

Agnieszka Bienkowska*

Belief in the causative power of words as a manifestation of magical thinking in late childhood

The purpose of the research was to present one of the manifestations of magical thinking in late childhood, i.e. belief in the causative power of words, and relations between this phenomenon and language. One hundred and three primary school students (43 girls and 60 boys), grades 4 to 6, aged 10 to 13 were studied. A significant relation was found between belief in the direct effect of words on reality, and correct comprehension and number of phraseological units concerning the causative power of words.

Keywords: magical thinking, late childhood, language, phraseological units

Introduction

Positive psychology adopts a specific view of human nature. It focuses on those properties of the human psyche that enable people to live a good, happy, effective, and creative life. It emphasizes people's capabilities and their ability to overcome difficulties and solve problems.

Psychological well-being depends on many factors. However, one of the most important determinants is sense of control – the degree to which people feel they have control over important events in their lives (Trzebińska, 2008).

Self-ascribed ability to control the environment does not always correspond with reality. However, when real control is impeded or impossible, the illusion of control may be a positive phenomenon in terms of human psychological adaptation.

Magical thinking is at the roots of beliefs which provide the illusion of control over events. Due to the progress of civilization, the development of technology, and the popularization of access to such media as television or the Internet, magical beliefs can easily penetrate human consciousness (cf. Gregory, 1975). TV programs addressed to the youngest viewers often present an unreal world people with figures endowed with the ability to control the world by means of magic formulas and symbolic gestures. Contemporary research findings in the field of psychology support the view that both belief in magic and magical

thinking are present at different stages of human life during childhood and adulthood (Subbotsky, 2004b; Woolley, 1997).

Belief in the causative power of words as a manifestation of magical thinking

Researchers' reflections on the meaning and manifestations of magical thinking in children are based mainly on Piaget's classical theory of cognitive development (1926). According to Piaget, the sources of magical thinking in children include two factors: the special relationship between child and parents, and cognitive realism. By reacting to their child's signals, parents contribute to development of the belief that one can have an impact on the outside world. Cognitive realism means young children's typical tendency to confuse the internal world (the world of psychological phenomena) with the outside world (the world of physical phenomena). Cognitive realism breeds the belief that one can have direct impact on reality by means of such mental products as thoughts, wishes, images, words, and symbolic gestures. Children view mental products as the cause of changes in the outside world. According to Piaget, children use words and names to have an impact on the outside world because they confuse names with things. In the child's mind the sign is inextricably linked with the signified.

* Institute of Applied Psychology APS, ul. Szczęśliwicka 40, 02-353 Warsaw, Poland, e-mail: abienkowska@aps.edu.pl
The research was conducted within the framework of research project BW 1/09-II

Similar views concerning the sources of belief in the causative power of words can be found in cultural anthropology (Buchowski, 1993). There, the special meaning attributed to magic flows from the deeply-rooted belief that an object's name is one of its immanent elements. [An interesting example is the Eskimo people's view that human beings consist of a body, a soul and a name (Trebjašanin, 1987)]. The above-mentioned belief gives rise to another belief concerning the way in which words influence reality: in some cases, the act of naming a thing starts its existence, the influence on a word (for example, a name) is identical with the influence on an object or a person expressed by the word. The utterance of particular formulas initiates a magical action which leads to changes in reality.

Belief in the causative power of words is apparently an important manifestation of magical thinking. One can attempt to identify some of the rational reasons for the great durability of this belief (Trebjašanin, 1987). People affect each other by means of words: words provoke emotions and actions. They help people to plan, control and assess those actions that change reality to some extent. Thus, little is needed to create the belief that words can also influence the world of objects and physical phenomena.

Children's beliefs in the power of words in light of empirical studies

Only a few of the significant empirical studies on magical thinking are concerned with the belief that words can change reality. They include a series of studies on the influence of magic formulas. In Subbotsky's study (1994), four-, five- and six-year-old children were told a fairytale about a girl who was presented with a magic glass box. After saying a magic formula, the glass walls became "like air". The box contained a variety of objects. Next day, the children were presented with a magic box. They were reminded of the magic formula and encouraged to take an object from the box. The box which the children were shown was identical with the one in the fairytale. The children were then reminded of the magic words. They were encouraged to try to remove an object from the box. They were promised a reward. Most four-, five-, and six-year-olds tried to remove the object with the help of the magic formula and most of them vehemently expressed their disappointment when they failed. The findings of this study raise some reservations due to a strong element of pressure and suggestion in the procedure. The experimenter's authority rather than belief in magic may have affected the findings. Other child studies by the same researcher raise similar reservations.

Subbotsky was interested not only in children's behavior viewed as the manifestation of belief in the power of magic

formulas but also in children's beliefs about this subject. In one study (Subbotsky, 2001), 6- and 9-year-old children watched the sudden destruction of a postage stamp kept in an empty wooden box. In some cases the experimenter cast a magic spell on the box prior to destruction. The vast majority of children accepted the possibility that the experimenter's words could have caused the damage to the postage stamp.

A similar procedure was implemented in a study with four-, six-, and nine-year-olds and adults (Subbotsky, 2004a). The study focused not only on the possibility of destroying objects by saying a magic formula but also on the possibility of causing objects to disappear, appear, or come back to life. Younger children (4- and 6-year-olds) accepted explanations of magic object transformation whereas 9-year-olds and adults did not. According to Subbotsky (2004b), children become skeptical about the possibility of influencing reality via magic means between 6 and 9 years of age.

Magical beliefs coexist with rational beliefs and under certain circumstances may also emerge in adults. This was demonstrated by studies with adults. The studies were concerned with belief in the influence of magic spells on participants' future lives. Magical beliefs surface during stressful military operations (Keinan, 1994) and when a magic formula is uttered when at risk of bodily injury (Subbotsky, 2001) or negative changes in one's future life (Subbotsky, 2005, 2007, 2009).

Certain manifestations of belief in the causative power of words can be found in studies of children's understanding of the meaning of wishes, whether uttered or just thought. Preschool children already know that "to make a wish" means something more than "to want something". They know that the former requires words and is a sign of magic (Woolley, Phelps, Davis, & Mandell, 1999). As many as 71% of younger preschool children believe that wishes have the power to influence reality. It is worth mentioning however, that as opposed to beliefs concerning the effectiveness of magic spells, as far as wishes are concerned, desire for wish fulfillment is more important than words (Vikan & Clausen, 1993).

There are no empirical studies of the causative power of predictions. In this case, the content of what one says (or thinks about) is especially significant because it determines a person's future. While deliberating on the sources, manifestations, and functions of magical thinking, Piaget (1926) quoted examples demonstrating that the above-mentioned phenomenon can be treated as a manifestation of magical thinking.

Language and the development of magical thinking

Magical thinking may be shaped, to some extent, by everyday language, the language that is strictly related to the culture in which one grows up. An interesting example of the relation between language and culture can be found in the results of the studies performed by Nguyen and Rosengren (2004). These researchers studied European Americans and Vietnamese Americans (children and adults) and were interested in beliefs about the causes of somatic diseases. Participants were presented with stories about the sick and then asked to express their opinions on possible causes of their conditions. Compared with European Americans, adults of Vietnamese origin more often indicated magical causes of diseases, for example casting a wicked spell or breaking a mirror. Participants of Vietnamese origin also claimed that the very fact that they spoke Vietnamese (the research was conducted in participants' mother tongue) induced them to accept magical explanations.

Clear relations between language and way of thinking were also found in studies conducted by Raman and Winer (2002). These studies were not directly related to the issue of magical thinking but they clearly show how language can provoke irrational thinking. The adult participants were presented with a story where two people were talking about a man who used to steal, lie and plunder. Recently, the man was taken ill. In some versions of the story, one of the interlocutors said: *"What goes around comes around"*. It turned out that the way of thinking about the causes of the illness was clearly influenced by the occurrence of this saying. The majority of participants declared that the man's illness was punishment for his previous wicked deeds (immanent justice). Using a similar procedure, Raman and Gelman (2004) obtained analogous results. Participants included adults and school-age children. Based on the results obtained in this study, it was found that the maxim had a significantly stronger impact on adults' way of formulating conclusions about the causes of the man's illness. This effect was significantly weaker in children. According to the researchers, this effect may depend on the duration of cultural influences which is much longer for adults than for children. Relations and correlations between language and thinking are complicated. Thanks to language, individuals can perceive certain things and focus on them together with other members of society (Taylor, 1985). Language is an important source of knowledge of society. Language plays a special role in children who learn norms, values, social customs, and most importantly, the knowledge accumulated by means of language (Slobin, 1990; cf. Wierzbicka, 1997).

The Present Study

Magical thinking may result not only from individual psychological processes but also from the cultural and lingual influences of the society in which an individual lives from the moment of birth. A child learns the meaning of words and phrases typical of its mother tongue, first in the family environment and then in the school environment. Some set phrases concern relationships between people and the world. Some of these phrases convey knowledge that is contrary to scientific knowledge, for example phraseological units such as "Let sleeping dogs lie" or "Stop looking on the dark side!". They assume the probability of direct effect of words on reality. The above-mentioned phrases involve the idea that we should not express negative predictions because we might "jinx" them, i.e. we may cause these predictions to happen in the future. Belief in the causative power of words is regarded as one of the manifestations of magical thinking (Piaget, 1926).

It is hard to control the future, especially for children who lack the necessary skills to influence their environment. Children may treat belief in the ability to influence reality by means of words, and thus the ability to shape their own future, as a way to gain an illusory sense of control.

The objective of this study was to try to answer the following research questions:

1. To what extent (if any) do the children participating in the research understand the meaning of phraseological units conveying the causative power of words?
2. How strongly do participants declare belief in the causative power of words?
3. To what extent (if any) does understanding of, and familiarity with, the meaning of phraseological units relate to participants' belief in the power of words? It was hypothesized that belief in the causative power of words would be declared by participants who can identify the meaning of the units correctly and who are familiar with a larger number of these units. When learning the meaning of phraseological units, children learn about the possibilities of influencing reality through magic-related means. Due to a limited repertoire of effective influences on reality, lack of experience and underdeveloped critical thinking skills, children can accept this knowledge and believe in its authenticity.
4. To what extent do the phraseological units conveying the causative power of words provoke magical thinking and influence opinions?

It was hypothesized that the presence of phraseological units in the stories presented to the participants would provoke magical thinking. Belief in the effect of negative predictions on future events would affect the travel duration of the stories' characters. The estimated travel duration should be longer in stories lacking phraseological units.

Table 1
Student profile, including age and gender.

		Gender		
		Girls	Boys	Total
Age	10	11	13	24
	11	4	8	12
	Total	15	21	36
a. Grade 4 (N=36)				
		Gender		
		Girls	Boys	Total
Age	10	1	0	1
	11	6	6	12
	12	7	15	22
Total	14	21	35	
b. Grade 5 (N=35)				
		Gender		
		Girls	Boys	Total
Age	12	4	8	12
	13	10	10	20
	Total	14	18	32
c. Grade 6 (N=32)				

The very presence of phraseological units in language may give more credence to the inherent knowledge. The authority of society (the creator of language) may contribute to mindless acceptance of the validity of the phraseological unit and orient one's way of thinking.

Method

Participants

The study was conducted on 103 primary school students (43 girls and 60 boys), grades from 4 to 6, aged from 10 to 13 ($M=11.5$; $SD=1.06$). Table 1 presents the student profile, including age and gender.

All participants attended a primary school near Warsaw.

Materials

A method was developed specifically for this study. Three story formats were prepared. The first story format is about a positive situation which participants had probably experienced themselves, i.e. a trip to the zoo. (In this format belief in the causative power of words is expressed by a child (a boy). The second story format also concerns a trip to the zoo. This time, however, belief in the causative power of words is expressed by an adult (a man). This story format was used to check whether the authority of an adult was important for the participant children. The third story format presented characters confronted with a serious

illness. Belief in the causative power of words is expressed by an adult (a man). This story format was introduced in order to check whether the participant children attach significance to the seriousness of a life-threatening situation. Each of the above-mentioned formats included four stories: one story that was completely neutral – characters setting out on their trip were talking about issues unrelated to the causative power of words. Participants who listened to this story constituted the control group. The remaining three stories included utterances conveying a character's belief in the causative power of words ("You shouldn't say that", and phraseological units: "Let sleeping dogs lie" and "Stop looking on the dark side!"). These utterances occurred in response to the possibility of obstacles during the trip indicated by another character ("The worst thing that can happen to us is that the car will break down on the way"). Participants listening to these stories constituted the experimental groups. Overall, twelve stories were used for the purpose of the research.

Whatever the story format, each participant was requested to assess the characters' time of arrival at their destination. Estimated travel duration was an indicator of strength of belief in the possibility of words having a direct impact on reality (magical thinking).

Additionally, participants were asked to write down their attitude toward the utterance of the story character who expressed predictions concerning an adverse course of the trip. It was assumed that, by responding to the question whether this character was right to mention possible obstacles, participants would spontaneously declare their belief in the power of words. Such declarations were also treated as indicators of the strength of magical thinking. It is worth mentioning that no such information could be obtained from participants presented with the neutral story. Responses were analyzed by three expert judges whose task was to say whether participants believed that predictions could come true just because they were uttered.

In order to determine whether participants are familiar with and understand phraseological units referring to belief in the power of words, they were asked to explain the meaning of the units in writing. Each participant was requested to explain the meaning of: "Let sleeping dogs lie", "Stop looking on the dark side!", and "Touch wood". Explanations suggesting that the saying concerns the causative power of words were treated as indicators of familiarity with, and comprehension of the phraseological unit. Three expert judges analyzed the responses. They were asked to assess whether a participant knew the meaning of particular phraseological units. Based on the judges' assessments, an additional index was introduced – familiarity with the phraseological units. This index was created by adding up the number of correctly explained phraseological units.

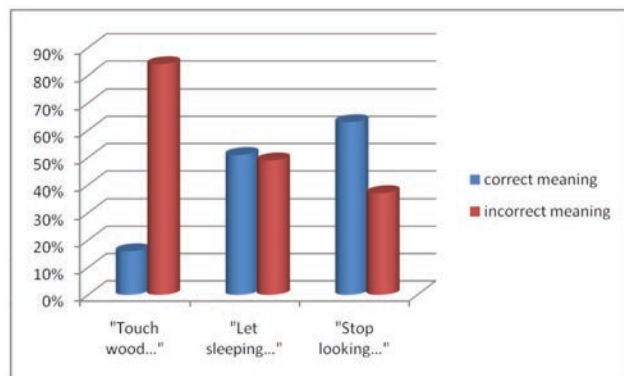


Figure 1. Comprehension of the meaning of phraseological units in the studied sample – percentile distribution.

Procedure

The children were studied in groups during regular classes. They were randomly divided into a control group and three experimental groups. First they were presented with a story. Then they were asked to provide written answers to questions related to the story: they rated the time of characters' arrival at their destination and assessed the utterance of one of the characters. Finally they provided a written explanation of the meaning of the sayings relating to the causative power of words.

Results

Familiarity with, and comprehension of, phraseological units relating to the causative power of words

Expert judges were responsible for the assessment of familiarity with, and comprehension of, particular phraseological units relating to belief in the impact of uttered words on reality. Cronbach alpha reliability coefficients for respective sayings were: "Let sleeping dogs lie" 0.97; "Stop looking on the dark side!" 0.96 and "Touch wood" 0.95. Figure 1 presents the percentile score distribution.

As far as the studied sample is concerned, the least-known phraseological unit was "Touch wood". Its meaning was correctly offered by 14 subjects (15.7%) who provided such explanations as "Let's hope the bad things you mentioned won't happen", "You mustn't say that because it might come true". The remaining 75 participants (84.3%) did not know the meaning of the saying ("Try spitting and saying", "It means that you are going to say something dirty"). For "Let sleeping dogs lie", 41 participants (50.6%) knew the meaning of the saying "Don't say that as it might really happen", "Don't say anything bad as it might come true". The remaining 40 subjects (49.4%) failed to provide the correct meaning of the saying ("Don't shout in vain", "Don't say such things about wolves because they might eat you"). Analyses including gender and age revealed no statistically significant differences in the understanding of the phraseological units.

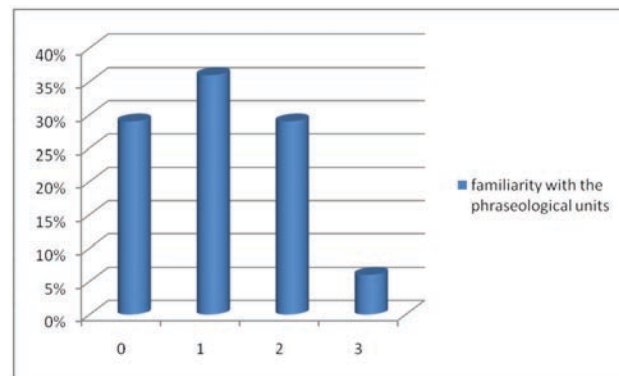


Figure 2. Degree of familiarity with the phraseological units in the studied sample.

Participants were most familiar with the saying "Stop looking on the dark side!": 57 (62.6%) knew what the saying meant and 34 (37.4%) did not. Examples of correct explanations include: "Don't say that or it might really happen", "You say something bad and then it really happens". Examples of inaccurate explanation include: "Don't give the game away", "Stop cawing or you'll become a crow".

This study was also interested in the degree of familiarity with phraseological units (expressed as the number of correctly comprehended units) and its relation to the effect of words on reality. Figure 2 presents the participants' scores.

Among the participants, 29 (29%) did not know the meaning of any unit, 36 (36%) knew the meaning of one unit, 29 (29%) knew the meaning of two units, and 6 (6%) knew the meaning of all three units. It also turned out that girls ($M=1.33$; $SD=0.92$) understood more phraseological units correctly than boys ($M=0.96$; $SD=0.86$). One-way analysis of variance revealed a significant difference: $F(1,98) = 4.04$, $p < 0.05$). No statistically significant differences were found for grade or age.

Declaration of belief in the causative power of words

Among the subjects' answers to questions concerning the assessment of a character's behavior (utterances addressed to another story character that included such phraseological units as "Let sleeping dogs lie", "Stop looking on the dark side!" or a suggestion that prediction concerning the course of the journey might come true), were several spontaneous declarations of belief in the direct impact of words on reality. Expert judges evaluated the subjects' responses. Inter-judge consistency was 0.94 (Cronbach alpha). Forty-two participants (54.5%) declared the afore-mentioned belief. The belief-related statements included, for example, "I don't think mum should have said that because when you say things like that it might really happen", "I think she shouldn't have said that because it might really happen", "I think she shouldn't have said that because what one says often comes true". The remaining 35 subjects (45.6%) did not voice any belief-related statements. Some exemplary

Table 2
Comprehension of, and familiarity with, sayings vs. declared belief in the power of words – Spearman Rho Correlation Coefficients.

		Declared belief in the power of words
Comprehension	“Let sleeping dogs lie”	rho=0.37 * p=0.001 N=75
	“Stop looking on the dark side!”	rho=0.20 p=0.064 N=85
	“Touch wood”.	rho=0.14 p=0.203 N=84
Familiarity		rho=0.30 * p=0.003 N=94

* p<0.05

Table 3
Comprehension of, and familiarity with, sayings vs. declared belief in the power of words in boys and girls.

		Declared belief in the power of words	
		Girls	Boys
Comprehension	“Let sleeping dogs lie”	rho=0.31 p=0.087 N=32	rho=0.38 p=0.012 N=43
	“Stop looking on the dark side!”	rho=0.25 p=0.136 N=37	rho=0.16 p=0.291 N=48
	“Touch wood”.	rho=0.06 p=0.710 N=36	rho=0.17 p=0.233 N=48
Familiarity		rho=0.31 p=0.057 N=39	rho=0.26 p=0.058 N=55

* p<0.05

statements of this type are: “No, because he annoyed everybody by using that word”, “I think it’s a good thing that mum managed to warn the family because they were able to protect themselves”. As far as gender and age are concerned, no differences were found in the frequency of declared belief in the power of words.

Comprehension of, and familiarity with, phraseological units vs. declared belief in the causative power of words

A relationship was found between participants’ declared belief in the power of words on the one hand and their comprehension of particular phraseological units and their familiarity with phraseological units (the number of correctly comprehended units) on the other hand. Table 2 presents the results of the Spearman Rho Correlation Coefficient analysis.

Declaration of belief in the influence of words on reality correlates with comprehension of the following units: “Let sleeping dogs lie” (rho=0.37; p<0.05) and “Stop looking on the dark side!” (trend only, rho=0.20; p<0.10). Belief in the power of words also correlates with familiarity

with phraseological units. Children who declare belief are familiar with significantly more units (rho=0.30; p<0.05). The effect of gender was also analyzed. Table 3 shows the Spearman Rho Correlation Coefficients for girls and boys.

A significant correlation between declaration of belief in the power of words and comprehension of the saying “Let sleeping dogs lie” (rho=0.38; p<0.05) was found for boys. Only a trend was found for girls (rho=0.31; p<0.1). In both groups, belief in the power of words correlates with familiarity with the phraseological units only at the trend level. Both girls (rho=0.31; p<0.1) and boys (rho=0.26; p<0.1) declaring belief in the direct impact of words on reality comprehend more phraseological units.

Since three story formats differing in terms of content were studied, the results were also analyzed in subgroups collapsed according to this variable. Table 4 presents the Spearman Rho Correlation Coefficients obtained for the story format subgroups.

A significant correlation was found between declared belief in the power of words and comprehension of “Let sleeping dogs lie” (rho=0.46; p<0.05) in the group presented with the story about a trip to the zoo (variant: belief in

Table 4
Comprehension of, and familiarity with, sayings vs. declared belief in the power of words by story formats.

		Declared belief in the power of words		
		Serious illness; an adult believes in the power of words	A trip to the zoo; an adult believes in the power of words	A trip to the zoo; a child believes in the power of words
Comprehension	“Let sleeping dogs lie”	rho=0.38 p=0.083 N=22	rho=0.28 p=0.146 N=28	rho=0.468 p=0.021 N=25
	“Stop looking on the dark side!”	rho=0.11 p=0.540 N=31	rho=0.30 p=0.123 N=28	rho=0.26 p=0.201 N=26
	“Touch wood”.	rho=-0.07 p=0.072 N=30	rho=0.19 p=0.334 N=27	rho=0.37 p=0.059 N=27
Familiarity		rho=0.11 p=0.527 N=34	rho=0.408 p=0.028 N=31	rho=0.418 p=0.027 N=29

* p<0.05

Table 5
Comprehension of, and familiarity with sayings vs. declared belief in the power of words by type of a character’s statement.

		Declared belief in the power of words		
		A story including the statement: “Let sleeping...”	A story including the statement: “Stop looking...”	A story including the statement: “You should not...”
Comprehension	“Let sleeping dogs lie”	rho=0.53 * p=0.009 N=23	rho=0.37 p=0.078 N=23	rho=-0.12 p=0.711 N=12
	“Stop looking on the dark side!”	rho=0.68 * p=0.001 N=20	rho=0.20 p=0.297 N=29	rho=-0.39 p=0.169 N=14
	“Touch wood”.	rho=0.05 p=0.838 N=17	rho=-0.03 p=0.892 N=28	rho=0.28 p=0.317 N=15
Familiarity		rho=0.49 * p=0.018 N=23	rho=0.24 p=0.239 N=30	rho=-0.06 p=0.829 N=17

* p<0.05

the power of words expressed by a child). An analogous correlation was found at the trend level (rho=0.38; p<0.01) in the group presented with the story involving a serious illness (variant: belief in the power of words indicated by an adult). Positive correlations between familiarity and declared belief were found in both subgroups presented with a story about a trip to the zoo, both when an adult character believed in the power of words (rho=0.40; p<0.05) and when a child believed in the power of words (rho=0.41; p<0.05).

The stories presented to the subjects differed in content of a character’s statement too and therefore the results were also analyzed in subgroups collapsed by this variable. Table 5 presents the Spearman Rho Correlation Coefficients for subgroups vs. type of statement uttered by a story character.

Declared belief in the power of words correlates with comprehension of the sayings “Let sleeping dogs lie” (rho=0.53; p<0.05) and “Stop looking on the dark side!”

(rho=0.68; p<0.05) for stories where a character said, “Let sleeping dogs lie”. For this type of statement, belief in the power of words also correlates with familiarity. Participants who declare belief are also familiar with a greater number of phraseological units (rho=0.49; p<0.05). Declared belief in the power of words correlates (trend only) with comprehension of “Let sleeping dogs lie” (rho=0.37; p<0.1) for stories where a character said “Stop looking on the dark side!”.

Story content vs. belief in the causative power of words and travel duration ratings

Three story formats were adapted in order to check whether the age of the character expressing the belief (child vs. adult) and the seriousness of the situation (a serious disease vs. a trip to the zoo) influenced the subjects’ estimates of travel duration. Participants were requested to give the exact time of arrival at the destination.

The age of the character expressing the belief did not affect the estimates of travel duration whereas seriousness of the situation did. Participants presented with stories where a character's health depended on reaching the destination gave shorter arrival times ($M=135.14$ minutes; $SD=43.68$ minutes) than participants presented with the story about the zoo ($M=161.88$ minutes; $SD=43.90$ minutes). One-way ANOVA produced a significant effect: $F(1,68)=6.52$; $p<0.05$.

Further analyses suggest that this result cannot be attributed to participants' belief in the influence of words on reality. Regardless of the situation presented in the stories, no statistically significant differences were found between the control group and the experimental groups. The estimated travel duration was similar for both stories involving neutral words and stories involving sayings related to belief in the power of words or the suggestion that negative predictions might come true.

Discussion

The aim of the present study was to determine familiarity with phraseological units, belief in the causative power of words, and the relations between these phenomena. It was determined that participants differed in terms of comprehension of the phraseological units referring to the causative power of words. "Stop looking on the dark side!" was comprehended best (62.6%), "Touch wood" was understood by the smallest number of young participants (15.7%). More than half of the children (54.5%) declared belief in the possible effect of predictions on the course of future events. This suggests that magical thinking, manifesting in the above-mentioned way, is quite a common phenomenon in late childhood. Perhaps this is how children experience the sense of control over reality. The future depends on a series of events. Our ability to control the future is limited at each stage of life. As far as children are concerned, their ability to control future events is even more limited.

The present findings support the existence of a relation between belief in the causative power of words on the one hand, and familiarity with, and comprehension of, phraseological units on the other hand. The hypothesis has therefore been confirmed, especially for the phraseological unit "Let sleeping dogs lie". This effect can perhaps be attributed to the greater fear evoked by the content of this saying and hence the greater need for an illusory sense of control compared with other sayings. This interpretation requires further research, however. As predicted, participants declaring belief in the causative power of words understood more phraseological units.

The second hypothesis concerning the effect of phraseological units on magical thinking and travel duration rating was not confirmed. No statistically significant

differences were found for travel duration ratings between the control group and the experimental groups, perhaps because of poor comprehension of the concept of time and poor clock-reading competence.

The present findings do not justify the claim that the presence of phraseological units in stories provokes magical thinking. However, some of the data suggest that this hypothesis is not completely groundless.

Conclusions

Basing on the present research it can be assumed that magical thinking is related to children's language. In situations one cannot fully understand, explain, or predict, sense of illusory control may reduce stress and stimulate effective action. That is why the phenomenon of magical thinking is worth further investigation and more profound analyses.

Appendix

The examples of stories used in the present study

One lovely day Ania and Jacek's parents decided to take their children to the zoo. The children were delighted because they hadn't been to the zoo for several years. They planned to go by car. When they got into the car, mum said, "The worst thing that can happen to us is that the car will break down on the way" "Stop looking on the dark side!", said dad. They set off at 9.00. They should reach the zoo at about 12.00 at the latest.

One lovely day Ania and Jacek's parents decided to take their children to the zoo. The children were delighted because they hadn't been to the zoo for several years. They planned to go by car. When they got into the car, Ania said, "The worst thing that can happen to us is that the car will break down on the way" "You shouldn't say that!", said Jacek. They set off at 9.00. They should reach the zoo at about 12.00 at the latest.

Anna was seriously ill. Only expensive surgery abroad could help her. Anna was supposed to fly by plane. Her husband promised to take her to the airport. When they got into the car, Anna said, "I have taken a book". "And I have packed you two magazines!", said her husband. They set off at 9.00. They should reach the airport at about 12.00 at the latest.

References

- Buchowski, M. (1993). *Magia i rytuał* [Magic and ritual]. Warszawa: Instytut Kultury.
- Gregory, C. J. (1975). Changes in superstitious beliefs among college women. *Psychological Reports*, 37, 939-944.
- Keinan, G. (1994). Effects of stress and tolerance of ambiguity on magical thinking. *Journal of Personality and Social Psychology*, 67, 48-55.

- Nguyen, S. P., Rosengren, K. S. (2004). Causal reasoning about illness: A Comparison between European- and Vietnamese-American Children. *Journal of Cognition and Culture*, 4, 51-78.
- Piaget, J. (1926) *La représentation du monde chez l'enfant* [The Child's Conception of the World]. Paris: F. Alcan.
- Raman, L., Winer, G. A. (2002). A developmental analysis of the understanding of the origins of illness in children and adults: Evidence in support of a co-existence model. *Journal of Genetic, Social and General Psychology Monographs*, 128, 325-355.
- Raman, L., Winer, G. A. (2004). Evidence of more immanent justice responding in adults than children: A challenge to traditional developmental theories. *British Journal of Developmental Psychology*, 22, 255-274.
- Slobin, D. I. (1990). The development from child speaker to native speaker. In: J. W. Stigler, R. A. Shweder, G. Herdt (Eds.), *Cultural Psychology* (pp. 233-256). Cambridge: Cambridge University Press.
- Subbotsky, E. (1994). Early rationality and magical thinking in preschoolers: Space and time. *British Journal of Developmental Psychology*, 12, 97-108.
- Subbotsky, E.V. (2001). Causal explanations of events by children and adults: Can alternative causal modes coexist in one mind? *British Journal of Developmental Psychology*, 19, 23-46.
- Subbotsky, E.V. (2004a). Magical thinking in judgments of causation: Can anomalous phenomena affect ontological causal beliefs in children and adults? *British Journal of Developmental Psychology*, 22, 123-152.
- Subbotsky, E. V. (2004b). Magical thinking - reality or illusion? *The Psychologist*, 17, 336-339.
- Subbotsky, E.V. (2005). The permanence of mental objects: Testing magical thinking on physical and imaginary realities. *Developmental Psychology*, 41, 302-318.
- Subbotsky, E. (2007). Children's and adults' reaction to magical and ordinary suggestion: Are suggestibility and magical thinking psychologically close relatives? *British Journal of Psychology*, 98, 547-574.
- Subbotsky, E. (2009). Can magical intervention affect subjective experiences? Adults' reactions to magical suggestion. *British Journal of Psychology*, 100, 517-537.
- Taylor, Ch. (1985). Theories of Meaning. In: Ch. Taylor, *Philosophical Papers* (pp. 248-292). Cambridge: Cambridge University Press.
- Trejšaniin, Ž. (1987). Racionalno jedro verovanja v magično delovanje besed [Rational Crux of Faith in Magical Influence of Words]. *Anthropos*, 1-2, 116-124.
- Trzebińska, E. (2008). *Psychologia pozytywna* [Positive Psychology]. Warszawa: Wydawnictwa Akademickie i Profesjonalne.
- Wierzbicka, A. (1997). *Understanding Cultures through their Key Words: English, Russian, Polish, German, and Japanese*. New York: Oxford University Press.
- Woolley, J. D. (1997). Thinking about fantasy: Are children fundamentally different thinkers and believers from adults? *Child Development*, 68, 991-1011.
- Woolley, J. D., Phelps, K. E., Davis, D. L., Mandell, D. J. (1999). Where theories of mind meet magic: The development of children's beliefs about wishing. *Child Development*, 70, 571-587.
- Vikan, A., Clausen, S. E. (1993). Freud, Piaget, or neither? Beliefs in controlling others by wishful thinking and magical behavior in young children. *Journal of Genetic Psychology*, 3, 297-314.