Sex Roles (2006) 54: 717–726
DOI 10.1007/s11199-006-9037-8

ORIGINAL ARTICLE

Gender-linked Differences in the Toys, Television Shows, Computer Games, and Outdoor Activities of 5- to 13-year-old Children

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Published online: 12 October 2006

Abstract This study was designed to compare how 5- to 13-year-old children's leisure activity preferences differ with age and gender. Responses from 60 boys and 60 girls about their favorite toys, television shows, computer games, and outdoor activities were compared across leisure categories. The results showed that gender was a significant factor. Overall, boys spent more time in these leisure activities than girls did. They spent the most time engaged in sports, watching television, and playing computer games, whereas girls spent the most time watching television. Results from a gender index for all activities indicated that boys' leisure preferences became slightly more masculine with age. For girls, preferences for television shows became more feminine with age, but preferences for toys, computer games, and sports became less feminine. These self-chosen preferences may provide differential opportunities for the development of visual-spatial skills, achievement, initiative, self-regulation, and social skills.

Keywords Gender differences · Leisure activities · Middle childhood

A portion of this research was presented at the 2003 meeting of the Society for Research in Child Development in Tampa, FL.

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Introduction

Children's everyday activities constitute important developmental opportunities in that they serve as a forum for the socialization of cultural knowledge and practices (Larson & Verma, 1999). Time spent playing, talking, and interacting with friends and family may be among the most important contexts of learning (Bandura, 1978; Mead, 1934; Piaget, 1932; Vygotsky, 1929). Children choose different activities in which to engage, activities that may establish lifestyle habits that last into adulthood. Despite the importance of children's leisure activities, few researchers have compared children's interests across various activities. In the present study we examined children's reported leisure activities across middle childhood in four domains: toys, computers, television, and sports. Because different activities may promote differential cognitive, social, and motor skills, it is important to identify which activities boys and girls prefer and whether these gender-linked interests change with age.

Research has shown that boys and girls exhibit differential behaviors during leisure time. Boys spend more time playing outdoors in active and dynamic play, and girls spend more time playing indoors and in more static types of play (e.g., Eaton & Enns, 1986; Harper & Sanders, 1975). In order to establish an understanding of children's time use and how it differs for individuals by age and gender, it is important not only to identify competing leisure interests but also to establish the degree to which these preferences are gender-stereotyped.

One of the methods of socialization in early childhood is through play with various types of toys. A consistent finding in the developmental literature is that children tend to prefer toys that are stereotyped as appropriate for their own sex rather than toys that are identified with the other sex (Carter & Levy, 1988; Martin, Eisenbud, & Rose,

1995). Rather than playing with cross-gender-typed toys, girls most often choose to play with feminine or neutral toys, whereas boys play primarily with masculine toys (Cherney & Ryalls, 1999; Martin et al., 1995). This selection of toys may limit children's experience and inhibit their ability to develop certain skills or characteristics that could be enhanced by engagement with cross-gender-typed toys (see Cherney, Kelly-Vance, Gill, Ruane, & Ryalls, 2003). For example, Cherney et al. (2003) found that feminine stereotyped toys can elicit higher complexity of play (longer play sequences) than masculine stereotyped toys, thus potentially limiting boys' level of play complexity. Robert and Héroux (2004) also showed that spatial manipulation play (e.g., blocks) predicts proficiency in some visuospatial tasks and may be related to creativity (Miller, 1987). Miller's research (1987) also suggests that play with gender-stereotyped toys may be related to the development of differential cognitive (e.g., verbal/spatial) or social (nurturance/aggression) skills in girls and boys. Research also suggests that toy gun play and parental attitudes are associated with aggressive behavior, particularly in boys (Hellendoorn & Harinck, 1997; Watson & Peng, 1992). Play may also provide children with opportunities to learn strategies for problem solving. Play with feminine stereotyped toys encourages girls to learn rules, to imitate behavior, and to use adults as sources of help. In contrast, masculine stereotyped toys often provide feedback for correct answers and encourage boys to explore their environments independently (Fagot & Leinbach, 1983).

Play with video and computer games has become a ubiquitous choice of leisure activity for children. On average, children play about 90 min per day on the computer (Stranger & Gridina, 1999). Skill in spatial representation is one example of everyday cognitive skills utilized and developed by video games and other computer applications that seems to influence performance on spatial tests (e.g., De Lisi & Wolford, 2002; Greenfield, 1993, 1994; Subrahmanyam & Greenfield, 1994). Studies suggest that video/computer games play an important role in spatial skill performance (Baenninger & Newcombe, 1989). However, playing violent video games may be harmful for some children, possibly resulting in desensitization to violence in real life, increased aggression, and impairment in the process and outcome of moral evaluation (Funk, 2003; Funk, Buchman, Jenks & Bechtholdt, 2003). Anderson and Bushman's (2001) meta-analysis showed that exposure to violent video games increased arousal and aggression-related feelings and decreased prosocial behavior. Further, evidence indicates that boys are much more likely than girls to spend time playing video/computer games (Funk, 1993; Roberts, Foehr, Rideout, & Brodie, 1999), which indicates a need to explore potential gender-linked differences in this domain.

Television viewing is a third activity that encompasses much of children's leisure time. American children spend on average 1.5 to 3 h per day in front of a television set (Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Larson & Verma, 1999; Vivian, 1999); younger children watch more television than adolescents do (Anderson et al., 2001; Bianchi & Robinson, 1997). Generally, time spent in front of a television set is about equal for boys and girls (Beentjes, Koolstra, Marseille, & van der Voort, 2001; Huston, Wright, Marquis, & Green, 1999), though boys and girls differ in the types of shows viewed (Huston, Wright, Rice, Kerkman, & St. Peters, 1990). Numerous studies have shown that television watching (Signorelli, 2001) plays an important role in the socialization process (e.g., Roberts & Bachen, 1981). Television programs with limited time to devote to character development often resort to stereotypes. Continued exposures to stereotypic information have been shown to influence memory (e.g., Calvert, Kotler, Zehnder, & Shockey, 2003) and stereotypic conceptions of gender roles (e.g., Herrett-Skjellum & Allen, 1996; Morgan & Shanahan, 1997; Pingree, 1978), and occupational roles (Beuf, 1974). High frequency of violent television watching has also been associated with higher aggression (Anderson et al., 2001). Even brief exposure to violent television causes significant increases in aggression; over time, television watching increases children's aggressiveness as young adults (Bushman & Huesmann, 2001).

Many children also choose to spend their leisure activity engaged in sporting play activities. Boys tend to participate in more vigorous, physically active sports (Bradley, McMurray, Harrell, & Deng, 2000; Eaton & Enns, 1986; Faucette et al., 1995; Maccoby, 1998) and in team sports (Bradley et al., 2000; Faucette et al., 1995), whereas girls tend to participate in more sedentary, individual, non-competitive activities. Sporting activities have important implications for physical (Telema, Yang, Laasko, & Viikari, 1997; Wankel & Berger, 1990), cognitive (Bjorklund & Brown, 1998; Connor & Serbin, 1977), and social development (Blatchford, 1998). For example, boys' greater experience with physical play and activities that involve eye-hand coordination, such as estimating trajectories of moving objects and/or moving about within a complex spatial configuration may promote the development of spatial cognition to a higher level than that generally seen in girls (Bjorklund & Brown, 1998).

Because leisure activities constitute an important milieu for social, cognitive, and motor development, we conducted a survey to examine children's reported use of their leisure time. We examined whether and how these activities differed between boys and girls. Middle childhood is the time when children begin to have some autonomy in choosing their leisure activities. Children ages 5–13 were asked to list their favorite items within each category, as well as their estimated

time spent on three of the four leisure activities (computer games, television, sports). We created a gender index of the leisure activities that children themselves listed. A mean stereotype rating for each activity was used to measure individual differences in the children's gendered leisure preferences. Because boys spend more time playing outdoors and with computer games, we hypothesized that boys would report, on average, more time use than girls would of the leisure activities identified in the current study. It was expected that each sex would be more likely to report own-gender-stereotyped leisure time preferences than they would cross-gender-stereotyped preferences. We predicted that, as children grow older, boys' preferences would conform to stereotypes more and girls' would conform less.

Materials and Methods

Participants

The participants consisted of 120 children (60 boys and 60 girls) from a small, private school in the Omaha, Nebraska area. Children ranged in age from 5 to 13 years and were grouped by age as follows: 5–7 years (M = 6.1 years, SD = 0.9), 8–10 years (M = 9.2, SD = 0.8), and 11–13 years (M = 11.9 years, SD = 0.7). Participants came from middle to upper-middle class backgrounds. Most children (86%) identified themselves as European American; 3, 8, and 2% identified themselves as African American, Asian American, and Hispanic, respectively. To create an independent gender index for all leisure activities, we asked 20 graduate students (ten men and ten women) from a northeastern city, who were blind as to the hypotheses, to rate the children's preferences.

Materials and Procedure

Participants were given a survey to list their favorite toys, television shows, computer/video games, and physical activities. Each category name was followed by three lines on which to write responses. In addition, participants were asked to provide estimates of the daily average number of hours that they typically engage in television watching, computer game play, and sports. The toy categories (i.e., action figures, arts and crafts, camera/music, dolls, domestic items, educational, games, manipulating/building, stuffed animals, vehicles, weapons) were based on Robinson and Morris' (1986) study and were created to capture the central salient features of the toys (see Appendix for examples). The categories of "sports" and "electronic games/computers" were not included as a toy category because they were represented as separate activities. Computer games were classified into categories established by Funk (2003) (i.e., action adventure, sports, puzzle/logic, educational, entertainment, fantasy violence, human violence, creative, building/construction, general, strategy). Television shows were categorized in ways consistent with previous studies (e.g., Huston et al., 1990; Livingstone & Bovill, 2001), such as children's educational television, adventure, cartoons, comedy shows, situation comedy, drama, science fiction, sports shows, animal/discovery, and mystery. Adults categorized sports activities into several categories including outdoor and indoor sports, ball play, individual sport, and team sport; they also categorized the activities that are central to each activity, such as visual-spatial skills, aggression, team-play, grace, and overall athletic ability.

Children's responses were collected in two ways. The leisure survey was sent with a consent form to all homes of elementary and junior high students of the same private school. The majority of the students completed the leisure time questionnaire at home and then returned it to the school. Then each participant met individually with the experimenter at the school. Their answers to the questionnaire were reviewed, and the children were asked to elaborate on their responses to the survey questions. The interview and survey responses were consistent approximately 95% of the time. Any discrepancy was noted, and the lower response was recorded. Although parents generally completed the survey for the youngest participants, their written responses were generally consistent with the child's oral responses. Children signed an assent form before performing a memory task. They received a pencil as thanks for their participation.

Gender index Children generated a combined total of 319 different activities. In order to gauge the levels of masculinity/femininity of the different preferences listed, each of the 319 preferences that the children generated were rated by 20 randomly chosen adults (ten men and ten women) who were blind to the hypotheses. They rated each preference for masculinity/femininity on a 7-point Likert scale (1 = very masculine, 4 = neutral, 7 = very feminine). Adults' mean gender ratings were computed for each preference. Each preference that children listed was assigned its own gender rating, thus providing a different gender index for each preference.

Results

We first analyzed the time estimates and gender ratings across all leisure activities. Then, for each leisure activity, we computed separate analyses on favorite activities and time estimates as well as a measure of stereotypicality using the individual gender ratings.

Trends Across Activities

Estimated time spent across activities To examine trends across the various activities, we conducted a repeated measures ANOVA with activity type (television, computer, or sport) as the within variable and sex and age as the between variables on total hours spent in the activity. The results revealed a main effect for activity type, $F(2,112) = 52.4$, $p < 0.001$, $\eta^2 = 0.48$, and sex, $F(1, 113) = 8.2$, $p < 0.01$, $\eta^2 = 0.068$. On average, children spent more time playing sports ($M = 1.78$, SD = 0.83) and watching television ($M = 1.67$, SD = 0.72) than playing computer games ($M = 1.10$, SD = 0.59) (Tukey's; $p < 0.05$). On average, boys ($M = 1.63$, SD = 0.73) spent significantly more time in leisure activities than girls did ($M = 1.41$, SD = 0.64). There was also an activity type by sex interaction, $F(2,122) = 7.56$, $p = 0.001$, $\eta^2 = 0.12$. Tukey's post hoc tests ($p < 0.01$) showed that boys spent the largest amount of their time each day with sports ($M = 1.98$, SD = 0.97 h), followed by television ($M = 1.62$, SD = 0.69), and computers ($M = 1.32$, SD = 0.60). For girls, television was listed as the activity that took up the largest amount of time per day ($M = 1.73$, SD = 0.76 h), followed by sports ($M = 1.58$, SD = 0.62), and computers ($M = 0.88$, SD = 0.49). The latter two did not differ significantly from one another. Further statistical comparisons between boys and girls follow in the section for each activity type.

Preferred activities' gender index We conducted a repeated measures ANOVA to predict gender ratings with activity type (toys, television, computer, or sport) as the within variable and sex and age group as the between factors. The results revealed main effects for age group, $F(2, 89) = 15.12$, $p < 0.01$, $\eta^2 = 0.25$, sex, $F(1,89) = 241.93$, $p < 0.01$, $\eta^2 = 0.73$, and activity, $F(3,87) = 16.69$, $p < 0.05$, $\eta^2 = 0.37$. These main effects were qualified by a three-way interaction between age group, sex, and activity type, $F(6, 176) = 2.9$, $p < 0.05$, $\eta^2 = 0.09$. Simple effects revealed that the gender index ratings for girls were more feminine than for boys across all four activities (see Table 1). Boys' mean gender index ratings became slightly more masculine with age. Girls' television shows became more feminine with age, but their toys, computer games, and sports became more masculine with age.

Toys

Favorite toys In order to determine differences in the number of toys children listed, we performed a 2 (sex) ×3 (age group) ANOVA with number of toys listed as the dependent variable. The results revealed a main effect for sex, $F(1, 118) = 10.50$, $p < 0.05$, $\eta^2 = 0.05$; boys listed significantly more toys ($M = 2.8$, SD = 1.5) than girls did ($M = 2.2$, SD = 1.2). There was no main effect for age group nor was there a sex x age group interaction.

Individual children listed up to five favorite toys. Frequently reported toys were computer games (19%) and sports (15%). However, these two categories were eliminated from the toy categories, because they were included in two separate leisure activities. Thus, overall, the most popular categories were dolls (23%), manipulative (building and design) toys (18%), and stuffed animals (13%). Boys listed a total of 148 toys, and girls listed a total of 108 toys. The most frequently reported favorite toys differed between boys and girls. Thirty-eight percent of boys listed manipulative toys, 18% listed vehicles, and 13% listed action figures. For girls, the top three toys were dolls (37%), stuffed animals (17%), and educational activities (15%).

Gender index (toys) It was hypothesized that boys would prefer masculine toys and girls would prefer feminine toys. To assess how stereotypically masculine and feminine the reported toys were, adults rated all toys (1 = very masculine

Table 1 Mean gender index scores for toys, television, computer games, and sports by age and sex in a sample of 60 boys and 60 girls (standard deviations in parentheses).

		Toys	Television	Computer games	Sports
Age group	Gender				
5- to 7-year-olds	Boys	3.1 (.6)	3.8 (.5)	3.4 (.7)	3.0 (.5)
	Girls	5.7 (.9)	4.2 (.5)	4.8 (1.6)	4.2 (.6)
	Total	4.4 (1.9)	4.0 (.6)	4.0 (1.4)	3.6 (.8)
8- to 10-year-olds	Boys	3.0 (.5)	3.6 (.6)	2.7 (.6)	2.8 (.5)
	Girls	4.7 (1.1)	4.3 (.6)	3.7 (.7)	4.1 (.6)
	Total	3.9 (1.2)	3.9 (.7)	3.2 (.8)	4.5 (.9)
11- to 13-year-olds	Boys	2.8 (.5)	3.5 (.7)	2.5 (.4)	2.5 (.6)
	Girls	4.5 (1.0)	4.6 (.5)	3.6 (.5)	4.0 (.8)
	Total	3.6 (1.1)	4.0 (.8)	3.0 (.7)	3.2 (1.0)
Total	Boys	3.0 (.5)	3.6 (.6)	2.8 (.7)	2.7 (.6)
	Girls	5.0 (1.1)	4.3 (.6)	4.0 (1.2)	4.1 (.6)

The Gender Index was derived from a 7-point Likert scale, with 1=very masculine, 4=neutral, 7=very feminine.

to 7 = very feminine). See Table 1 for mean gender ratings by age group and sex for each activity. A 2 (sex) ×3 (age group) ANOVA was employed with mean gender ratings as the dependent variable. The results revealed main effects of sex, $F(1, 113) = 188.14$, $p < 0.001$, $\eta^2 = 0.64$, and age group, $F(2, 113) = 8.85$, $p < 0.01$, $\eta^2 = 0.14$, which was qualified by a sex × age group interaction, $F(2, 113) = 3.65$, $p < 0.03$, $\eta^2 = 0.06$. The interaction revealed that the gender ratings were significantly more feminine for the younger girls ($M = 5.66$, SD = 0.87 for the youngest girls vs. $M = 4.69$, SD = 1.08 and $M = 4.46$, SD = 1.01 for the older girls). In other words, at all age groups, girls' preferred toys were considered significantly more feminine than boys' preferred toys ($M = 3.10$, SD = 0.55 youngest boys; $M = 2.95$, SD = 0.46 middle age group; $M = 2.79$, SD = 0.45 oldest boys). The youngest girls' preferred toys were particularly feminine.

Computer Games

Time estimates for computer games Overall, children reported using a computer/video game about 1.1 h per day, but boys reported more computer use overall, $F(1,113) = 18.73$, $p < 0.001$, $\eta^2 = 0.14$. There was no interaction between sex and age group and no main effect of age group. Overall, children reported playing with about two different computer/video games.

Gender index (computer games) Overall, it was hypothesized that boys' preferred computer games would be rated masculine and that girls' preferred computer games would be rated feminine. Because computer games are typically marketed to older boys, it was hypothesized that the computer games for older children would be more masculine than those for younger children. A 2 (sex) ×3 (age group) ANOVA on the mean computer game gender rating yielded main effects for sex, $F(1,103) = 52.14$, $p < 0.001$, $\eta^2 = 0.35$, and age group, $F(2,103) = 14.09$, $p < 0.001$, $\eta^2 = 0.22$. Boys' computer games were rated as significantly more masculine ($M = 2.86$, SD = 0.68) than girls' computer games ($M = 4.02$, SD = 1.16). As hypothesized, the computer games for the two older age groups were more masculine ($M = 3.22$, SD = 0.82 and $M = 3.03$, SD = 0.72) than were the 5- to 7-year-olds' games ($M = 4.01$, SD = 1.36). The two older groups did not differ from one another in gender index levels.

Television

Time estimates for television viewing On average, boys and girls reported watching 1.67 h (SD = 0.73) of television each day. Overall, children listed about 2.6 different television shows. Two separate 2 (sex) ×3 (age group) ANOVAs on the number of television hours watched and on the number of television shows listed revealed no interactions or main effects.

Gender index (television) Boys were expected to watch more masculine television programs, and girls were expected to watch more feminine programs. A 2 (sex) ×3 (age group) ANOVA on television gender ratings revealed a main effect for sex, $F(1, 113) = 43.93$, $p < 0.001$, $\eta^2 = 0.29$, which was qualified by an interaction between sex and age group, $F(2, 113) = 4.2$, $p < 0.02$, $\eta^2 = 0.07$. Boys' television shows became increasingly masculine with age ($M = 3.79$, SD = 0.54 for the youngest boys; $M = 3.57$, SD = 0.63, and $M = 3.44$, SD = 0.70 for the oldest boys), whereas girls' television shows became increasingly feminine with age ($M = 4.16$, SD = 0.53 for the youngest girls, $M = 4.26$, SD = 0.62, and $M = 4.55$, SD = 0.55 for the oldest girls). In sum, television shows became increasingly gender-stereotyped with age, for both boys and girls.

Sports

Time estimates for sports Overall, children reported spending 1.8 h/day (SD = 0.84) in sport activities. Boys spent significantly more time in sports activities than girls did, $F(1,113) = 4.97$, $p < 0.05$, $\eta^2 = 0.06$. On average, boys spent about 2 (SD = 0.96) h with sports and girls spent 1.6 (SD = 0.62) h. Boys also listed a greater number of sports activities than girls did, $F(1,113) = 7.35$, $p < 0.01$, $\eta^2 = 0.04$; boys mentioned 3.33 (SD = 1.11) activities and girls 2.85 (SD = 1.30) activities. There were no age effects or interactions.

Favorite sports activities Eighteen percent of boys listed basketball, 16% soccer, and 13% football. Fifteen percent of girls listed bike/scooter/roller blades, 14% swimming, and 12% soccer. At all ages, boys were more likely than girls to list outdoor activities. Sixty-eight percent of boys' and 50% of girls' activities were outdoor, $\chi^2 = 6.41$, $df = 1$, $p < 0.05$, $\gamma = 0.46$. Boys' activities were also more likely than girls' activities to involve ball play (63% and 40% for boys' and girls', respectively), $\chi^2 = 153.38$, $df = 1$, $p < 0.05$, $\gamma = 0.58$. Adults also rated the activities in terms of whether the following attributes were central to them: visual-spatial skills, aggression, team-play, grace, and overall athletic ability. Boys' activities were rated higher on each of these dimensions except grace, which did not differ between boys' and girls' activities.

Gender index (sports) We expected that boys would engage in masuline sports and girls in feminine sports. The findings showed that the sports that boys listed were rated as significantly more masculine than the sports that girls listed

(mean gender index ratings = 2.70, SD = 0.55 and 4.09, SD = 0.64 for boys and girls, respectively), $F(1,117) = 153.38$, $p < 0.001$, $\eta^2 = 0.58$. There was also a main effect of age on gender index ratings of the sports activities, $F(1,117) = 3.29$, $p < 0.05$, $\eta^2 = 0.06$. The older children ($M = 3.19$, SD = 0.99) listed sports that received significantly more masculine ratings than those listed by the youngest group ($M = 3.60$, SD = 0.81 for the youngest; $M = 3.46$, SD = 0.89 for the middle age group) (Tukey post hoc; $p < 0.05$). No other pairwise comparisons attained significance.

Discussion

The purpose of the present study was to give an overview of leisure activity preferences of 5 to 13 year-old boys and girls. To identify the extent to which the individual leisure activity preferences were gender-stereotyped, we created a gender index based on adults' mean gender ratings. The results showed several trends that are discussed for each of the four activities (toys, television, computer games, sports) we analyzed.

Boys and girls had a greater preference for toys stereotyped as own-gender than for cross-gender-typed or gender neutral toys (e.g., Carter & Levy, 1988; Cherney et al., 2003; Martin et al., 1995). Based on a toy classification system developed by Robinson and Morris (1986), our results revealed that sex was a significant factor in determining toy category selection. Boys preferred manipulative toys, vehicles, and action figures, which tend to encourage manipulation, construction, and active exploration (Bradbard & Parkman, 1983; Fagot, 1974; Miller, 1987). Extant research shows that stereotypically masculine toys tend to promote the development of spatial abilities (Miller, 1987; Robert & Héroux, 2004; Serbin & Connor, 1979). In contrast, girls preferred dolls, stuffed animals, and educational toys, which tend to encourage the development of verbal rather than visual-spatial skills (Miller, 1987; Serbin & Connor, 1979). Play with feminine gender-typed toys may also promote nurturing behavior (Miller, 1987) and play complexity (Cherney et al., 2003). Therefore play with gender-stereotyped toys may foster differential social and cognitive skills in boys and girls.

Results supported our hypothesis that boys' preferences for gender-stereotyped toys remained consistent across the age groups (Robinson & Morris, 1986), whereas girls' interest in play with gender-stereotyped toys decreased as they grew older. Other studies have shown a curvilinear U-shaped effect for gender norm violations (e.g., Blakemore, 2003; Katz & Ksansnak, 1994; Signorella, Bigler, & Liben, 1993). According to Katz and Ksansnak (1994), although stereotyping increases with age on forced-choice measures, it decreases with more open-ended questions. Furthermore, age-related increases in stereotype flexibility may also explain the present findings (e.g., Damon, 1979).

Consistent with Funk (1993), boys in the present study reported playing with computer games significantly more frequently than girls did. Boys preferred fantasy/violence, sports, and action adventure computer games, whereas girls preferred educational, action adventure, and entertainment type games. These choices are consistent with the results of a European comparative study that established children's favorite electronic games across several countries (Garitaonandia, Juaristi, & Oleaga, 2001). With age, children tended to report playing with more masculine type games. Violence is stereotypically associated with masculinity, and the majority of games that are commercially available do not reflect the interests and tastes of girls (Kafai, 1996). Given the differential interests, the lack of appeal, and scarcity of feminine games, it is not surprising that they tend to play computer games less often than boys. This discrepancy may place girls at a disadvantage for the development of spatial and computer skills (e.g., Greenfield, Brannon, & Lohr, 1994; Okagaki & Frensch, 1994; Subrahmanyam & Greenfield, 1994). Girls tend to use the computer to communicate with their friends. However, excessive play with violent games may lead boys to use aggression to solve problems (Cooper & Mackie, 1986). In their meta-analysis, Anderson and Bushman (2001) found that exposure to violent video and computer games is positively associated with increased aggressive behavior in male and female young adults. Boys, who spend significantly more time than girls playing with violent computer games, are more at risk for the development of aggressive cognition.

On average, boys and girls reported watching about 1.7 h of television a day, somewhat less than the national average of 2–3 h (Vivian, 1999). These time estimates are probably lower because the current sample consisted of middle-SES children who were involved in many out-of-class scheduled activities (e.g., music, ballet, academic programs) and spent several hours each day on homework, and because there was no independent measure of actual time spent on this and the other leisure activities.

Similar to other studies (Huston & Wright, 1998), boys reported that they liked to watch cartoons, situation comedies, and entertainment shows. Girls reported watching cartoons, entertainment shows, and teenage drama shows. Television viewing changed with age from cartoons to sports shows (boys) and from entertainment shows to sitcoms (girls). Boys tended to list more action-oriented programs, whereas girls tended to list more people-oriented programs. In general, television shows became increasingly gender-stereotyped with age. These increased exposures to stereotypic information are likely to influence stereotypic conceptions about gender roles (e.g., Herrett-Skjellum &

Allen, 1996; Morgan & Shanahan, 1997; Pingree, 1978), occupational roles (Beuf, 1974), and gender-schematic processing (e.g., Cherney, 2005; Cherney & Ryalls, 1999; Martin & Halverson, 1981). Boys' preferred television shows involved more violence than did those of girls. Violent media tend to increase aggression by teaching observers how to aggress and by priming aggressive cognitions (Anderson & Bushman, 2002).

Boys reported engaging in more sports activities and spending more time playing sports than girls did. These activities included outdoor sports such as basketball, soccer, and football, which may promote visual-spatial skills, aggression, being a team player, and overall athletic ability. Boys listed physical activities that were considered significantly more masculine than the sports that girls listed, particularly in the case of the older children. This finding is not surprising because older children tend to participate in more organized sports activities that are more physically strenuous and that require them to negotiate the rules of the game; these activities are considered "masculine" in American society. These activities often require social competence, cooperation, and leadership potential, and they may provide children with a source of positive self-esteem (Freedman-Doan et al., 2000) and promote spatial imagery (Ozel, Larue, & Molinaro, 2004).

Finally, when we examined trends across these three activities, we found that children reported spending more hours watching television and engaging in sports than they did using computers. A similar trend has been noted in other studies (e.g., Anderson et al., 2001). Boys in our study reported spending more time with television, sports, and computer leisure activities than girls did. Larson and Verma (1999) also found gender differences in time spent outside of school; girls help with household chores, but boys are allowed to play. From the current data it is unknown whether the girls were spending more time doing chores or other activities, as we only asked children to indicate time spent on the three activities we had selected. Overall, boys spent their spare time playing sports, followed by television watching, and computer play. Girls spent their spare time watching television, followed by sports, and computer play. Because there are no other studies that have investigated gendered leisure activities across these domains within a single study, it is unclear whether our results are representative of the population at large. It is important to replicate these findings with a larger, more diverse sample and multiple measurements (i.e., logs, diaries, surveys).

Our findings also suggest that the development of gender-typed leisure activities may differ for boys and girls (Frey & Ruble, 1992). Girls may be less strictly gender-typed than boys are because they encounter less intensive gender role pressure from their parents (Maccoby & Jacklin, 1974) and peers (Carter & McCloskey, 1984). Laboratory studies confirm that boys display stronger own-gender stereotyped preferences than girls do (Carter & Levy, 1988; Schau, Kahn, Diepold, & Cherry, 1980). It is interesting to note that for girls, television watching was the leisure activity that became more feminine with age, and it also was the activity that they reported spending the most time doing.

In general, the results show gender-typed preferences across all domains, particularly for younger children. As the present findings suggest, other factors have to be considered to account for the divergent trends for some leisure activities. For example, the lack of appealing computer games for girls and the increased time they spend with friends may account for some of these divergent trends.

Limitations A limitation of the present study is the ethnic and economic make-up of the sample. It is possible that children with lower socioeconomic backgrounds or who belong to various racial or ethnic groups could have a greater or lesser preference for gender-stereotyped preferences. It is also important to note that what people state as their preference and what they actually watch or do can be very different. As a result, there is always a danger of misinterpreting the relationship between preference and actual consumption. The television programs that children view or the computer games with which they play often are influenced by the opinions of family members or peers, and their activities are dictated by their availability and time. We did not provide children with specific categories to be rated, nor did we ask for a particular number of choices. We wanted to avoid limiting their choices. However, as Rosengren and Windahl (1989) pointed out, television preferences are more an expression of the individual and the stage of development attained than a predictor of actual viewing. With this in mind, this study's results deal with preferences in television viewing, computer game play, and sports activities.

Also, children were only asked to report their favorite toys and other leisure activities once and without an independent and systematic verification of the answers. It is unclear whether children are good judges of time averages. The use of logs or diaries (e.g., Huston et al., 1999) may provide a more dependable methodology, particularly for younger children. In addition, this study was limited in that it was not possible to identify a direct link between boys' and girls' preferences for gender-typed activities and their differences in cognitive abilities. Future researchers should focus on developing a quantitative measure to compare boys' and girls' cognitive abilities in relation to their preferences for gender-stereotyped toy play. Finally, children were not asked to provide estimates of their time spent playing with toys, because we assumed that older children would not want to self-report playing with toys. This omission limits the

comparability of the toys' measure to the measure of the other leisure activities.

It is important to note that the activities listed by the children are those in which they may engage voluntarily and that generally require initiative, self-regulation, and organization from the participant (Larson & Verma, 1999). Some activities (i.e., sports) are more structured than others, but they all provide children with some control over the course of their own development. Given the number of hours children engage in these voluntary activities, it is important that professionals who are concerned about children's and adolescents' well-being and development continue to investigate leisure activities and their effects on children's development.

Acknowledgments We thank Amanda Stein and Kate Rudersdorf for their help with this study. We are also grateful to the parents and students of Brownell-Talbot school who volunteered for this study and to the staff for their willingness to let us collect data at their establishment.

Appendix

Toy Category	Examples
Vehicles	Bikes, trucks, scooters, space-related transportation
Games	Board games and cards
Weapons	Toy guns, sling shot
Arts and Crafts	Listed as arts and crafts
Educational	Books
Musical/camera	Compact discs and C.D. players
Manipulative	Blocks, Legos
Stuffed animals	Teddy bears, Beanie Babies
Action figures	Toy Soldiers, Pokemon action figures
Domestic items	Tea sets, make-up
Dolls	Barbie and other baby dolls

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