Journal of Economic Psychology 33 (2012) 603–608

Contents lists available at SciVerse ScienceDirect

Journal of Economic Psychology

journal homepage: www.elsevier.com/locate/joep

Would you do something for me? The effects of money activation on social preferences and social behavior in young children

Agata Gasiorowska [a,b,*], Tomasz Zaleskiewicz [b], Sandra Wygrab [b]

[a] Wroclaw University of Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland
[b] Warsaw School of Social Sciences and Humanities, Faculty in Wroclaw, Ostrowskiego 30, 53-238 Wroclaw, Poland

ARTICLE INFO

Article history:
Received 19 April 2011
Received in revised form 23 November 2011
Accepted 30 November 2011
Available online 7 December 2011

JEL classification:
D01
D03

PsycINFO classification:
2820
3020

Keywords:
Money
Children
Interpersonal relations
Social preferences

ABSTRACT

The research presented in this paper shows that merely activating the idea of money affects the social behavior and social preferences of young children who do not understand the economic functions of money. From an economic point of view, money is universal, instrumental, and can be defined by the functions that it provides. From the psychological point of view, money is more symbolic and emotional than instrumental, and can serve as social resource in interpersonal and intrapersonal regulation. These effects of money are connected with its symbolic, rather than its instrumental, nature. To test whether the symbolic and instrumental meanings of money are developing at appropriate ages, we conducted two experiments on 5–8 year olds. After money activation, children were more selfish in economic games, revealing less prosocial preferences and were less prone to help the experimenter than children from the control group. Even if children at this stage do not understand the economic mechanisms of money and are not able to use money properly in the instrumental context, they react to symbolic activation. This might imply that the symbolic meaning of money is more primal than the instrumental meaning.

1. Introduction

Money is one simultaneously one of the most ubiquitous and exceptional elements in society. From an economic point of view it is a universal, instrumental, and market-driven force that may be defined by the functions it provides. Mansfield (1992) argues that money is everything that fulfills the typical functions of money. Money serves as a medium of exchange, a mean of storing wealth and value, a means of evaluation, and a unit of account (Begg, Fischer, & Dornbusch, 2003). Theories of money in economics are based on a model of rational behavior and are typically concerned with the macroeconomic level of analysis.

Psychological approaches to money, however, pay attention to the different peculiarities of human attitudes or related behavior (Lea, Tarpy, & Webley, 2009). From the psychological or anthropological point of view, money is not universal, because some of its forms are strictly reserved for special situations (Belk & Wallendorf, 1990; Zelizer, 1989, 1994). Numerous studies indicate that money is symbolic and emotional rather than instrumental (Crawford, 1994; Trachtman, 1999; Wilson,

* Corresponding author at: Wroclaw University of Technology, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland. Tel.: +48 71 320 42 63; fax: +48 71 320 34 32.
E-mail addresses: agata.gasiorowska@pwr.wroc.pl (A. Gasiorowska), tzaleskiewicz@swps.edu.pl (T. Zaleskiewicz), san_wyg@interia.pl (S. Wygrab).

0167-4870/$ - see front matter © 2011 Elsevier B.V. All rights reserved.
doi:10.1016/j.joep.2011.11.007

1999) and might be perceived as a social resource in interpersonal and intrapersonal regulation (Zhang, 2009; Zhou & Gao, 2008; Zhou, Vohs, & Baumeister, 2009).

The dichotomy between the instrumental and symbolic meanings of money forms the basis of various theories developed by psychologists and anthropologists, e.g., the theory of sacrum and profanum (Belk & Wallendorf, 1990) or the tool/drug theory (Lea & Webley, 2006). Moreover, studies of attitudes towards money have also demonstrated the dual nature of money (Furnham, 1984; Tang, 1995; Yamauchi & Templer, 1982). In line with these studies, people differ with each other in how they perceive the role of money in life. Some people interpret money mainly as an instrument for economic transactions, while others are more attached to its symbolic and emotional functions. Nevertheless, both the scarum/profanum theory and the tool/drug theory suggest that, in some situations, people act in accord with the instrumental nature of money, whereas in other circumstances they seem to follow its symbolic nature (Belk & Wallendorf, 1990; Lea & Webley, 2006).

Money can, therefore, be clearly defined by its dual symbolic and instrument nature. However, to the best of our knowledge, no research has yet been conducted to directly analyze how the perception of the symbolic nature of money develops in life and whether the growth of the ability to react to this symbolic meaning is primary to the understanding of the instrumental nature of money. In other words, little is known about how children understand the dual nature of money. The main aim of the research presented in this paper was, therefore, to examine whether young children, who do not understand the instrumental nature of the economic system, are susceptible to the effects of the symbolic aspects of money. The results of the two experimental studies revealed that activating the general idea of money affects social preferences and social behavior in children so that that they tend to make more individualistic choices and become less ready to help others.

As the existing literature on economic socialization suggests, children pass through several stages in order to achieve an adult understanding of money, and the order of these stages is universal across cultures (Webley, Burgoyne, Lea, & Young, 2008). However, there are different theories on how many of these stages there are. For example, Jahoda (1979) or Leiser (1983) suggest three stages, and Strauss (1952) proposes nine. Furnham and Argyle (1998) argue that the sub-stages can be combined into three main phases: (1) no understanding of money; (2) understanding of some isolated concepts; and (3) linking of isolated concepts to full understanding. These three phases are related to the stages of cognitive development proposed in the classical theory by Piaget (Piaget & Inhelder, 1972). The first phase takes place at the very beginning of the pre-operational stage, the second is related to the later pre-operational stage and the concrete operational stage, and, the third phase of economic socialization is connected to the formal operational stage.

The first phase is typical of children at the age of 3–4, who are able to recognize money (coins and notes), although they may not realize that coins and notes differ from each other, and will treat them as toys rather than as a medium of exchange (Berti & Bombi, 1988; Strauss, 1952, 1954). At 4–5 years old, children pass into the second phase. They understand the general idea of money, but are not able to recognize its nominational and the transactional value (Berti & Bombi, 1988; Strauss, 1952). Later on, children begin to recognize that some coins or notes have higher value and some are worth less, but they still treat a commercial transaction as a ritual (Berti & Bombi, 1988). At 6–7 years old (the beginning of primary school) children develop a better understanding of money as a mean of exchange, and this is strictly connected to the growth of their mathematical abilities (Kupisiewicz, 2004). By the age of 8–10, children can efficiently recognize notes and coins and know how to use them in market transactions (Kupisiewicz, 2004). However, even if they understand that money can be exchanged for goods and work can be exchanged for money, they are still not able to connect these two circles of exchange in one system (Leiser, Sevón, & Lévy, 1990). The third phase begins around the age of 11, when children begin to understand the relationship between the two circles of exchange and to recognize that the prices of goods reflect the costs incurred, including the workers' wages. In other words, while older children understand the economic system of exchange, younger children perceive an exchange through its social or ritual connotations (Leiser et al., 1990).

The above overview suggests that perceiving money symbolically precedes understanding it from the perspective of its instrumental and, economic functions. In line with these results, we expected that children at the age that is representative of the second phase of economic socialization should be able to react to the symbolic meaning of money, even if they were not capable of using it properly in a purely economic or instrumental context.

Vohs, Mead, and Goode (2006, 2008) have recently examined the psychological effects of the symbolic meaning of money in a series of experiments with adult participants. These experiments were based on the subliminal priming with concepts or images related to money. After such priming, participants (compared to those in the control condition) were less willing to help, and sought less help for themselves, even when performing an unsolvable task. Additionally, participants who were reminded about money preferred working alone, playing alone, putting more physical distance between themselves and other people and were less prone to donate money to University Student Fund. Vohs, Mead, and Goode (2006) conclude that money activation causes people to behave self-sufficiently, i.e., putting effort into attaining personal goals and preferring to be separated from others. However, the effects of money activation have two sides: negative (reduced helpfulness and separation from others), and positive (persistence on challenging tasks or taking more work for oneself) (Mogilner, 2010). Other researchers have claimed that money activation can generate a wide range of responses, such as a broad sense of strength, confidence or efficacy, self-interested behavior, abuse of interpersonal relationships, and sensitivity to potential restrictions of freedom or threats to autonomy (Gino & Pierce, 2009; Liu, Smeesters, & Vohs, 2012; Zhou et al., 2009). Zhou et al. (2009) found that reminding about money could reduce distress about social exclusion, in the sense that money could be seen as a substitute for a social acceptance. All the effects listed above seem to reflect the symbolic/affective rather than economic/instrumental meaning of money. Moreover, priming people with ideas about money seems to be an effective method of studying their reactions to its symbolic meaning.

In the present paper, we may assume that the psychological consequences evoked by money priming are connected mainly with money's symbolic, rather than its instrumental nature. Therefore, if children at the second general phase of economic socialization react to money priming and show self-sufficient orientation, this would suggest that the disposition to react to the symbolic nature of money develops earlier than the understanding of its instrumental meaning. The two experimental studies described in this paper were aimed at testing the following general hypothesis:

Hypothesis. Money activation leads to self-sufficient behavior in children aged 5–8.

2. Study 1: effects of money activation on social preferences

The goal of Study 1 was to examine how activating the concept of money affects social versus selfish preferences in children. According to Fehr and Fischbacher (2002), "A person exhibits social preferences if the person not only cares about the material resources allocated to her but also cares about the material resources allocated to relevant reference agents" (p. C2). In other words, people who reveal social preferences are ready to make non-selfish choices, i.e., to share material goods with other people. Taking into account the results collected by Vohs et al. (2006, 2008), we assumed that:

Hypothesis 1. Children in the experimental condition will exhibit more selfish preferences than children in the control condition.

Study 1 was conducted with first-grade schoolers (children at the end of the first semester of primary education). As documented in earlier studies on the development of the understanding of money (e.g. Berti & Bombi, 1988; Furnham & Argyle, 1998; Kupisiewicz, 2004; Strauss, 1952, 1954), children at this age know what money looks like, are able to distinguish it from non-monetary objects, and have some experience with simple monetary transactions. However, they have difficulties in making monetary calculations. For example, research by Kupisiewicz (2004) on Polish children at the age of 7 showed that they do not understand that 100 Polish groszs add up to 1 Polish zloty and that coins and banknotes, though they may look very different, can have equivalent values. They were also not able to count change to work out the balance of an amount paid for a product. Despite the fact that some individual differences concerning monetary calculations can be found, the majority of children in the first class at primary school in the Polish educational system were not able to use money as a means of exchange or as a unit of account. This indicates that they did not fully understand the value or the instrumental meaning of money.

2.1. Participants

We recruited children (aged 7–8) from several primary schools in two different cities in Poland. We received permission to carry out the experiments from headmasters, teachers and parents. A total of 126 children (63 females) participated in the study. One-hundred of them were aged 7, and 26 were aged 8.

2.2. Experimental procedure and materials

The experiment was divided into two parts: manipulation and allocation games, which was the major element. The first part of the study (manipulation) was conducted in groups of 20–25 children. At the beginning, every child received a small gift (a sticker) and was informed that they would be able to get more gifts by playing the games. The person conducting the experiments showed then a poster in A0 format presenting various coins and notes (in the experimental group) or pictures and symbols dealing with flowers, plants, and ecology (in the control group). Children were randomly assigned either to the experimental or to the control condition. They were asked to talk about what they had seen on the posters placed in front of them on the blackboard. For example, an experimenter asked those in the experimental group whether they recognized coins/notes or those in the control group if they knew how to sort trash. After 5 min, children were asked to draw something that was connected to the topics of the poster, and, then went one by one into another room to participate in the games. An analysis of pictures prepared by the children showed that, in the experimental group, all of them drew coins, and in the control condition almost all drew flowers (only two of them prepared pictures about the trash).

In the main part of the study, we used two allocation games to elicit children's social or selfish preferences. Another experimenter, who was blind to the experimental conditions and to the aims of this research, conducted this part of the study. Children were asked to make two decisions concerning the allocation of stickers showing heroes from various fairytales between themselves and children from another class in the same school, who were anonymous to the decision-makers. Each game was explained in detail, to make sure that the children understood the consequences of their choices. In the "prosocial game", the participants could choose between the allocation (1,1) – one sticker for themselves and one for their partners – and the allocation (1,0) – one sticker for the decision-makers and nothing for the partners. According to Fehr, Bernhard, and Rockenbach (2008), the "prosocial game" measures an elementary form of prosociality, as choosing the (1,1) option over the (1,0) option means delivering a benefit to the partner at no cost, and the decision-maker receives one sticker regardless of the decision made.

In the "sharing game" children were asked to make a choice between the (1,1) allocation, as they had done previously, or the (2,0) allocation, in which the decision-maker kept both stickers and the partner got nothing. According to Fehr et al. (2008), this game can measure degrees of altruism, because the provision of the benefit for the partner is costly to the subjects, and choosing the (2,0) option over the (1,1) option represents selfish behavior.

The order of both games was counterbalanced across subjects. Children were not informed about the gender of the partner. All procedures (instructions and cardboard with circles and arrows) were adapted from Fehr et al. (2008), but we decided to use stickers instead of sweets as payoffs, because in previous experiments they appeared to be more attractive for children at this age (Helka & Zaleskiewicz, in press). After playing both games, the experimenter informed participants that the study was over. Children could take their stickers and go to the other room. At the end, children who were anonymous partners in games also got their stickers.

2.3. Results

As pointed out above, we used two allocation games to elicit children's social or selfish preferences. In every game, the participants could choose one of two options. In the "prosocial game", choosing the option (1,1) indicated social preferences, and choosing the option (1,0) indicated selfish preferences. In the "sharing game" choosing the option (1,1) indicated social preferences, and choosing the option (2,0) indicated selfish preferences. Our hypothesis assumed that children from the experimental condition (money activation) would choose selfish options more often than children from the control group. Table 1 shows the percentages of non-selfish choices made by children from both groups in the two games.

As the data in Table 1 shows, irrespective of their condition children tended to choose the egalitarian option (an equal splitting of goods). However, the results collected in our experiment revealed that the tendency to make egalitarian (i.e., non-selfish) choices was weaker in children from the experimental group who participated in the money activation procedure. The participants from the experimental condition revealed more selfish preferences both in the "prosocial game", $\chi^2(1) = 11.492$; $p < 0.001$, and in the "sharing game", $\chi^2(1) = 4.041$; $p < 0.05$. These data support Hypothesis 1 in arguing that activating the idea of money weakens social preferences in children.

In the next study we wanted to test whether money priming would induce self-sufficient orientation in children who did not yet attend school. Another aim of the second study was to examine whether reminders of money affect not only preferences, but also behavior.

3. Study 2: effects of money activation on the willingness to help

The main goal of Study 2 was to examine whether activating the concept of money would change interpersonal behavior in children. In particular, we tested the effects of money activation on children's willingness to help. This study was conducted with younger children aged 5–6, who know what money looks like, are able to distinguish it form non-monetary objects, but cannot use it properly in transactions, because they tend to count rather than calculate money (Berti & Bombi, 1988; Kupisiewicz, 2004). Even if some individual differences concerning abilities with money exist, the average understanding of the value or instrumental (economic) meaning of money is virtually nil among children of this age.

We expected that:

Hypothesis 2. Children in the money activation condition would be less helpful than children in the control condition.

3.1. Participants

We recruited young children (aged 5–6) from three public nursery schools in Poland. We received permission to carry out the experiments from headmasters, teachers and parents. A total of 120 children (61 females) participated in the study. Sixty of them were of the age of 5, and 60 were 6.

3.2. Experimental procedure and materials

A 2 (prime: money versus non-money) by 2 [shape of items: round (coins/buttons) versus rectangular (notes/papers)] between-participants design was used. Every child was randomly assigned to one of the four conditions. Children were told that they would be taking part in a counting test and would get a reward (a sticker) irrespective of whether they succeeded

Table 1
Percentages of non-selfish choices indicating social preferences made by children from both groups in the two games.

	'Prosocial game'	'Sharing game'
Control condition	96.8	69.8
Experimental condition	76.2	52.4

or not. After this, they were asked to choose the future reward. The children were then asked to take five items from the basket (notes/coins/buttons/pieces of paper), then another 11 items and another three items, and count how many items they had in total. Afterwards, the experimenter informed them that they could take their reward and leave the room, but also asked for help in preparing the task for another group of children. The children who agreed to do this were asked to choose as many purple crayons as possible from a box of mixed crayons standing in the farthest corner of the room and bring them to the experimenter. Those children who said they had finished the task received another reward and then went into the next room to play with the older children. This was done to prevent them communicating with the children who were still waiting to participate in the experiment.

The same person examined all the participants individually. The experimenter (a woman) was blind to the study hypothesis and to our expectations. She also did not have a knowledge of psychology. The experimenter was trained precisely in how to conduct the study and received strict instructions concerning conversations with participants. She was not allowed to talk freely to the children.

To check if the experimenter was in fact blind to our hypotheses, we asked her questions about the aims of the study and her expectations. She could not reveal the true aim of the study and believed that the first task (counting items) could not influence children's behavior in the second task (collecting crayons). The experimenter was also convinced that the two tasks might have been performed in a reverse order with no effect on the results, which is obviously not true.

3.3. Results

The dependent variable – the willingness to help – was measured by the number of crayons taken from a box and brought to the experimenter. If Hypothesis 2 was correct, children from the experimental group, compared to the control group, should have collected a lower number of crayons.

As expected, children from the experimental condition collected a significantly lower number of crayons than children from the control condition, $F(1,118) = 269.66$, $p < 0.001$, $\eta^2 = 0.696$. In line with hypothesis 2, children who were counting coins or notes were less willing to help ($M = 17.80$, $SD = 4.90$) than children from the control group ($M = 32.37$, $SD = 4.90$). This result suggests a strong and significant effect of money activation.

The shape of items used in the manipulation (round versus rectangular) did not affect the results, $F(1,118) = 1.08$, $p = 0.30$. The activation by shape of items interaction was also not significant, $F(1,166) = 0.01$, $p = 0.94$. This indicated that the differences between the two groups could not be attributed to the specific features of the items used in the experiment, but to the effect of money itself. No gender effect was found, $F(1,118) = 1.47$, $p = 0.23$. The gender by money activation interaction was also not significant, $F(1,116) = 0.01$, $p = 0.91$.

4. Discussion

The results of the two experiments presented in this paper showed that children aged 5–8 reacted to money reminders in a very similar way to adults. The results of experiment 1 suggested that reminding them about the concept of money leads to more individualistic choices, which reveal more selfish preferences. Children from the experimental condition made less egalitarian choices than those who played the games in the control group. Experiment 2 indicated that money priming weakens children's willingness to help. Participants who were reminded about money collected less crayons than those who completed the task in the control condition. This showed that children participating in our studies reacted to money reminders in a similar way to the adults who took part in the research conducted by Vohs et al. (2006, 2008).

Interestingly, the findings of both studies suggest that even if children at the early stage of economic socialization are not able to understand the market mechanisms of money and to use it properly in the instrumental context, they will react to the activation of the symbolic meaning of money. Therefore, they may have some emotional connotations with money. This possibly implies that the symbolic meaning of money is more primal than its instrumental meaning and develops earlier in life.

The literature review on the subject (see Section 1) shows that studies of children's economic development have focused mainly on the cognitive aspects of that process, by adopting the Piagetian cognitive-developmental model and testing the children's understanding of the instrumental nature of money (Lea & Webley, 2006). However, the results of the two experiments presented in this paper show that the symbolic or affective meaning of money might develop independently, or at least earlier, than its instrumental, purely economic meaning. It is likely that the symbolic understanding of money is connected more to social learning than to cognitive development (Piaget & Inhelder, 1972). In particular, the emphasis that parents typically place on money, the conflicts parents have about money, the financial status of the family, or the parents' specific attitudes towards money can affect the development of the symbolic associations that children have about money at a very early stage of their development (Furnham & Argyle, 1998; Yablonsky, 1991).

Even if the positive side of the self-sufficient orientation is connected to persistence and hard working, its negative side is associated with egotism, antisocial behavior and the concentration on personal interest only (Gino & Pierce, 2009; Vohs, Mead, & Goode, 2008; Vohs et al., 2006). Adopting such an orientation can also lead to perceiving the world in terms of the *market-pricing mode* (Fiske, 1992). When people think in terms of the market-pricing mode, they tend to use a cost/benefit analysis in social exchanges. Such an analysis is based on market prices or utilities rather than on reciprocity rules. As money is the prototypical medium of exchange in the market-pricing mode, reminders of money can cause people to focus

specifically on their own inputs/outputs and on their own financial success. Furthermore, this interpretation seems to be consistent with the findings from the cross-cultural study conducted by Grouzet et al. (2005), showing that "financial success" as a goal remains in direct opposition to goals concerning "community" (Grouzet et al., 2005).

The results of the present studies showed only the "dark" side of the symbolic meaning of money. We were able to provide some evidence that activating the idea of money lowers willingness to help and leads to more selfish preferences in children. However, experiments conducted by Vohs and others (2006, 2008) on adults demonstrated that self-sufficiency has a "bright" side as well. For example, it appeared to be associated with higher persistence and a willingness to work independently for a longer time (Mogilner, 2010; Vohs et al., 2006, 2008) and reactions to social influence (Liu et al., 2012). Therefore, we presume that money priming might also lead to a higher persistence of activities taken on by children, as the symbolic meaning of money has both positive and negative consequences. It is likely that this conceptualization will provide a basis for our future research.

Acknowledgment

The research presented in this article was financed by Polish Ministry of Science and Higher Education Grant No. NN106 289 039. We are very grateful to David Leiser, Aleksandra Luszczynska and anonymous reviewers for their valuable comments and suggestions. We would like to than Karolina Golisz for help in collecting data.

References

Begg, D., Fischer, S., & Dornbusch, R. (2003). *Economics*. London: McGraw-Hill.
Belk, R. W., & Wallendorf, M. (1990). The sacred meanings of money. *Journal of Economic Psychology, 11*, 35–68.
Berti, A. E., & Bombi, A. S. (1988). *The child's construction of economics*. Cambridge: Cambridge University Press.
Crawford, T. (1994). *The secret life of money: How money can be food for the soul*. New York: Allworth Press.
Fehr, E., & Fischbacher, U. (2002). Why social preferences matter – the impact of non-selfish motives on competition, cooperation and incentives. *The Economic Journal, 112*, C1–C33.
Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature, 454*, 1079–1084.
Fiske, A. P. (1992). The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review, 99*, 689–723.
Furnham, A. (1984). Many sides of the coin: The Psychology of Money Usage. *Personality and Individual Differences, 5*, 501–509.
Furnham, A., & Argyle, M. (1998). *The psychology of money*. London and New York: Routledge.
Gino, F., & Pierce, L. (2009). The abundance effect: Unethical behavior in the presence of wealth. *Organizational Behavior and Human Decision Processes, 109*, 142–155.
Grouzet, F. M. E., Kasser, T., Ahuvia, A., Fernandez-Dols, J. M., Kim, Y., Lau, S., et al (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology, 89*, 800–816.
Helka, A. & Zaleskiewicz, T. (in press). Gender differences in egalitarian choices in young children. *Polish Psychological Bulletin*.
Jahoda, G. (1979). The construction of economic reality by some Glaswegian children. *European Journal of Social Psychology, 9*, 115–127.
Kupisiewicz, M. (2004). *Edukacja ekonomiczna dzieci (Economic education of children)*. Kraków: Wydawnictwo Akademii Pedagogiki Specjalnej.
Lea, S. E. G., Tarpy, R. M., & Webley, P. (2009). *The individual in economy. A survey of economic psychology*. Cambridge: Cambridge University Press.
Lea, S. E. G., & Webley, P. (2006). Money as tool, money as drug: The biological psychology of a strong incentive. *Behavioral and Brain Sciences, 29*, 161–209.
Leiser, D. (1983). Children's conceptions of economics – The constitution of a cognitive domain. *Journal of Economic Psychology, 4*, 297–317.
Leiser, D., Sevón, G., & Lévy, D. (1990). Children's economic socialization: Summarizing the cross-cultural comparison of ten countries. *Journal of Economic Psychology, 11*, 591–614.
Liu, J., Smeesters, D., & Vohs, K. (2012). Reminders of money elicit feelings of threat and reactance in response to social influence. *Journal of Consumer Research*, 38. doi:10.1086/661553. <http://www.jstor.org/stable/10.1086/661553>.
Mansfield, E. (1992). *Principles of macroeconomics*. New York: Norton, W.W. & Company, Inc..
Mogilner, C. (2010). The pursuit of happiness: Time, money, and social connection. *Psychological Science, 21*, 1348–1354.
Piaget, J., & Inhelder, B. (1972). *The psychology of the child*. New York: Basic Books.
Strauss, A. (1952). The development and transformation of monetary meanings in the child. *American Sociological Review, 17*, 275–286.
Strauss, A. (1954). The development of conceptions of rules in children. *Child Development, 25*, 193–208.
Tang, T. L. P. (1995). The development of a short money ethic scale: attitudes toward money and pay satisfaction revisited. *Personality and Individual Differences, 19*, 809–816.
Trachtman, R. (1999). The money taboo: Its effects in everyday life and in the practice of psychotherapy. *Clinical Social Work Journal, 27*, 275–288.
Vohs, K. D., Mead, N. L., & Goode, M. R. (2006). The psychological consequences of money. *Science, 314*, 1154–1156.
Vohs, K. D., Mead, N. L., & Goode, M. R. (2008). Merely activating the concept of money changes personal and interpersonal behavior. *Current Directions in Psychological Science, 17*, 208–212.
Webley, P., Burgoyne, C., Lea, S. E. G., & Young, B. M. (2008). *The economic psychology of everyday life*. Have and New York: Psychology Press.
Wilson, V. (1999). *The secret life of money: Exposing the private parts of personal money*. St. Leonards, NSW: Allen & Unwin.
Yablonsky, L. (1991). *The emotional meaning of money*. New York: Gardner Press.
Zelizer, V. A. (1989). The social meaning of money: "Special monies". *American Journal of Sociology, 95*, 342–377.
Zelizer, V. A. (1994). *The social meaning of money*. New York: Basic Books.
Zhang, L. (2009). An exchange theory of money and self-esteem in decision making. *Review of General Psychology, 13*, 66–76.
Zhou, X., Vohs, K. D., & Baumeister, R. F. (2009). The symbolic power of money: Reminders of money alter social distress and physical pain. *Psychological Science, 20*, 700–706.
Zhou, X., & Gao, D.-G. (2008). Social support and money as pain management mechanisms. *Psychological Inquiry, 19*, 127–144.