < .001$, Cohen's $d = 0.74$; and for jobs, $t(33) = -3.595$, $p = .001$, Cohen's $d = 0.62$, with a large effect size. Finally, also in condition IV, the exposition to gender-inconsistent information included into the cartoon story with female character increased the flexibility in the three domains: for toys, $t(45) = -3.597$, $p = .001$, Cohen's $d = 0.53$); for traits, $t(45) = -1.984$, $p = .05$, Cohen's $d = 0.29$; and for jobs, $t(45) = -2.970$, $p = .005$, Cohen's $d = 0.44$, with a moderate effect size for toys and jobs and small effect size for traits.

In relation to H_2, we applied paired sample *t*-test to verify the differences between pre-test and post-test in all three domains, dividing the sample for age groups in relation to the type of story (condition I-III with gender-consistent information vs. condition II-IV with gender-inconsistent information). Results indicated that children exposed to gender-consistent information cartoon stories maintained their orientation in gender stereotyping, independently of their age. On the contrary, children exposed to gender-inconsistent information cartoon stories increased their flexibility of gender stereotyping in relation to their age: so, the oldest children (8-9 yrs. and 11-12 yrs.) increased their flexibility in all three domains (see Table 2) more than the youngest ones (6-7 yrs. and 7-8 yrs.).

Discussion

The results of this study indicate that the flexibility in gender stereotyping is lower in the choice of toys than that of traits and jobs, as reported in De Caroli and Sagone's (2011) research. This evidence could be explained as an effect of marketing strategies related to the toys stores that are organized in two separated parts explicitly categorized as being "for boys" or "for girls" and not "for boys and girls". Gender-marked toys constituted important vehicles of gender attitudes and stereotypes during infancy and could be considered as a confirmation of a specific and rigid "belonging to gender schemas", as reported by Green et al.'s (2004) study, as well as Bussey and Bandura's (1999) social cognitive theory. In fact, these researchers highlighted that children actively internalize contextual information about "gender appropriateness of toys" and, in a subsequent developmental period, are likely to utilize such a knowledge to direct their own toy play behavior.

As expected in H_1, the exposure to gender-inconsistent stories, overall with male character, in comparison to gender-consistent stories, increased the flexibility of gender stereotypes. These results have important implications and consequences for the findings according to which once formed and consolidated in the schemata useful to the knowledge of the social world, gender stereotypes are viewed as highly resistant to change. Although some studies carried out in the developmental age and adolescence have underlined that when people are exposed to opposite or ambiguous gender information they tend to confirm the content of their gender schemata and are affected by their gender orientation (Arthur & White, 1996; Karniol, Reichman, & Fund, 2000); on the contrary it is possible to notice that our results are consistent with results referring to levels of situational variability in gender-typed behavior and challenge in modification of gender stereotypes (Green et al., 2004; Karniol & Gal-Disegni, 2009). For example, Karniol and Gal-Disegni (2009) discovered that children assigned to gender-neutral textbooks judged more activities (e.g., playing in mud or baking a cake) as appropriate for both males and females than children assigned to gender-stereotyped textbooks for basal readers. These results suggested that exposure to gender-atypical storybooks and readers modified children's stereotypes about gender-appropriate occupations and activities. According to Green et al.'s (2004) perspective some children (girls in particular) showed increases in counter-stereotypic toy play in response to counter-stereotypical models rather than in stereotypic toy play. This partial result is consistent with results of previous studies in which counter-stereotypical models were used, such as television programs (Katz & Walsh, 1991), storybooks (Abad & Pruden, 2009; Ashton, 1983), drawings (Etaugh & Duits, 1990), and labeling of toys (Bradbard & Endsley, 1983).

For H_2, the results have confirmed that older children (8-9 yrs and 11-12 yrs) showed mostly greater flexibility of gender stereotyping in all three observed domains than younger ones. The differences reported for age groups could be explained in terms of development-constructivist perspective, as already verified in Sagone's (2005) empirical study. In this last study, in a sample of Italian children aged 4 to 8, the author found that older children (7-8 yrs.) who have reached operational-concrete thinking, assessed through the different tasks of seriating, numeration, classification, and conservation (conservation and logic operations;: Vianello & Marin, 1997), expressed greater flexibility in gender stereotypes linked to toys, traits, and jobs than younger children (4-5 yrs. and 5-6 yrs.) who have reached pre-operational thinking. Additionally, these results confirmed the evidences proposed by developmental trajectories suggested by Blakemore (2003), Miller et al. (2006), Trautner et al. (2005), and more recently by Banse et al. (2010). To explain the complexity of this phenomenon, using a new latency-based measure of spontaneous stereotyping, named *Action Inference Paradigm*, Banse et al. (2010) found that flexibility in gender stereotypes revealed a strong and significant increase from 5 to 11 yrs., whereas knowledge of gender stereotypes and spontaneous stereotyping remained at stable level, providing the suggestion of a dissociation between flexibility of gender stereotypes and spontaneous stereotyping closely related to knowledge of these stereotypes rather than to their flexibility.

In the present study, we believed that older children (8-9 yrs and 11-12 yrs) have reached operational-concrete thinking (Piaget, 1968), considered to be a functional element to flexible and reversible knowledge of gender categories; this type of thinking allows children to identify gender-typed traits and jobs that can be assigned to, or are in possession of, both boys and girls without the risk of "loss of gender identity, stability, and constancy" (e.g., Kohlberg, 1966). It is necessary to underline that the increase of flexibility in gender stereotyping emerged only with the exposure to gender-inconsistent cartoon stories.

One limitation in our study appears to be clear and worthy of note by the authors. The change in flexibility in gender-typed toys, traits, and jobs could be limited in its effectiveness, as reported by Bigler (1998) in reference to many interventions useful to reduce children's gender stereotyping. In fact, the effects of the proposed stories could be short-lived, restricted to the sample studied, or influenced by the chosen type of story.

These factors have been considered by the authors of this study as both limits and possibilities. They are viewed as limits due to the impossibility to monitor and, overall, to measure the effects of change over a long period of time, even if past evidence, such as Kropp and Halverson's (1983) observation, has contributed to confirm the importance of these interventions. Furthermore, these factors are viewed as possibilities for the fact that the observed change is relevant and statistically significant for all children, as found instead in Green et al.'s (2004) study. We think that if the proposed models and offered stimuli linked to gender-inconsistent information are implemented and enhanced in the educational and parental environment, then it will be easier to think in a socially open-minded way and free from cultural pressures during the developmental age.

Conflict of Interest

The authors of this article declare no conflict of interest.

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