

Reality, fantasy and emotional state in kindergarten children

Alexandra Maftei¹ & Cornelia Măirean^{1*}

¹ *Department of Psychology, Faculty of Psychology and Education Sciences, "Alexandru Ioan Cuza" University of Iasi, Romania.*

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The aim of the present research was to study children's ability to distinguish reality from fantasy based on individual differences in age, as well as on the valence generated by an event. Moreover, we explored the differences in emotional states generated by each type of stimuli, for each age category. A sample of 120 children from an urban kindergarten participated in the study. Each child was asked to respond to a set of questions after seeing eight pictures, different in terms of valence. The results revealed that preschool children aged 6 have a stronger ability to distinguish reality from fantasy, for each type of stimuli, compared to children aged 4 and 5. Moreover, the participants associated negative stimuli, both real and fantastic, with a higher level of negative affective state, compared to positive and also real images. The results are discussed from a socio-developmental perspective.

Keywords: kindergarten children, reality, fantasy, emotions, age.

Address of correspondence: Cornelia Măirean, Department of Psychology, Faculty of Psychology and Education Sciences, Alexandru Ioan Cuza University of Iasi, Toma Cozma Street, no.3, Iasi, 700554, Romania.
E-mail: cornelia.mairean@psih.uaic.ro

Introduction

The distinction between reality and fantasy based on age

Some researchers consider that children are able to distinguish at a very small age between reality and fantasy, somewhere between 18 months and three years (Papalia, Olds, & Feldman, 2010; Weisberg & Sobel, 2012), while others believe that the confusion between the two words persists until mid-childhood period (Bourchier & Davis, 2000). According to empirical studies in this field, at the age of 3, children recognize the difference between a dog and a dream-dog, and they can also identify the difference between something invisible (e.g. air) and something imaginary. Moreover, they can pretend and realize when someone pretends (Flavell, Green, & Flavell, 1995). At the age of 3 and, in some cases, even at the age of 2, children know that the pretending is intentional and they realize the difference between trying to do one thing and the action of simulating the same thing (Rakoczy, Tomasello, & Striano, 2004).

However, the line between fantasy and reality can sometimes be unclear. Some studies sustain that children cannot correctly distinguish reality from fantasy until the age of 12 (Flavell, Green, & Flavell, 1986; Woolley, Boerger, & Markman, 2004). In a classic series of

experiments, 3 years-old children seemed to confuse appearance and reality in different tests. For example, when they put special sunglasses that made them see fresh milk as being green, the children said that the milk is actually green, although they had just previously seen that the milk was white (Flavell et al., 1986). In another study, children aged 4 to 6 years were left alone in a room with two boxes "containing" imaginary rabbits and imaginary monsters. Although they claimed they were just pretending, most of them preferred to reach and touch the box containing an imaginary rabbit, not the box that contained an imaginary monster (Harris, Brown, Marriot, Whittall, & Harmer, 1991). However, in a partial replication of the study, the experimenter did not leave the room: he stayed with the children, inside the room, near the boxes and made it clear that the boxes did not contain real rabbits or real monsters. Given these new circumstances, when they were actually explained that there is no monster in any of the boxes, only 10% of the children actually "looked" in any of them. (Golomb & Galosso, 1995). Woolley et al. (2004) also conducted a study on preschool children: they were shown "Witch sweets" from The Candy Witch - a fantastic character which, on Halloween, replaces sweets with a new toy. After being told about the witch, children were "visited" by it and found a new toy

instead of sweets. Asked about its existence in reality, 3 years old children were extremely skeptical, compared with the 5 to 6 years old, who believed - because of the physical evidence – in her real existence. The explanation offered by researchers was a cognitive one: it is easier to doubt than to believe.

For children aged more than 3 years, magical thinking doesn't seem to appear from the confusion between fantasy and reality. Magical thinking is often used as a way to explain the events that appear to have no obvious realistic explanation (usually because children don't have any knowledge regarding those facts) or just to enjoy the pure pleasure of pretending – as in the case of believing in imaginary friends. Like adults, children are generally aware of the magic of imaginary characters, but are more willing to consider the possibility of them being real (Woolley, 1997). Magical thinking tends to decline towards the end of the preschool period (Woolley, Phelps, Davis, & Mandell, 1999).

Reality, fantasy, and emotional states

Emotions play an important role in the process of distinguishing between reality and fantasy, through their valence. One study found that preschoolers tend to place negative characters in the fantasy world and the positive characters in real world (Samuels & Taylor, 1994). In another study, 128 children with ages from 3 to 5 years old were shown images containing real and fantastic characters that generated different emotions: joy, fear, nervousness (anger) or a neutral state. In addition of identifying the generated emotion, the authors measured its intensity. The results revealed a clear bias in differentiating images (real vs. fantastic). Thus, participants were more inclined to believe that the images that generated a positive or neutral emotion were real.

However, although older preschoolers distinguished better between real and fantastic characters, this did not happen equally to all of the stimuli: images that have generated a more intense emotional response interfered with the differentiation of real vs. fantastic, even though they initially correctly identified the neutral stimuli valence (Carrick & Quas, 2006). Metlicar (2013) conducted a study about the distinction between reality and fantasy based on the valence of a stimulus in early childhood. There were taken into account differences in age, the children's wishes and the local context. The participants were 71 children, aged 3 to 5 years. They were shown images containing real and fantastic characters, each having a different emotional charge. The results showed a difference between distinguishing reality from fantasy based on age, but also an influence of stimulus' valence on the ability to distinguish reality from fantasy. Thus, children were more likely to categorize positive stimuli as real and negative as fantastic.

The present study

First, the current study aimed to examine the age differences in the distinction between reality and fantasy. Second, we wanted to explore the children ability to distinguish between reality and fantasy for both positive and negative stimuli. Third, another aim of the present study was to assess the differences in emotional states generated by each type of stimulus. Moreover, because individual age differences may interfere with the emotional state generated by different emotional events, we wanted to explore the interaction between age and type of stimulus (real vs. fantastic) in determining the emotional state. In

line with the literature presented above, we expected that: a) the capacity to distinguish reality from fantasy increases with age (Hypothesis 1); the capacity to distinguish reality from fantasy depends on the valence of the targeted item (Hypothesis 2); c) the type of stimulus (real vs. fantastic) interacts with age in determining the emotional states reported (Hypothesis 3).

For testing these hypothesis, we used a 3 (age: 4, 5, 6 years old) x 2 (type of the image: real vs. fantastic) x 2 (the valence of the image: positive vs. negative) mixed design, with age as a between subjects variable, and the type of the image and the valence as within subjects variables. The dependent variables are the ability to distinguish between reality and fantasy, as well as the emotional state generated by each picture.

Method

Participants

The sample consisted of 120 preschool children (50.8% girls) from a public kindergarten, from a North-East region of Romania. Invitation letters describing the study were distributed to families, and families agreed their children to volunteer for the study. Children's mean age was 4.69 years ($SD = .84$), range 4-6 years. Another sample of 10 children (50% girls) participated in the pretesting session.

Measures

A modified version of the *Fantasy Reality Images Interview* applied by Carrick and Quas (2006) was used. Eight images were presented to children, out of which half contained real events and the other half contained fantastic ones. The images (both the real and the fantastic ones) are equally divided into positive and negative events/characters, as following: fantastic characters and positive valence (Cinderella and Tinker Bell), fantastic characters and negative valence (the witch from the Snow White story and another one with a broom), real characters and positive valence (a girl with a cat and an old man with a child), real characters and negative valence (two children arguing and a girl crying). The pictures were chosen based on the stories that children are familiar with. Thus, the Cinderella, Tinker Bell, Snow White or the "regular" witch on a broom are familiar to all the children. Real situations presented in the images were also discussed during their classes. We avoided the use of very popular characters, such as Santa Claus or the Easter Bunny, which could easily be recognized by children.

In the pre-test session, 15 images were presented to 10 children and they were asked to include each picture in one of the following category: real-positive, real-negative, fantastic-positive, and fantastic-negative. The eight pictures that were best included in the proper category were used.

To assess the dependent variables, three questions were used, in the following order: *What do you see in this image?*, *Could this event occur in real life?*, and *How does this image make you feel?*. For the second question, a dichotomous answer was noted: 1 – correct answer, 0 – wrong answer. In order to answer the last question, every child had to select a face that best expressed how that image made him/her feel, from a scale with 5 faces (very well, well, okay, bad, very bad). This scale was printed in black and white, without colours that could influence the children's choice for a particular face.

Procedure

Permission for the study was obtained from the school authorities and principals; parents also signed consent forms prior to the children's participation. The Ethical Review Board approved the study. Each child was tested individually, in the same time interval (3-4 pm), in a different class. There were no time constraints for conducting the study. The average test-time for each child was about 20 minutes. All the children were tested by a single experimenter, familiar to them (she worked as an English teacher in the kindergarten). First, the experimenter explained the children that they will play a game with different cards. A reward consisting in a happy face sticker was promised for playing the game. The participants who agreed were included in the research. After this introductory phase, the experimenter asked each child what the terms "real" and "fantastic" mean. Supplementary explanations were added when necessary. After clarifying the two terms, the experimenter began presenting each card to the child, in a random order, followed by the three questions: *What do you see in this image*, *Could this event occur in real life?*, and *How does this image makes you feel?*. Although we used a random order, we ensured that the last picture was a positive one, in each case. For the last question, the faces-scale was used. Each answer was noted and, at the end, each child received the promised award.

Results

Preliminary results

To compare the results from girls and boys for different age category, independent sample *t* tests were used. The results revealed that there were no significant differences between boys and girls of 4, $t_{(120)}=1.79, p = 0.08$, 5, $t_{(120)} =$

$-1.988, p = 0.055$, and 6 years old, $t_{(120)} = 0.00, p = 1.00$, regarding the ability to distinguish reality from fantasy, for both positive and negative items. Moreover, there were no significant differences between boys and girls regarding the emotions generated by the four types of pictures, all $ps > .50$. Therefore, gender was not controlled in the subsequent analysis.

Testing the hypotheses

For the first hypothesis, a Multivariate Analysis of Variance was used, with age as independent variable and the ability to recognize reality from fantasy, for each type of images, as the dependent variables. The results revealed that, for the real positive and negative pictures, there were no significant differences between 5 and 6 years olds children, but the scores obtained by the 4 years old children were lower than the scores obtained by 5 and 6 years old children, $F[2, 119] = 4.94, p = .009$; $F[2, 119] = 17.29, p < .001$ respectively. For the positive fantastic items, $F[2, 119] = 26.38, p < .001$, there were significant differences between all the three groups, the best ability being shown by the 6 years old children. Finally, for the negative fantastic items, 6 years old children manifest a greater ability compared with 4 years old children, but there are no significant differences between 4 and 5 years old children, $F[2, 119] = 4.79, p = .010$. These results are presented in Table 1.

To test whether there are significant differences regarding the ability to distinguish reality from fantasy for positive and negative items (Hypothesis 2), a paired sample *t* test was used. The results revealed that there were no significant differences regarding the ability to distinguish between reality and fantasy for both positive, $t_{(119)} = -0.89, p = .370$, and negative items, $t_{(119)} = 1.33, p = .186$ (see Table 2).

Table 1. The individual differences regarding the ability to distinguish reality from fantasy, based on age

	Age						Mean difference	<i>p</i>
	4 years old		5 years old		6 years old			
	M	SD	M	SD	M	SD		
Real-positive Compared group pairs	0.97	0.91	1.47	0.78	1.47	0.75	-0.50 0.00 -0.50	.022 1.00 .022
Real-negative Compared group pairs	0.62	0.83	1.72	0.55	1.57	0.78	-1.10 0.15 -0.95	< .001 1.00 < .001
Fantastic-positive Compared group pairs	0.95	0.90	1.40	0.74	1.90	0.44	-0.45 -0.50 -0.95	.019 .007 < .001
Fantastic-negative Compared group pairs	0.95	0.84	1.02	0.91	1.50	0.81	-0.07 -0.47 -0.55	1.00 .045 .015

Table 2. The individual differences regarding the ability to distinguish reality from fantasy, based on the emotional valence

	Real		Fantastic		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Positive	1.30	0.84	1.41	0.81	-0.89	.370
Negative	1.30	0.87	1.15	0.88	1.33	.186

Table 3. The differences between groups regarding the emotional state evocated by the four types of images

	Age						Mean difference	<i>p</i>
	4 years old		5 years old		6 years old			
	M	SD	M	SD	M	SD		
Real-positive <i>Compared group pairs</i>	3.50	0.19	2.90	0.90	2.92	0.79	0.60	.026
							-0.02	1.00
							0.57	.036
Real-negative <i>Compared group pairs</i>	8.05	0.25	8.32	1.49	8.40	1.46	-0.30	1.00
							-0.07	1.00
							-0.37	.819
Fantastic-positive <i>Compared group pairs</i>	3.10	0.21	3.10	1.17	2.77	0.76	0.00	1.00
							0.32	.597
							0.32	.597
Fantastic-negative <i>Compared group pairs</i>	8.22	0.27	7.85	1.54	8.52	1.51	0.37	.891
							-0.67	.186
							-0.30	1.00

Furthermore, to assess the effect of age and the type of image (real vs. fantastic) on the emotional state generated (Hypothesis 3), a Mixed Analysis of Variance was used with age as between subject variable and the type of image as within subject variable. The results showed that the participants associated negative stimuli, both real and fantastic, with a higher level of negative affective state, compared to positive images. These results were observed for all the three age groups: 4 years old, $F[3, 119] = 142.88, p < .001$, 5 years old, $F[3, 119] = 206.39, p < .001$, and 6 years old children, $F[3, 119] = 291.84, p < .001$. Moreover, positive fantastic images were followed by a higher level of positive affective state, compared to negative real and fantastic images. There were no significant differences in the way the participants evaluated their affective state between the two types of positive images and the two types of negative images.

The results also showed that there were significant differences between the three groups concerning the emotions evocated by the real positive pictures, $F[2, 119] = 4.55, p = .012$. Specifically, participants aged 4 reported more positive affective state, compared with the 5 and 6 years old children. There were no significant differences between the last two groups. Also, there are no significant differences between groups regarding the real negative pictures, $F[2, 119] = 0.67, p = .509$, fantastic positive pictures, $F[2, 119] = 1.11, p = .332$, and fantastic negative pictures, $F[2, 119] = 1.78, p = .173$. These results are presented in Table 3.

Discussion

This study aimed to analyze the children's ability to distinguish between reality and fantasy according to their age. We also explored if this distinction is influenced by the valence (positive vs. negative) of the specific stimuli used in our study. Finally, we explored the interaction between age and the type of stimuli, varying on two dimensions (positive vs. negative, real vs. fantastic) in determining the emotional state reported by the children.

Firstly, our results showed that older children have a greater ability to distinguish reality from fantasy, supporting Piaget's theory and other related studies (Flavell et al., 1986). Differentiating between reality and fantasy is directly influenced by the evolution generated by specific age and cognitive acquisitions. Therefore, Piaget's

perspective is confirmed: cognitive development must be considered as a quantitative increase in knowledge, as a series of steps in which each point represents a specific way of thinking about the world, qualitatively different from the preceding stage.

Secondly, there were no significant differences regarding the ability to distinguish between reality and fantasy for both positive and negative items, as we first presumed. Our results also contradict Metlicar's study (2013) that confirmed significant relations between the stimulus valence and the ability to distinguish reality from fantasy. According to Metlicar (2013), children are more likely to categorize positive stimuli as real and negative stimuli as fantastic, but our results contradict the previously obtained data. Participants in the present study identified indiscriminately positive and negative images, so age and valence do not influence the way preschoolers distinguish between reality and fantasy. Thirdly, the present study indicates that positive fantastic images were followed by a high level of positive affective state, compared to negative real and fantastic images. There were no significant differences in the way the participants evaluated their affective state between the two types of positive images and the two types of negative images. Moreover, 4 year old participants reported a more positive affective state, compared with the participants aged 5 and 6. The results may be explained by the fact that smaller children's reactivity to positive stimuli is more intense than the one encountered at the ages of 5 or 6, but the lack of scientific proof regarding these differences opens a new research path. Future studies may focus on comparing the emotional response to different stimuli and its intensity in small children.

One of the main limitations identified in our study is related to the images used in the construction of the four variables, mainly those used for expressing positive fantastic characters: the two princesses, Cinderella and Tinkerbell, may be more popular fairytale characters among girls than among boys. However, we chose these images because both boys and girls participated at the same educational activities, in which they were presented the same stories. The second limitation consists of the fact that, although children had been informed that there were no right or wrong answers, there is a possibility that the participants did not give honest answers to all the studies' questions. Rewarding children's answers is a usual practice

in kindergartens, therefore answers could be given for "winning" an award of this kind. Third, the research's results may be influenced by factors such as health status. Also, the time necessary for each item generated a slight hurry to finish as fast as they could. These factors are hard to control, especially in situations when subjects are children of preschool age. Given the results obtained, for further investigation we propose a wider range of stimuli, such as audio-video materials. Also, the age groups can be expanded to 7 years old participants, along with a larger sample of participants. Given the abundance of commercials targeting children and the major impact that television has on them, especially the cartoons and commercials currently aired, we propose another variable to be introduced, consisting on the daily exposure of children (in terms of hours per day) to such programs, in order to study how prolonged exposure to TV directly influences the children's capacity to distinguish reality from fantasy.

Despite the inherent limitations, the present research has highlighted the significant role of age on how children distinguish reality from fantasy, and how the emotional state is influenced by positive or negative stimuli. Also, the obtained data supports previous researches, but they also bring more evidence: if most of previous studies only took into consideration the real or imaginary character of the used images, the present study also considered the valence of the images (positive or negative). On the one hand, the results can be used to create, modify or improve preschool education in kindergartens. On the other hand, the practical utility of the results is found in using ethics and legislation on advertising sites that target children. People involved in the decision-making regarding marketing products must not unfairly exploit children's level of imagination. They should not encourage exaggeration about the qualities and performance of the products presented to children through advertising.

As a conclusion, our results revealed that children aged 6 have a stronger ability to distinguish reality from fantasy, for each type of stimuli, compared to children aged 4 and 5. Further, the participants associated negative stimuli, both real and fantastic, with a higher level of negative affective state. Future studies with larger samples should add more evidence about the way children respond to real and fantastic events.

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