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ORIGINAL ARTICLE

How Societal Changes Have Influenced German Children's Gender Representations as Expressed in Human Figure Drawings in 1977 and 2015

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Abstract

We investigated German first graders' gender representations in human figure drawings done in 1977 and 2015. We hypothesized that increasing gender-status equality in society as well as growing gender differentiation in childcare and marketing are reflected in depictions of the human figure. Drawings were collected from a total of 376 children between 5 years 10 months and 8 years of age. Overall, the results are in accordance with the hypotheses: In contrast to 1977, the proportion of male and female figures was more balanced in 2015. In 2015, more girls drew a figure of their own gender and the femininity of female figures was higher than in 1977. Unexpectedly, the masculinity of male figures did not increase over this time. These results provide some insight into dynamic changes of children's view of gender roles reflecting societal conditions. Drawings as a nonverbal approach to children's gender representations proved sensitive in research but may also serve as a starting point in social and pedagogical work addressing gender issues. Considering gender status equality and gender specification as independent aspects of gender representations contributes to a better understanding by researchers as well as by practice professionals.

Keywords Gender representation · Gender equality · Societal change · Children's drawings

Drawing is a familiar activity to nearly all children. It is part of their everyday experiences in different cultural environments and enjoyed by most children. Even though drawing subjects differ according to children's experiences and interests, the human figure is universally among the most frequently drawn motifs (Machón 2013). Academically, children's drawings have attracted attention from different perspectives. Overall, there is consensus that drawings should be seen as subjective representations of how children perceive the world around them and not as an objective copy of the world (Cox 1993). Thus, drawings provide insight into what children know, think, and feel about the world, connecting inside and outside realities. Accordingly, children's drawings also reflect their cultural experiences and reveal how children process cultural information (Unger-Heitsch 2001). Growing evidence suggests cross-cultural differences in children's drawings (Cox 2005; Jolley 2010). In particular, studies add support that "cultural child-rearing and teaching practice ideologies influence children's use of size scaling, detail, placement and distance between figures" (Jolley 2010, p. 263).

Moreover, children's human figure drawings have been realized as expressions of their gender identity. Around preschool age, children start to draw gender-specific details (Cox 1993). They use hairstyle, hair length, torso shape, and clothes to differentiate gender in their drawings (Sitton and Light 1992). Machover (1949) assumed that children above age 5 reveal their gender identification in their human figure drawings. However, drawing a human figure might also reproduce a generalized representation of gender and not necessarily constitute an object of identification. Children experience gender-specific roles in their cultural environment from early on (Sunar 2002). Specifically, they learn about gender differences in everyday behavior and with respect to hierarchy relations. Thus, gender arrangements in the cultural milieu influence children's construction of gender by shaping the nature of

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their microsystems (Leaper 2002). Gender-related division of labor in a community relates to childrearing practices (Best and Williams 1997). Meta-analyses revealed that parental gender schemas are associated with children's gender-related cognitions (Tenenbaum and Leaper 2002). Children of more egalitarian parents with rather non-traditional gender schemas show less pronounced gender stereotypes.

The various influences contributing to children's development of gender role are reflected in the social cognitive theory of gender role development (Bussey and Bandura 1999), which served as a theoretical framework for the present study. In line with the concept of "imposed environment," we assume that young children experience gender specific behaviors and role models in their everyday life, which shape their view of female and male characteristics. According to Bussey and Bandura (1999), gender roles are subject to dynamic changes under the influence of societal movements. In West Germany, there have been significant shifts in the view of gender roles during the second half of the twentieth century in line with a women's movement, formed in the early 1970s from the students' movement beginning in the 1960s (Bielby 2017).

Even though gender equality had been codified in the German Constitution since 1949, there were several laws that perpetuated patriarchical societal structures. For example, married women were legally obligated to keep the house and only allowed to take a job when their husband agreed. It was only in 1977 that this law, which defined a traditional marriage of a male breadwinner and a female homemaker, was changed. Likewise, women were not accepted for all jobs (e.g., they were not allowed to become police officers before 1979). In 1980, the right of equal-pay-for-equal-work for women and men was defined in the German Civil Code (Dressel and Wanger 2008). In succession of these changes in legislation, the participation of women in university education and labor force constantly increased. However, only the comprehensive establishment of daycare opportunities set the stage for the compatibility of family and work. In 1996, the legal claim for daycare places for children from age three until school enrollment was introduced, and in 2013 it was extended to infants from their first birthday (Kunkel et al. 2018). The employment rate of women accordingly increased from 48% in 1980 to 73% in 2014 (Oschmianski et al. 2014). Nowadays, German society is generally committed to gender equality, and gender equalization has been realized in many domains. Nevertheless, there are still differences between men and women concerning labor participation, income, and top-ranking positions, which also influence the everyday experiences of children (Organization for Economic Cooperation and Development 2017).

In line with the political and societal attitudes, German middle-class parents generally seem to assign equal status and equal rights to boys and girls (Keller et al. 2005). However, that does not mean that girls and boys are treated totally equally. Extended observations of everyday experiences of young infants supported the same-sex hypothesis (Keller and Zach 2002)—mothers preferred their daughters in terms of presence and primary care, whereas fathers spent more time with their sons. In professional childcare, the call for gender justice initially resulted in a pedagogical redesigning ("girl's pedagogy"), which aimed at compensating discrimination of girls in educational settings (Birtsch et al. 1996; Matzner and Wyrobnik 2010). Because critics worried that this approach put boys at a disadvantage, a countermovement was established ("boy's pedagogy"), sharpening the view of balanced education (Matzner and Tischner 2012; Pollack 1998). Most recently, there is agreement that gender justice demands an awareness of dissimilarities between boys and girls without limiting opportunities for either gender (Krabel and Cremers 2008; Walter 2005). Accordingly, considering different interests, communicational styles, and needs facilitates optimal development for all children.

This increased attention to gender specificities is also visible in other areas, especially in marketing (Baig 2015; Sweet 2014). Clothing for boys and girls is clearly distinguished, as are toys, and even sweets or snacks and drinks are often offered in girls' and boys' versions. After it had become accepted that girls also like to play with Legos or Playmobiles, new product lines were invented. These have been discussed controversially, because they are based on gender stereotypes and therefore might be a step back on the way to gender equality (Schnerring and Verlan 2014). Nevertheless, gender-specific product lines sell well, and German middle-class children experience gender differentiation to a large extent. From their everyday environment they receive the information that gender plays an important role. Whether they are male or female is shown in the clothes they wear, the toys with which they play, and even the food they eat.

Apparently, societal changes over the last four decades in West Germany have clearly generated two trends: growing status equality between genders, on the one hand, and increasing gender differentiation on the other hand. The present study aimed at investigating how both influence gender representation as reflected in human figure drawings of first graders. Therefore, we designed a historical comparison covering the time with the most significant societal and political changes in gender relations in West Germany. Thus far, few studies have explicitly investigated the effect of societal changes in gender roles upon children's human figure drawings. In the United States, Tolor and Tolor (1974) analyzed how the advent of Women's Liberation in the 1970s and a more favorable cultural attitude toward female roles influenced human figure drawings of 10- to 12-year-old children. When they were instructed to draw a person, most girls depicted a female figure and most boys, a male figure. However, the authors observed a significant increase in girls drawing female figures in 1973 compared to 10- to 11-year-old girls, who had been assessed

prior to the mid-1960s (91% vs. 80%). The difference for boys (94% vs. 88%) was not significant. Further, within the 1970s cohort, all drawings were rated on a masculinity-femininity scale. Boys made significantly more masculine drawings than did girls (Tolor and Tolor 1974).

In contrast to the previous study that investigated 10- to 12-year-olds, we sampled first graders in the present study, because gender development is flourishing at that age. By age six or seven, children attain gender constancy, that is, children understand that maleness and femaleness are biologically based and thus stable (Ruble et al. 2006). Approximately at the age of nine, children develop the understanding that gender is a social category, which enables them to reflect on gender roles or schema and might influence their gender representations according to social expectations.

Based on the described societal and political changes in West Germany between the 1970s and today, we formulated three hypotheses concerning differences between children's drawings of the human figure assessed in 1977 and 2015. First, with regard to the depicted gender, we expected that the proportion of male figures would exceed the proportion of female figures in the 1977 cohort, whereas the proportions of male and female figures in the 2015 cohort should not differ significantly (Hypothesis 1). This hypothesis was derived from the assumption that young children's view of a person was mainly affected by the male dominance in West German society in the 1970s. Second, we expected that the proportion of girls drawing a female figure would be significantly higher in the 2015 cohort than in the 1977 cohort (Hypothesis 2). This assumption reflects the described societal changes toward more gender equality in Germany during the past decades, which are assumed to affect young girls' preference for drawing a figure of their own gender. Third, we expected that the number of gender-specific attributes in male and female depictions would be larger in the 2015 cohort than in the 1977 cohort (Hypothesis 3). This hypothesis was derived from the trend of increasing gender differentiation.

Method

Participants

Drawings of the 1977 cohort were collected as part of a dissertation project dealing with psycho-motor development of first graders (Krombholz 1988). This project included the Mensch-Zeichen-Test (Draw-a-Person test) to gain knowledge about children's view of the human body. Because one of the present authors (H.R.) was involved in the design of the study, there was the opportunity to utilize the drawings for the present investigation. All drawings were available as originals in vertical A4 paper format. The original sample of the 1977 cohort consisted of a total of 839 first graders from 15 schools in the city and county of Gießen (Hesse, West Germany). From this sample, the authors randomly selected one drawing from each of 324 children for the present study. In 2015, drawings were collected from 278 first graders from 12 schools in the city and county of Osnabrück (Lower Saxony, West Germany). Both cities are main centers of their regions with well-developed educational systems, including universities. There were children in both samples whose parents came from foreign countries (1977: 11.1%; 2015: 29.2%). To ensure comparable socialization experiences during early childhood, the final sample comprised children who had German citizenship (1977) or whose parents were born in Germany and who spoke German at home (2015). Different criteria for assessing the citizenship were applied due to different survey methods in 1977 and 2015, which corresponded to differences in national foreigner laws. To match the age means of both cohorts, outliers (1977: > 93 months: 2015: > 96 months) were excluded from the analysis.

The final study then involved drawings from a total of 376 first graders (1977: $n = 208$; 2015: $n = 168$) between 70 and 96 months of age. There were no significant differences in age, $t(374) = 1.31$, $p = .19$, or gender distribution, $\chi^2(1, n = 376) = 1.56$, $p = .24$, between the samples. On average, children were 80.60 ($SD = 4.38$) months old, and 51.6% ($n = 194$) were female.

Procedure

Children were recruited in primary schools at the beginning of their first school year. All primary schools in Gießen (1977) and in Osnabrück (2015) were contacted by a local research assistant, in the latter case after permission of the state supervisory school authority (Landesschulbehörde). Parents, who allowed their child to participate, handed back the informed consent to the head of the school and completed a sociodemographic questionnaire. Research assistants conducted the assessment in the classes of the primary schools. Possible copying effects were sought to be reduced by selecting the participants randomly from the initial sample. The final 1977 sample included children from nine different schools, with each contributing between 5.8 and 19.2% to the sample. The final 2015 sample included children from 12 different schools, each contributing between 2.4 and 18.6% to the sample. Only by chance were participants sitting next to each other. Large classes were divided, such that no more than 15 students were in one room.

In accordance with the instructions of the German "Mensch-Zeichen-Test" (Draw-a- Person test) (Brosat and Tötemeyer 2007, adopted from Ziler, 1996), the drawing material consisted of a pencil and a white sheet of paper of A4 format (210 mm × 297 mm). It was placed vertically in front of the children to ensure sufficient space for details of (upright) human figure drawing. The instruction was: "Draw a picture of a person as well as you can." In line with the

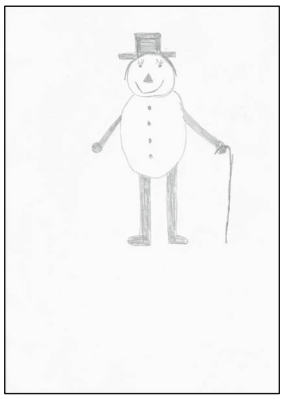
Draw-a-Person test manual, there was no time limit. In the 2015 sample, the children had to accomplish two more drawings afterwards, one of themselves and one of a flower, neither of which was part of the present study.

Coding Procedure

After the final selection of participants, the drawings were coded by two pairs of independent and trained female research assistants, whereby each variable was coded by one pair of raters. Raters were unaware of the study's hypotheses and the identity, including gender, of the child artist. They were instructed to code their first spontaneous impression. Each drawing was rated according to the depicted gender as (a) male, (b) female, or (c) no gender attribution possible. Reliability was computed on 20% of the drawings using Krippendorff's (2011) alpha (*Kalpha* = .89). Examples of female and male depictions within each cohort are shown in Fig. 1.

a. Female depiction from 1977 (ID = 167)

b. Male depiction from 1977 (ID = 061)



c. Female depiction from 2015 (ID = 507)

d. Male depiction from 2015 (ID = 451)

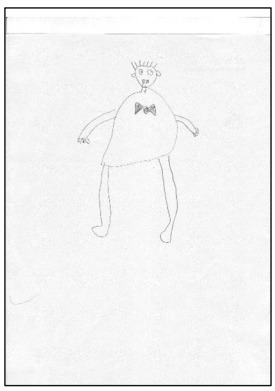


Fig. 1 Examples of male and female human figure drawings from the two data collection cohorts: **a** female depiction from the 1977 cohort, **b** male depiction from the 1977 cohort, **c** female depiction from the 2015 cohort, and **d** male depiction from the 2015 cohort. Use the ID for each drawing to review its coding in Table 1

Further, the drawings were assessed according to the perceived expression of femininity and masculinity. For that purpose, the raters judged the depiction of (a) hairstyle (Kalpha = .77), (b) clothing (Kalpha = 1.00) and (c) accessories (Kalpha = 1.00) as male, female, or not gender specific. In addition, the raters recorded (d) additional gender-specific attributes such as hat, crown, walking stick, or pipe. (Detailed codes for the drawings of Fig. 1 are provided in Table 1.) Based on these ratings, a score of femininity was computed for female depictions and a score of masculinity for male depictions. These scores resulted from the number of features rated as female or male, respectively. The maximum value of masculinity or femininity of a figure was 4, indicating a high level of gender-specific detailedness.

To control for drawing performance, a total score of the Draw-a-Person test was calculated according to the manual (see Brosat and Tötemeyer 2007). This score comprises 52 binary items, which could either be present or not and are summed up to measure drawing performance concerning a human figure drawing. Higher scores indicate stronger drawing ability.

Results

A preliminary check revealed that approximately 5% of the drawings consisted of only one or two vertical segments; all other drawings corresponded to "conventional human figures" (Cox 1993) with three or four different vertical segments, depicted limbs, and filled in faces. All drawings were included in the analyses, because they all included at least a head depiction that was codable.

We calculated a 2 (Cohort: 1977, 2015) × 2 (Child's Gender) analysis of covariance (ANCOVA) with child's age as the covariate to assess any differences in drawing performance. It revealed a significantly higher total score for the 1977 cohort ($M = 18.55$, $SD = 5.13$) than for the 2015 cohort ($M = 16.66$, $SD = 4.92$), $F(1, 365) = 15.85$, $p < .001$, $\eta_p^2 = .042$, and a significantly higher total score for girls ($M = 18.86$, $SD = 5.05$) than boys ($M = 16.50$, $SD = 4.91$), $F(1, 365) = 24.14$, $p < .001$, $\eta_p^2 = .062$. Given the differences between the cohorts, the total score of drawing performance was used as a covariate in our subsequent analyses.

Depicted Gender

Approximately 12% of the drawings could not be assigned to either gender. As expected, the cohorts differed significantly regarding the depicted gender. In the 1977 cohort, 18% of the figures were rated as female and 70% as male. In the 2015 cohort, 47% of the figures were rated as female and 40% as male, $\chi^2(2, n = 372) = 39.24$, $p < .001$, Cramer's $V = .32$. Thus, in the 1977 cohort the number of male depictions ($n = 145$) exceeded the number of boys in the sample ($n = 106$). In

Table 1 Example coding for four human figure drawings

Drawing ID	Cohort	Gender of child	Age in months	Total draw-a-person score	Depicted gender	Gender-specific details				Femininity/ masculinity score
						Hairstyle	Clothing	Accessories	Additional features	
167	1977	Female	77	19	Female	Female				1
061	1977	Male	77	15	Male	Male	Male	Hat	Cane	4
507	2015	Female	76	18	Female	Female	Female	Necklet		3
451	2015	Male	75	21	Male	Male		Bow tie		2

Pictures of the drawings themselves, labelled by ID, can be found in Fig. 1

contrast, in the 2015 cohort the number of male depictions ($n = 65$) fell below the number of boys ($n = 75$) in the sample.

Depicted Gender and Gender of the Child

The cohorts differed significantly regarding the proportions of participants who drew the human figure according to their own gender, $\chi^2(1, n = 327) = 19.34$, $p < .001$, Cramer's $V = .24$. The percentage of congruent drawings with respect to the depicted gender and the child's gender was 63% in the 1977 cohort and 85% in the 2015 cohort. On closer inspection, it turned out that this difference was mainly due to girls' drawings. In the 2015 cohort, significantly more girls (82%) than in the 1977 cohort (34%) drew female figures, $z = 6.58$, $p < .001$. The percentage of boys who drew male figures did not differ significantly between cohorts (1977: 92% vs. 2015: 88%), $z = .539$, $p = .71$.

Gender Differentiation

The descriptive results for gender differentiation are shown in Table 2. To test our hypothesis about the depiction of gender-specific details in male and female figures, a 2 × 2 (cohort x depicted gender) ANCOVA with age and the total score of drawing performance as covariates was computed for masculinity (male figures) and femininity scores (female figures). The analysis revealed a significant interaction between cohort and depicted gender, with higher values of femininity in female depictions for the 2015 cohort than for the 1977 cohort and lower values of masculinity in male depictions for the 2015 cohort compared to the 1977 cohort, $F(1, 325) = 5.86$, $p = .016$, $\eta_p^2 = .018$. Post hoc analyses showed that differences between cohorts were significant for female depictions, $F(1, 115) = 4.34$, $p = .040$, $\eta_p^2 = .037$, but not for male depictions, $F(1, 210) = 3.09$, $p = .08$.

Table 2 Descriptive statistics for gender-typing scores of human figure drawings from boys and girls in two cohorts

	Data collection cohorts					
Gender-typing of figure	1977			2015		
Artist gender	*M*	*SD*	*n*	*M*	*SD*	*n*
Femininity of female figures						
Girls	1.65	.95	31	1.93	.81	69
Boys	1.43	1.13	7	2.29	1.38	7
Combined	1.61	.97	38	1.96	.87	76
Masculinity of male figure						
Girls	1.39	.80	61	1.50	.67	12
Boys	1.77	1.00	84	1.36	.71	53
Combined	1.61	.94	145	1.38	.70	65

The 1977 data were coded from pictures collected by Krombholz (1988)

Discussion

The present study aimed at investigating the influence of societal and political changes in West Germany between 1977 and 2015 on gender representations of first graders. Human figure drawings of two cohorts of children were collected as expression of their conceptions of gender roles. In line with our hypotheses, in the 1977 cohort, the proportion of male figures clearly exceeded the proportion of female figures, whereas in the 2015 cohort the proportion of male and female figures differed only slightly. Further, comparing the cohorts 1977 and 2015, the results revealed an increasing trend for girls to depict the gender of their human figure drawing according to their own gender. And finally, it was demonstrated that female figures drawn in 2015 compared to 1977 contained significantly more details expressing femininity.

The preponderance of male figures in human figure drawings of the 1977 cohort can be interpreted as an indication of young children's view of a person, which was affected by male dominance in West German society in the 1970s. In contrast, the more balanced proportions of female and male figures in the 2015 cohort may be seen as a reflection of growing status equality between 1977 and 2015. These results are essentially in line with those obtained by Tolor and Tolor (1974) in a U.S. sample, although their data had

been assessed several years earlier. However, their participants were on average 5 years older and thus able to reflect on gender as a social category. Nevertheless, we can conclude that changes in gender status, which have taken place during the past half-century in Western societies, are reflected in children's human figure drawings, especially in the proportion of female depictions.

The second important finding concerning the tendency of girls in the 2015 cohort to draw a person of their own gender may be indicative for girls' perception of enhanced female self-esteem because it was stressed by the German women's movement (Bielby 2017). Thus, the task to draw a person no longer triggered the presumed expectation to produce a picture of a male person. In 2015, girls had the freedom and the self-esteem to draw a female person, a person corresponding to their own gender, just as boys of both cohorts did.

The analysis of the degree of femininity or masculinity in the depiction of female and male figures partially confirmed our hypothesis. Increased attention on gender specification in various areas of childcare and education in the first decade of the new millennium compared to the 70s of the last century appeared in differences between children's human figure drawings in the cohorts 1977 and 2015. However, only for female depictions was a significant increase in the display of gender-specific details observed, although with low effect size. Depictions of male figures did not show any change in the degree of masculinity between the two cohorts. Hence, we may conclude that there is a special focus on feminine attributes in children's actual views of gender representation.

In sum, the present results are in line with the theoretical framework of social cognitive theory of gender role development (Bussey and Bandura 1999), which we adopted for our study. In particular, they demonstrate the significance of societal changes for young children's gender representation. Our results add support that gender representations are not fixed but may change according to children's experienced gender schemas and gender behavior. Even though our results do not inform about particular learning mechanisms as they are postulated by the theory, the increase of femininity in female depictions at least suggests the importance of social models as they are provided by distinguishing clothing and gender-specific marketing.

The absence of a similar tendency for male depictions raises several questions. Gender-specific marketing is not restricted to girls. Likewise, there are specific product lines for boys. However, Murnen and colleagues (Murnen et al. 2016) have shown for children's present pop culture in the United States that there are obvious qualitative differences in gender attributes. Specifically, female characters are likely to be shown with traditional feminine stereotyped cues (e.g., decorative clothing, jewelry), whereas male characters are often shown in activity or with hyper-masculine accessories, such as carrying a weapon. If this is true also for Germany, one can state that drawing a male body in motion is more difficult than drawing a female figure with decorations. Furthermore, we assume that embellishing depictions of the male figure with weapons and the like are less valued by teachers than is depicting decorative female attributes, especially in an educational context. Because we collected human figure drawings within school classes, participants may have anticipated teachers' rejection of male attributes and thus omitted them. In fact, no child in the 2015 cohort and only one in the 1977 cohort depicted a weapon or a similar object—whereas this is not uncommon in spontaneous drawings outside the school. Thus, a possible interpretation might be that rising gender status equality involved the status enhancement of female attributes, whereas traditionally male attributes have become less valued or socially accepted.

Limitations and Future Research Directions

Acknowledging these findings, our study has several limitations, which might guide future research. First, the cross-sectional approach of the present study yields no information about changes of children's gender representation within their individual course of development. Future studies could examine the influence of different social micro-contexts like family and nursery school upon children's view of a person with regard to gender. Second, the measurement of gender representation by free human figure drawings could be complemented by filling in pre-drawn depictions, thereby minimizing the influence of drawing ability. Third, one crucial point may be that all drawings were coded and rated by female research assistants. Though there is no clear indication for rater bias, it would be desirable for future studies to balance the gender of coders. Considering the ratings of the depicted gender, the result could be further strengthened if the children would also be asked about the gender they had depicted. However, because the drawings of the 1977 cohort were collected within a different research program, they did not contain this information. The interrater agreement was still sufficiently high to accept the results as a valid assessment of the depicted gender.

Practice Implications

The present results may be useful to address gender issues in pedagogical and educational contexts. The study underlines that gender is a dynamic social concept that is influenced by political and societal conditions. Discussions about gender roles with growing children and adolescents should rest upon that context sensitivity and aim at increasing children's awareness of the changeability of gender roles. Especially with younger children, human figure drawings constitute a useful tool to gain insight into their conceptions of gender roles, in addition to or as starting point for verbal approaches. In

particular, human figure drawings may provide impulses for discussing different views on female and male roles and attributes as well as reflections about desirable relationships between males and females. These debates gain in importance considering increasing cultural diversity accompanied by different gender conceptions. Finally, the differentiation between gender status equality and gender specificity that has been conducted in our study is meaningful in educational settings as well. It will be important to raise the awareness of practice professionals that establishing equal opportunities for both genders does not mean ignoring gender differences.

Conclusion

In sum, the present study of children's human figure drawings reflects epochal changes of gender status in West German society between 1977 and 2015 and—in depictions of female figures—increasing gender specification. Beyond these specific results, our study indicates that young children's drawings of a human person are a valuable non-verbal and implicit method for investigating their perception of the social world around them, which is sensitive to changes in their sociocultural environment.

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Compliance with Ethical Standards

Ethical Approval Our research complied with American Psychological Association (APA) and Society for Research in Child Development (SRCD) ethical standards in the treatment of the participants.

Conflict of Interest The authors declare that they have no conflict of interest.

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