

The effect of emotions on children's ability to distinguish between reality and fantasy

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Abstract. The aim of the present research is to study the effects of emotions on children's ability to distinguish between reality and fantasy. We studied the ability to differentiate real and fantastic events presented in images depicting a happy, sad, neutral and angry emotion. We also investigated the emotion felt by the participants when looking at the images. The results show that girls make a better distinction between reality and fantasy than boys, and that real events are easier to recognize than fantastic events. The participants express a more positive emotion for real events than for fantastic events. Happy and neutral events make participants experience a more positive emotion than sad and angry ones. The results show that preschool children make a distinction between positive and negative emotions. Although evidence concerning reality/fantasy distinction in children is clear, children find it more difficult to distinguish between emotional reality and emotional fantasy.

Key words: reality fantasy distinction, emotion recognition, emotional reality, emotional fantasy, emotion intensity

I. Introduction

The first studies on children's fantasies either involve the detailed observation of the child's individual play (Griffiths, 1935; Piaget, 1962) or the normative analysis of the stories told by children, the daydreams and the relations within the play activities (Ames, 1966). Other studies on children's fantasy (Singer, 1973) emphasize the imaginative predisposition assessed through a variety of methods, some of them overlapping creativity tests.

One of the first evidences of emotion recognition, actually a rudimentary one, occurs in children even from very early ages. Wellman et al. (1995) notices that two year old children speak about theirs and other people's emotions, speaking about present but also past and future emotions. Three year old children prove that they are aware of the situations that could give rise to certain emotions (Broke, 1971), and they recognize facial emotions, understanding that the same situations do not provoke the same reactions in different people, and that it all depends on expectations and preferences (Hadwin & Perner, 1991). Harris (2000) states this proves that they have a mental understanding of emotions.

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At four to five years old, children realize that their expectancies and beliefs play an important role in determining emotions. When they are asked what emotions the characters from fictional stories feel, children take into account the beliefs and expectancies of the main character (Wellman & Banerjee, 1991). Also at this age, children understand that emotions can be controlled, and they cannot always represent a valid indicator of the felt emotions (Harris et al., 1998).

The first research on children's ability to discern between real and simulated emotions was conducted on school age children. Saarini (1979) shows that, at the age of six, children know how to describe when and why they dissimulate their emotions in front of other people.

Although there is obvious evidence related to the development of the children's ability to discern between fantasy and reality, small children show some remarkable abilities (Harris, 2000). For example, Wellman & Banerjee (1991) found that small children, more precisely three year old children, understand that physical objects can be seen and touched (manipulated) but not the mental image of the objects; additionally they can tell the difference between a physical object used in a game (for example a block) and the representation of the respective object. Young children are also aware of the perception of the object and that it is not necessary to see the object in order to imagine an object that they have never seen before.

In a study conducted on 713 children, Rosenfeld et al (1982) discovered that there are gender differences among the participants. They all have a preference for fantasy, but there is a distinction between boys who prefer heroic facts and girls who prefer the artistic fantasy, using more emotions in their plays and games.

Green (1923) noticed a decrease of the imagination in children's play between seven and twelve years old. Scheffler (1975) showed in a longitudinal study where he used TAT images that the stories told by six year old children contain fewer conflicts than when they were five years old; the stories told at the age of six are happier stories than those told at the age of eight, and they contain more elements provoking fear, such as monsters. Ames (1966) found that beginning with the ages of two up to five years old, there is an increase of violence in children's stories related to the aggressiveness in the early behaviour of children.

Sutton-Smith & Rosenberg (1960) show that girls continue the fantastic play at an older age than boys. Carlson & Taylor (2005) conducted a study on 157 three to four year old children and noticed that there are no gender differences in the verbal ability of children regarding their inclination towards fantasy, but there is a significant difference in the behaviour of the imagined character, the girls imagining play partners and the boys being more prone to play imaginary roles.

Parker & Lepper (1992) maintain that the use of fantasy helps children learn, increasing the child's motivation to learn, and the learnt material is more deeply internalized by the child when he/she comprises fantastic elements.

But the ability to emotionally distinguish between fantasy and reality can be more challenging for small children (Bourchier & Davis 2002; Harris et al. 1991, cf. Carrick & Quas, 2006). Some studies in which children are instructed to imagine various entities in boxes (puppies, monsters), both younger and older children often answer or behave in ways suggesting they think that the emotionally loaded fantastic entities are real. When they are allowed to get close to any of the boxes, most children choose the box assigned with the positive image (puppies, gifts) than the negative one (monster). Similarly, when children are asked to imagine both a positive entity (a fairy) in a box and another empty box and then they are allowed to open one of the boxes, they quickly choose to open the fairy box rather than the empty one. Bourchier & Davis (2002) explained these results by extending Harris's theory (2000) and adapting the availability theory which postulates that the process of creating a mental image increases its salience and availability. This in turn makes it more difficult for children to determine whether it is real or fantastic.

The two research studies argue that emotions continue to maintain the availability of an image even in the presence of some clear environmental signs that have proven otherwise. When the availability of the image is maintained, it increases the probability of incorrectly judging the image as being real.

Using a different research paradigm, Samuels & Taylor (1994) discovered that small children encounter difficulties when it comes to distinguishing between real and fantastic emotional events. Nevertheless, in their study, the errors made by children mainly occurred in relation with the emotional information describing reality. Therefore, Samuels and Taylor presented to three and five year old children both neutral images showing a fantastic event (for example, two cats speaking to each other) and a real event (for example, a woman picking an apple) as well as scary images showing a fantastic event (for example, a giant chasing a boy) and a real event (for example, a boy who is being arrested). Then the researchers asked the children which of the events presented in the images could happen in real life. Regarding the neutral images, the children answered them correctly; the fantastic events could not occur in real life, but the real event could. But, in the case of the scary images, the children said that both real and fantastic events could not happen in real life. In other words, children answered correctly when judging the fantastic scary events, but incorrectly when judging the real scary events.

The other two results in the study mentioned above are particularly worthy of attention. First of all, the children's errors are obvious no matter of their age, indicating the fact that both young and older preschool children experience similar difficulties regarding emotional information. Second of all, children who say they are scared of events are more likely to answer that the events could not occur as compared to children that say they are not scared. Samuels and Taylor asserted that children may have said that the negative events could not occur as a means of adjusting their excitement level, an argument also proposed by Harris (2000) who says that children can declare that the scary fantastic entities are not real as a means of decreasing their negative emotions.

Although the previously mentioned conclusions suggest that children often commit errors when judging an emotional fantasy and an emotional reality, the direction of their errors is not entirely consistent, and the mechanisms underlying the error are not clear. For example, it is unknown whether children experience similar difficulties when judging fantastic emotional information as compared to the real emotional information. It is also unclear whether emotions generally increase the errors made by children or whether the errors made by children are specific to certain types of emotional information (fear vs. happiness).

Due to the fact that discrete emotions vary both in valence and in motivational processes, by directly comparing the ability of children to distinguish between real and fantastic events embodying different emotions, can offer a new perspective on the mechanisms underlying children's ability to differentiate between emotional reality and emotional fiction. Up until now, a study has tried to compare children's judgements on reality and fiction through fear and happiness emotions. Nevertheless, the results are difficult to interpret because several of the images presenting real events include cartoon characters which could be interpreted by children as being fantastic (Dierker & Sanders, 1996).

One of the most solid conclusions of the studies investigating the understanding of fantasy by children, including those focused on emotions, is the performance variability. Even among children of the same age, some of them clearly understand the difference between fantasy and reality, while others often confuse them. By identifying the reasons why children's performance varies, it is possible to subsequently clear up the exact reasons underlying the errors committed by them.

One possible source of the individual differences consists in the intensity of the emotional reactions to the real and the fantastic information. Children, as well as adults, vary when it comes to the importance/size of answering the emotional information (Eisenberg et al. 2000; Fabes et al. 2002), and this variability can have implications on the processing and their

decisions regarding the emotional fiction and reality. For example, a child who feels a little bit of excitement or fear when he/she sees an image of a witch does not need to adjust their emotions by moving away from the image in order to avoid it. On the contrary, the child who has a strong negative reaction is expected to get involved in the adjustment strategies of emotions in order to reduce the excitement (for example, saying that the image/event could not occur).

Until now, few researches have investigated the relationship between children's emotional experiences and the understanding of the emotional fantasy. An exception is the study conducted by Samuels and Taylor (1994) regarding children's ability to differentiate between scary fantasy and reality. Children who say they are scared of events are more likely to assert that the scary events could not occur rather than children that do not say they are scared. A more clear understanding of the manner in which children's emotional experiences influence their decisions can be obtained through the systematic assessment of the reactions to different types of emotional images.

Another important characteristic refers to children's preference to the fictional play or their desire to get involved in imaginative activities (Sharon & Woolley, 2004). Two opposite possibilities are proposed regarding the relationship between children's imaginary orientation and their ability to distinguish between reality and fantasy. On one hand, children who are engaged in fictional play for a longer period of time may develop a series of abilities, facilitating their capacity to distinguish between fantasy and reality, in a similar manner to the positive effects of the expertise on other cognitive tasks (Schneider & Bjorklund, 1992).

According to this possibility, Sharonn & Woolley (2004) found that those children who have a high preference for imaginary play are more accurate when asked to separate the images into reality and fiction than children who do not have these preferences. On the other hand, children who engage in fictional play for a longer time may confuse the borders between fiction and reality. Moreover, Woolley, Boerger & Markman (2004) found that those children assessed as fanciful are more inclined to believe that the imaginary entity actually has visited their house rather than children identified as less fanciful.

In their studies, Carrick & Quas (2006) examined the ability of three and five year old children in order to discern between emotional evocative images, both real and fantastic, presenting happy, scary, angry and neutral events. Children view the images and then they say whether the events could occur in real life as well as the intensity of their emotional reaction to these images. In the end, children answer the questions regarding the extent to which they got involved in the play and enjoyed the fictional play.

Based on previous studies, Carrick and Quas formulated several hypotheses for their study. First of all, they expect general age related improvements in children's ability to differentiate between reality and fantasy, no matter the information content (Woolley & Phelps, 1994; Woolley & Wellman, 1993).

Second, according Samuels & Taylor (1994) children's decisions can vary depending on the emotional content of the images. Generally speaking, it is expected that younger children give a greater number of correct answers (for example, to answer that the fantastic events could not occur, but the real ones could) when the images describe neutral events as compared to emotional events. Moreover, children give a greater number of correct answers for scary fantastic events than for happy fantastic events and a greater number of correct answers for happy real events rather than scary real events. These predictions are based on differences in emotion adjustment and approach-avoidance processes associated with the two emotions: for scary events, children must specify that the fantastic and real events could not occur in order to avoid the negative content and to adjust their emotional reactions (Harris, 2000; Samuels & Taylor, 1994); for happy events, children must say that the fantastic and real events could occur in order to maintain a positive emotional state.

Two opposite hypotheses are formulated regarding children's decisions in relation with the images that describe angry events. If the events describing anger recall approaching motivations, children should assess angry events similarly to the happy ones and say that the angry events (both real and fantastic) could occur more often than scary events. Nevertheless, if angry events motivate children to resort to emotional adjustment strategies such as avoidance, they should assess the angry events in a similar way to the scary ones and say that negative events (both real and fantastic) could not occur more often than happy events.

In conclusion, according to Samuels & Taylor (1994), children's emotional reactions to images are expected to be linear and associated with their distinction between fantasy and reality. Thus, no matter the fantastic content, it is expected that the increase of children's positive assessment be associated with the increase of the tendency to answer that these events could occur. On the contrary, the increases in children's assessments of the scary images as being negative are associated with the increase of the tendency to answer that these events could not occur. Regarding angry events, the association direction between children's emotional reactions and the distinction between reality and fiction is expected to vary if the emotional adjustment strategies are activated.

Carrick & Quas (2006) tested 128 participants, aged between three and five. The conclusions reached by the researchers are the following: the

conclusions of their study show that older children make a better distinction between fantasy and reality than younger children. These results are in agreement with the previous research suggesting that older preschool aged children have a more profound understanding of the fictional limits (Estes et al.1989; Woolley & Phelps, 1994). Nevertheless, age does not interact with the emotional content of the images. Therefore, although older children give a greater number of correct answers as compared to younger children, emotion does not affect children's performance in a differentiated manner. The emotional valence described in events affects the ability of children to distinguish between reality and fiction. Concerning fantastic events, children say that neutral and happy events could occur in real life more often than scary and angry events. They answer the same for real events. In other words, children presented an error in their answers and no matter the fantastic content; it is more likely that they would say that neutral and happy events could occur in real life rather than scary and angry events. This characteristic is obvious no matter the age and the controlled verbal intelligence. Moreover, children's desire to say that an event could occur, again no matter the fantastic content, has increased.

There are explanations that could be valid for these errors.

First of all, children may have used the answers to the question "Can this image occur in real life?" as a means of adjusting their emotional reactions. By saying that positive events can occur, children increase their experience of positive feelings. By saying that negative events cannot occur, children could reduce their negative excitement as a result from viewing images (Samuels & Taylor, 1994). Harris (2000) similarly suggests that sometimes children try to detach themselves from the negative excitement of fiction. Generally, when children become captivated by fantasy, they suspend the idea that the fantasy is not real, focusing their attention far from the ontological origin of the information (for example, the information which comes from fantasy). Nevertheless, when fantasy causes fear or negative excitement, children switch their attention back to the origins of information in order to remember that the information is not real. The purpose of this attention switching is to reduce children's excitement. Adults can use a similar strategy, for example, by saying "it is just a movie" while watching a horror movie (Harris 2000).

The second explanation for these findings is that children's decisions reflect their wish that positive events occurred and negative events did not occur (Woolley, 1997). For example, children may know that certain positive events, such as mice wearing dresses, having the ability to dance, cannot occur in real life, but they find the idea appealing and wish it could happen. Children can also understand that certain negative events may occur in real life; they might even witness some of these events (for example, a

parent yelling at their child). Nevertheless, children's fundamental wish that these events did not occur could be more obvious than their knowledge thus influencing their answers. Such a possibility is in line with the findings of Ceci et al (1994) who interviewed children aged between three and six years old concerning positive events (for example, going on a trip with a hot air balloon) and negative ones (for example, falling down from a tricycle, needing stitches for the wound) that would actually never happen.

Carrick & Quas (2006) agree that the results of the research do not support the idea that the availability of the emotional information increases the confusion between fantasy and reality. That's why Bouchier & Davis (2002) suggested that this emotional content serves for maintaining the fantasy's availability, which leads to the increase of the perception that the fantasy is real.

Considered together, the two proposed explanations converge towards a wider notion, more precisely, the fact that the motivational processes underlie children's decisions. Children get close or engage in positive events (saying that the events could occur in real life) and they move away or detach themselves from negative events (saying that the events could not occur in real life). Similarly, the motivation of getting close – moving away influenced children's performance in previous studies: children, in a selective manner, get close to the positive entities and move away from the negative entities imagined in a box (Bouchier & Davis, 2000). It is important that the getting close – moving away models found in this study are not entirely according to the typical motivational process associated with discrete emotions. Children answered to angry events in the same way as they answered to scary events by saying that these events could not occur in real life. It is unlikely and untrue that these children merely confused the scary events with the angry ones.

Aim of the research

The aim of the present research is to study the effects of discrete emotions on children's ability to distinguish between reality and fantasy. If there are differences between girls and boys in making this distinction, which events (real or fantastic) are more often recognized by children and for which type of emotion is the distinction between reality and fantasy better made? The emotional reaction of the participants is also studied regarding real and fantastic events as well as happy, sad, neutral and angry emotions.

Hypotheses

1. Girls make a better distinction between reality and fantasy than boys.
2. Real events are recognized to a greater extent than the fantastic events.
3. The distinction between reality and fantasy is best made in the case of positive (happy and neutral) events than in the case of negative (sad and angry) events.
4. The participants express a more positive emotion in relation with real events than fantastic events.
5. The happy and neutral events determine the participants to express a more positive emotion than the sad and angry events.
6. In the case of happy events, girls express a stronger positive emotion than boys and in the case of angry events boys express a stronger positive emotion than girls.
7. The real happy and real neutral events determine the participants to express a more positive emotion than the fantastic happy, respectively fantastic neutral events.

II. Method

Variables and experimental design

The independent variables are: 1. Gender (female and male-between subjects), 2. Type of event (real and fantastic-within subjects), 3. Type of emotion presented in a single image (happy, sad, neutral and angry-within subjects).

The dependent variables are: 1. Ability to distinguish between reality and fantasy, 2. Emotional reaction to the event presented in the images.

The control variables are: orientation towards fantastic vs. non-fantastic activities and understanding of the language.

The experimental design of the present research is 2x2x4 mixed.

Participants

The participants selected both for pretesting and for research were chosen according to age criteria. The participants are preschool children, age between 3 and 6 years old from different kindergartens from the town of Botoşani. ($M=4.2$; $SD=.05$). 10 children, 5 boys and 5 girls, participated in the pretesting and a total number of 60 participants, in an equal number of 30 boys and 30 girls, took part in the research.

Instruments

Three measures are used in the present research.

First is a modified version of the *Fantasy Reality Images Interview* applied by Carrick and Quas (2006). 24 images are presented to children, out of which half contained real events and the other half contained fantastic ones. The 12 images (both the real and the fantastic ones) are equally divided according to the four emotional states: neutral, happiness, sadness and anger. (Table 1)

	Fantastic	Real
Neutral	Fish in a bird's nest	Butterflies
	Mouse studying	Squirrel in a tree
	Dressed cat and dog	Cow grazing grass
Happiness	Dressed and smiling panda	Mother hugging her children
	Dressed mice dancing	Mother together her with two children
	Giant together with his buddy, a boy	People celebrating
Sadness	Sad dragons	Sad family
	Dragon broke an egg	Child crying
	Chained dragon	Little girl broke the doll
Anger	Angry dinosaur	Father yelling at the child
	Ducks quarrelling	Mother quarrelling with her child
	Mother cat yelling at its kittens	Children quarrelling

Table 1. The content of images presented to the children cross referenced by event type and emotion

Each image was selected based on the description made by Carrick and Quas (2006), only changing an emotion, fear with sadness. In choosing the 24 images, some criteria have been taken into account, that is: the images must be sketched in realistic lines, in black and white, and they should not be pictures. None of the images present popular characters, such as Santa Claus or the Easter Bunny which could easily be recognized by children.

After seeing each image, children are asked three questions, 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?*. At the last question, a scale including 5 faces, from a wide smiling face to an angry face is presented to the child, and the child is asked to point with their finger the face that best expresses how the respective image makes him/her feel (very

well, well, okay, bad, very bad). This instrument was pretested on 10 children. (Alpha =.85)

The second measure is the *Play Behaviour Questionnaire* of Carrick and Quas (2006). This instrument measures how much children enjoy getting involved in four fantastic activities and four non-fantastic activities (real). (Table 2).

Fantastic activities	Non-fantastic activities
To pretend to be someone else	To play catch
To play school (to pretend to be a teacher or a pupil)	To ride the bicycle
To watch puppet theatre	To play hide and seek
To pretend to be an animal	To make a puzzle

Table 2. Item description for *Play Behaviour Questionnaire*

A scale with three faces (wide smile, soft smile and a horizontal line in the place of the mouth) is presented to the children after each activity, and they are asked how much they have enjoyed performing the respective activity (a lot, a little, not at all). This measure was pretested on 10 children. (Alpha =.70)

The third measure is Susan Ruffell’s (2008) *Picture Vocabulary Test*. The test is comprised of 14 sets of 6 images each, plus an accommodation to the test set. The child is told: *I will show you a card with 6 images, then I will tell you a word and you have to show me (point with your finger) the image that represents the word*. This activity continues on with the other sets of images until the task has ended or until the child gives one single correct answer per set.

Procedure

The participants selected for this research were chosen according to age criteria, being preschool children age between three and six years old from different kindergartens. After receiving the approval of their kindergarten teachers to involve these children in this research, each of the participants was asked if he/she wanted to play a game with images. The participants who agreed were included this present research.

First, the *Fantasy Reality Images Interview* is applied. After seeing each image, the child is asked three questions, 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?*. At the last question, a scale including 5 faces, from a wide smiling face to an angry face is presented to the child and the child is asked to point with their finger the face that best expresses how the respective image makes him/her feel (very well, well, okay, bad, very bad).

Then, the *Play Behaviour Questionnaire* is applied to the participants. Their task is to answer 8 questions on how much they enjoy getting involved into fantastic activities and non-fantastic activities (real). A scale with three faces (wide smile, soft smile and a horizontal line in place of the mouth) is presented to the children after each activity, and they are asked how much they have enjoyed performing this respective activity (a lot, a little, not at all).

At last, the *Picture Vocabulary Test* is applied. The child is told: *I will show you a card with 6 images, then I will tell you a word and you have to show me (point with your finger) the image that represents the word.* The activity is continued with the other sets of images with all children completing the task.

III. Results

We ran an independent sample t test to explore *gender differences for control variables* language development (*Picture Vocabulary Test*) and orientation towards fantastic vs. non-fantastic activities (*Play Behaviour Questionnaire*). The results show no significant gender differences: *Picture Vocabulary Test*, $t(58)= 1.53$, $p= .13$; *Play Behaviour Questionnaire*, $t(58)= .43$, $p=.66$. The male and female participants do not differ in their language understanding or in orientation towards fantastic vs. non-fantastic activities. These results support the results reported by Carrick & Quas (2006).

To test the *distinction between reality and fantasy* we ran an ANOVA Repeated Measures 2 (gender male/female-between subjects) x 2 (event type real/fantastic-within subjects) x 4 (emotions happy/ sad/ neutral/ angry-within subjects). The dependent variable was the participants' answer to the question "*Could this event occur in real life?*". The answers were yes/no coded as 1/0 if they were correct/incorrect. We calculated a score for every category of images, adding up the scores for the three images in that category (see Table 1). These scores vary from 0 to 3. Higher scores indicate better recognition.

To test the *intensity of emotion experienced by the participants* we ran an ANOVA Repeated Measures 2 (gender male/female-between subjects) x 2 (event type real/fantastic-within the subjects) x 4 (emotions happy/ sad/ neutral/ angry-within the subjects). The dependent variable was the participants' answer to the question "*How does this image make you feel?*". The dependent variable was measured using emoticons which were coded from 1=very good to 5= very bad. A high score indicates a negative emotion.

The first hypothesis according to which the girls make a better distinction between reality and fantasy than boys is confirmed. ANOVA showed a *main effect of gender* on the reality/fantasy distinction $F(1, 58)=$

51.37; $p < .001$, girls make a better distinction between reality and fantasy than boys; $M_{\text{female}} = 2.52$ ($SD = .07$); $M_{\text{male}} = 1.77$ ($SD = .07$).

The second hypothesis that real events were recognized to a greater extent than the fantastic events is confirmed. ANOVA showed a *main effect of event type* on reality/fantasy distinction $F(1, 58) = 14.49$; $p < .001$, where the real events are recognized better than fantastic events. $M_{\text{real}} = 2.42$ ($SD = .03$); $M_{\text{fantastic}} = 1.87$ ($SD = .11$).

The third hypothesis that the distinction between reality and fantasy is better made in the case of positive (happy and neutral) events than in the case of negative (sad and angry) events is not confirmed. ANOVA showed a *main effect of emotion type* on reality/fantasy distinction $F(3, 174) = 39.44$; $p < .001$. Contrasts show a significant difference between angry events which are better recognized $M = 2.45$ ($SD = .05$) and sad events which are the least recognized $M_{\text{sad}} = 1.60$ ($SD = .11$);

The fourth hypothesis that the participants expressed a more positive emotion in relation with real events than for fantastic events is confirmed. There is a *main effect of event type* presented in the image on the emotion experienced by the participants $F(1, 58) = 95.10$; $p < .001$; real events elicit more positive emotion felt by the participants than fantastic events. $M_{\text{real}} = 6.57$ ($SD = .13$); $M_{\text{fantastic}} = 8.95$ ($SD = .22$);

The fifth hypothesis that happy and neutral events make the participants experience a more positive emotion than sad and angry events is confirmed. There is a *main effect of emotion type* presented in the image on the emotion experienced by the participants $F(3, 174) = 61.19$; $p < .001$; happy and neutral events elicit a more positive emotion felt by the participants than angry and sad events; $M_{\text{happy}} = 6.70$ ($SD = .10$); $M_{\text{neutral}} = 6.85$ ($SD = .20$); $M_{\text{sad}} = 7.50$ ($SD = .18$); $M_{\text{angry}} = 10.00$ ($SD = .32$);

The sixth hypothesis that in the case of happy events, the girls express a stronger positive emotion than the boys and in the case of angry events the boys express a stronger positive emotion than girls is confirmed. There is an *interaction effect between emotion type and gender* on the emotion experienced by the participants, $F(3, 174) = 3.58$; $p = .01$ (means and standard deviations in Table 3); positive events (happy and neutral) elicit a more positive emotion in the girls and angry events elicit a more positive emotion in the boys (Figure 1).

The seventh hypothesis that the real happy and real neutral events elicit a more positive emotion than the fantastic happy, respectively fantastic neutral events is confirmed. There is an *interaction effect between emotion type and event type* on the emotion experienced by the participants, $F(3, 174) = 76.30$; $p < .001$ (means and standard deviations in Table 3); positive events (happy and neutral) elicit a more positive emotion in reality, but sad events elicit a more positive emotion when they are fantastic (Figure 2).

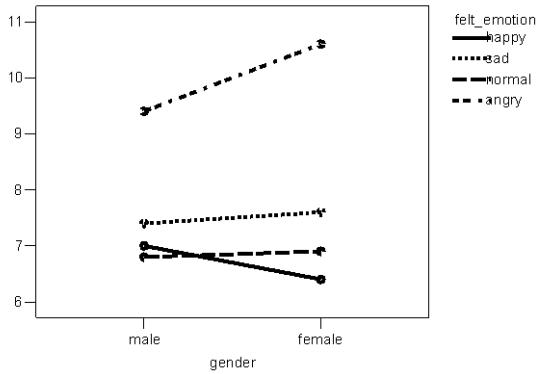


Figure 1. Gender and emotion interaction in emotional reaction

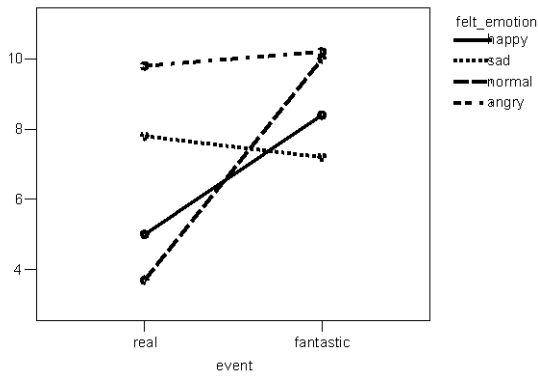


Figure 2. Event type and emotion interaction in emotional reaction

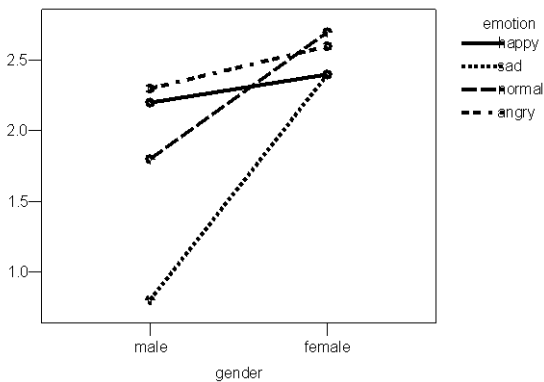


Figure 3. Gender and emotion interaction in distinguishing real and fantastic events

		Emotional reaction		Real fantastic distinction	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male	Happy	7.00	.14	2.20	.08
	Sad	7.40	.25	.80	.15
	Neutral	6.80	.29	1.80	.08
	Angry	9.40	.45	2.30	.07
Female	Happy	6.40	.14	2.40	.08
	Sad	7.60	.25	2.40	.15
	Neutral	6.90	.29	2.70	.08
	Angry	10.60	.45	2.60	.07
Real	Happy	5.00	.15	3.00	.00
	Sad	7.80	.19	1.30	.08
	Neutral	3.70	.09	2.80	.04
	Angry	9.80	.33	2.60	.08
Fantastic	Happy	8.40	.22	1.60	.11
	Sad	7.20	.21	1.90	.16
	Neutral	10.00	.42	1.70	.12
	Angry	10.20	.48	2.30	.11

Table 3. Means and standard deviations of scores for the four emotions depending on gender and type of event

Other results

There is an *interaction effect* between emotion type and gender on reality/fantasy distinction $F(3, 174) = 29.00$; $p < .001$ (means and standard deviations in Table 3); boys distinguished less between reality and fantasy when the event was neutral or sad, while girls were not influenced by emotion type (Figure 3).

There is an *interaction effect* between emotion type and event type on reality/fantasy distinction $F(3, 174) = 97.06$; $p < .001$ (means and standard deviations in Table 3). Positive emotions (happy and neutral) are better recognized in reality. Sad emotions are better recognized in fantastic events. (Figure 4)

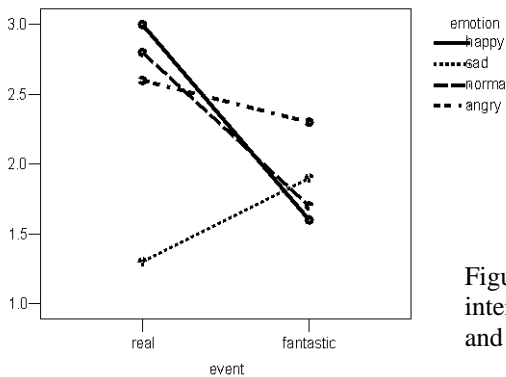


Figure 4. Event type and emotion interaction in distinguishing real and fantastic events

There is an *interaction effect between emotion type, gender and event type* on the reality/fantasy distinction $F(3, 174) = 28.19; p < .001$. There is an *interaction effect between emotion type, event type and gender* on the emotion experienced by the participants $F(3, 174) = 4.87; p = .003$.

IV. Discussion

The aim of this present research is to observe the effects of the discrete emotions on children's ability to distinguish between reality and fantasy. We were interested in finding out whether there are differences between girls and boys when it comes to making this distinction, which events (real or fantastic) are more recognized by children, and which type of emotion influences most the distinction between reality and fantasy. The emotional reaction of the participants is also studied in the case of real and fantastic events as well as in the case of happy, sad, neutral and angry emotions.

The previous research showed that young children distinguish between fantastic and real characters and that (depending on the method and the type of the task) this ability increases from three to six years old (Woolley & Cox, 2007). Carrick & Quas (2006) noted in their study that older children (5-6 years old) manage to make a better distinction between reality and fantasy than younger children (3-4 years old). These results are according to the previous research suggesting that older preschoolers have a more sophisticated understanding of the limits of fantasy (Woolley & Wellman, 1993). Nevertheless, age does not interact with the emotional content. When emotions are involved, older children (5-6 years old) do not perform better than younger children (3-4 years old) in distinguishing between reality and fantasy.

The understanding of the language and the orientation towards fantastic and real plays was measured in order to control for the differences between the scores obtained by children at the two variables. This present study emphasizes the fact that there are no significant differences between boys and girls regarding language understanding and play orientation. These results are also supported by the previous research conducted by Carrick & Quas (2006). They noticed that there are no gender differences in the orientation towards fantastic or real plays.

The first hypothesis that girls distinguish reality and fantasy better than the boys reality and fantasy than boys has been confirmed. We found a main effect of gender on the distinction between reality and fantasy favouring the girls' performance, which confirms the first hypothesis of the study. Although previous studies do not show gender differences in the reality-fantasy distinction, other studies (e.g. Rosenfeld et al, 1982) show that all children prefer fantasy, but girls prefer fantastic artistic events, while

boys prefer fantastic heroic events. We came up with this hypothesis based on the type of images we used in our study. These images present daily activities, even for the fantastic events and this could favour girls in better recognizing reality from fantasy.

The second hypothesis that real events are recognized to a greater extent than fantastic events has been confirmed. We found a main effect of the independent variable type of event on the distinction between reality and fantasy showing that real events are better recognized than fantastic events, which confirms the second hypothesis of the study. Harris, (2000), Wellman & Banerjee (1991) show that children one to five year old discern well between fantasy and reality, and with age there is a decreased preference for fantasy. Children know which events are real and that they could happen to them. For fantastic events the recognition is sometimes less clear because they tend to wish that some fantastic events are real.

The third hypothesis, the distinction between reality and fantasy is superior for happy and neutral events than for sad and angry events; this has not been confirmed. In this present study the distinction between reality and fantasy was best for angry events and worse for sad events. These results are partially in contradiction with the findings of Carrick & Quas (2006), Ceci et al (1994) and Wolley (1997). They concluded that children say that neutral and happy events could occur more often than scary and angry events. Samuels & Taylor (1994) show that children's decisions can vary depending on the emotional content of the images when the images describe neutral events as compared to emotional events. Moreover, children give a greater number of correct answers for scary fantastic events than for happy fantastic events and a greater number of correct answers for happy real events than scary real events.

The fourth hypothesis according to which the participants expressed a more positive emotion in the case of real events than in the case of fantastic events was confirmed. We found a main effect of the type of event on the emotional reaction; in real events, the participants reported a more positive emotion, which confirms the fourth hypothesis of the study.

Wellman & Banerjee (1991) found that three year old children understand that physical objects are real but not the mental image of the objects; Harris (2000) showed that preschoolers have a good understanding of what is real or fantastic. Bouchier & Davis (2002) show children's preference for positive entities in both real and fantastic events. Moreover the fantastic positive entities are considered to be real. Real events, especially neutral or happy events are preferred because they are more accessible to children through their daily experience and children know they could really happen.

The fifth hypothesis, that happy and neutral events make the participants experience a more positive emotion than sad and angry events, was confirmed. We found a main effect of the type of event on the emotional reaction, showing that neutral and happy events elicited a more positive emotion than sad events but not angry events, which partially confirms the hypothesis of the study. These results are also partially supported by the research conducted by Carrick & Quas (2006). Their post hoc comparison shows that children have assessed happy images in a positive manner more than neutral, scary and angry images. Moreover, scary and angry images have been assessed in a more negative manner than neutral images. These predictions are based on the differences in emotion adjustment approach/avoidance processes associated with the two emotions: for negative events, children must emotionally 'move away' to avoid the negative content and to adjust their emotional reactions (Harris, 2000; Samuels & Taylor, 1994); for happy events, children must 'close in' in order to maintain their positive emotional state (Eisenberg et al., 2000; Fabes et al., 2002).

For the sixth hypothesis, it has been confirmed that in the case of happy events, girls express a more positive emotion than boys and the in the case of angry events, boys express a stronger positive emotion than girls. We found a significant interaction effect between the type of emotion and gender on the emotional reaction, which confirms the hypothesis. Ames (1966) showed that in preschool years there is a decrease in preference for fantasy and an increased preference for aggressive events, with the increase of a general level of aggressiveness in preschool years.

The seventh hypothesis of this present study, that happy real and neutral real events make the participants express a stronger positive emotion than happy fantastic, respectively neutral fantastic events, has been confirmed. We found a significant interaction effect between the type of emotion and the type of event on the emotional reaction, confirming the hypothesis. Real happy and real neutral events determine the participants to express a stronger positive emotion than fantastic happy, respectively fantastic neutral events. This goes in line with Samuels & Taylor's (1994) conclusions about children's preference for positive versus negative events as well as with Ceci et al (1994) and Wolley (1997); these results show children's preference for real events.

Conclusions

One of the most consistent conclusions of the previous studies investigating the understanding fantasy/reality distinction, including those studies focused on emotion, is the performance variability. Even among children of the same age, some clearly understand the difference between fantasy and reality, while others constantly make confusions between them.

By identifying the reasons why children's performance varies, it is possible to subsequently clear up the exact reasons underlying the errors committed by children.

Our results show that preschool children make a distinction between positive and negative emotions; their recognition of distinction between reality/fantasy as well as emotional reactions to a real or fantastic event, are influenced by the type of emotion. Although evidence concerning reality/fantasy distinction in children is clear, children find it more difficult to distinguish between emotional reality and emotional fantasy. Also there are significant differences between boys and girls when it comes to distinguishing emotional reality from emotional fantasy, girls being less influenced than boys by the emotion depicted in the images, especially for sad events. Emotional reactions to the events presented are also different for boys and girls. Girls experience a stronger positive emotion for happy events, while boys report a stronger emotion for angry events.

One of the limits of this research is the fact that the participants are only preschool children from kindergartens in Botoşani and in order to generalize the results, we should have had participants from different towns and social backgrounds.

The results of this present study may have been biased by the measures we used, because they were not the exact images used in previous studies. For the "sadness" emotion, we could not find images, and they were taken from other sources which could explain the inconsistency of the answers with the images of the respective emotion.

Future directions of this research may include a measure for children's make-believe performance to a certain task. This dimension requires children to perform (show) a serious pretence of actions, such as, to brush their teeth without a toothbrush, to comb their hair without a hair brush, to sing into a microphone, to cut a piece of paper without using scissors, etc. Thus, we believe that by performing all these actions, children may use a part of their body in order to symbolize the respective object or use an imaginary object. This could influence their perception of reality/fantasy.

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