



LOOKING FOR THE POSITIVE EFFECTS OF CARTOONS ON CHILDREN'S INTENTIONAL PROSOCIAL BEHAVIOR. STILL NO EVIDENCE

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Abstract

In this experimental study, we investigated the intentional prosocial behavior of children following exposure to different types of cartoons. Subjects (N=246, mean age=7.50 years) were assigned to one of the three groups (neutral vs. prosocial vs. antisocial), and we performed pre- and post-measurements. We used an interactive audio story to facilitate the measurement of children's intentional prosocial behavior. Children provided their answers in a special notebook, in real-time during the story. Pre- and post-exposure to a short cartoon (5 min and 22 sec), subjects offered their answers in 10 instances in which they could decide between prosocial or antisocial behavioral alternatives. We found a decrease in prosocial behavior in all groups after exposure to cartoons, regardless of their type. However, no significant differences were observed between groups that were exposed to different types of cartoons. Therefore, we did not find support for the hypothesis that assumed prosocial cartoons would increase intentional prosocial behavior, respectively, the number of prosocial decisions. Thus, we could not establish a cause and effect relationship between prosocial cartoons and prosocial behavior.

Keywords: cartoons; children; intentional behavior; prosocial; antisocial; media

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As the interest in the media is still growing, children are fascinated and drawn into full interaction with the media. Children spent 2 hours/day in front of the TV not only in the '60s and '70s (Schramm, Lyle, & Parker, 1961, Lyle & Hoffman 1972) but also in the present. Various studies reported that the time spent in front of the TV increases (Veerman et al., 2012). The time spent by children (8-12 years) in front of the TV, DVD, and video on other sources (*e.g.*, Youtube) remains at an average of 2 hours and 26 minutes per day (Rideout, 2016). It is known that resilience, discernment, and other limited cognitive and emotional resources make children vulnerable to media effects (Weaver, Jensen, Martins, Hurley, & Wilson, 2011). In this context, it is necessary to reduce the adverse effects of the media while increasing its positive consequences.

Numerous studies analyzed the possible effects of television on children. Initial research conducted by Mussen and Rutherford (1961) reported an increased number of aggressive behaviors towards peers and written aggressive language after exposure of children to aggressive media (including cartoons). Aggressive behavior due to media exposure has been explained using the vicarious learning perspective (Bandura, 1965). More recent studies focused on the adverse effects of watching TV (Paik & Comstock, 1994) while other studies focused on the positive effects of watching TV (Mares & Woodard, 2010, 2012). The positive aspects have been presented especially after the 2000s, after the establishment of positive psychology (Seligman & Csikszentmihalyi, 2000). The positive psychology approach highlighted the factors that give individuals the opportunity to develop; therefore, researchers focused on the positive effects of the television. de Leeuw and van der Laan (2018) highlighted that in some cartoons (*e.g.*, Disney cartoons) children can adopt prosocial behaviors (*e.g.*, helping). The Disney cartoons include negative behaviors to which children are exposed (Robinson et al., 2007; Coyne & Whitehead, 2008), while other papers highlighted the prosocial behaviors presented in these cartoons (Padilla-Walker et al., 2013; Mares & Woodard, 2010). Currently, there is a growing interest in prosocial media (Greitemeyer, 2011) because prosocial behaviors such as helping can be reinforced with media (Prot et al., 2013).

In the present contribution, we aim to enhance our understanding of the effects of exposure to “positive” media (*i.e.*, cartoons that present prosocial behaviors), as compared with “negative” media (*i.e.*, cartoons that demonstrate aggressive behaviors). To achieve this goal, we conducted a controlled trial in which children in different experimental groups were exposed to different types of

cartoons. We investigated their prosocial intentions before and after exposure to these cartoons; we included the teacher effects on displaying prosocial behavior, and we also investigated gender differences in this matter.

The teacher effects on displaying prosocial behavior

When they discussed the effects of the media on the children's behavior, early studies (Barcus, 1969; Brown & Linne, 1976) considered the role of the parent or the role of another significant adult. According to Lynn (2011), there are three different strategies of adult mediation: active mediation (*i.e.*, active talks between adults and children regarding the content of the media), restrictive mediation (*i.e.*, setting specific time-based or content-based rules regarding the media consumption) and co-viewing mediation (involvement of the adult during the child media time). Although the data indicated different types of influence, there is still a need for future research regarding intentional and passive co-viewing (Collier et al., 2016) to understand the ways in which an adult figure can influence the effects of media on children and adolescents.

In the present research, we manipulated the presence or the absence of a significant adult (*i.e.*, the teacher) during the presentation of the cartoons. When students perceive teacher confirmation, studies reported an effect on cognitive learning and affective learning (Ellis, 2000). Goodboy and Myers also confirmed that teacher confirmation results in enhanced student participation (Goodboy & Myers, 2007). Previous studies suggested that the teacher has a role regarding the children's behavioral outcome. Arnold et al. (1998) suggested that child misbehavior can also be related to the teacher laxness, indicating that a firm position of the teacher can discourage problematic behaviors. This aspect can be important because the presence of the teacher in the experimental condition could inhibit antisocial responses. Research studies reported more positive in peer-to-peer interactions in the presence of the teacher, as compared with situations in which the teacher was not present (Singer et al., 2013; Acar et al., 2017). Therefore, we also anticipated that the presence of the teacher in an experimental condition could motivate children to express less antisocial behavior.

Gender effects

There is evidence regarding the role of the child's gender regarding the behavioral effects of cartoons. Initial studies focused on the negative affect resulted from watching cartoons (*e.g.*, boys experienced a higher level of anxiety - Bjorkqvist & Lagerspetz, 1985; boys displayed more aggressive behaviors -

Hapkiewicz & Roden, 1971). Recent studies reported that boys preferred cartoons action (Weaver et al., 2011), which were more influenced by violence-oriented cartoons, and they are more likely to imitate the cartoon characters (Ergün, 2012). Oliver and Green (2001) recorded an important difference regarding emotional response to child media content. The female subjects of his study were more likely to express sadness, as a result of sad segments presented. Recent studies also found that girls place more importance on prosocial values than boys (Betuel & Johnson, 2004), and to exhibit more prosocial behaviors (Baillargeon et al., 2011).

The present research

This study aims to examine the influence of cartoon type on children's intentional behavior. We will define intention, a psychological instance, as the predisposition to respond favorably or not, in the idea of acting, to an object, person, institution or event (Ajzen, 1988). Even if there are several explanatory models of the intention-behavior relationship, most of them have as mediating/triggering role regarding the intention to commit the act (Bagozz, 1981; Fishbein & Ajzen, 1975). The same factor, the intention to manifest a particular behavior, is also identified in studies dedicated to outsourced behavior (Manstead et al., 1983). The relationship between the intention to act and the behavior itself was confirmed by previous meta-analytical findings (Kim & Hunter, 1993; Webb & Sheeran, 2006).

In this study, we defined prosocial behavior in the general terms of Mares and Woodard (2001). Prosocial behavior is defined as friendly interaction, altruism, and reduction of aggression. We have also defined antisocial behavior in general terms referring to the outsourced form, namely aggression, defiance, violation of rules, tantrum manifestations, and conduct disorders (Calkins & Keane, 2009), which are generally specific to children.

The cartoons included in this study were carefully selected to protect children. We paid attention to ethical norms that require that children must not feel threatened but instead, they must feel physically, mentally, and emotionally protected in their experimental sessions (Birbeck & Drummond, 2007). Therefore, we selected cartoons that displayed moderate aggression.

This study aimed to investigate the effect of the cartoon on intentional behavior. As compared with the baseline measurement, we expected an increased number of intentional prosocial acts after watching prosocial cartoon content and a decrease of prosocial acts for those exposed to antisocial cartoons. We've also

taken into consideration the possible influence of 2 other variables: the presence of the teacher during experimental sessions, and the second variable is student gender (gender).

Method

Participants

The participants were 246 children (see Table 1 for details regarding the demographic characteristics of the sample) enrolled in the general education cycle, aged between 6 and 9 years (Mean_{age}=7.5 years, SD=0.87), equally balanced regarding gender (50.4% boys). The age range 5-8 years represents the interval in which significant results were registered in other studies that aimed at the effect of cartoons on children's behavior (Hapkiewicz & Roden, 1971; Frydman, 1999; Ellis & Sekyra, 1972). The age range is protected from the risk of inability to discern between fictional and real, as children can distinguish between fiction and reality starting at ages 4-6 years old (Bjorkqvist & Osterman, 2001; Downs, 1990; Weaver et al., 2011).

All participants have Romanian nationality, with a majority Orthodox religious identity (69.1%) followed by the Pentecostal religion (12.2%) and other declared or undeclared religions (18.7%). 90.0% of the parents reported middle class socioeconomic status, 2.5% of children come from low-income families, and 7.5% come from high-income families (self-report). Most children lived in biparental families (87.3%), and 28 children come from single-parent families. Regarding the parents' level of education, 57.1% of the children had at least one parent with a university education, 78 children (32.5%) came from families in which the parents graduated high school, and 25 children (10.4%) belong to families in which the parent who offered the agreement graduated secondary cycle of education (8th grade).

The distribution of subjects by age indicated that there were no significant differences between groups [$F(2, 245)=0.969$, $p=0.381$] neither between the gender of the subjects [$\chi^2(2, N=246)=0.008$, $p=0.996$].

Table 1. Demographic characteristics of the study sample

Variable	Frequency (%)	M (SD)
Gender		
Girls	122 (49.6%)	.50 (.50)
Boys	124 (50.4%)	
Class		
Preparatory class	86 (35%)	7.5 (.87)
1 st class	95 (38.6%)	
2 nd class	65 (26.4%)	
Child age		
6 years	33 (13.4%)	7.5 (.87)
7 years	91 (37%)	
8 years	90 (36.6%)	
9 years	32 (13%)	
Daily screen time dedicated to cartoons		
0-15 min	21 (8.6%)	7.5 (.87)
15-30 min	29 (11.8%)	
30min-1h	62 (25.3%)	
1h-1h 30 min	53 (21.6%)	
1h 30 min – 2h	51 (20.8%)	
2h-3h	24 (9.8%)	
>3h	5 (2.0%)	
Parents financial status		
Low-income family	6 (2.5%)	7.5 (.87)
Middle-income family	217 (90%)	
High-income family	18 (7.5%)	

Procedure

Before this study, parents received a form to consent regarding their children participation (The National Statement on Ethical Conduct in Human Research, 2007, p. 28). For this study, we used a cartoon in which prosocial lessons are obvious, exemplified by prosocial facts. For ethical reasons, the antisocial cartoons chosen were of relatively low intensity as antisocial content. It was also considered that in the experimental condition in which the children were, the duration of exposure to antisocial acts should be for a short period of time (5 min and 22 sec.) This way, any possible adverse effect of the cartoons is eliminated following the explanations offered by the evaluator in collaboration with the class teacher.

This study used an adaptation of the technique suggested by Mussen and Rutherford (1961) to measure children's intentions to engage in aggressive

behavior. In the original approach, the experimenter held a balloon and asked 8 questions investigating the children's intention regarding the balloon. In the current study, we presented a story in which our participants had to decide what the main character will do, and their responses were the dependent variable measure. We also controlled any influence coming from the person that presents the story. To achieve this, we have recorded the story and we eliminated any possible influence due to the inflection of the voice or other factors. Finally, we have created a story that has a high degree of identification with real-life situation for our subjects. We've chosen not just to talk about *what the subject would do to a balloon*, but we've created a different situation that is easily found in the life of a child.

Each parent received a questionnaire that required their signed consent for their child participation. Out of all parents invited to participate in the present research, only 60.5% of the parental consent was given. We included in the study only the children to whom the parents returned the signed consent. The lack of agreement could be motivated by the fact that some parents simply refused to participate. We estimated that a factor for not returning an informed consent was that teachers failed to remind the students to return the agreement. The experiment was performed in May 2019, 2 weeks after the parents gave their permission. Children had to use special notebooks received for this experiment, and their task was to tick the box that expressed the desired option, which is similar to a type of action that was repeatedly requested by their teachers during school.

The sessions of the experiment were divided into 5 sequences within a single experimental session. The experiment was carried out with the help of 2 assistants who were previously trained regarding the stages of study and the importance of not being involved in the decision-making process. Each 45 minutes session involved about 20 children, given the space and time allocated to the experiment by the management of each school.

The introduction of the study included the accommodation of the students with the evaluator and with the space of the class. The participants were told that they would have a special time and a unique activity in which they will have the opportunity to write their first story: they will decide what happens in the story. The subjects have received strong confirmation regarding the confidentiality of their answers and were asked to tick only one check box for each question. They were assured that what they would decide would not be offered to the teacher or the parents, being encouraged to "write" the story as they feel, as they wish.

In *the pretest evaluation* of each session, subjects have listened to the story of “Gaby” (the main character) who walks in a park and has multiple opportunities to behave in a good or bad manner. The audio story was played with the help of a computer connected to external speakers so that each element of the story was heard by the participants. From time to time, the participants were asked to tick on their notebooks the good or bad behavior they would like “Gabi” to follow in that particular moment of the story (see the content of the notebooks and descriptive statistics in Supplemental Material 1). Participants had enough time to mark their meaning of intentional behavior.

Experimental exposure was presented as a reward for the children’s particularly compliant behavior in the pretest phase. The evaluator provided children a notebook before exposure, followed by another notebook after the exposure (*i.e.*, according to the experimental condition). The playback of the cartoon was done with the help of a video projector, only after all the notebooks had been collected.

The posttest evaluation was introduced by inviting the children to a new trip through the park with Gaby (“Gaby” is the name of the main character in the story they heard). The children were delighted with the idea, which led them to listen to a “new” interactive story. The second story was identical to the first, except for its introduction and conclusion (*i.e.*, we removed the instructions); we kept the main story, and also we used precisely the same intonation of the questions and the order of the questions.

In *the end of the session*, we congratulated the children for their responses.

Research design

The experiment took place in schools, in the first part of the day, during the classes. Subjects were divided into groups according to the cartoon assigned to each group. Randomization was done using the online resource random.org. The sampling in this experiment was a multistage (cluster type), in the institution the students were selected from general education classes, preparatory classes, 1st classes and 2nd classes, and then a division according to subjects gender (m / f) and assigned to an experimental condition (neutral cartoons Vs. prosocial cartoons Vs. antisocial cartoons). The randomization has been done according to the figure listed below (*see* Figure 1), each group being assigned to the experimental condition. During the sessions, preparatory classes were not mixed with 1st classes nor with 2nd classes (same for 1st class and 2nd class).

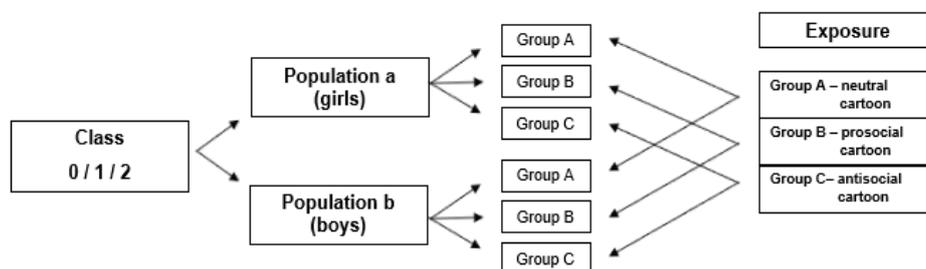


Figure 1. The randomization process

The dependent variable is the number of instances in which the child decides that the story character should have a prosocial behavior. To assess intentional behavior, a special story was written for the present experiment so that the main character arrives 10 times in instances where he must decide between prosocial or antisocial behavior. The story presents a character named Gaby, who comes in the park with the class. There, because their teacher is busy with other things, Gaby and colleagues can walk around the park and do what they want. The name used in the story, “Gaby” is a common name used both for boys and girls (neutral name for Romania population). The name has been carefully chosen so that both boys and girls can identify with the character. An equivalent name for Gaby would be the english name “Pat” according to David D. Van Fleet and Leanne Atwater (1997), who also suggested that names should be chosen accordingly to the experiment need. The story presented questions regarding prosocial behavior aiming at altruism (question 4, 5), help (question 6), respect for norms (question 9), and friendship (question 10) and others. All questions (10) required the respondent to decide between prosocial or antisocial behavior.

Cartoon type is our primary independent variable. Depending on the experimental condition, each group was exposed to a cartoon with neutral, prosocial or antisocial content. The average time of the cartoons was 5 minutes and 22 seconds. For the cartoon with *neutral* content, a mix of 2 episodes from the cartoon "Alex in the sea" were used. In this cartoon, the main character Alex travels in the underwater world, with the help of a submarine where he meets some dolphins and an octopus. After the encounter, Alex takes a picture, and later, with the help of a computer, finds out more information. The neutral cartoon is played on a musical background, without any kind of chat between characters. The

prosocial cartoon was "Kit'n'Kate: Duckie See Duckie Do" where the main characters Kit and Kate went to an aqua park to have some fun. At the park entrance, things are not as they imagined, and out of anger Kit spoils some things in the park, his act being imitated by some ducks. But after talking to "a mysterious character", he understands that it is a wrong thing to ruin things and that the negative example affects others as well (the moral lesson). Thus, with the lesson learned, the trip to the aqua park is resumed, but this time Kit repairs all the things he encounters along the way (prosocial behavior) and thus he, Kate and all other characters rejoice immensely (the prosocial act is rewarded). The *antisocial* cartoon consisted of a mix of sequences from the Minions cartoon series: Despicable Me. The cartoons captured various antisocial facts that minions carry out. The first part of the cartoon shows a selfish struggle to catch a banana to be eaten (with the necessary fights between the 3 minions). The second part included different scenes, including few sequences in a supermarket in which they improperly use different products in the supermarket. The 3rd part of the antisocial cartoon showed the scribble of a mocking picture and in the fourth part of the cartoon, a contained boxing match between 2 minions. The whole cartoon is presented with a comic note.

Teacher presence was the second independent variable. Teacher presence was included in the study because we admit that our outcomes can be influenced even by teachers' psychological presence (Spaulding, 1995). In order to minimize the possible effect of the teacher presence, during the entire experimental session, the teacher stood in silence in the classroom while the moderator applied the experiment.

We also included in our analyses *student gender*. We accounted for this variable as it can provide more clarification regarding different intentional prosocial behavior that can be observed in boys and girls.

Measures

We assessed the prosocial behavior using 10 specific questions described above. The questions were asked during the interactive audio story, and the answers were recorded in real-time, on special notebooks that each participant received. The specific intentional prosocial behaviors evaluated were: altruism-generosity, help, respect for norms, and empathy-friendship to which is added prosocial behavior as a result of the refusal of antisocial. Each intended behavior

was assessed using a question that presented 2 response options (*i.e.*, prosocial, and antisocial), and the children were encouraged to answer freely.

The intentional behavior of the subjects was recorded in the notebook received (size A6) by each child by means of a tick assigned to one of the two options next to each question. In the present study, the 10 items were considered with equal positive or negative value, the subject having the possibility to choose either prosocial or antisocial behavior. The subjects were asked to think of Gaby as being them in the park. We've considered that the intentional action would be more specifically attributed to each child, also because they could easily identify with the name "Gaby" (being a neutral name for romanian population). Nowhere in the story has been used the pronoun "he" or "she", but only the name Gaby.

Data analysis

Firstly, we conducted a confirmatory factor analysis (CFA) to check whether the responses of our participants grouped on a unique factor. The changes at the intentional level of the children were analyzed using mixed analysis of variance with within-group measurements (before and after the cartoon), and between-groups variable (*i.e.*, the 3 independent experimental groups, teacher presence, participant gender). Statistical analysis was performed using IBM SPSS Statistics, version 25 (IBM Corp., Armonk, NY, USA) and for CFA RStudio, version 1.2.1335 (RStudio, Inc) was used.

Results

Preliminary analyses

Confirmatory analysis (CFA) highlighted the unifactorial model as the most appropriate for grouping the items. Overall, the fit indices of the single-factor solution were good (CFI=.943, TLI=.927 RMSEA=.059, SRMR =.045). The evaluation scale has good internal consistency (α -Cronbach =.808).

Main analyses

Descriptive statistics for each group in each measurement moment are presented in Table 2. The descriptive statistics present data for the media type that has been used for each group, as well as for teacher presence variable and gender.

Table 2. Descriptive statistics of the intentional prosocial behavior in each group and measurement moment

Media type	N	Pre-exposure <i>M (SD)</i>		Post-exposure <i>M (SD)</i>	
		Boys	Girls	Boys	Girls
Neutral	Teacher present (N=56)	8.62 (1.89)	9.00 (1.49)	6.51 (3.64)	7.59 (2.81)
	Teacher absent (N=28)	8.46 (2.84)	9.00 (2.10)	6.69 (4.04)	6.53 (3.83)
	Total (N=84)	8.57 (2.19)	9.00 (1.71)	6.57 (3.72)	7.21 (3.21)
Prosocial	Teacher present (N=56)	7.60 (2.15)	8.15 (2.72)	6.93 (2.83)	7.30 (3.15)
	Teacher absent (N=27)	8.41 (1.78)	9.00 (2.56)	7.00(3.30)	7.33 (3.45)
	Total (N=83)	7.83 (2.07)	8.46 (2.66)	6.95 (2.93)	7.31 (3.22)
Antisocial	Teacher present (N=37)	8.68 (1.82)	8.72 (1.99)	7.68 (2.74)	8.38 (2.11)
	Teacher absent (N=42)	8.14 (2.22)	9.57 (0.67)	6.04 (3.93)	8.04 (2.37)
	Total (N=79)	8.40 (2.03)	9.17 (1.48)	6.82 (3.47)	8.20 (2.23)

Analyses of variance (presented in Table 3) revealed a significant overall effect of measurement moment (*i.e.*, pre/post-exposure to the cartoon) on prosocial behavior of time [$F(1,234)=42.557$, $p<0.001$, $\eta^2=0.154$], indicating an overall significant decrease of prosocial responses after the exposure to cartoons. Also, we found a significant effect of gender, [$F(1,534)=24.061$, $p=0.022$, $\eta^2=0.022$]. Pairwise comparison analysis, with Sidak correction, indicating girls being more prosocial than boys, with mean differences=0.654, standard error (SE)=0.283, $p=0.022$, 95% CI=[-0.097; 1.211]. These were the only 2 significant effects, and there were no other statistically significant interactions ($ps>0.05$).

Table 3. Results of the analyses of variance

	<i>df</i>	<i>Type III SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Within-group effects						
Time	1	233.573	233.573	42.557	.000	.154
Time * Gender	1	.509	.509	.093	.761	.000
Time * teacher presence	1	16.388	16.388	2.986	.085	.013
Time * Media type	2	13.832	6.916	1.260	.286	.011
Error (within)	234					
Between-group effects						
Gender	1	24.061	24.061	5.357	.022	.022
Teacher presence	1	.358	.358	.080	.778	.000
Media type	2	8.461	4.231	.942	.391	.008
Gender * Teacher presence	1	.998	.998	.222	.638	.001
Gender * Media type	2	4.348	2.174	.484	.617	.004
Teacher presence * Media type	2	7.694	3.847	.857	.426	.007
Gender * Teacher presence * Media type	2	9.028	4.514	1.005	.368	.009
Error (between)	234					

The results indicated a statistically insignificant general effect of the interaction between time and media type (time X group) with the values [F(2,234)=1,260, p=0.286, $\eta^2=0.011$], a statistically insignificant general effect depending on the type of subjects (time X gender) [F(1,241)=0.093, p=0.761, $\eta^2=0.000$] and a statistically insignificant general effect depending on the teacher presence in the class during the experiment (time X teacher presence) [F(1,241)=2.986, p=0.085, $\eta^2=0.013$].

Discussion

This study aimed to investigate the effect of different types of cartoons on children's intentional prosocial behavior. Past research has shown that antisocial media content generated changes in children's intentional behavior (Mussen & Rutherford, 1961) and in their manifested behavior. This finding was reported in experimental settings (Silvern & Williamson, 1987) and also in the natural environment (Ellis & Sekyra, 1972). de Leeuw and van der Laan (2018) and highlighted that the prosocial cartoon strengthen the children's prosocial behavior, as they mimic the behaviors found in the animated graphics.

The present study assessed the intentional behavior of children before and after their exposure to cartoons (prosocial, antisocial and neutral). Our data did not support the central hypothesis of the study. Children who were exposed to prosocial cartoons did not record an increased level of intentional prosocial behaviors, compared to those who watched antisocial cartoons. The results showed a global inhibiting effect on intentional prosocial behavior. This effect was identified between the two measurement moments (pre and post-exposure) and cannot be attributed to any cartoon type (*i.e.*, prosocial intentions decreased in all conditions).

Regarding the lack of effect from the media exposure, this result can be explained by the fact that past prosocial intentions are more relevant to predict future intentions, as compared with contextual experimental manipulations. Watson (Watson et al., 2009) indicated that even though every situation is different from other (preceding) situations, we can find some moral judgment (trace) installed during the evolution of a past event in the present ones. Watson (Watson et al., 2009) argued that patterned normative behaviors play a significant role even when a person formulates intentions in ethical situations and have the power to “moderate the relationships between situational factors and intended outcomes as well as moral reasoning and intended outcomes” (Watson et al., 2009, p. 414). This

factor could have played an important role in influencing their decisions regarding moral instances, thus reducing the effect of cartoons regarding intentional behavior. Insignificant results regarding the influence of animation (or puppet theater) on children's behavior were also recorded by Siegel (1956) and Hapkiewicz and Roden (1971). Nighbor et al. (2017) also recorded insignificant effects of media in relation to prosocial behavior. To conclude, the present results indicated the need to study the impact of cartoons in a variety of other social contexts.

Regarding the decrease in the intentional behavior from pretest to posttest, we can explain this trend using the perceived benefits of maintaining the prosocial behavior. Behavioral intent is also affected by the benefits or the risks that the subject perceives in a particular situation or in relation to a particular behavior (Parsons, 1997; Sutton, 2006). In our study, it is possible that children did not perceive any personal gain (benefits) for providing “more” prosocial responses. Therefore children might have lost interest in putting efforts to have the best (intentional) behavior.

The presence of the teacher during the experimental sessions did not influence the prosocial intentional behavior. The assumption that the teacher presence in the examination will increase the intentional prosocial behavior by becoming a moderator factor was not supported by our results. Children in classes with a teacher present displayed similar results with those that participated to the experiment in the absence of the teacher. A possible explanation is that there is a need for “high-quality teacher-child relationships” to register a great influence on behaviors (O'Connor et al., 2011). However, this explanation cannot be tested because, in this study, we did not assess this variable.

Our results indicated that girls reported stronger intentions of prosocial behavior, as compared with boys. This type of behavior is consistent with Betuel and Johnson (2004) and Baillargeon et al. (2011), who reported that girls are more inclined to manifest prosocial behaviors. There has been no significant difference between boys and girls regarding their interaction with the type of cartoon, as we found similar evolutions boys and girls regarding their prosocial intention. This result is divergent from the findings reported by Hapkiewicz and Roden (1971), who reported a much higher level of aggression among boys as opposed to girls as a result of specific exposure to cartoons (with regards to interpersonal play). These authors also reported that girls had more robust prosocial responses (*i.e.*, sharing), as compared with boys. In our view, there are two possible explanations for this

lack of replication. Firstly, our cartoons were shorter than the cartoons used by Hapkiewicz and Roden (1971) (*i.e.*, they have used 12 minutes compared to only 5 min and 22 sec. in our present experiment). Secondly, because the time spent in front of the TV is increasing (Veerman et al., 2012), the absence of an effect could be explained by the fact that today's children are more accustomed to cartoons as compared with the children in the early '70s, which could explain the lack of effect.

Although we did not find significant results, it is early to conclude regarding the lack of influence of cartoons on the intentional prosocial behavior of children. Furthermore, the present results do not allow conclusions regarding the actual behavior of children, as detailed below in the study limits section. No evidence of a possible effect is provided in this study, leaving only the observation that following contact with the media, there is a drop in intentional behavior without being attributable to certain content of the media.

Current limits and future study directions

This study has some limits that should be pointed out. The first limit is children age, which reaches the age of 9 years. Further research will need to investigate the effect of cartoons for a lower age group, as it is beneficial to know the impact of cartoons in the age of children in kindergarten (4-6 years) and even younger. The second limitation of the present study was the time of cartoon exposure and the content of the cartoons. To obtain the most robust results, it is necessary to increase the exposure time to a number of minutes similar to that spent by children in their free time. Repeated sessions of 30-60 minutes could generate different results. Even so, the 30-60 minutes sessions are still below the average time spent daily by most of the children visualizing cartoons (*i.e.*, up to 150 minutes, Rideout, 2016). Another limit of the present study is the content of the cartoons. One might find different results if children are exposed to the type of cartoon content that they are viewing daily. After the experimental session of our study, we've engaged in free discussion with the participating children, and they emphasized the fact that they also look at "ugly" cartoons and other types of cartoons. Children strongly recommended to the evaluator *not to* project these cartoons because of their content. This limit will be difficult to overcome experimentally because of ethical reasons, even though many children seemed to precisely know which content their peers were talking about. One final limitation of our study is given by the experimental design, where both the presence in school

and other colleagues in the experimental session can influence children's behavior. Research in the child's natural environment is preferable.

In conclusion, although the hypothesis has not been confirmed and despite the limitations of our current study, this study opens new research perspectives and it brings "up to date" the research of media effects on children, with the specificity of the primary interest factor for children: cartoons. The world of children requires the increased attention of professionals, and as the "playground" moves more and more in the virtual area, this research finds its merit in highlighting a general effect of inhibiting intentional prosocial behavior after exposure to media. However, this effect cannot be attributed to any type of cartoon. Subsequent research remains to clarify both the possibility of the existence of other influencing factors and the character of the influence, depending on the type of cartoon.

References

- Acar, I. H., Hong, S.-Y., & Wu, C. (2017). Examining the role of teacher presence and scaffolding in preschoolers' peer interactions. *European Early Childhood Education Research Journal*, 25(6), 866-884.
- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Homewood, IL, US: Dorsey Press.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Arnold, D. H., McWilliams, L., & Arnold, E. H. (1998). Teacher discipline and child misbehavior in day care: Untangling causality with correlational data. *Developmental Psychology*, 34, 276-287. doi:10.1037/0012-1649.34.2.276
- Bagozzi, R. (1981). Attitudes, Intentions, and Behavior: A Test of Some Key Hypotheses. *Journal of Personality and Social Psychology*, 41, 607-627. doi: 10.1037/0022-3514.41.4.607
- Baillargeon, R. H., Morisset A., Keenan, K., Normand, C. L., Jeyaganth, S., Boivin, M., Tremblay, R. E. (2011). The Development of Prosocial Behaviors in Young Children: A Prospective Population-Based Cohort Study. *The Journal of Genetic Psychology*, 172, 221-251.

- Bandura, A. (1965). Influence of model's reinforcement contingencies on acquisition of imitative responses. *Journal of Personality and Social Psychology, 1*, 589-595. doi: 10.1037/h0022070
- Barcus, F. E. (1969). Parental influence on children's television viewing. *Television Quarterly, 4*, 63-73.
- Beutel, A. M., & Johnson, M. K. (2004). Gender and prosocial values during adolescence: a research note. *Sociological Quarterly, 45*, 379-393. doi:10.1111/j.1533-8525.2004.tb00017.x
- Birbeck, D., & Drummond, M. (2007). Research with Young Children: Contemplating Methods and Ethics. *Journal of Educational Enquiry, 7*, 21-31. <https://ojs.unisa.edu.au/index.php/EDEQ/article/view/487>
- Björkqvist, K., & Lagerspetz, K. (1985). Children's Experience of Three Types of Cartoon at Two Age Levels. *International Journal of Psychology, 20*, 77-93. doi: 10.1080/00207594.1985.10807304
- Björkqvist, K., & Österman, K. (2001). At What Age Do Children Learn to Discriminate between Act and Actor? *Perceptual and Motor Skills, 92*, 171-176. <https://doi.org/10.2466/pms.2001.92.1.171>
- Brown, J. R., & Linne, O. (1976). The family as mediator of television's effects. In R. Brown (Ed.), *Children and television* (pp. 184-198). Beverly Hills, CA: Sage.
- Calkins, S. D., & Keane, S. P. (2009). Developmental origins of early antisocial behavior. *Development and Psychopathology, 21*, 1095-1109. doi: 10.1017/S095457940999006X
- Clark, L. S. (2011). Parental mediation theory for the digital age. *Communication theory, 21*, 323-343. doi: 10.1111/j.1468-2885.2011.01391.x
- Collier, K. M., Coyne, S. M., Rasmussen, E. E., Hawkins, A. J., Padilla-Walker, L. M., Erickson, S. E., & Memmott-Elison, M. K. (2016). Does parental mediation of media influence child outcomes? A meta-analysis on media time, aggression, substance use, and sexual behavior. *Developmental Psychology, 52*, 798-812.
- Coyne, S. M., & Whitehead, E. (2008). Indirect aggression in animated Disney films. *Journal of Communication, 58*, 382-395. doi:10.1111/j.1460-2466.2008.00390.x
- de Leeuw, R. N., & van der Laan, C. A. (2018). Helping behavior in Disney animated movies and children's helping behavior in the Netherlands. *Journal of Children and Media, 12*(2), 159-174.

- Downs, A. C. (1990). Children's Judgments of Televised Events: The Real versus Pretend Distinction. *Perceptual and Motor Skills*, 70, 779-782.
- Ellis, G. T., & Sekyra III, F. (1972). The Effect of Aggressive Cartoons on the Behavior of First Grade Children, *The Journal of Psychology*, 81, 37-43. doi: 10.1080/00223980.1972.9923785
- Ellis, K. (2000). Perceived teacher confirmation. The development and validation of an instrument and two studies of the relationship to cognitive and affective learning. *Human Communication Research*, 26, 264-291.
- Ergün, S. (2012). The influence of violent TV cartoons watched by school children in Turkey. *Acta Paulista de Enfermagem*, 25(spe2), 134-139.
- Fishbein, M. A., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Frydman, M. (1999). Television, Aggressiveness and Violence. *International Journal of Adolescent Medicine and Health*, 11, 335-344. doi:10.1515/IJAMH.1999.11.3-4.335
- Goodboy, A. K., & Myers, S. A. (2008). The Effect of Teacher Confirmation on Student Communication and Learning Outcomes. *Communication Education*, 57(2), 153-179. doi:10.1080/03634520701787777
- Greitemeyer, T. (2011). Effects of Prosocial Media on Social Behavior: When and Why Does Media Exposure Affect Helping and Aggression? *Current Directions in Psychological Science*, 20, 251-255.
- Hapkiewicz, W. G., & Roden, A. H. (1971). The Effect of Aggressive Cartoons on Children's Interpersonal Play. *Child Development*, 42(5), 1583. doi:10.2307/1127925
- Kim, M.-S., & Hunter, J. E. (1993). Relationships among attitudes, behavioral intentions, and behavior: A meta-analysis of past research: II. *Communication Research*, 20, 331-364. doi: 10.1177/009365093020003001
- Lyle, J., & Hoffman, H. R. (1972). Explorations in patterns of television viewing by preschool-age children. In E. A. Rubenstein, G. A. Comstock, & J. P. Murray (Eds.), *Television and social behavior. Vol. 4. Television in day-to-day life: patterns of use* (pp. 257-273; II). Washington, D.C.: Government Printing Office.
- Manstead, A. S., Proffitt, C., & Smart, J. L. (1983). Predicting and understanding mothers' infant-feeding intentions and behavior: Testing the theory of reasoned action. *Journal of Personality and Social Psychology*, 44, 657-671. doi: 10.1037/0022-3514.44.4.657

- Mares, M. L., & Woodard, E. (2001). Prosocial effects on children's social interactions. In D. G. Singer & J. L. Singer (Eds.), *Handbook of children and the media* (pp.183-203). Thousand Oaks, CA: Sage.
- Mares, M. L., & Woodard, E. (2005). Positive effects of television on children's social interactions: A meta-analysis. *Media Psychology*, 7(3), 301-322. doi: 10.1207/S1532785XMEP0703_4
- Mares, M.-L., & Woodard, E. (2010). Positive Effects of Television on Children's Social Interactions: A Meta-Analysis. *Media Psychology*, 7, 301-322. doi: 10.1207/S1532785XMEP0703_4
- Mussen, P., & Rutherford, E. (1961). Effects of aggressive cartoons on children's aggressive play. *The Journal of Abnormal and Social Psychology*, 62, 461-464. doi: 10.1037/h0045672
- Natl. Health Med. Res. Council., Aust. Res. Council., Univ. Aust. (2018). *National Statement on Ethical Conduct in Human Research: 2007* (Updated 2018).
- Nighbor, T., Kohn, C., Normand, M., & Schlinger, H. (2017). Stability of infants' preference for prosocial others: Implications for research based on single-choice paradigms. *PloS One*, 12, e0178818.
- O'Connor, E., Dearing, E., & Collins, B. A. (2011). Teacher-child relationship trajectories: Predictors of behavior problem trajectories and mediators of child and family factors. *American Educational Research Journal*, 48, 120-162. doi: 10.3102/0002831210365008
- Oliver, M. B., & Green, S. (2001). Development of Gender Differences in Children's Responses to Animated Entertainment. *Sex Roles*, 45, 67-88. doi: 10.1023/A:1013012401836
- Padilla-Walker, L. M., Coyne, S. M., Fraser, A. M., & Stockdale, L. A. (2013). Is Disney the nicest place on earth? A content analysis of prosocial behavior in animated Disney films. *Journal of Communication*, 63, 393-412.
- Paik, H., & Comstock, G. (1994). The effects of television violence on antisocial behavior: A meta-analysis. *Communication Research*, 21, 516-546. doi: 10.1177/009365094021004004
- Parsons, J. T., Siegel, A. W., & Cousins, J. H. (1997). Late adolescent risk-taking: effects of perceived benefits and perceived risks on behavioral intentions and behavioral change. *Journal of Adolescence*, 20(4), 381-392.
- Prot, S., Gentile, D. A., Anderson, C. A., Suzuki, K., Swing, E. L., Lim, K. M., Horiuchi, Y., Jelić, M., Krahé, B., Liuqing, W., Liao, A. K., Khoo, A., Petrescu, P. D., Sakamoto, A., Tajima, S., Toma, R., Warburton, W. A.,

- Zhang, X., & Lam, B. C. (2013). Long-term relations among prosocial-media use, empathy, and prosocial behavior. *Psychological Science, 25*, 358-68 .doi: 10.1177/0956797613503854
- Rideout, V. (2016). Measuring time spent with media: the Common Sense census of media use by US 8-to 18-year-olds. *Journal of Children and Media, 10*, 138-144. <http://doi.org/10.1080/17482798.2016.1129808>
- Robinson, T., Callister, M., Magoffin, D., & Moore, J. (2007). The portrayal of older characters in Disney animated films. *Journal of Aging Studies, 21*, 203-213. doi:10.1016/j.jaging.2006.10.001
- RStudio (2019). *Free and open-source integrated development environment (IDE) for R, a programming language for statistical computing and graphics.*, version 1.2.1335 [computer program], (RStuidiu, Inc).
- Schramm, W., Lyle, J., & Parker, E. B. (1961). *Television in the lives of our children*. Stanford, Calif.: Stanford University Press.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.
- Siegel, A. (1956). Film-Mediated Fantasy Aggression and Strength of Aggressive Drive. *Child Development, 27*, 365-378.
- Silvern, S. B., & Williamson, P. A. (1987). The effects of video game play on young children's aggression, fantasy, and prosocial behavior. *Journal of Applied Developmental Psychology, 8*, 453-462.
- SPSS (2017). *Statistical package for the social sciences, version 25* [computer program]. Chicago, IL: SPSS Inc.
- Sutton, S. (2006). Predicting and explaining intentions and behavior: How well are we doing?. *Journal of Applied Social Psychology, 28*, 1317-1338.
- Van Fleet, D. D., & Atwater, L. (1997). Gender neutral names: Don't be so sure! *Sex Roles, 37*, 111-123. doi: 10.1023/A:1025696905342
- Veerman, J. L., Healy, G. N., Cobiac, L. J., Vos, T., Winkler, E. A., Owen, N., & Dunstan, D. W. (2012). Television viewing time and reduced life expectancy: a life table analysis. *British Journal of Sports Medicine, 46*, 927-930. doi: 10.1136/bjsports-2011-085662
- Watson, G. W., Douglas, T., Berkley, R., Madapulli, R., & Zeng, Y. (2009). Are Past Normative Behaviors Predictive of Future Behavioral Intentions? *Ethics & Behavior, 19*, 414-431.

- Weaver, A. J., Jensen, J. D., Martins, N., Hurley, R. J., & Wilson, B. J. (2011). Liking Violence and Action: An Examination of Gender Differences in Children's Processing of Animated Content. *Media Psychology, 14*, 49-70.
- Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin, 132*, 249-268.

Supplemental material of the article

Table 1. Descriptive statistics of pre-assessment responses

Variable (Question addressed)	<i>M</i>	<i>SD</i>
1) Will Gaby break the flower or let it grow further? (Ans: Gaby will break the flower / Gaby will let it grow)	.92	.26
2) Do you think Gaby will play with the balloon or break the balloon? (Ans: Gaby will play with the balloon / Gaby will break the balloon)	.89	.31
3) Do you think it would be fun to see them fight or reconcile? (Ans: It would be fun to see them fight / It would be better to see them reconcile)	.86	.35
4) Will Gaby let the other child go first or Gaby will run faster to outrun the other child? (Ans: Gaby will let the other child go first / Gaby will want to be the first one)	.82	.38
5) Do you think Gaby will eat the candy or Gaby will give the candy to the other child? (Ans: Gaby will eat the candy / Gaby will give the candy to the other child)	.70	.46
6) Is Gaby going to look for the hat or Gaby will continue to play with the birds? (Ans: Gaby will go looking for the hat / Gaby will continue to play with the birds)	.83	.37
7) Would Gaby like to mock the child's toy or Gaby would like to say nice words? (Ans: Gaby would like to mock at the child's toy / Gaby is going to say nice words)	.91	.28
8) Will Gaby scribble the table with the pen or Gaby will not scribble the table? (Ans: Gaby will scribble the table / Gaby will not scribble the table)	.87	.33
9) Will Gaby take the napkin to the trash or Gaby will throw the napkin on the ground? (Ans: Gaby will take the napkin to the trash / Gaby will throw the napkin on the ground)	.91	.28
10) Will Gaby become a friend of this child or Gabi will continue walking in the park? (Ans: Gaby will become a friend of that child / Gaby will continue walking in the park)	.86	.34

Table 2. Descriptive statistics of post-assessment responses

Variable (Question addressed)	<i>M</i>	<i>SD</i>
1) Will Gaby break the flower or let it grow further? (Ans: Gaby will break the flower / Gaby will let it grow)	.76	.43
2) Do you think Gaby will play with the balloon or break the balloon? (Ans: Gaby will play with the balloon / Gaby will break the balloon)	.73	.44
3) Do you think it would be fun to see them fight or reconcile? (Ans: It would be fun to see them fight / It would be better to see them reconcile)	.72	.45
4) Will Gaby let the other child go first or Gaby will run faster to outrun the other child? (Ans: Gaby will let the other child go first / Gaby will want to be the first one)	.63	.48
5) Do you think Gaby will eat the candy or Gaby will give the candy to the other child? (Ans: Gaby will eat the candy / Gaby will give the candy to the other child)	.61	.49
6) Is Gaby going to look for the hat or Gaby will continue to play with the birds? (Ans: Gaby will go looking for the hat / Gaby will continue to play with the birds)	.68	.46
7) Would Gaby like to mock the child's toy or Gaby would like to say nice words? (Ans: Gaby would like to mock at the child's toy / Gaby is going to say nice words)	.73	.44
8) Will Gaby scribble the table with the pen or Gaby will not scribble the table? (Ans: Gaby will scribble the table / Gaby will not scribble the table)	.78	.41
9) Will Gaby take the napkin to the trash or Gaby will throw the napkin on the ground? (Ans: Gaby will take the napkin to the trash / Gaby will throw the napkin on the ground)	.78	.41
10) Will Gaby become a friend of this child or Gabi will continue walking in the park? (Ans: Gaby will become a friend of that child / Gaby will continue walking in the park)	.75	.43