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The Effects of Symbolic and Live Modeling on Prosocial Behavior

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Abstract

The Effects of Symbolic and Live Modeling on Prosocial Behavior

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Human prosocial behaviors and actions, which benefit others and society, are fundamental contributors to the maintenance and development of community and country. Therefore, it is vital for educators and researchers to understand the underpinnings of this kind of behavior. Traditionally, researchers have understood prosocial behavior as a stable trait that is consistent across situations. However, according to social cognitive theory and previous studies, other’s behavior is one of the most important contributors to the development and enhancement of one’s prosocial behavior. Indeed, “normal” people can act prosocially in certain social situations.

This study examined the effects of symbolic modeling and live modeling on prosocial behavior. The effects of symbolic modeling were assessed by having participants read scripts about the prosocial behavior of others, and the effects of live modeling was evaluated by having participants view the prosocial behaviors of three confederates. A total of
125 college students participated in this laboratory experiment, which found that participants’ prosocial behavior increased when confederates performed prosocial behaviors in the immediate social environment. Reading prosocial scripts had no effect on fostering prosocial behavior. In addition, live modeling showed greater effect on fostering prosocial behavior than symbolic modeling and there were no interaction effects between symbolic and live modeling. This study advances the existing body of literature by illuminating the effects of social influence on prosocial behavior.

Although the long-term prosocial behaviors of individuals are clearly important, this study explored the less understood area of the malleability of such behaviors and found that prosocial behaviors can be encouraged by live modeling in immediate social context. Results from the present study of symbolic modeling suggest that indirect exposure to prosocial stimuli through written scripts may not sufficient to increase students’ prosocial behavior. Instead, prosocial behavior may be enhanced by directly exposing students to someone who behaves in a prosocial manner. Therefore, educators and researchers should consider the effect of direct social interactions when developing educational programs or establishing policies to increase students’ prosocial behavior.

Keywords: prosocial behavior, symbolic modeling, live modeling
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INTRODUCTION

One long-standing issue in the domain of psychological and educational research involves understanding why people contribute to charity or help someone they have never met (Berndt, 2014; Davidio, Piliavin, Schroeder, & Penner, 2006; Eron & Huesmann, 1984). Biological theorists have interpreted this behavior as evidence that the human gene innately disposes our species toward altruism (Campbell, 1979), and evolutionary theorists have tried to understand this behavior in terms of Darwin’s principle of natural selection (Hamilton, 1964; Sapolsky & Share, 2004). Traditional Kantian perspectives have explained prosocial behavior as the result of an inner moral compass (Calhoun, 2004; Kant & Mary, 1996). In addition, well-known theories, such as Kohlberg’s (Kohlberg & Hersh, 1977) and Gilligan’s (Gilligan, 1977) theories of moral development, assume that the morality of actions is affected by the maturity of an individual’s moral reasoning or his/her gender. According to this view, which treats internal characteristics as crucial components of prosocial behaviors, such behaviors are stable and consistent across situations.

However, in contrast to these approaches, social psychologists have understood prosocial behaviors in the light of social context (Fiske, Harris, & Cuddy, 2004). Indeed, overwhelming evidence has corroborated the notion that interpersonal situations can change human behavior in significant ways (Asch, 1956; Bond & Smith, 1996; Cialdini & Goldstein,
The present study investigated human prosocial behavior from the perspective of Bandura’s Social Cognitive Theory (SCT; 1965), treating this behavior as a component of social interactions. Two theoretically plausible kinds of influence on prosocial behavior were tested. The first one examined was whether written descriptions of a person who displayed prosocial behaviors could affect the participants’ prosocial behavior. The other one was whether direct exposure to actual people (i.e., confederates) acting prosocially could influence prosocial behavior.

Prosocial human behavior is strongly influenced by transient, subtle, and even seemingly irrelevant environmental factors. People behave more prosocially when they are primed with the concept of death (Jonas, Schimel, Greenberg, & Pyszczynski, 2002) or God (Shariff & Norenzayan, 2007). They also behave prosocially when they retrieve childhood memories (Gino & Desai, 2012) or when they smell a pleasant odor (Baron, 1997). Furthermore, people behave more antisocially when they feel hot (Anderson, Deuser, & DeNeve, 1995; Anderson, 2001) or experience physical discomfort (i.e., placing one’s hands in very cold water) (Berkowitz, 1990). These previous results suggest that prosocial behavior is not only a foundational and consistent aspect of personality but also highly malleable and unstable in response to immediate situations.

The landmark Stanford Prison Experiment (SPE) raised a fundamental question about the malleability of ethical behavior (Haney, Banks, & Zimbardo, 1973). Researchers selected the 21 mentally and
physically healthiest of an initial pool of 75 male college students who volunteered to participate in this experiment. The participants were thoroughly screened in terms of psychiatric history, family background, socioeconomic status, and history of antisocial behavior before participation.

In the experiment, students were randomly assigned to play a prisoner or a guard in a simulation of a prison setting. Within 2 days of the start of their “imprisonment”, more than half of the prisoners had to end their participation due to severe depression, rage, and anxiety. In the simulated prison setting, guards insulted, threatened, and humiliated prisoners, who had assumed this role by chance. This experiment directly demonstrated that social situations have sufficient power to lead ordinary people to behave inhumanly.

Three decades after the SPE, people were shocked at events involving the abuse and torture of an Iraqi prisoner by American soldiers at the Abu Ghraib prison in 2003. After these events became public, those in charge blamed a few bad soldiers, attributing the incident to the character of several aberrant individuals (Carter, 2004). However, psychologists argue that the power of interpersonal phenomena must be considered in attempts to understand why this event happened (Fiske et al., 2004). Indeed, ordinary people can act maliciously in certain situations (Brewer, Cantor, & Kerr, 1999; Zimbardo, 2011). Thus, the situational factors that lead humans to behave either antisocially or prosocially must be identified and understood.
SCT treats the social environment as a fundamental contributor to human behavior. People learn and change their behavior by observing others around them (Ruston, 1982). Based on the early ‘Bobo doll’ experiment, Bandura concluded that the behavior of others is one of the most important influences on ethical or unethical behavior (Bandura, Ross, & Ross, 1963; Bandura, 1965b). Students who witnessed the prosocial behavior of others behaved prosocially in a subsequent task. In other words, the responses of others to a Bobo doll led to attempts to imitate such responses.

SCT suggests two levels of analysis at which interpersonal interactions can affect prosocial behavior among humans: symbolic and live modeling (Bandura, Blanchard, & Ritter, 1969). Symbolic modeling, which occurs at a level more distant than the immediate social environment, involves learning by observing the behavior of others via media such as newspapers or television. Live modeling refers to the modeling that occurs in one’s proximate and immediate social context, including via direct contact with another person (Charlop-Christy, Le, & Freeman, 2000).

Social cognitive theorists have documented that symbolic modeling affects the behavior of humans (Liebert & Sprafkin, 1988). The fictional models that appear on television, in newspapers, or in books have strong effects on behavior. One meta-analytic review reported that the social cognitive model can explain the increased risk of aggressive behaviors associated with playing violent video games (Anderson et al., 2010). These
results support the notion that prosocial behavior may be improved by symbolic modeling.

However, the influence of indirect exposure to the behavior of others on human behavior has been the subject of considerable controversy among researchers. Recent studies have found that symbolic modeling (i.e., playing video games) has no effect on behavior (Tear & Nielsen, 2013). Mere exposure to a violent model via media does not lead to behavioral change (Elson & Ferguson, 2014). These controversial results are partially attributable to the fact that the effects of symbolic modeling may differ depending on the dependent variables (Bandura et al., 1969). For instance, symbolic modeling reduced fear of animals but had little effect on social fear. Therefore, the effect of symbolic modeling should be further investigated in other domains, such as fostering prosocial behavior.

Furthermore, the mode of symbolic modeling may influence its effects. Models in videos, games or written scripts could lead to different effects. Examining the effects of symbolic modeling thorough reading scripts is an important issue in the educational setting. For example, the educators hope to enhance students’ attitude for caring others by letting the students read many stories about biographies of people who devoted themselves to helping the poor. However, previous studies, from the perspectives of SCT, have rather focused on the effects of other, more visual forms of symbolic modeling such as watching TV programs or playing video games (Anderson et al., 2010; Carnagey, Anderson, &
Bushman, 2007; Tear & Nielsen, 2013). Therefore, the effects of symbolic modeling in the form of script reading should be further investigated.

Live modeling is a major contributor to behavior (Bandura et al., 1969). According to SCT, students change their behavior in response to their immediate social surroundings. One recent study, which found that moral decisions were affected by the judgments of others, reported that participants were more inclined to agree with a given action when confederates agreed with such an action in a trolley dilemma task (Kundu & Cummins, 2013). Because live modeling is the most effective way to affect the behavior of others (Bandura et al., 1969), it is plausible that such modeling also affects prosocial behavior.

Compelling social psychological evidence has also suggested a strong relationship between live modeling and behavior. For instance, conformity (Cialdini & Goldstein, 2004) and the bystander effect (Checkroun & Markus, 2002) clearly demonstrate the influence of the response of others on the actions of individuals. Examination of the live modeling effect may even be more salient in collectivistic than in individual cultures, as people in the former are more likely to understand themselves as interdependent (Markus & Kitayama, 1991). In addition, live modeling may have a greater influence on those with the trait of prosocial behavior than on those without this trait. In general, most societies seem to favor efforts to help poor people (Davidio et al., 2006). This suggests that people are inclined to act in ways that are consistent with others’ expectations rather than in ways that reflect
their actual desires. In the situation that many others (i.e., live models) behave prosocially, it is difficult to ignore such prosocial behavior. Indeed, the social desirability bias may facilitate the effect of live modeling on prosocial behavior.

Comparison of the effects of different types of modeling has remained an important research domain that may contribute to the literature regarding the use of modeling as an intervention. However, such comparative studies are rare, and more research in this area is needed (Delano, 2007). According to Delano (2007), only one of the 19 studies regarding autism treatment published from 1985 to 2005 included comparisons between symbolic and live modeling. The results of the comparative studies of modeling differ depending on the dependent variables and the characteristics of the subjects (Charlop-Christy et al., 2000; Ergenekon & Tekin-Iftar, 2014). Direct comparisons of the effects of different modeling manipulations should provide valuable information about appropriate interventions.

Researchers in many educational settings try to encourage the performance of desirable actions, but they tend to devote more attention to symbolic than to live modeling. For example, children and older students read many stories about great people who devoted themselves to helping the poor and the sick, and television programs have been developed to increase students’ prosocial behavior (Calvert & Kotler, 2003; Cole et al., 2003). However, no direct empirical evidence about which kind of modeling is
more effective for fostering prosocial behavior has been described. Comparative studies would provide educators with an empirical basis for selecting appropriate approaches to modeling aimed at facilitating students’ prosocial behavior.

Furthermore, the effect of live modeling on behavior may vary depending on the presence of symbolic modeling. Although no direct evidence about the interaction between live modeling and symbolic modeling is available, several lines of research lend support to this hypothesis. First, the presentation of multiple models has been more effective than the presentation of a single model (Bandura & Menlove, 1968). Films illustrating diverse models significantly reduce students’ fear and avoidance behavior toward animals compared with those that include only a single model. Therefore, the effect of live modeling may be enhanced when a symbolic model is also presented. Second, previous research has found that symbolic modeling activates mental representations (Custers & Aarts, 2007). For instance, when people read scripts related to helping, mental representations about helping were activated, rendering such representations accessible and increasing individuals’ willingness to help. Therefore, it is plausible that symbolic modeling may contribute to the activation of motivational states (Fishbach, Dhar, & Zhang, 2006). Although symbolic modeling may not be adequate to affect behavior, it could have certain influence on facilitating the effect of live modeling on prosocial behavior.
The present study builds on previous work in three important ways. First, this study used the framework of SCT to understand prosocial behavior. Prosocial behavior, particularly behavior directed at improving society and alleviating suffering, has long been understood as an outcome of internal convictions and, thus, considered difficult to cultivate (van der Linden, 2011). However, SCT suggests the possibility that behavior can also be transient, changeable, and subject to alteration by modeling depending on social context. These approaches broaden our understanding of the nature of human prosocial behavior.

Second, this study focused on fostering students’ positive behavior. A substantial number of empirical studies have found that modeling can have positive effects on clinical issues, such as reducing fear (Bandura et al., 1969; Bandura, Grusec, & Menlove, 1967), treating autism (Delano, 2007; Wert & Neisworth, 2003), ameliorating the symptoms of Asperger’s syndrome (Lang et al., 2009), developing skills (Custers, Regehr, McCulloch, Peniston, & Reznick, 1999), or increasing academic motivation (Martino, Collins, Kanouse, Elliott, & Berry, 2005; Oman et al., 2012). Furthermore, educators and psychologists have been studying the effect of modeling mainly on students’ antisocial behaviors (Anderson et al., 2010; Gentile, Lynch, Linder, & Walsh, 2004; Tear & Nielsen, 2013), but relatively few studies regarding students’ prosocial behavior have been performed.
With the emergence of positive psychology in the 2000s, the importance of understanding the positive characteristics of humans, including those related to mental health, has been recognized as a critical millennial issue (Seligman & Csikszentmihalyi, 2000). Examination of the positive traits of people can enhance our quality of life and mental health (Seligman, Steen, Park, & Peterson, 2005). Therefore, researchers should focus on how to encourage students to behave prosocially rather than on only how to reduce students’ antisocial behaviors (Larson, 2000).

Third, the present study focused on actual behavior. Academic research regarding prosocial behavior is also important because it directly examines actual behavior. It has become increasingly important to transition from reliance on self-reports to reliance on observations of actual behavior (Baumeister, Vohs, & Funder, 2007). Introspective self-reports or responses to hypothetical scenarios cannot be used to make accurate predictions. It is abundantly clear that people do not always do what they say they will do. Furthermore, people are not always aware of all the significant factors that contribute to certain behaviors or that affect their emotions and cognitions (Nisbett & Wilson, 1977; Wilson, 2004). Baumeister and colleagues (2007) found that only 8% (i.e., 3 out of 38) of studies published in a psychological journal concerned real behavior. In addition, the percentage of studies that investigate actual behavior has decreased during the past three decades (i.e., from the end of the 1970s to 2006). In this context, the American Psychological Association (APA) designated the 2000s the “Decade of
Behavior” to underscore the importance of the study of behavior. The significance of studying actual behavior has been increasingly recognized in academic psychology.

An understanding of prosocial human behavior can make a meaningful contribution to real life, as prosocial behavior can save lives and sustain society (Murphy, 2002). At times, the lack of prosocial intentions and behaviors cause tragic events, such as the holocaust (Kranzler, 1983). Prosocial behavior is closely associated with social bonds (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), which are fundamental to the development of communities. For these reasons, researchers, educators, and policy makers have tried to explain why and how prosocial behavior occurs.

Moreover, the understanding of prosocial behavior and the identification of effective ways to facilitate such behavior can improve the helper’s psychological health. Many empirical studies have found evidence of causal relationships between engagement in prosocial behavior and individual well-being (e.g., Mellor et al., 2008; Thoits & Hewitt, 2001). Therefore, understanding this behavior and developing ways to foster it are essential for both recipients and helpers.
Purpose of Study

The purpose of this present study was to critically examine the empirical evidence for the causal relationship of interpersonal social environment on prosocial behavior. Based on SCT, effects of social environments are divided into symbolic modeling and live modeling. The symbolic modeling was defined generally as a distal interpersonal environment, not affect in straight manner, but affect through alternative messengers such as scripts. The live modeling was defined as immediate interpersonal surrounding such as significant others. The effects of two kinds of modeling were tested in the experiment of the study.

This study aimed to test the effects of modeling on prosocial behavior, especially the helping behavior for someone of no previous acquaintance. First, this study investigated the effects of symbolic modeling, which let participants know that other members of the society behave prosocially in an indirect way (i.e., reading scripts), as well as live modeling, in which the others in the immediate context behave prosocially on individual’s prosocial behavior. Second, the different influencing effects between symbolic modeling and live modeling were compared. Third, this study tested the varying effects of live modeling depending on the presence of symbolic modeling.
Theoretical Framework

Theoretical framework of this study is grounded in SCT (Bandura, 1989). This social psychologically oriented theory focuses on the influence of interpersonal surroundings on human behavior. Observing other people’s behavior could change individual’s attitude, value, emotion or behavior. From the perspective of SCT, both symbolic modeling and live modeling have influence on prosocial behavior. However, recent studies argue the notion that the effect of symbolic modeling could be varied depending on what measures were used or the contents of manipulation (Doyen, Klein, Pichon, & Cleeremans, 2012; Pashler, Coburn, & Harris, 2012). Social cognitive theorists also assert that there are distinguished effects depending on characteristics of models (Bandura et al., 1969). Therefore, there could be different effects of symbolic modeling and live modeling on fostering prosocial behaviors.

This study, which examines the relationships between other’s behavior and prosocial behavior, highlights how two distinct multifaceted models (i.e., symbolic modeling, live modeling) have different influence on prosocial behavior. This theoretical framework extends from the earlier understanding about the prosocial behavior by considering the rather unnoticed area of malleability of behavior. Furthermore, the framework advances the SCT by narrowing down the scope of social influence; symbolic and live modeling.
Research Questions and Hypothesis

Based on the previous research on SCT and prosocial behavior, the present study addresses research questions investigating the causal effects of other’s behavior on individual’s prosocial behavior. The effects of the symbolic modeling, in which others’ behaviors are observed via text, and the live modeling, in which actual people’s behaviors are observed, were examined. The research questions are as follows:

1. Does modeling influence prosocial behavior?
   1-1. Does symbolic modeling influence prosocial behavior?
   1-2. Does live modeling influence prosocial behavior?
2. Does live modeling show greater effect on prosocial behavior than symbolic modeling does?
3. Does the effect of live modeling vary depending on the presence of symbolic modeling?

The central hypothesis guiding the subsequent study presented here is that human’s prosocial behavior is under influence of other’s behavior. Specifically, grounded on the literatures on SCT and prosocial behavior, it was hypothesized that live modeling would show influence on fostering individual’s prosocial behavior, whereas effects of symbolic modeling would be little. In addition, live modeling showed greater effect on prosocial behavior than that of symbolic modeling. Lastly, there would be a
greater effect of live modeling when it is accompanied by symbolic modeling. That is, symbolic modeling alone would not be sufficient to foster prosocial behavior, but there could be an interaction effect between symbolic and live modeling.

**Definition of Terminology**

*Prosocial Behavior*

Prosocial behavior is an umbrella term for the human behavior with the intention to benefit others (Penner, Dovidio, Piliavin, & Schroeder, 2005). It covers broad range of action from helping in the situation of immediate emergency, helping by donating money to sharing something with others (Pearce & Amato, 1980). Cooperating with others is also considered as prosocial behavior (Davidio et al., 2006).

In this study, prosocial behavior refers the helping behavior that comes from social responsibility and concern (McCollum, 2009). The action is for betterment of society. This behavior can be considered as unique characteristic of human beings among animals (McAndrew, 2002). Engaging with volunteer work, blood donation and donation to charity for alleviation of a society member’s suffering and to improve one’s quality of life are examples of prosocial behaviors (Vugt, Synder, Tyler, & Biel, 2000).
Modeling

Modeling is a process of changes in cognition, emotion and behavior that happens by watching other’s behavior. Modeling occurs in the interpersonal setting in which people interact. The term modeling is used interchangeably with the term of observational learning and vicarious learning. Human can learn without having actual experiences but having vicarious experiences through observing either actual people in immediate social surroundings or virtual people (Barnett & Casper, 2001).

In this paper, modeling is categorized into two types, symbolic modeling and live modeling (Bandura et al., 1969). Symbolic modeling occurs through observing individual’s symbolic model. In this study, symbolic model is a character appearing within a written script. In the process of symbolic modeling, an individual observes behaviors of symbolic model and learn the information about the desirable behavior. On the other hand, live modeling refers to an observing and learning from actual person (live model)’s behavior in the immediate interpersonal surroundings. This means the live model simultaneously exists at the same time and place. In the similar vein with the symbolic modeling, an individual could get the information from live model about what adequate behavior is.
LITERATURE REVIEW

One of the most interesting and distinguishing characteristics of human being is the behavior that benefits others, such as helping, sharing, and cooperation. Over the years, researchers have tried to understand the origins, development, antecedent determinants, and consequences of prosocial behavior. Comprehensive approaches including biological understanding, emotional facets, cognitive aspects, temperament and socializing processes have been addressed. These factors interplay with each other to exhibit an individual’s prosocial behavior (Eisenberg, Fabes, & Spinrad, 2007). A brief review of the origins of prosocial behavior will be addressed and then the influencing factors such as empathy and socializing determinants and the consequences of prosocial behavior will be reviewed. And then, a review of SCT will follow.

The Roots of Prosocial Behavior

Fundamental questions about the origins of prosocial behavior have been discussed in various domains of fields such as psychology, philosophy, humanities or sociology. Evolutional or biological understandings are the examples of main approaches to comprehend the roots of prosocial behavior. Evolutionary theories emphasize evolutional determinants of prosocial behavior (Burnstein, Crandall, & Kitayama, 1994; Michod, 1982).
Biologically oriented theories tend to emphasize a genetic disposition or neuronal mechanism in production underlie prosocial behavior (de Vignemont & Singer, 2006; Moll, Zahn, de Oliveira-Souza, Krueger, & Grafman, 2005).

In the evolutionary perspective, human’s prosocial behavior could be retained because the behavior is evolutionary advantageous and helps survival of species. This explanation includes the key concept of natural selection (Buss, 2011) and evolitional development (Confer et al., 2010). Helping is usually mutual behavior, if a person helps an individual, in return he or she will help in the future when the person who helped before is in need. This “reciprocal altruism” could increase the likelihood of survival (Axelrod, 1984; Trivers, 1971). Furthermore, recent experimental research showed that the behavior is inherently advantageous (Dawans, Fischbacher, Kirschbaum, Fehr, & Heinrichs, 2012). When the participants experienced the acute stress of socio-evaluative threat, they were more prone to behave sharing and showed high trustiness toward partner. This stress-buffering function of prosocial behavior supports the notion that the behavior could be retained for a long time because it has power to benefit human’s living.

Main theories of evolutionary perspectives was kin selection theory (Michod, 1982). The theory stressed on the people that genetically close to one another. As larger of percentages of genes between two people shared, the likelihood of prosocial behavior is increased (Foster, Wenseleers, &
Ratnieks, 2006). In danger situation, people try to help close relatives than strangers (Burnstein et al., 1994).

On the other side, biological perspectives suggest that genetic disposition has a main role in human’s prosocial behavior (Zahn-Waxler, Robinson, & Emde, 1992). To determine the genetic influences on prosocial behavior, a twin study has been performed. The results showed that students’ prosocial behavior is influenced by genetic disposition.

One twin study involved 184 twin pairs, 94 monozygotic (MZ) twins and 90 dizygotic (DZ) twins, with age from 14 to 20 months (Zahn-Waxler et al., 1992). Prosocial behaviors were measured by the presence of a helping response to help the twin’s mother or experimenter. In this study, MZ twins showed higher correlations on prosocial behavior than DZ, and researchers found that there were significant genetic effects across ages.

Another study that included 839 pairs of twins (509 MZ twins, 330 DZ twins) of high school students found significant heritability for empathic concern (heritability estimate = .28) and personal distress (heritability estimate = .32) (Davis, Luce, & Kraus, 1994). There was also a significant heritability of altruism (.38 to .72) in 475 twin pairs aged 16 to 60 (Rushton & Fulker, 1986). A recent longitudinal study investigated the effect of heritage on prosocial behavior among 9,424 pairs of twins at age from 2 to 7 (Knafo & Plomin, 2006b). On average, the proportion of variance in twin’s prosocial behavior that can be accounted for by genetics was increased from .32 to .61. In contrast, the estimate of shared environment
was decrease from .47 to .03. Indeed, genetic disposition is able to explain important parts of stability and development of an individual’s prosocial behavior.

**Influence of Empathy on Prosocial Behavior**

For three decades, substantial amount of studies have suggested the evidences of a strong relationship between empathy and prosocial behavior (Laible, Carlo, & Roesch, 2004; Padilla-Walker & Christensen, 2011; Toi & Batson, 1982). Empathy, or shared emotional experiences with others, gives a clue for interconnection with the self and others (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). This feeling of oneness elicits the motivation for helping others. Furthermore, empathy shows developmental characteristics. As students grow older, they become to feel more empathy toward others and show increased prosocial behavior (Eisenberg et al., 2007).

There are two explanations for the effects of empathy on prosocial behavior. First, the level of empathy is used as a criterion for assessing the severity of other’s situation and helping behavior is varied depending on the extent of the individual’s emotional empathy (Batson et al., 1989). The more empathy an individual feels, the more the likelihood to engage in helping increases. Second, the negative state relief explanation suggests that people are more prone to help when they feel empathy because the act of
helping decreases negative emotional arousal (Schallerand & Cialdini, 1988). Observing others in trouble elicit a depressed mood. To lessen or eliminate the negative emotion, people try to help the troubled. However, there has been an opposite assertion that this egoistic negative-arousal reduction hypothesis is not appropriate (Stocks, Lishner, & Decker, 2009).

Recent study revealed that the effect of empathy on prosocial behavior is varied depending on group membership (Stürmer, Snyder, & Omoto, 2005). Feeling empathy predicted prosocial behavior when the participant and the other person (i.e., client, partner) had the same sexual orientation (used as a manipulation of in-group condition). However, when the other person had a different sexual orientation (used as a manipulation of out-group condition), the attractiveness of that person had more power in predicting the individual’s prosocial behavior than did empathy. In summary, previous results have shown that feeling empathy leads to prosocial behavior, but the mechanisms and moderators of its influence are still under investigation.

**Social Influence on Prosocial Behavior**

Social surroundings could influence an individual’s prosocial behavior. Especially, interpersonal interactions with parents, teachers or friends have an influence on students’ prosocial behaviors. These results show that the prosocial behavior can be swayed by social interactions.
Parental Influence

There is a compelling evidence for the parental effects on children’s prosocial behavior (for review, see Eisenberg et al., 2007). Parenting style is one of the most important influencing factors for prosocial behavior. For more than three decades, researchers have revealed that an authoritative parenting style, rather than an authoritarian one, is closely related with a child’s prosocial tendency in preschoolers (Baumrind, 1967), 8 to 10 year-old children (Kochanska, 1991), or 11 to 14 year-old students (Krevans & Gibbs, 1996). The more autonomy of the children supported by the parents, the more prosocial the children become (Clark & Ladd, 2000). A prental style nurturing and encouraging a child’s independency could induce prosocial behavior in students.

In a similar vein, studies reported that helping behavior increases when the parents give their children a warm care. A longitudinal study of 9,319 twin pairs revealed that parental warmth and child’s prosocial behavior have a strong positive relationship (Knafo & Plomin, 2006). Mother’s empathic caregiving is closely associated with her child’s altruism (Zahn-waxler, Radke-yarrow, & King, 1979). On the other hand, a punitive parental style was associated with children’s problematic behavior such as aggression and disruptive behavior (Eisenberg et al., 1999) and lower levels of prosocial behavior (Russell, Hart, Robinson, & Olsen, 2003).
One possible mediator of parental discipline and children’s prosocial behavior is the level of empathy (Krevans & Gibbs, 1996). Warm rearing climates help children to develop empathy, connectedness and concern for others, so that the children could show high levels of prosocial behavior (Hastings et al., 2000; Robinson, Zahn-Waxler, & Emde, 1994). Furthermore, some studies showed that there are mother- or father-specific effects on students’ prosocial behavior (Roberts, 1999). For instance, the same-sex parent had more power on the students’ emotional response than did the one with opposite sex (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991). Positive mothering, measured by the either the frequency of mother’s involvement in school activities or mother-child connectedness, affects the child’s prosocial behavior toward strangers, but positive fathering does not (Padilla-Walker & Christensen, 2011). In summary, previous results have shown that a parental style of warmth which supports the children’s autonomy leads to their prosocial behavior in a manner that enhances empathy for others.

Teacher Influence

Teachers can influence students’ prosocial behaviors. Typically, teacher-student relationships show a strong association with the students’ social emotional competence. The quality of the teacher-student relationships is an important predictor of students’ social relationships (Howes, Matheson, & Hamilton, 1994). When the students have positive
teacher-students relationships, the students feel more secure in class and they can use the relationships as a resource for constructing positive peer relationships (Howes, 2000). Through this process, more adaptive and less aggressive behaviors are elicited.

Previous studies have revealed the association between teacher-students relationship and prosocial behavior in kindergarten students. Results showed that the more positive relationship the students have with teachers, the more prosocially the students behave (Kienbaum, 2001; Mitchell-copeland, Denham, & Demulder, 1997). Closeness with the teacher positively associated with prosocial behavior ($r = .65$) and negatively associated with antisocial behavior ($r = -.44$) (Birch & Ladd, 1998).

The prosocial classroom model suggests a theoretical framework of teachers’ influence on students’ social outcomes (Jennings & Greenberg, 2009). According to this model, teachers’ social and emotional competences (SEC) and well-being are related with the quality of teacher-students relationship and classroom management. These abilities help to cultivate a healthy classroom climates and as a consequence, students show better academic outcomes and adaptive social behaviors, such as prosocial behavior.
Peer influence

Peer relationship is another important factor for students’ prosocial behavior (Eisenberg et al., 2007; Hastings, Utendale, & Sullivan, 2007). A 3-years longitudinal study with 22 to 40 months-old children showed that giving help toward and receiving help from friends had different effects on the students’ prosocial behavior in the subsequent year (Persson, 2005). Children who showed unselfish behavior for others received more helping from others in the subsequent year, whereas children who received help from other were not associated with any prosocial behavior toward others in the subsequent year. In this session, influencing effects of peer relationships on prosocial behavior will be addressed.

Social exclusion has been associated with lower levels of prosocial behavior (Twenge et al., 2007). A 2-year longitudinal study indicates that the experience of being rejected from peer in grade 6 predicts less prosocial behavior and less prosocial goal pursuit in grade 8 (Wentzel, Barry, & Caldwell, 2004; Wentzel, 2003). Changes in the numbers of nominations by classmates as “liked” (social acceptance) or “disliked” (social rejection) associated with the children’s prosocial and aggressive behavior (Haselager, Cillessen, Van Lieshout, Riksen-Walraven, & Hartup, 2002). The more positive peer relationships the students have, the more prosocial behaviors the students show.

Perceptions of friends’ attitudes also affect an individual’s prosocial behavior (Zaff, Moore, Papillo, & Williams, 2003). Nationally
representative samples of students, with grades ranging from 8 to 12, showed that if students perceived their friends as underscoring the importance of finishing high school, attending class regularly or getting good grade, they were more prone to attend volunteer activities by a rate of 23%. Thus, the perceptions of friends’ attitudes can change an individual’s prosocial behaviors. In summary, peer relationships, including acceptance and rejection, and perception of friends’ attitudes have crucial impacts on students’ prosocial behavior.

**Consequences of Prosocial Behavior**

Prosocial behavior is defined as a behavior that benefits others. This term includes the assumption that recipient benefits from others’ prosocial behaviors. Engaging in prosocial behavior entails a loss of resources such as money or time; thus, it is seemingly a sacrificing behavior. Then, what happened to the helper? Recent studies have showed that performing prosocial behavior is beneficial to the helper. An individual’s psychological well-being and social relationships or status could be enhanced through the performance of prosocial behaviors.

*Enhancing Psychological Well-being*

Previous research has proved that prosocial behavior is related with positive outcomes such as self-esteem (Laible et al., 2004), mental health
(Schwartz, 2003) and personal well-being (Thoits & Hewitt, 2001). Recent research have found that prosocial behavior has a causal impact on happiness (Aknin et al., 2013). Motivation to help others increases the well-being of the helping person (Weinstein & Ryan, 2010). In addition, participants presented more sharing behavior after being exposed to acute psychosocial stress than did the control group who was not exposed to the stress (Dawans et al., 2012). This result suggests that the prosocial behavior is naturally rewarding and may have a role as to compensate for stress.

Studies of brain imaging showed that prosocial behavior is related to rewarding mechanisms. Charitable donation has been linked with fronto-mesolimbic networks (Moll et al., 2006) and ventral striatum (Harbaugh, Mayr, & Burghart, 2007), the regions that are known as rewarding pathways. These results provide suggestive evidence that humans’ prosocial behavior is inherently rewarding. Therefore, it is valuable to find the environments or social influences that foster human’s prosocial behavior for both the society and the students.

Improving Social Relationships

An individual’s prosocial attitude and behaviors may have an effect on improving one’s social relationships. Studies have found a strong positive association between students’ prosocial attitude and peer relationships. The more prosocially oriented the children are, the more friends and peer acceptance the children will get (Clark & Ladd, 2000).
prosocial orientation of kindergarten children exhibited medium to large relationships with the variables related to peer relationships: the path weight between prosocial orientation and peer acceptance was .43; between that and the number of mutual friends, .32; and between that and friendship harmony, .30. Similar results were shown among the children at age 7 to 8 (Gest, Graham-Bermann, & Hartup, 2001). Children’s prosocial skills are associated with the number of friends and network centrality.

Students’ prosocial behavior significantly predicts social acceptance in elementary school-aged students (i.e., first-, third- and fifth-grade children) (Deković & Gerris, 1994). For boys and girls, sharing and helping behavior is an important social behavior that induces peer preference (Keane & Calkins, 2004). In addition, engaging in prosocial behaviors contributes to enhancing the benefactor’s reputation and social status (Hardy & Van Vugt, 2006; Van Vugt & Hardy, 2009). Taken together, these studies suggest that prosocial behavior yields benefit for the helper as well as the recipient.
Social Cognitive Theory (SCT)

It is important to underscore that the majority of previous perspectives regard the prosocial behavior as relatively stable and consistent characteristic. SCT throws an important aspect of human’s behavior; the behavior has social component and that is concurred with social surroundings. Before addressing the issue of understanding human’s prosocial behavior based on the SCT, basic conceptual structures of the theory should be considered (Bandura, 1971; Olson & Hergenhahn, 2009).

Main premise of SCT is that environment, person and human’s behavior interacts reciprocally. This perspective is evoked from the disagreement of viewpoint of behaviorism which considers environment impinge upon one’s behavior and the disagreement of psychodynamic theories that treating human’s interior motivation as a key determinant of human behavior or the disagreement of behaviorism that concerning environment as a crucial determinant on behavior. Human have power to regulate one’s behavior or transform the environment. Concurrently, human’s behaviors are varied in different surroundings and situations such as different person they interact or social role one taken. These perspectives have bear substantial studies in various domains of academic fields (Shin, Choi, & Yeon, 2014; Shin & Shin, 2006).

In the SCT, personal characteristics (P), behavior (B) and environment (E) enact simultaneously to express a human’s behavior
(Figure 1). This relationship is referred to as ‘Triadic reciprocal determinism,’ indicating three-way interactions. Specifically, the P, the B and E segments of the reciprocal causation assume that a person creates environment circumstances or one’s behavior; the environment produces behavior or affect the person; and one’s behavior could affect the person or change the environment. A human behavior could change the environment and in turn, the environment could affect human characteristics and behaviors.

Figure 1. Model of triadic reciprocal determinism.

Most importantly, the theory places special stress on “vicarious”, “symbolic” and “self-regulation” (Bandura, 1971). There are the three key capacities of human. First, human can learn from vicarious experience. Traditional theories concern learning occurred from direct experiences (Zurif, 1985). Numerous trials and errors are inevitable to acquire different responses in certain situation. However, SCT demonstrates that humans
learn from vicarious experience. By observing both other’s behavior and consequences of the behavior, human can change one’s response in certain situation. Bandura (1971) termed this process as “observational learning” or “modeling”. Human beings go through virtual experiences from observation. Witnessing others’ actions modifies individual’s behaviors, emotional responses, and cognitive processes. Indeed, human seems to have evolved to learn through observing other’s behavior and mimic the behavior (Sweller & Sweller, 2006). Therefore, every event to which he or she is exposed could have critical effect on changing behavior.

Symbolic ability is another critical capacity of human. According to Bandura, humans do not transfer the learned information in the manner of input and output. They transform the information as mental representation through cognitive processes and the representation involves abstract rules acquired from experiences. Symbol roles as “vehicle of thought” (Bandura, 1989). Information could be encoded as various symbols such as verbal concept and imagination. Symbolic ability makes it possible to understand causal relationships from various direct or indirect experiences and to expand the knowledge structure. Human learns from a symbolic model that is depicted in films or novels since human being has ability to symbolize external stimuli (Bandura, 2001a).

Self-regulatory ability is another important capacity of human being. Humans’ behavior is not helplessly under control of environment. Humans have capability to control their own behaviors concurred with inner
standard (Bandura, 2001b). Moreover, they are able to modify environment and to change stimuli that give certain outcomes. Since students do not always have direct directions or external mandates in certain situation, having self-regulatory capability is desired consequences of learning.

**Modeling**

An essentially distinguished part of SCT is a concept of modeling. As mentioned earlier, human beings have ability to learn through observation of other’s response, when not having direct experiences. Modeling, observational learning and vicarious learning are used interchangeably, because the observational learning occurs as results of observing behaviors of models and having vicarious experiences. According to Bandura, a model can be anything that transmits information (Bandura, 1971). Virtual characters in a novel or film as well as actual people in reality could be model.

The term *modeling* is different from the term *imitation*. Bandura made a clear conceptual distinction by asserting that a modeling could either be involved with imitation or not (Bandura, 1986). Imitation means to mimic certain behavior exactly in the same way. In contrast, modeling is not simply just mimicking the model’s behavior; people generate inferences based upon the observations about it. Even 14 months-aged preverbal babies mimic demonstrator’s behavior only when the behavior is rational (Gergely, Bekkering, & Kiraly, 2002). Critical evaluation, rather than
simple reproduction of another person’s behavior, occurs in the modeling procedure.

In modeling procedure, what is transferred is the information. People learn from the model’s response that what proper behavior is in certain situation. The proper action could be the same as model’s action or be the opposite of that. For instance, when an individual observes a person (model) that tripped over a stone and soiled cloths, individual tries not to imitate the same behavior by swerving the direction (Olson & Hergenhahn, 2009). Therefore, the pivotal thing in observational learning or modeling is the information that model carries. Modeling is much more complex than simple mimicry.

There are several kinds of behavioral changes from modeling procedure (Bandura, 1965a). First, modeling could make observer learns new ways of behavior. It may be an acquisition or inhibition of behavior. Usually, vicariously reinforced behavior leads acquisition and punished behavior lead inhibition of the behavior. Through this process, students learned new manners of behavior. Second, certain behavior that already learned can be facilitated through the modeling processes. The likelihood of behave similar response of model is increased via modeling. For instance, other’s clapping in the concert facilitate individual to clap together.
**Neural Mechanisms of Modeling** Recent neuroscience studies, particularly those about mirror neuron system, have provided important insight into the neuronal processes of modeling (van Gog, Paas, Marcus, Ayres, & Sweller, 2009). Mirror neuron system was accidentally discovered by di Pellegrino and colleagues (di Pellegrino, Fadiga, Fogassi, Gallese, & Rizzolatti, 1992). The researchers were originally studying about the neuronal activities in premotor cortex that takes place while a monkey conducted certain hand movement such as grasping, holding or tearing. Interestingly, the same neurons were activated when the monkey observed the experimenter perform the same hand behaviors. That is, the cortical pathways that are related with performing an action also react to witnessing others who perform the same action.

Subsequent brain imaging studies have demonstrated that a similar mirror neuron system exists in human (Cattaneo & Rizzolatti, 2009; Rizzolatti & Craighero, 2004). This system seems to enhance the efficiency of human behavior by preparing the brain to execute an observed behavior (Craighero, Bello, Fadiga, & Rizzolatti, 2002; Vogt, Taylor, & Hopkins, 2003). Moreover, researchers conjecture that the mirror neuron system helps to understand the intention of others’ behaviors (Rizzolatti & Craighero, 2004; Rizzolatti, 2005). Mirror neurons play a role in both recognizing others’ behavior and understanding the reasons behind the behavior. That is, the neurons are involved not only in the process of
imitation, but also in the process of understanding the underlying reasons of another person’s behavior, which is related to modeling.

Researchers used to understand that mirror neurons were activated only by witnessing biological actions such as movements of real human (Tai, Scherfler, Brooks, Sawamoto, & Castiello, 2004). However, another study found that the mirror neuron system responds to not only human model’s actions but also the action of a robot (Gazzola, Rizzolatti, Wicker, & Keysers, 2007). Furthermore, activation of mirror neuron can occur by symbolic behaviors. For instance, listening to sentences depicting actions (Tettamanti et al., 2005) or mental representations (i.e., imagination) of an action without a real body movement (Greze & Decety, 2001; Hurley, 2008) activates the cortical circuits responsible for performing the same actions. Mirror neurons become activated when people observe either the actual behavior of a live model or the mental representation of the behavior. In summary, neuronal studies about mirror neuron system demonstrate tangible evidence for the neurological process of modeling.

Four Processes of Modeling Attention, retention, production and motivation are four processes involved in successful modeling (Bandura, 1986). In order to learn from a model, an observer should pay attention to the model. Modeling is more effective when a model presents similarity with observers or model is competent, high status or attractive (Kazdin, 1974; Mussweiler, Rüter, & Epstude, 2004). After observing the model, the
information that is conveyed from the model should be retained. To conduct this process, reducing and transforming the information into symbolic structure would be done. In the retention process, transformed information is stored verbally or imaginarily for later use (Bandura, 1977). The third process is production of behavior. In this step, behavior is produced based on retained information. Importantly, to produce behavior in certain situation, motivational process should be followed. Main advance from traditional theories is to consider motivational process in learning process. Bandura (1977) asserts that organisms can learn without reinforcement. However, incentive, reinforcement, or motivational issues are necessary for producing learned behavior. A motive for utilizing learned behavior when performing the behavior is the sense of advantage.

To summarize, attention toward a model, remembering the symbolic information that a model carries, and reproducing the behavior when doing it is advantageous are the operations that observational learning or modeling take place. Therefore, if the modeling is not effective, it can be ascribed to that an observer does not have attention toward the model, that he or she fails to retain the information, or that an observer is physically unable to conduct, or does not have motivation to perform the behavior.

**Different Effects of Modeling** The effects of modeling varies depending on the characteristics of observer, incidences of reinforcement, contents of modeling occurred, or types of modeling (Bandura, 1965b; Bandura et al.,
1969). For instance, in the classical experiment of Bandura and colleagues (1963), they used a film where an aggressive adult appeared. In the film, the adult hit and kicked a doll. First group was exposed to the aggressive model, which got reinforced. The second group watched that the consequence of the model’s behavior was to get punishment. Lastly, the third group got neither reinforcement nor punishment. When all students were exposed to the doll, first group students who saw the reinforcement of aggressiveness showed the largest amount of aggressive behavior toward the doll. In contrast, the students who saw the model got punishment imitated the aggressive behavior at least. Vicarious reinforcement and vicarious punishment have crucial on the effect of modeling. Furthermore, Bandura found that boys had a tendency to show more aggressive behavior than girls did. These results showed that the effects of modeling are differentiated with the consequences of model’s behavior or the characteristics of individuals.

In addition, effects of modeling could be distinguished were distinguished in the field where the modeling occurred (Bandura et al., 1969). In clinical situation, he performed an experiment that to reduce fear toward animal, tissue damage, social interactions, or classical phobias. Even though modeling treatment (i.e., to see the model who does not have fear) was more effective than so was control condition (no model condition), there were differences depending on the fields that experiments were conducted. Symbolic modeling was the most effective to reduce animal fear.
and the least effective in reducing classical phobia. Therefore, these results showed the needs to specify the domain that the effect of modeling was examined.

*Symbolic and Live Modeling*

Previous studies reveal that there were differences between symbolic modeling and live modeling (Bandura et al., 1963). In the experiment of therapeutic application of modeling to reduce snake phobia, live modeling leads more approach responses toward a snake than symbolic modeling does (Bandura et al., 1969). That does not mean that the symbolic modeling is not effective. Symbolic modeling shows the same effect of classical therapeutic approaches, systematic desensitization, which is a system of gradually exposing from light stimuli to strong stimuli (e.g., exposing drawing to real snake). Indeed, there has been an recommendation that aggressive person portrayed in a television program should be reduced for viewers (Murray, 1973), and longitudinal studies suggest that the violent or educational media expose is related with physical and verbal aggression and prosocial behavior in preschool children (Ostrov, Gentile, & Crick, 2006).

The issue of symbolic modeling effect is in the same line of issue that recent argument of non-conscious goal pursuit (NCGP) (Custers & Aarts, 2010; Hassin, Bargh, & Zimerman, 2009). NCGP refers the goal pursuit occurred outside of individual’s awareness. That is when people are exposed to stimuli associated with certain contents; they are more inclined
to behave towards the exposed contents. The term ‘Non-conscious’ means that the mental state of an individual is not under one’s conscious control, but is a cause that induces physiological, psychological and behavioral changes (Tamietto & de Gelder, 2010; Wilson, 2004).

For instance, mere arrangement of the word “exert” right before the word “squeeze” improved intensity of handgrip force even when the word “exert” was presented below the threshold of perception (Aarts, Custers, & Marien, 2008). Participants were ready to ‘exert’ their power when they unconsciously saw the word ‘exert’. Furthermore, Bargh and colleagues (2001) found that when participants were exposed to words “win”, “compete” or “succeed” in the initial word-search puzzle, they could find more words in the later word-search puzzle than did the participants who were exposed to neural words, such as “building”, “turtle” or “green” in the initial word-search puzzle. All participants did not recognize the fact that the words shown in the initial word-search puzzle affects their subsequent performance. These results indicate that achievement related words induces non-conscious activation of achievement goal and leads participant to engage in self-regulation to achieve success in tasks out of awareness (Hassin et al., 2009). These results support the idea that symbolic modeling delivered through the manner of reading scripts could affect the individual’s prosocial behavior.

The effects of symbolic modeling and NCGP could be understood in the concept of priming. Priming is one of the most well known non-
conscious phenomena. It is a type of implicit memory where both acquisition and expression take place without conscious awareness (Schacter, 1987). Priming is an effect where processing is facilitated or differentiated without awareness when the stimuli (or related stimuli) are presented beforehand (Tulving, Schacter, & Stark, 1982).

However, studies have refuted the effect of priming on behavior. There is a fallacy of the effects (Vokey & Read, 1985). Nonconscious effects on behavior have been exceptionally difficult to replicate (Greenwald, Spangenberg, Pratkanis, & Eskenazi, 1991). The researchers argue that even when the effects exist, they are very small and stay briefly, less than a second (Pratte & Rouder, 2009). “Professor” or “Hooligan” priming showed any effect on academic achievement through 9 series of experiments with 475 participants (Shanks et al., 2013). The landmark experiment concluded that the participants in the elderly–priming condition had a tendency of walking slowly (Bargh, Chen, & Burrows, 1996), was not replicated in recent study (Doyen et al., 2012). Instead, the real causal effect was on the experimenter’s expectation of walking time. In the double blind experiment, experimenter was informed that the participants would walk slowly because of the priming effect. The results showed that experimenter measured the time congruent with information. Obviously, these contradict results showed the needs for further elaborative research.

In contrast to the indeterminate effects of symbolic modeling, there are reports of relatively robust effects of live modeling. A person’s actual
behaviors can influence others’ behavior. Especially in the situation where the proper action is ambiguous, people follow what another person is doing (Cialdini & Goldstein, 2004; Reno, Cialdini, & Kallgren, 1993). By observing actual behaviors, individuals learn the information about what the proper response is. Typically, researchers assumed that humans have an innate tendency to follow the majority of people’s responses (Kim, Liss, Rao, Singer, & Compton, 2012; Klucharev, Hytönen, Rijpkema, Smidts, & Fernández, 2009).

An innovative and striking study performed by Asch (1955) demonstrated the effect of other people’s responses on an individual’s action. Participants performed a simple line-length judgment task. In this task, participants showed an error rate of less than 1% when they performed the task alone. However, the error rate increased by 37% when confederates chose the wrong answer. By witnessing the confederates’ responses, participants’ behaviors were changed.

The term conformity refers to the matching of an individual’s behavior to that of a group (Crutchfield, 1955). People follow the group’s response. Interestingly, people conform to group pressure without awareness about the fact that they are influenced by it. Both explicit and implicit social climate can induce conformity. A tendency to conform to others’ responses has been revealed in various types of tasks (Asch, 1956). People showed conformity in objective tasks such as the line-length task (Asch, 1955), subjective tasks such as preference judgment (Alquist,
Ainsworth, & Baumeister, 2013), or memory tasks such as remembering previously presented items (Wright, Busnello, Buratto, & Stein, 2012).

Even though the previous studies about conformity have focused on the group dynamics such as the influence of group pressure (Trautmann-Lengsfeld & Herrmann, 2013), this phenomenon clearly shows the effects of live modeling. Live modeling refers to the process of changes in an individual’s behavior that happens by observing others’ responses.

Conformity is one possible consequence leading from live modeling. When many live models show the same behavior, a disposition to conform to the behavior of the models has been occurred. Based on the substantial evidence demonstrating the influences of conformity on various domains of behavior (Berns et al., 2005; Brown & Schaefer, 2010; Horry, Palmer, Sexton, & Brewer, 2012; Kundu & Cummins, 2013; Schnuerch & Gibbons, 2014), it is plausible to suggest the hypothesis that prosocial behavior could be fostered through the process of live modeling.

Furthermore, there are evidences that symbolic modeling could show additive effect of prosocial behavior when it is accompanied by live modeling. Though the previous studies have confirmed that the priming effect of symbolic modeling is not sufficient to induce behavioral changes (e.g., Shanks et al., 2013), it could help instigate the effect of live modeling on prosocial behavior. Priming is an effect where processing is facilitated when the stimuli are presented beforehand (Tulving et al., 1982). Facilitated processing indicates that there is an activation of mental representation and
enhancement for accessibility of the mental representation (Custers & Aarts, 2007). Custer and Aarts assert that when an accessible mental representation of certain theme (e.g., help) is established, it instigates the individual’s motivation to behave in a certain manner (e.g., helping others). Therefore, when symbolic modeling is accompanied by live modeling, the symbolic modeling could have an additive effect on fostering prosocial behavior.

**Modeling and Prosocial Behavior**

From the perspective of SCT, network of social influence is crucially affecting factor on human’s prosocial behavior. Not only the models in various immediate environments, such as parents, friends, teachers, significant acquaintances or strangers whom the individual meets directly, but also the models in mass media affect student’s prosocial behavior. Based on SCT, two theoretically plausible influences exist. First, through symbolic modeling, participants’ prosocial behaviors could be enhanced. Second, through live modeling, participants’ prosocial behaviors would be fostered.

The influence of symbolic modeling on students’ behavior has been considerably discussed among researchers and educators (Anderson et al., 2010; Carnagey, Anderson, & Bushman, 2007; Ferguson, 2007; Gentile et al., 2009; Tear & Nielsen, 2013), especially in the domain of aggressive game or violent television program. Most of the previous studies have
focused on the effect of violent TV programs or game on enhancing the children’s aggressive behavior or reducing their prosocial behavior (Anderson & Bushman, 2001; Anderson et al., 2008; Gentile, Lynch, Linder, & Walsh, 2004; Kirsh, 2003; Wei, 2007); there are few studies about the effect of symbolic modeling on written scripts.

For instance, a meta-analysis study with 136 published articles (130,296 participants) concluded that exposure to violent games has a causal effect on increasing aggressive behavior, cognition and emotion and decreasing prosocial behavior in both Western and Eastern cultures (Anderson et al., 2010). However, on the opposite side, researchers suggest that media violence cannot influence an individual’s behavior (Elson & Ferguson, 2014). Proximal violence such as family and peer violence has a more important influence on students’ aggressive behavior than fictional or digital violence in media. The effect of symbolic modeling on students’ antisocial or prosocial behavior still remains as controversial issues and needs to be investigated.

A few studies have reported the effect of symbolic modeling on prosocial behavior. In one study, Singaporean middle school students, Japanese children and adolescents and American undergraduates exhibited a positive relationship between prosocial video game and prosocial behavior (Gentile et al., 2009). In contrast, there was no significant relationship between violent video game and prosocial behavior (Tear & Nielsen, 2013). Different ways of measuring prosocial behavior, dissimilar materials of
symbolic modeling and different ages of participants have partially contributed to these contrasting results.

Furthermore, the previous results favoring symbolic effects on aggressive behavior cannot guarantee the proposition that prosocial media enhance prosocial behaviors. Aggressive and prosocial behavior are not simply opposite to each other, and reducing antisocial behavior is not the same as increasing prosocial behavior. Therefore, studies about the effects of symbolic modeling on prosocial behavior are needed.

Symbolic modeling can have different effects depending on the characteristics of prosocial behavior; namely, prosocial behavior toward strangers, friends, or family members (Fraser, Padilla-Walker, Coyne, Nelson, & Stockdale, 2012). The results argue that prosocial behavior toward a stranger has the most vulnerable and the least empathic characteristics compared to such behaviors toward close friends or significant people around an individual.

The influences of live modeling on students’ behavior relatively get lower attention compared to the effects of symbolic modeling in empirical studies. Although there were no direct previous studies that concern the relationship between live modeling and prosocial behavior, the underlying tenet of modeling—that observation of another person’s behavior leads to changes in an individual’s behavior—supports the notion that live modeling could foster prosocial behaviors. In classroom, friends’ prosocial behaviors in sixth grade predict the increase of an individual’s prosocial behavior in
eighth grade (Wentzel et al., 2004). It is possible to infer that if students have prosocially-behaving friends, the students’ prosocial behavior will be increased. Similarly, if the students have less prosocially-behaving friends, the students’ level of prosocial behavior will be decreased. These results clearly show that prosocial behavior of actual people either facilitates or impedes an individual’s prosocial behavior.

Furthermore, recent social psychological study showed that conformity was present in moral decision responses (Kundu & Cummins, 2013). For a long time, the decision about what behavior is right or wrong was regarded as a stable factor that did not sway by situational settings. However, Kunda and Cummins (2013) showed that morality response could change depending on others’ responses.

Another important supporting evidence is the bystander effect. Bystander effect typically shows the influence of other people’s presence on prosocial behavior. Individuals are more inclined not to help people in trouble, typically the victim, when others are present (Darly & Latané, 2002). Diffusion of responsibility to care for the victim is one plausible explanation. These previous results give clear evidence that an individual’s antisocial or prosocial behavior could change according to others’ responses.
METHOD

The current study was designed to investigate the causal relationship between modeling and prosocial behavior. Modeling was divided into two types of categories; symbolic modeling and live modeling. To examine the effects of symbolic modeling, whether reading written descriptions of people displaying prosocial behaviors affected the participants’ prosocial behavior or not was tested. To examine the effect of live modeling, whether direct exposure to confederates acting prosocially influences the participants’ prosocial behavior or not was tested. Participants’ prosocial behaviors were measured in two ways; (1) whether or not the participants attended a signature campaign for sick babies, (2) the amount of money donated to charity for sick babies.

Participants

One hundred and fifty two college students in Seoul, South Korea, participated voluntarily in the study through the means of online recruit advertisement. Every participant answered a pre-questionnaire, but 23 participants (15%) did not attend the laboratory experiment; 14 did not show up without notification, 9 canceled the participation due to their sudden schedule change. Furthermore, 4 participants (3%) were excluded from the data analysis because two reported suspicions about the authentic
purpose of the study and the other two had personal intimacy with the experimenter. This left 125 participants (71 women) for the analysis.

Mean age of 125 participants was 23 years 11 months ($SD = 2$ years 6 months). Ten (8%) were freshmen, 18 (14.4%) were sophomores, 26 (20.8%) were juniors, 35 (28%) were seniors, and 38 (30.4%) were over fifth year in college. Majors of participants were distributed. 24 (21.6%) were from College of Social Sciences, 18 (14.4%) were from College of Engineering, 17 (13.6%) were from College of Humanities, 16 (12.8%) were from College of Agriculture and Life Sciences, 14 (11.2%) were from College of Education, 14 (11.2%) were from College of Business Administration, 5 (4.0%) were from College of Natural Sciences, 5 (4.0%) were from College of Nursing, 4 (3.2%) were from College of Human Ecology, 4 (3.2%) were from College of Pharmacy, 2 (1.6%) were from College of Music, 1 (0.8%) was from College of Medicine, and 1 (0.8%) was from College of Art. The majors were presented in the Table 1. These classifications are followed those of Seoul National University (http://en.snu.ac.kr/undergraduate-programs).
## Table 1

**Frequency of participants’ majors**

<table>
<thead>
<tr>
<th>College and Department</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>College of Social Sciences</strong></td>
<td>24 (21.6%)</td>
</tr>
<tr>
<td>Economics</td>
<td>13</td>
</tr>
<tr>
<td>Political Science and International Relations</td>
<td>6</td>
</tr>
<tr>
<td>Communication</td>
<td>3</td>
</tr>
<tr>
<td>Anthropology</td>
<td>1</td>
</tr>
<tr>
<td>Geography</td>
<td>1</td>
</tr>
<tr>
<td><strong>College of Engineering</strong></td>
<td>18 (14.4%)</td>
</tr>
<tr>
<td>Mechanical and Aerospace Engineering</td>
<td>6</td>
</tr>
<tr>
<td>Architecture Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Chemical and Biological Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Electrical and Computer Engineering</td>
<td>1</td>
</tr>
<tr>
<td><strong>College of Humanities</strong></td>
<td>17 (13.6%)</td>
</tr>
<tr>
<td>English Language and Literature</td>
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<tr>
<td>Hispanic Language and Literature</td>
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<tr>
<td>Linguistic</td>
<td>2</td>
</tr>
<tr>
<td>Western History</td>
<td>2</td>
</tr>
<tr>
<td>Archaeology and Art History</td>
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<tr>
<td>Korean Language and Literature</td>
<td>1</td>
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<tr>
<td>Chinese Language and Literature</td>
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<tr>
<td>Russian Language and Literature</td>
<td>1</td>
</tr>
<tr>
<td>Korean History</td>
<td>1</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>1</td>
</tr>
<tr>
<td>Missing (i.e., answered as “Humanities”)</td>
<td>1</td>
</tr>
<tr>
<td><strong>College of Agriculture and Life Sciences</strong></td>
<td>16 (12.8%)</td>
</tr>
<tr>
<td>Food and Animal Biotechnology</td>
<td>6</td>
</tr>
<tr>
<td>Landscape Architecture and Rural System</td>
<td>4</td>
</tr>
<tr>
<td>Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Plant Science</td>
<td>2</td>
</tr>
<tr>
<td>Agriculture economics and Rural Development</td>
<td>1</td>
</tr>
<tr>
<td>Applied Biology and Chemistry</td>
<td>1</td>
</tr>
<tr>
<td><strong>College of Education</strong></td>
<td>14 (11.2%)</td>
</tr>
<tr>
<td>Subject</td>
<td>Count</td>
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<tr>
<td>----------------------------------------------</td>
<td>-------</td>
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<tr>
<td>English Education</td>
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<tr>
<td>Education</td>
<td>2</td>
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<tr>
<td>Social Studies Education</td>
<td>2</td>
</tr>
<tr>
<td>Geography Education</td>
<td>2</td>
</tr>
<tr>
<td>French Language Education</td>
<td>1</td>
</tr>
<tr>
<td>History Education</td>
<td>1</td>
</tr>
<tr>
<td>Earth Science Education</td>
<td>1</td>
</tr>
<tr>
<td>Ethics Education</td>
<td>1</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>14</td>
</tr>
<tr>
<td>College of Natural Sciences</td>
<td>5</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
<td>2</td>
</tr>
<tr>
<td>Mathematical Sciences</td>
<td>2</td>
</tr>
<tr>
<td>Statistics</td>
<td>1</td>
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<tr>
<td>Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>College of Nursing</td>
<td>5</td>
</tr>
<tr>
<td>College of Human Ecology</td>
<td>4</td>
</tr>
<tr>
<td>Consumer and Child Studies</td>
<td>2</td>
</tr>
<tr>
<td>Food and Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>4</td>
</tr>
<tr>
<td>College of Music</td>
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</tr>
<tr>
<td>Composition</td>
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<tr>
<td>Korean Music</td>
<td>1</td>
</tr>
<tr>
<td>College of Medicine</td>
<td>1</td>
</tr>
<tr>
<td>College of Fine Arts / Craft and Design</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>125</td>
</tr>
</tbody>
</table>
Sampling Procedures

The sampling procedure of this study was self-selected sampling. Participants were recruited through advertisement on a college online bulletin board (Appendix A). Participants who were willing to participate in the study contacted the experimenter via e-mail, and each of them received an online address for pre-experimental survey and instructions for participation (Appendix B). The average time to complete the pre-experimental survey was 7 minutes. After they finished the survey, the experimenter sent an e-mail with the exact date, time, and place for the laboratory experiment. The laboratory experiment was conducted in a college classroom under the presence of one experimenter and three confederates. On average, three participants attended simultaneously in a single experiment session. The average time to finish the laboratory experiment was 20 minutes. All the participants agreed to the collection of data for this study and received 6,000 Korean won (6,000 KRW is approximately 6 USD) for their participation. Sample size was pre-determined at the level of .8 power, medium effect size, and the significant α level of .05 (Faul, Erdfelder, Lang, & Buchner, 2007).

Research Design

This study examined the effect of symbolic and live modeling on prosocial behavior using an experimental design. The study had a between-
subjects 2 (absence versus presence of symbolic modeling) x 2 (absence versus presence of live modeling) design. Participants were randomly assigned to each condition. Four conditions were manipulated: Reading either a script of neutral behavior, which portraits everyday life (absence of symbolic modeling) or a script of prosocial behavior (presence of symbolic modeling); with confederates either showing no prosocial behaviors (absence of live modeling) or showing prosocial behaviors in the laboratory (presence of live modeling).

Manipulations of Symbolic and Live Modeling

Manipulation of Symbolic Modeling Condition

To manipulate the symbolic modeling condition, three scripts were developed and employed in the pilot studies. The only difference between the control condition (i.e., absence of symbolic modeling) and the experimental condition (i.e., presence of symbolic modeling) was the type of scripts read by participants. Participants in the absence of symbolic modeling condition read the control script that did not contain prosocial behavior but neutral behavior such as traveling or attending a cooking class (Appendix C). On the other hand, participants in the presence of symbolic modeling condition read the script containing prosocial behaviors (Appendix D). Scripts were composed of 5 to 8 sentences and contained 66 words on average ($SD = 8.4$).
Pilot studies for developing materials for symbolic modeling

condition. Pilot studies were conducted with college students to test the validity of the manipulation of symbolic modeling condition. A total of 97 students (Mean age = 22.49, SD = 2.20) participated in the pilot studies. In the first study, 12 participants read five scripts including 3 to 5 sentences that were designed to describe people’s helping-related behaviors, with the words “help”, “donation”, and “voluntary service”. In addition, the scripts contained descriptions of positive consequences (i.e., receiving awards). Participants were told to write about the main theme of the scripts, the characteristics of the main characters and the difficulties of the scripts (Appendix E). From the first pilot study, scripts had to be revised because participants tended to focus on the fact that the character was awarded. In three scripts out of the five (second, third, and forth scripts in Appendix E), all participants answered the main themes of the scripts as “receiving an award”. Therefore, the portrayal of the award was eliminated in the revised scripts. Instead, intrinsic rewards, such as feeling proud and happy, were involved. To enhance the sense of reality, contents were added in detail (e.g., community name, location in which the prosocial behavior occurred).

In the second pilot study, two different kinds of scripts were used: One was the modified version of the prior three scripts from the first pilot study (Appendix F) and the other version served as the control script (Appendix G), which did not include prosocial-related words. A total of 62
participants were randomly assigned to read either the prosocial script \((n = 32)\) or the control script \((n = 30)\). In a similar way as the first pilot study, participants were told to write about the characteristics of those who appeared in the scripts. According to the participants’ answers, the scripts were modified again. Especially for the first scripts in Appendix F, 5 participants \((16\%)\) described the protagonist’s characteristic as “showing off the company’s prosocial behavior” and 9 participants \((28\%)\) answered “official”. Therefore, the contents about the company were deleted and all scripts were revised so that it read as if college students who performed prosocial behavior had written the scripts.

In the final pilot study, 23 participants read the final version of three prosocial scripts \((n = 12)\) and three control scripts \((n = 11)\). These scripts were used in the main study. In the subsequent question, all participants were informed to write the possible ways of social contributions. In this preliminary statistical analysis, participants who read prosocial scripts, which contained symbolic modeling of prosocial behavior, reported more possible ways to contribute to the society \((M = 3.36, SD = 1.92)\) than those who read the control scripts \((M = 1.27, SD = 1.19)\), in which had the symbolic modeling of prosocial behavior was absent \((t (21) = 3.10, p = .005, Cohen’s d = 1.31)\).
Manipulation of Live Modeling Condition

To manipulate the live modeling condition, three student-confederates (always 1 male and 2 female) were employed. The number of confederates was pre-determined based on the previous studies. Social influence varied depending on the number of people of a group (Milgram, Bickman, & Berkowitz, 1969). Prior results suggest that three people lead to the most effective impact on the other’s behavior (Asch, 1955). Generally, as the number of confederates increased, the effects increased; however, when the number of confederates reaches three, there are no significant differences of effects among four or five confederates. Therefore, the number of confederates was determined as three.

The only difference between the control condition (i.e., absence of live modeling) and the experimental condition (i.e., presence of live modeling) was the behaviors of confederates. The confederates in the absence of live modeling condition did not behave prosocially. On the contrary, the confederates in the presence of live modeling condition behaved prosocially. That is, in the absence of live modeling condition, three confederates attended in neither signature campaign nor donation. In contrast, the confederates were willing to help and attend collecting signature campaign and donation for sick babies in the presence of live modeling condition. To make sure the manipulation, one confederate asked aloud an experimenter right after the instruction of the campaign. This manner for manipulating live modeling is adopted from the previous study.
In the absence of live modeling, a confederate asked “I don’t have to attend these campaigns, do I?” and the experimenter answered, “Sure, it is not mandatory”. In contrast, in the presence of live modeling, a confederate asked to experimenter “Can I donate all of the money that I got for attending the experiment?” Experimenter answered “Sure”.

**Measures**

**Control Variables**

One week before attending the laboratory experiment, all participants answered online pre-questionnaire. The questionnaire contains items measuring the extent to which individuals self-reported helping behavior (Bar-Tal & Raviv, 1979), social responsibility and concern goal (McCollum, 2009), and emotional empathy (Mark Davis, 1983). These values were used to check homogeneity of groups before the manipulation. In order to make sure that the participants do not recognize the real purpose of the study, two filler questionnaires consisting 24 items of self-construal (Singelis, 1994) and 23 items of free will belief (Paulhus & Carey, 2011) were presented together. For all measures, 5-point Likert-type scale was applied (1 = strongly disagree, 3 = neutral, 5 = strongly agree).
**Self-reported helping behavior.** Individual’s helping behavior was measured through a degree of helping behavior measures developed and validated by Bar-Tal & Raviv (1979). Lee (1999) validated the scale in Korean, and this scale was adopted and tailored to the purpose of the study. The original scale includes items of helping behavior toward friends or relatives, but the purpose of pre-questionnaire is to measure prosocial behavior for strangers, so these items were omitted. Three items were chosen to measure individual’s prosocial behavior toward strangers. The followings are samples of items: “I have ever helped handicapped person or old man”, “I have helped person in trouble even though the person is stranger who has no personal intimacy with me”. The Cronbach’s $\alpha$ was .67. Full items were presented in Appendix H.

**Social responsibility and concern goal.** Social responsibility and concern goal were measured because the prosocial behavior that this study was interested in stems from them. The scale was validated by McCollum (2009), and the Korean version was adopted from Shin and colleagues (Shin, Jin, et al., 2014). Four items were used in this study. The followings are samples of items: “I consider it important to be considerate of others” and “I want to promote stability in the groups to which I belong”. The Cronbach’s $\alpha$ was .80. Full items were presented in Appendix I.
**Empathy.** Individual’s empathy was measured through a degree of empathic concern in Davis (1983)’s Interpersonal Reactivity Index (IRI). Jo and Lee (2010) validated the scale in Korean, and 4 items were used in this study. The original scale included cons-trait items, but these items were excluded based on the previous studies reporting deficiency of using negative-keyed items (Barnette, 2000; Schriesheim, Eisenbach, & Hill, 1991). The followings are samples of items: “I feel hurt when I see a poor old person” and “I feel pity and worry when I see a miserable person”. The Cronbach’s α was .77. Full items were presented in Appendix J.

**The amount of prosocial behavior request across conditions.** The amount of appeal of the signature campaign and donation that the experimenter requested to the participants was measured through an online survey. The three confederates answered the survey right after the experiment was done. One item (i.e., “Are the requests appealing?”) was developed and used to check the level of appeal across the conditions. A screen capture of the online survey is presented in Appendix K. The answer was measured via 5-Likert scale (1 = strongly disagree, 3 = neutral, 5 = strongly agree).

**Dependent Variables**

**Prosocial behavior assessments.** To measure participants’ prosocial behavior, the experimenter explained a signature campaign and charity for sick babies in hospital who do not have a proper treatment due to lack of
money. The experimenter showed the participants the picture of the baby girl (6 month old) and asked them to join the signature campaign, the purpose of which was to raise welfare for the baby and make a donation. Sheet for signature campaign was shown in Appendix L. (1) Whether or not the participants attend the signature campaign (yes or no) and (2) the amounts of money donated were used as the measurements of prosocial behavior.

**Procedures**

Participants completed a series of items during a pre-questionnaire session, which took place one week prior to the laboratory session. One week after the pre-questionnaire session, the participants attended a twenty-minute laboratory experiment. A diagram of the procedures was presented in Figure 2.

The laboratory session was administered in an experimental room using pen and paper. The room was approximately 5x4 m² in size and had one door for entrance and exit. Scenes of the laboratory setting are presented in Appendix M. On average, 3 participants with 3 confederates (who were always one male and two female) attended in a laboratory experimental session. Participants signed up for what they believed was a study titled “Language and Thought”.
Before the participants arrived for the experiment, 3 confederates were already sitting at the table in the experimental room near the door and pretending to be waiting for the experiment. The participants and the 3 confederates were seated at the tables approximately 40 cm apart from one another. After all participants arrived, the experimenter (who was always a woman) explained that the study was designed to examine thinking style and language processing. After the introduction of the purpose of the study, the experimenter distributed the three short scripts and the answer sheets of the subsequent tasks entitled ‘Language and Thought’ to the participants and the confederates.

The participants read the scripts for 3 minutes. To enhance the sense of reality of the models portrayed in the scripts, the experimenter informed the participants that the scripts were real stories. Symbolic modeling manipulation was achieved depending on the type of the scripts. Participants in the ‘absence of symbolic modeling’ condition read the scripts that did not describe prosocial behaviors. In contrast, participants in the ‘presence of symbolic modeling’ condition read the scripts that did describe prosocial behaviors.
After finishing reading, participants performed a modified version of scramble sentence task, which was the priming procedure adapted from a previous research (Bargh et al., 2001). In this process, each sentence from
the previous script was placed in random order. Participants were told to match the sentences in the original order within 3 minutes (see Appendix N and O). After the task, they filled out the Korean version of Positive Affect and Negative Affect Schedule (PANAS) scale ( filler task, presented in Appendix P). Next, they completed the word decision task. In this task, the participants received a list of 60 words and they made a decision whether or not the words were presented in the previous script (see Appendix Q and R). This task was a modified version of the lexical decision task that activates mental representation (Marsh, Hicks, & Bink, 1998). Finally, the participants were informed that they had completed the experiment.

The experimenter informed them about the signature campaign and the charity donation for the sick babies who do not have a proper treatment due to a lack of money. The experimenter stressed that the participation of the signature campaign or donation was not mandatory, and even modest amounts of donation would help, no matter how small they were. For the requests to have an equivalent appeal across the conditions, the same instruction script was prepared and the experimenter memorized the script to request the attendance of the signature campaign and money donation (Appendix S).

After all the subsequent tasks and instruction, the participants were given 6,000 won (six 1,000 won bills) for their participation in the study. Participants were given 1,000 won more than the amount originally informed in the participation recruitment. That is, the participants expected
to receive 5,000 won for participation of the experiment, but were actually
given 6,000 won. The reason for this ploy was to make sure that all
participants had enough amount of money to donate to the charity. Money
in white envelopes was distributed toward three confederates and the
participants.

Three confederates acted to manipulate the live modeling condition.
In the ‘absence of live modeling’ condition, the confederates neither
attended the signature campaign nor the donation. In contrast, the
confederates attended both the signature campaign and the donation in the
‘presence of live modeling’ condition. Whether or not the participants
attend the signature campaign and the amounts of money donation were
measured to assess the participants’ prosocial behaviors.

Right after the confederates went out of the laboratory, all three
confederates were told to answer an online survey asking the amount of
appeals of the experimenter’s request for the participants to attend the
signature campaign and the donation (Appendix K). After finishing the
study, all participants were fully debriefed in person, telephone, and e-mail.
The debriefing script is presented in Appendix T.
Data Analysis

SPSS 18 (IBM, Somer, NY, USA), SAS 9.3 (SAS Institute, Cary, NC) and Excel 2010 software (Microsoft, Washington, USA) were used to analyze data. Descriptive statistics including distribution of gender, majors, the means and standard deviation for age, and the $n$ values are presented for demographic characteristics. To test homogeneities among the groups, distribution of men and women was compared using chi-square test. Age, pre-questionnaire variables (i.e., helping behavior, social responsibility and concern goal, empathy) and the amount of request appealing were compared using a 1-way analysis of variance (ANOVA) among the four groups.

Basic association between the symbolic and live modeling (dummy coding: absence 0, presence 1) conditions and participants of the signature campaign (dummy coding: nonparticipation 0, participation 1) were checked by using $\Phi$ coefficient. Simple and multiple logistic regressions were conducted to examine the impact of modeling on participation of signature campaign.

To compare the amount of money donated among groups, assumptions for the ANOVA (i.e., normal distribution, homogeneity of variance) were checked. The amount of donated money had a right skewed distribution (skewness = 3.38), non-nominal distribution (Kolmogorov-Smirnov $D (115) = 0.44, p < .001$) and unequal variance among groups (Levene’s $F =15.95, p < .001$) (Park, 2005). Hence, ANOVA with adjusted
degrees of freedom with adjustment factor was conducted (Box, 1954; Feldt & Kim, 2011).

To address the first research question, the effects of each symbolic and live modeling were tested. To examine the difference of participation in signature campaign, simple logistic regression was conducted. Symbolic or live modeling condition was entered as independent variable and participation of a signature campaign was used as dependent variable. To examine the difference of amount donated money, a 2-way ANOVA with adjusted degrees of freedom was performed. Main effects of symbolic modeling and live modeling were identified.

To test the second research question whether or not live modeling has a greater effect on prosocial behavior than symbolic modeling, comparison between live modeling and symbolic modeling was conducted. Multiple-logistic regression was performed to compare predicting effects of symbolic modeling and live modeling on participation of signature campaign. Both symbolic and live modeling variables were entered as independent variables simultaneously. For comparison of relative predicting effects, standardized estimates of coefficients were calculated. Statistical comparison between symbolic modeling and live modeling coefficients was performed using unstandardized coefficients, variance and covariance of the coefficients. Formula was shown in Appendix U. A t-test with up-pooled variance and a correction to the degrees of freedom was performed to test
the difference in the amount of donated money between presence of only symbolic modeling and presence of only live modeling.

To address the third research question, interaction between symbolic modeling and live modeling was examined. For the participation of signature campaign, a hierarchical logistic regression was conducted. Symbolic modeling and live modeling variable were entered in the first step, and interaction term of these two variables was entered in the second step. For the amount of donated money, interaction effect of 2-way ANOVA with adjusted degrees of freedom was examined. All statistical tests were two-tailed with the type 1 error set at 5%.

**Ethical Standards**

The Institutional Review Board (IRB) of Seoul National University approved this study (IRB Number: 1408/002-003). All people provided informed consent to the experimenter before and after their participation in the study (Appendix V). Details that might reveal the identities of participants were omitted.
RESULTS

Manipulation Check

All participants correctly answered in the subsequent modified version of scramble sentence task and word decision task, which means all participants, read the scripts (manipulation check for symbolic modeling). To check manipulation for live modeling, the experimenter observed whether or not the participants saw actions of confederates. When the observation is equivocal, the participants were asked about whether they saw the others’ (confederates’) behavior or not. All participants reported that they saw what confederates did. Therefore, there was no exclusion of any participants. In addition, ratings of the confederates about appealing of the experiment’s suggestions for attending the signature campaign showed no differences ($F(3, 25) = 0.15, p > .1$).

Homogeneity Verification for Characteristics among the Groups

Homogeneities for group characteristics were verified by comparing distributions of gender and means of ages and pre-questionnaires. Levene’s tests for equality of variances were not significant among all variables (i.e., age, helping behavior, social responsibility and concern goal, empathy). There were no differences in gender distribution ($\chi^2 = 6.35, p > .1$)
and age ($F(3, 121)= 0.78, p > .1$) among groups. The results from the pre-questionnaire showed that participants in the four experimental groups were homogeneous in terms of their helping behavior toward strangers ($F(3, 121)= 1.21, p > .1$), social responsibility and concern goal ($F(3, 121)= 1.18, p > .1$) and empathy ($F(3, 121)= 0.17, p > .1$). Means and standard deviations of the pre-questionnaire variables were shown in Table 2.

Table 2

*Descriptive statistics of pre-questionnaire variables*

<table>
<thead>
<tr>
<th></th>
<th>Symbolic Modeling</th>
<th>Live Modeling</th>
<th>Presence</th>
<th>Live Modeling</th>
<th>Presence</th>
<th>Total (N=125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absence (n=30)</td>
<td>Presence (n=34)</td>
<td></td>
<td>Absence (n=31)</td>
<td>Presence (n=30)</td>
<td></td>
</tr>
<tr>
<td>Helping behavior</td>
<td>3.54 (0.77)†</td>
<td>3.41 (0.63)</td>
<td>3.48 (0.82)</td>
<td>3.21 (0.66)</td>
<td>3.41 (0.72)</td>
<td></td>
</tr>
<tr>
<td>Social responsibility and concern goal</td>
<td>3.72 (0.55)</td>
<td>3.82 (0.44)</td>
<td>3.65 (0.66)</td>
<td>3.51 (0.79)</td>
<td>3.69 (0.61)</td>
<td></td>
</tr>
<tr>
<td>Empathy</td>
<td>3.78 (0.48)</td>
<td>3.74 (0.47)</td>
<td>3.73 (0.58)</td>
<td>3.83 (0.58)</td>
<td>3.78 (0.50)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* †$M (SD)$. 
Descriptive Statistics of Prosocial Behaviors

Participations of Signature Campaign

Among all the 125 participants, 71 (57%) did not attend to signature campaign for sick babies, whereas 54 (43%) attended the signature campaign. Frequencies of participation by conditions were presented in Table 3. Percentages of participation by conditions were presented in figure 3. On average, participants in the presence of live modeling condition showed higher tendency to engage in the signature campaign (68.7%, 44 out of 64) than did participants in the presence of symbolic modeling condition (16.3%, 10 out of 61).

Table 3

Frequencies of participation in signature campaign by conditions

<table>
<thead>
<tr>
<th></th>
<th>Symbolic Modeling</th>
<th>Live Modeling</th>
<th>Live Modeling</th>
<th>Total (N=125)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absence</td>
<td>Presence</td>
<td>Absence</td>
<td>Presence</td>
</tr>
<tr>
<td>Live Modeling</td>
<td>(n=30)</td>
<td>(n=34)</td>
<td>(n=31)</td>
<td>(n=30)</td>
</tr>
<tr>
<td>Nonparticipation</td>
<td>26</td>
<td>12</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Participation</td>
<td>4</td>
<td>22</td>
<td>6</td>
<td>22</td>
</tr>
</tbody>
</table>
Figure 3. Percentages of participants who engaged in the signature campaign by conditions. Results are shown separately for the participants who did not read the prosocial script (absence of symbolic modeling) and those who read the prosocial script (presence of symbolic modeling).
Amount Donated

Among all the 125 participants, 97 (77%) decided not to donate money for the sick babies whereas 28 (22%) participants donated money. Specifically, 16 (13%) donated 1,000 won, 10 (8%) donated 2,000 won, 1 (0.8%) donated 3,000 won and 1 (0.8%) donated 6,000 won. Frequencies of money donations, means and standard deviations by conditions were presented in Table 4. The average amounts of donated money by conditions were presented in Figure 4. On average, participants in the presence of live modeling condition donated more money ($M = 609.38, SD = 1063.35, n = 64$) than did participants in the absence of live modeling condition ($M = 98.36, SD = 300.27 n = 61$). However, the amount of donated money in the presence of symbolic modeling condition ($M = 311.48, SD = 592.76, n = 61$) and absence of symbolic modeling condition ($M = 406.25, SD = 1003.47, n = 64$) is similar.

Table 4

Frequencies of donated money by conditions

<table>
<thead>
<tr>
<th>Symbolic Modeling</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absence</td>
<td>Presence</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Absence</td>
<td>Presence</td>
<td>Absence</td>
</tr>
<tr>
<td>Amount of Donated money$^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 (did not donate)</td>
<td>29</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>1,000</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2,000</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>3,000</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6,000</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>$M (SD)$</td>
<td>33.3(182.5)</td>
<td>735.3(1286.5)</td>
<td>161.3(373.88)</td>
</tr>
</tbody>
</table>

Note. $^1$South Korean Won (KRW).
Figure 4. Average amounts of donated money by conditions. Results are shown separately for participants who were not reading a prosocial script (absence of symbolic modeling) and those who were reading a prosocial script (presence of symbolic modeling).
Effects of Modeling on Prosocial Behaviors

Effect of Symbolic Modeling

A Phi coefficient showed that there was no significant correlation between participation in signature campaign and the symbolic modeling condition (Phi coefficient = .05, \( p > .1 \)). Indeed, when symbolic modeling condition was entered into a logistic regression model as predictor of participating in the signature campaign, the symbolic modeling did not remained as a significant predictor (\( b = 0.22, p > .1 \)). Results of the logistic regression were presented in Table 5. For the amount of donated money, ANOVA revealed that there was no significant main effect of symbolic modeling; \( F(0.81, 89) = 0.25, p > .1 \). The result of the 2-way ANOVA with adjusted degrees of freedom was presented in Table 6.

Table 5

A simple logistic regression analysis of symbolic modeling predicting participation to signature campaign

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( b )</th>
<th>( SE ) ( b )</th>
<th>( \chi^2 )</th>
<th>( df )</th>
<th>( p )</th>
<th>( e^{b} ) (odds ratio)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.38</td>
<td>0.26</td>
<td>2.22</td>
<td>1</td>
<td>.136</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>Symbolic Modeling</td>
<td>0.22</td>
<td>0.36</td>
<td>0.35</td>
<td>1</td>
<td>.552</td>
<td>1.24</td>
<td>[0.61, 2.52]</td>
</tr>
</tbody>
</table>

Overall Model Fit

-2 Log likelihood 170.61
Cox & Snell \( R^2 \) .003
Nagelkerke \( R^2 \) .004
Overall classification ratio (%) 52.8

Note. \( b \) = unstandardized coefficient; CI = Confidence Interval of odds ratio.
Table 6

Two-way ANOVA of donated money according to symbolic and live modeling

<table>
<thead>
<tr>
<th>Effects</th>
<th>Sum of squares</th>
<th>df&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Mean square</th>
<th>F</th>
<th>p&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbolic Modeling (A)</td>
<td>154189.80</td>
<td>0.81</td>
<td>154189.80</td>
<td>0.25</td>
<td>&gt; .1</td>
</tr>
<tr>
<td>Live Modeling (B)</td>
<td>7906777.28</td>
<td>0.81</td>
<td>7906777.28</td>
<td>12.71</td>
<td>.004</td>
</tr>
<tr>
<td>A x B</td>
<td>1225522.15</td>
<td>0.81</td>
<td>1225522.15</td>
<td>1.97</td>
<td>&gt; .1</td>
</tr>
<tr>
<td>Error</td>
<td>75244528.78</td>
<td>89</td>
<td>621855.61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* <sup>a</sup>Adjusted degrees of freedom; <sup>b</sup>p value according to the adjusted degrees of freedom.

Effect of Live Modeling

A *Phi* coefficient showed that there was a significant correlation between participation in signature campaign and the live modeling condition (*Phi* coefficient = .53, *p* < .001). Indeed, when live modeling condition was entered into a logistic regression model as predictor of participating in the signature campaign, the live modeling did remained as a significant predictor (*b* = 2.42, *p* < .001). Results of the logistic regression were presented in Table 7. For the amount of donated money, ANOVA revealed that there was a significant main effect of live modeling; *F*(0.81, 89) = 12.71, *p* = .004, η² = .06 (Table 6). These results indicate that prosocial behavior of the confederates promoted prosocial behavior.
# Table 7

*A simple logistic regression analysis of live modeling predicting participation to signature campaign*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$b$</th>
<th>$SE_b$</th>
<th>Wald’s $\chi^2$</th>
<th>$df$</th>
<th>$p$</th>
<th>$e^b$ (odds ratio)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.63</td>
<td>0.35</td>
<td>22.19</td>
<td>1</td>
<td>&lt;.001</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>Live Modeling</td>
<td>2.42</td>
<td>0.44</td>
<td>30.39</td>
<td>1</td>
<td>&lt;.001</td>
<td>11.22</td>
<td>[4.75, 26.50]</td>
</tr>
</tbody>
</table>

**Overall Model Fit**

-2 Log likelihood: 133.93  
Cox & Snell $R^2$: .256  
Nagelkerke $R^2$: .344  
Overall classification ratio (%): 76.0

*Note.* $b =$ unstandardized coefficient; CI = Confidence Interval of odds ratio.
Comparison of Symbolic and Live Modeling

The result of the multiple-logistic regression for predicting participation of signature campaign was presented in Table 8. When both symbolic modeling and live modeling conditions were entered into the regression model as predictors of participating in the signature campaign, live modeling remained as a significant predictor ($b = 2.46, p < .001$), but symbolic modeling did not ($b = 0.42, p > .1$). On the basis of the odds ratio, participants were 12 times more likely to attend collecting signature campaign if the confederates attend the campaign than when the confederates did not attend the campaign. Standardized coefficient for symbolic modeling was .01 and that of live modeling was .68. In addition, the coefficients difference was significant; $\chi^2(1) = 12.63, p < .001$. The result indicates there is a greater effect of live modeling on predicting participation of signature campaign than that of symbolic modeling.

The result of the $t$-test showed that for the amount of donated money, there was a significant difference between live modeling and symbolic modeling ($t(39.03) = 2.49, p = .017$). The result indicates that there is a greater effect of live modeling on fostering money donation than that of symbolic modeling.
Table 8

*A multiple-logistic regression analysis of predicting participation to signature campaign*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>SE $b$</th>
<th>Wald's $X^2$</th>
<th>$df$</th>
<th>$p$</th>
<th>$e^b$ (odds ratio)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.86</td>
<td>0.43</td>
<td>18.89</td>
<td>1</td>
<td>&lt;.001</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Symbolic Modeling</td>
<td>0.42</td>
<td>0.43</td>
<td>0.95</td>
<td>1</td>
<td>330</td>
<td>1.52</td>
<td>[0.65, 3.55]</td>
</tr>
<tr>
<td>Live Modeling</td>
<td>2.46</td>
<td>0.45</td>
<td>30.52</td>
<td>1</td>
<td>&lt;.001</td>
<td>11.67</td>
<td>[4.88, 27.92]</td>
</tr>
</tbody>
</table>

Overall Model Fit

| -2 Log likelihood       | 132.97 |
| Cox & Snell $R^2$       | .262   |
| Nagelkerke $R^2$        | .352   |
| Overall classification ratio (%) | 76.0   |

*Note. b = unstandardized coefficient; $\beta$ = standardized coefficient; CI = Confidence Interval of odds ratio.*
Interaction Effect between the Symbolic and Live Modeling

The result of a hierarchical logistic regression for predicting participation of signature campaign was presented in Table 9. When interaction term was entered as a second step, it did not account for additional variance beyond the modeling manipulations ($\chi^2 (1, N=125) = 0.00, p > .1$). The interaction term did not remained as a significant predictor ($b = -0.04, p > .1$).

For the amount of donated money, ANOVA revealed that there was no interaction between symbolic modeling and live modeling ($F(0.81, 89) = 1.97, p > .1$) (Table 6). Together, the effect of live modeling does not differ depending on the presence of symbolic modeling.
Table 9

A hierarchical logistic regression analysis for predicting participants to signature campaign

<table>
<thead>
<tr>
<th></th>
<th>$b$</th>
<th>SE $b$</th>
<th>Wald's $\chi^2$</th>
<th>df</th>
<th>$p$</th>
<th>$\exp(b)$ (odds ratio)</th>
<th>95% CI</th>
<th>$\Delta \chi^2$</th>
</tr>
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<tbody>
<tr>
<td>Constant</td>
<td>-1.87</td>
<td>0.54</td>
<td>12.15</td>
<td>1</td>
<td>&lt;.001</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symbolic modeling</td>
<td>0.45</td>
<td>0.70</td>
<td>0.40</td>
<td>1</td>
<td>.527</td>
<td>1.56</td>
<td>[0.39, 6.20]</td>
<td></td>
</tr>
<tr>
<td>Live modeling</td>
<td>2.48</td>
<td>0.65</td>
<td>14.72</td>
<td>1</td>
<td>&lt;.001</td>
<td>11.92</td>
<td>[3.36, 42.27]</td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symbolic Modeling</td>
<td>-0.04</td>
<td>0.89</td>
<td>0.002</td>
<td>1</td>
<td>.965</td>
<td>0.96</td>
<td>[0.17, 5.52]</td>
<td></td>
</tr>
<tr>
<td>Overall Model Fit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2 Log likelihood</td>
<td>132.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox &amp; Snell $R^2$</td>
<td>.262</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke $R^2$</td>
<td>.352</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall classification ratio (%)</td>
<td>76.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Values are taken from the final block (second) of the analysis; $b =$ unstandardized coefficient; CI = Confidence Interval of odds ratio; $*** p < .001$, ns = non-significant.
DISCUSSION

The present study helps advance our current understanding of the prosocial behavior literature by examining an alternative explanation in which an individual’s prosocial behavior encourages others’ prosocial behaviors to be fostered. Results show the importance of the others present in the surroundings (i.e., live model). When actual other people in the immediate social environment behave in prosocial manner, the likelihood that an individual would behave prosocially increases; this is so even in the case where the individual and the other person have no personal intimacy. In contrast, reading scripts about prosocial behavior has never brought a direct effect to people’s prosocial behavior (i.e., symbolic modeling). These findings were consistent across the two different ways of measuring prosocial behaviors; participating in the signature campaign and donating money. In the following paragraphs, main results of this study are discussed with regard to the further advancement of the SCT and comprehension of prosocial behavior.

Effects of Modeling on Prosocial Behavior

Reasons for Little Effect of Symbolic Modeling

Many previous studies posit the notion that reading scripts or being exposed to stimuli associated with certain topic can induce motivational,
emotional, cognitive and behavioral changes (e.g., Bargh & Chartrand, 1999; Bargh et al., 2001; Chartrand & Bargh, 1996; Fitzsimons & Bargh, 2003; Oettingen, Grant, & Smith, 2006; Shidlovski & Hassin, 2011).

According to Bandura, news and entertainment media can encourage or discourage moral behavior (Bandura, 1986). The previous research supports the hypothesis that when people read scripts related to prosocial behavior, their behavior becomes more inclined to be prosocial.

However, in the present study, there was little influence of symbolic modeling when the symbolic modeling condition was manipulated by reading prosocial scripts. Observational learning occurs differently in various fields (Bandura et al., 1969). The results of this study make up for the criticized weak point in the SCT, which is its broad approach in explaining a phenomenon (Phillips & Orton, 1983). By narrowing down the concept of modeling, the precise effects of symbolic and live modeling can be investigated. The present study was the first to investigate the effects of symbolic modeling by reading a prosocial script on real prosocial behaviors. More studies with multiple measures and valid stimuli needs to be replicated and to confirm the findings.

There are four possible reasons for why symbolic modeling has little effect on prosocial behavior. First, reading three short scripts may not be sufficient for finding the effect of symbolic modeling. Reading scripts is considered as an appropriate way to teach desirable behaviors in an educational setting. For instance, educators and parents attempt to make
students learn desirable behavior through the means of reading the biography of a great person. However, reading is considered as a relatively more vague and indirect way to transfer the information about other person’s behaviors than watching videos (Loersch, Aarts, Payne, & Jefferis, 2008) or pictures (Shantz & Latham, 2009). According to the dual-coding approach, images or movies, rather than words, are more powerful in activating cognitive processes that could affect an individual’s behavior (Paivio, 1990). It is still possible that other ways of manipulation could enhance students’ prosocial behavior.

Second, reading scripts a single time may not be sufficient to induce the effects of symbolic modeling. Previous researches suggest that repeated exposure to aggressive stimuli is necessary for inducing long-lasting changes of students’ behavior (Dodge & Frame, 1982; Dodge, 1980). Since the participants of this study only read short scripts a single time for 3 minutes, it might not be sufficient for the symbolic modeling to have an impact on fostering prosocial behavior. Repeated exposures to prosocial scripts could foster an individual’s prosocial behavior.

The third possible reason for not being able to find the effects of symbolic modeling is the way prosocial behavior is measured. Previous results suggest that even a subtle change of administration method for measuring prosocial behavior could be more powerful than the presence of symbolic modeling (i.e., conducting different kinds of video game) (Tear & Nielsen, 2013). Tear and Nielsen (2013) used the pen-drop method to
measure the participants’ prosocial behavior. Frequencies of helping to pick up the pens were counted to quantify the extent of prosocial behavior.

Contrary to expectations, there was no difference depending on what kinds of game the participants saw. Rather, the most important aspect was when the researcher dropped pens (i.e., after finishing the manipulation or in the middle of the experiment). These previous results showed that the specific method used to measure prosocial behavior could be a key factor for finding the effects of symbolic modeling.

Few studies have used designs to examine whether symbolic modeling could lead to changes in real prosocial behavior for others the individual has never met. In the present study, participation in the signature campaign and charity for sick babies were used as the dependent variables. Spending time and money for enhancing the quality of life of someone the individual has never met is considered to be a characteristic that is hard to develop (Moran, 2001). Performing this type of prosocial behavior is much harder than other prosocial behaviors, such as cooperation or helping close friends. Therefore, just reading a script may not be sufficient for inducing prosocial behavior for society at all.

Previous studies typically measured participants’ antisocial behavior (i.e., aggressive behavior) by testing the students’ behavior of giving hot sauce to a partner who hates spicy taste (Lieberman, Solomon, Greenberg, & McGregor, 1999) or giving shocks of various intensity towards an ostensible opponent (Giancola & Parrott, 2008). Furthermore, prosocial
behavior was measured by using an anonymous economic game (Shariff & Norenzayan, 2007), helping the experimenter (Baron, 1997; Van baaren, Holland, Kawakami, & Knippenberg, 2004), or playing a dictator game, which measures how much the participants share the resources they have (Shariff & Norenzayan, 2007). In addition, many previous studies measured students’ moral behavior by using self-report questionnaires, parent reports, or teacher reports (Fossati et al., 2009; Saroglou & Pichon, 2009). These disparate dependent variables may account for the different results of symbolic modeling.

Lastly, the priming process in the symbolic modeling process may not be robust. In the pilot study to develop the manipulation of symbolic modeling, results showed that reading prosocial scripts activated helping-related concepts, but in the main study, reading the scripts did not enhance prosocial behavior. These results were in the same line with the previous argument which was suspicious of the priming effect on behavior (Elson & Ferguson, 2014). Traditionally, researchers reported that there were robust priming effects on behavior. Through the automatically activated perception-behavior link, the previously presented stimuli affect subsequent behavior (Dijksterhuis & Bargh, 2001). In the perception-behavior mechanism, when one perceives other’s behavior the accessibility of mental representation is activated. This activated representation automatically facilitates specific manners of behavior, so that people act according to the manner.
However, recent studies have failed to confirm the effect of priming on behavior, and researchers have claimed that the effects were considerably elusive, faint, and hard to generalize (Doyen et al., 2012; Pashler et al., 2012; Shanks et al., 2013). In addition, reports of traditional strong priming effect was from the publication bias (Ferguson & Kilburn, 2009; Ferguson, 2007). Furthermore, for the successful activation of perception and behavior link, repeated practice would be needed (Bargh & Chartrand, 1999). Since the development and expression of perception-behavior link are extremely intricate, mediators and moderators should be considered simultaneously (Chartland, Maddus, & Lakin, 2005).

The little effect of symbolic modeling should not be generalized uncritically to all manners of modeling and all domains of prosocial behaviors. However, it is reasonable to understand the same manipulation of symbolic modeling will create the same results of the present study. The way of manipulation of symbolic modeling might be arguable that the scripts are valid to avoid type II error. If the wrong materials were chosen for this study, the conclusion would be wrongheaded. Indeed, it is intuitively hard to accept the notion that just reading short paragraphs could lead to behavioral changes. Still, a substantial amount of empirical research had reported that exposure to a few words, such as “help” and “cooperate”, makes the participants likely to behave prosocially (e.g., Bargh et al., 2001). This result shows the possibility that symbolic modeling could influence students’ prosocial behavior. In addition, the symbolic modeling approaches
have several advantages. Symbolic modeling is easy to be employed in school settings and modeling through media can influence many students simultaneously and cost efficient. Taken together, developing a symbolic modeling material that could foster prosocial behavior still remains as an important research area.

**Social Influence of Actual Others on Prosocial Behavior**

The present results provide a strong evidence for an influence of live modeling on prosocial behavior. That is, participants who observed the prosocial behavior of others (i.e., live models) exhibited greater helping behavior, even when the individual had no personal intimacy with the live models. This result advances the traditional perspectives of the prosocial behavior by suggesting that the social context is a crucial factor for an individual’s prosocial behaviors. Internal norms of conviction is typically understood as the strongest predictors of charitable donation (van der Linden, 2011). The effect of others’ influences remains largely unacknowledged. Although the internal factors are compelling and are all likely to contribute to understanding prosocial behavior, external accounts such as the acts of others could provide an additional explanation for the behavior.

From the view of SCT, live modeling has enough power to induce motivation or the need for performing prosocial behavior. One important part of Bandura’s theory is that Bandura made a conceptual distinction
between ‘learning’ and ‘performing’ (Olson & Hergenhahn, 2009). Learning and performance do not always occur simultaneously. Learned information is expressed only when the motivation for performing emerges.

Therefore, even though the participants get the information about what others do through the reading scripts in this study, just knowing the information is not sufficient to induce performance because of a lack of motivation for performing. As shown in the result of this study, others who stay in the immediate environment have a strong power to induce the needs for carrying out the behavior. Then, why are people strongly affected by live modeling?

The present results clearly showed the effect of conformity on prosocial behavior. Conformity is one of the most important social influence on human behavior (Asch, 1955). People overtly change their behavior in response with others’ majority behaviors even in the case when the behavior is not relevant (Asch, 1956). For instance, a riot at St. Paul church in 1980 happened because the crowd just conformed in the immediate social situation (Reicher, 1984). The sound of other people laughing make people laugh and induce more amusement (Fuller & Sheehy-Skeffington, 1974). Other people’s action is a key to change an individual’s behavior.

Meta-analysis proved that collectivist countries such as Korea showed a higher level of conformity than individualistic countries (Bond & Smith, 1996). Conforming to others’ action is considered as an adaptive
function in social life (Cialdini & Goldstein, 2004). For more accurate behavior tailored to the environment, for becoming affiliated with others, and for maintaining a positive self-esteem, people change their behavior in accordance to that of others’.

One important underlying motivation of influence for conforming to other’s behavior is the need for social approval. The central mechanism of conformity is *normative influence*. Normative influence is defined as the social influence which is elicited from the need to be accepted by others (Deutsch & Gerard, 1955). That is, an individual does not want to become a being who is deviant from the group behavior (Wood, Lundgren, Oueleette, Busceme, & Blackstone, 1994; Yanovitzky & Rimal, 2006). Since putting an effort to help a person in trouble or donating money for poor people are always considered positively across cultures (Davidio et al., 2006), normative influence could be larger in the domain of prosocial behavior. Prosocial behavior are dubbed as ‘good’ and ‘nice’. When many other people (three confederates in this study) are engaged with prosocial behavior, a person tends to behave in the same way to get social approval by meeting the social norm.

Social norm elicits conformity (Berns et al., 2005). Social norm is a group-shared standard of how the group members ought to behave in a particular situation (Cialdini & Trost, 1998). Social norms control an individual’s behavior in everyday life by suggesting specific manners of adequate behavior. Norm-focus theory stresses the importance of others’
behavior in deciding an individual’s behavior (Cialdini, Reno, & Kallgren, 1990; Reno et al., 1993). A role of other people’s behavior is to inform what is right in a certain situation. For instance, previous study found the influence of social norm on ethical behavior (Gino et al., 2009). Students usually do not cheat on examination. However, when many other students cheat on an exam, an individual thinks that it is an acceptable behavior in that situation, and then, one starts to perform cheating. Previous studies also found that knowing what ‘others’ do in certain situation strongly affects individuals’ behaviors, even though one does not have any personal relationship with the ‘others’ (Cialdini, 2005). A field study showed that informing hotel guests that ‘nearly 75% guests reuse towels every day’ is more efficient than just informing them through a persuasion message such as ‘Please Reuse the Towel’ (Schultz, Khazian, & Zaleski, 2008). A growing body of studies examines the influential role of knowing other’s action on people’s behavior (Borsari & Carey, 2003). These results show the clear effect of social norm on conformity.

Recent neurobiological studies found that people conform to the social norm because the conformed behavior gives reinforcements (Klucharev et al., 2009). Researchers revealed that the rostral cingulate zone (RCZ) and the ventral striatum, whose roles are to detect error and reinforce learning, were activated when participants had a conflict of opinions against group members (Gehring, Goss, Coles, Meyer, & Donchin, 1993). This neural basis finding indicates that deviant behavior processes are considered
as an error. By changing the error-signaled behavior, people acquire reinforcement and learn what is appropriate.

Taken together, the way in which live modeling influences college students’ prosocial behavior might be the reason for meeting social norms. Also, the fundamental underlying motivation of conforming to social norm might be to get social approval, which then induce reinforcement. This finding expands the knowledge of prosocial behavior by suggesting evidence that such behavior is encouraged by the immediate social surroundings.

Greater Effect of Live Modeling Compared to Symbolic Modeling

Live modeling showed a greater effect on fostering prosocial behavior than that of symbolic modeling. There has been a notion that symbolic modeling shows a lower effect on changing behavior than that of live modeling (Bandura & Menlove, 1968). In the clinical therapeutic approaches to remedy for fear, the effects of symbolic modeling and live modeling were compared (Bandura et al., 1969). Treatments adopting live modeling (i.e., watching actual model interact with something that the patients have fear to) induced greater behavioral approaches and lower fear arousal than those of symbolic modeling (i.e., watching a film portraying characters that interact with something that the patients have fear to). These
differences were stable among the various categories of fear including tissue damage, social interaction, classical phobias, and other miscellaneous fears.

Different levels of model reality could be the cause behind the greater effect of live modeling compared to symbolic modeling. A previous study shows that students and children distinguish the fictional characters depicted in media (Wright, Huston, Reitz, & Piemyat, 1994). This result indicates that the characters in the scripts of the present study would be perceived as not real. Even though Bandura asserts that anything can be a model when the model conveys information, an indirect model or perceived virtual character would cause less behavioral change in individuals than would an actual model. Indeed, immediate and direct social contexts, such as those who can be met in person (e.g., friends, parents, teachers) have direct and strong effects on the students’ behavioral or cognitive development (Bronfenbrenner, 1986).

In practice, many educational approaches have focused on the effect of symbolic modeling. Educators and policy makers recommend students to read bibliographies of great people in order to induce desirable behaviors. However, the results of the present study showed that this kind of approaches may not have a significant effect on fostering students’ prosocial behavior. Educators should understand the effect of actual and live behavior of people surrounding students on prosocial behavior.
Little Interaction Effect between Live Modeling and Symbolic Modeling

There was no greater effect of live modeling on prosocial behavior when it was presented with symbolic modeling. This result indicates that the activation of mental representation through symbolic modeling does not assist in enhancing the effects of live modeling on prosocial behavior. Two explanations are possible.

First, the effect of live modeling may be too strong to find the interaction effect of symbolic modeling. Considering that there could be ceiling effects of live modeling on students’ prosocial behavior, it may be impossible to have further effect of symbolic modeling on fostering prosocial behavior above that of live modeling.

Second, desensitization theory suggests another possible explanation (Rule & Ferguson, 1986). According to this theory, repeated exposures to certain stimuli, which is used to evoke emotional arousal, induces desensitization to the stimuli. This desensitization leads to a change of the individual’s value or attitude toward the stimuli (Deselms & Altman, 2003). For instance, in people who are repeatedly exposed to violence through media, the sensitivity to violence is reduced and, as a result, people are inclined to consider violence as an acceptable behavior. This theory highlights the transformation of an individual’s value as a critical factor for inducing behavioral change. If the activation of the mental representation of
a prosocial behavior through symbolic modeling occurs just a single time, it would not be sufficient to induce a change in value. Thus, it cannot foster prosocial behavior. Therefore, there would be no interaction effect of symbolic modeling on prosocial behavior above the effect of live modeling.

**Perception of Autonomy for Prosocial Behavior**

In the present study, further preliminary analysis about the perceived reasons for performing prosocial behavior was conducted (data was not shown in result session). The 19 participants (68%), among those who donated (out of 28), were asked an open-ended question concerning the reason of participating in the prosocial behavior. The question was asked through the phone call or in person: “What was the reason for donating the money?”

Fourteen (74%) reported that they did so because it was “valuable”. Four (21%) reported emotional reasons, such as “feeling pitiful” or “having guilty for not helping poor people”. In addition, four (21%) answered that they donated money because they considered it as an opportunity for them to help others. Two participants did not give any specific reasons, answering, “There was no specific reason.”

Interestingly, there was no report of social influence in the answers of the reason for engaging in prosocial behavior. They did not perceive the effect of others’ behavior on theirs: Participants answered that they did so
because they wanted to do. These results concurred with recent theoretical advances asserting that many things happen without awareness (Wilson, 2004). Previous research has continuously revealed that people are not aware of the fact that contextual factors influence their behavior (e.g., Jonas et al., 2002; Shariff & Norenzayan, 2007). Since there is seemingly no explicit external cause for producing certain behavior, people usually think that they know why they start the behavior or what triggers it.

There is a critical advantage of the perception that the individuals’ prosocial behavior is rooted on their inner wants. Having experiences of performing prosocial behavior helps to foster the self-concept of prosocial being (Jordan, Mullen, & Murnighan, 2011). Previous studies found that engaging with volunteer activity would develop one’s civic identity and political socialization process and would instill social responsibility (Niemi, Hepburn, & Chapman, 2000; Saha, 2004). This effect may be maximized when they think that they are performing the behavior because they want to. If people think that there is a mandatory reason for engaging in prosocial behavior, the intention to perform the behavior declines in the future (Stukas, Snyder, & Clary, 1999). Perceived autonomy has a strong relationship with prosocial behavior engagement in college students and volunteer workers (Gagné, 2003). The feeling of autonomy is one of the most important factors that motivates student to engage in activities (Deci & Ryan, 2011). In addition, the extent to which prosocial behavior is autonomous predicts the helper’s psychological well-being (Weinstein &
Ryan, 2010). Therefore, it is crucial to develop the environment in order to give an opportunity to behave prosocially with a feeling of controllability. The present study suggests that the presence of live modeling is one possible answer.

**Implications for Practice**

School, workplace, society and the world face human’s dauntingly selfish and unethical behavior (Synder, 2013; Williams, 2013). Bullying, fraud, violence and crime are rampant (Gerhardt, 2010). Understanding human’s antisocial or prosocial behavior has become an urgent issue (Kim, Park, & Lee, 2008).

These days, intervention programs are growing in number. Nationwide campaigns such as school-wide positive behavioral interventions and support (Sugai & Horner, 2006) aim to prevent antisocial behaviors and facilitate prosocial behaviors (Bradshaw, Waasdorp, & Leaf, 2014). Understanding the psychological dynamics of students’ antisocial or prosocial behavior and finding effective ways to enhance prosocial behavior is an urgent and critical issue these days. For instance, social emotional learning intervention focuses on enhancing students’ social and emotional competence (Garner, Mahatmya, Brown, & Vesely, 2014) and mindfulness-based kindness curriculum highlights the developing of attention and ability of emotional regulation (Flook, Goldberg, Pinger, & Davidson, 2014). In
this regard, the present study provides a clear way of improving students’ prosocial behavior. Other people’s prosocial behavior is one of the most important influencing factors on an individual’s prosocial behavior.

With basis on a social cognitive view, this study understands prosocial behavior as a social component. Human beings’ prosocial behavior is not only from the internal characteristics of the individuals, as revealed in many previous studies, but also extremely well-swayed by current or transient environmental factors. On the grounds of present findings, an individual’s prosocial behavior could be contagious to others.

It is a wrong belief that an individual’s prosocial behavior is entirely resulted from his or her personal characteristics. Hobbesian perspective understands human as a being of selfishness (Hobbes, 1996), whereas Rousseauian perspective portrays human as inherently altruistic (Clément, Harris, Bernard, Antonietti, & Kaufmann, 2014). These simple and convenient dichotomous thinkings increase the likelihood to understand that a person’s bad behavior is simply because the person is atrocious. In an educational setting, such point of view is dangerous. Teachers underestimate the students’ potential of growth and this misbelief deprives students of the opportunity to develop. Based on the results of this study, human is neither always selfish nor altruistic. Rather, they are either selfish or altruistic depending on the social context. It is extremely important for a teacher to know the fact that prosocial behavior is encouraged by social environment.
Moral education could be achieved through modeling processes. Educators and researchers tend to take this assertion for granted with no wonder (Sanger & Osguthorpe, 2013). However, empirical studies about the effect of modeling on moral education have been rare and the implication of modeling in teacher-education practice has been undervalued. It has only been in recent years that educators have begun to systematically examine the effect of models on an individual’s moral response (Kundu & Cummins, 2013). Therefore, developing an organized curriculum that could understand the effect of social surrounding on prosocial behavior and developing effective ways to facilitate students’ prosocial behavior through modeling process should help to cultivate the success of moral education.

Whether or not a violent game makes student aggressive (Anderson et al., 2010) and diminishes prosocial behavior (Tear & Nielsen, 2013) has been a controversial issue among educators, researchers and policy makers. The results showed that the effect of symbolic modeling in the manner of reading scripts is faint, specifically in the effect to the prosocial behavior for alleviating a society member’s suffering. Instead, giving an opportunity to be involved in a group whose members behave prosocially could be an effective way to enhance the students’ prosocial behavior.

Similarly, the social norm approach is one possible way to enhance students’ prosocial behavior (Perkins, 2003). Many adolescents have an inflated perception about the extent to others’ behavior. For instance, an adolescent who heavily drinks alcohol thinks the amount of drinks he or she
takes is less than that of the majority (Segrist, Corcoran, Jordan-Fleming, & Rose, 2007). In case of prosocial behaviors, letting students know the social norm, dictating that many society member works for the betterment of society, is an applicable way to enhance their own prosocial behavior.

Limitations and Suggestions for Further Studies

One drawback of this study is in the absence of live modeling manipulation, in which all three confederates did not perform prosocial behaviors. This manipulation could contribute to making another social climate, in which not engaging in prosocial behavior is natural and appropriate. This could be another type of live modeling that leads to the participants not conducting the behavior. Because of this, the effect of live modeling could be overestimated. Thus, the effects should be understood with caution.

The second drawback of the present study is the sampling method. Self-selecting method was employed. The participants volunteered to attend the experiment and were paid 6,000 won for participation. This sampling procedure inherently entails self-selecting bias, and a self-selected sample cannot represent the target population. For instance, the participants of this study are more likely to be interested in earning money or enjoy attending experiments. Therefore, further studies should investigate a larger sample size with different college students for cross-validation of the results.
The third limitation is that the experimenter who gives the instruction about the signature campaign and charity was not blind to the conditions. To compensate for this limitation, the same instruction script was used to request prosocial behavior and three confederates were checked for the differences of requests across conditions. However, an alternative explanation - that the results could partially depend on the difference of researchers - is still possible. Therefore, for better study stringency, a researcher who is totally blind of the conditions should give the instruction of the request for the signature campaign and charity.

Findings from this study raise further suggestions for future studies. First, an in-depth qualitative study is needed to find the reasons for performing the prosocial behavior. In this study, 19 out of 28 participants who attended the donation answered a short open-ended question and the results were described in the discussion session. Sophisticated approaches to clarify the perceived reasons will help to find what cognitive and emotional processes happened in the students.

Second, further study needs to elucidate the moderating factors of the modeling procedure. This study did not concern the moderators of the effects in modeling, and there could be many possible factors that do so. For instance, individualistic people hardly tend to comply to others compared to collectivistic people (Cialdini, Wosinska, Barrett, & Gornik-Durose, 1999). Therefore, the effect of social influence could be differentiated depending on interdependent or independent self-construal
Characteristics of confederates could moderate the effect of social influence. According to Bandura, modeling effect was increased when the model was similar to the participants (Bandura et al., 1963). The greater the increase of perceived similarity, the greater the model was imitated after. Gender, age, appearance, group membership or even minimal social bond (e.g., same birthday date) could be possible moderators that influence others’ behavior (Gino et al., 2009; Walton, Cohen, Cwir, & Spencer, 2012).

Third, another important remaining question is to find the duration of the effect of live modeling on an individual’s behavior. In this study, effects of the other’s behavior were examined by measuring the prosocial behavior right after the manipulation. However, the results could not guarantee if the participants who showed prosocial behavior in laboratory would constantly continue conducting the behavior in their everyday lives. It is possible that the effects would not stay long. Further studies should elucidate the time consistency of the effects of social influences on prosocial behavior.

In addition, neurobiological approaches help to broaden the understanding of the phenomenon by revealing biological explanations about the social influence on human behavior, especially prosocial behavior. With the development of technologies such as event-related brain potential and functional magnetic resonance image (fMRI), various domains of academic fields are trying to understand human (Kim, Kim, Lee, & Shin,
Evidence from brain research will give valuable insights.

Lastly, it is valuable to know the consequences of prosocial behavior. Even though the participants did not realize that they were influenced by others’ behavior, an important remaining research question is whether enhancing the students’ prosocial behavior could improve their well-being or self-esteem (Aknin et al., 2013; Kim & Kim, 2008; Mellor et al., 2008). Further understanding in this matter would give educators clear reasons to make a social environment that induces students to conduct prosocial behavior.
REFERENCES


언어인지와 사고 연구 연구참여자 모집

서울대학교 교육학과와 보라매병원 정신건강의학과에서는 언어인지와 사고 및 기억 원리에 대한 연구를 위해 연구참여자를 모집합니다. 아래의 내용은 연구의 내용과 하실 역할 등에 대하여 설명 드리고자 마련된 것입니다. 참여를 원하시는 분은 연구담당자에게 연락 주십시오.

1. 연구 내용
이 연구는 서울대학교 교육학과(언어전공)와 보라매병원 정신건강의학과(기억전공)가 함께 수행하며, 언어를 이해하고 사고하는 과정과 기억을 형성하는 과정에서 사람들의 인지 처리 과정을 조사하기 위해 기획되었습니다.
본 연구에 참여하시는 분은 연구진행자의 지시에 따라 연구과정을 수행하게 됩니다. 연구에 참여하실 경우, 먼저 웹을 통해 사전 설문에 응답할 필요가 있기 때문에, 이를 참고하시기 바랍니다.

2. 연구 소요시간
15분 내외
연구가 진행되는 동안은 자리에서 일어나 이동할 수 없으니 이를 참고하시기 바랍니다. 그러나 연구참여 중, 본인이 원한다면 언제든지 참여 및 동의를 철회하시고 연구장소를 나갈 수 있습니다.

3. 연구참여비
5,000 원
본 연구에 참여하시고 모든 과정을 끝내신 연구참여자분에게는 5,000 원의 연구참여비가 지급됩니다.

4. 비밀 보장
검사를 통해 수집된 정보는 응답자가 누구인지 알 수 없도록 부호화(id #)하여 전산 처리되며, 기억 원리를 위한 연구 이외의 다른 곳에 절대 사용되지 않습니다. 종합된 결과가 학술적으로 발표되는 경우에도 신원은 비밀 상태로 유지됩니다.

5. 연구참여를 희망하시는 분은 아래로 연락 주시기 바랍니다.
   swpark.memory@gmail.com
   장소는 서울대학교 관악캠퍼스에서 진행될 예정입니다.
   시간은 오후 6시와 8시가 있습니다. 가능하신 시간을 함께 적어 주시기 바랍니다.

본 연구에 대한 의문 사항이 있는 경우 연락할 수 있는 사람은 다음과 같습니다.
연구원: 박 수 원(서울대학교 교육학과 및 보라매병원 정신건강의학과)
전화: 010-*****  이메일: swpark.memory@gmail.com

연구 참여자의 권익에 대한 정보를 얻고자 하시는 경우에는 연락할 수 있는 곳은 다음과 같습니다.
서울특별시 서울대학교 생명윤리심의위원회 (http://snuethics.snu.ac.kr/)
대표 전화: TEL: 02 - 880 - 5153
위치: 서울시 관악구 관악로 599 서울대학교 행정관 (60동) 5층
연구윤리지원팀

바쁜 가운데에서도 성실하고 진지하게 연구에 참여해 주셔서 감사합니다.
Appendix B. Instructions for participants (연구참여자용 설명서)

연구 참여자용 설명서

연구 과제명 : 언어인지와 사고
연구 책임자명 : 박수원 (서울대학교 교육학과, 서울대학교 보라매병원 정신건강의학과)

연구 과제명 : 언어인지와 사고 및 기억 원리에 대한 연구를 위해 귀하의 협조를 부탁드립니다. 아래의 내용은 연구의 내용과 귀하가 하실 역할 등에 대하여 설명 드리고자 마련된 것입니다. 이 연구는 자발적으로 참여 의사를 밝히신 분에 한하여 수행될 것이며, 귀하께서는 참여 의사를 결정하기 전에 본 연구가 왜 수행되는데 그리고 연구의 내용이 무엇과 관련 있는지 이해하는 것이 중요합니다. 다음 내용을 신중히 읽어보신 후 참여 의사를 밝혀 주시기 바랍니다.

이 연구는 자발적으로 참여 의사를 밝히신 분에 한하여 수행될 것으로, 귀하께서 참여 의사를 결정하기 전에 본 연구가 왜 수행되는지 그리고 연구의 내용이 무엇과 관련 있는지 이해하는 것이 중요합니다. 다음 내용을 신중히 읽고 후 참여 의사를 밝혀 주시기 바랍니다.

1. 연구 내용
이 연구는 서울대학교 교육학과(언어전공)와 보라매병원 정신건강의학과(기억전공)가 함께 수행하며, 언어를 이해하고 사고하는 과정과 기억을 형성하는 과정에서 사람들의 인지처리 과정을 조사하기 위해 기획되었습니다. 본 연구에 참여하시는 분은 연구 진행자의 지시에 따라 연구과정을 수행하게 됩니다. 연구에 참여하실 경우, 먼저 6~8문장으로 구성된 글 세 개를 읽으시게 됩니다. 이 후 무작위로 퍼져 있는 문장들을 본래 글의 내용에 맞게 순서대로 맞추는 작업을 수행하시게 됩니다. 개인의 정서 상태에 대한 설문에 응답하신 뒤, 단어들이 제시되고 이 단어들이 제시되었는지 여부를 판단하는 과제가 이어집니다. 과제 수행에 배정된 시간이 지나면 연구는 모두 종료 됩니다. 연구 소요시간은 15분 내외이며 연구가 진행되는 동안은 자리에서 일어나 이동할 수 없으니 이를 참고하시기 바랍니다. 그러나 연구 참여 중, 본인이 원한다면 언제든지 참여 및 동의를 철회하시고 연구 장소를 나갈 수 있습니다. 본 연구에는 총 210명의 연구 참여자가 모집되며 연구는 2015년 2월까지 진행됩니다.

2. 비밀 보장
검사를 통해 수집된 정보는 응답자가 누구인지 알 수 없도록 부호화하여 전산 처리되며, 기록 원리를 위한 연구로 사용되는 이외의 다른 곳에 절대 사용되지 않습니다. 종합된 결과가 학술적으로 발표되는 경우에도 신원은 비밀 상태로 유지됩니다. 그러나 법이 요구하면 귀하의 개인정보는 제공될 수도 있습니다. 또한 모니터 요원, 점검 요원, 생명윤리심의위원회는 연구 참여자와의 개인 정보에 대한 비밀 보장을 철저히 지키고 관리규정이 정하는 법의 안에서 본 연구의 실시 절차와 자료의 신뢰성을 검증하기 위해 연구 결과를 직접 열람할 수 있습니다. 귀하가 본 동의서에 서명하는 것은, 이러한 사항에 대하여 사전에 알고 있었으며 이를 허용한다는 동의로 간주된 것입니다.
3. 연구 참여 시 발생할 수 있는 부작용
본 연구 참여로 발생할 수 있는 예측가능한 부작용은 전혀 없습니다.
본 연구는 글을 읽고 이어지는 과제를 수행하는 식으로 진행되며, 글의 내용은 대학생들이 수행한 일반적인 행동들과 관련됩니다.

4. 연구 참여로 인한 금전적 보상
본 연구 참여로 인한 금전적 보상은 없습니다.

5. 연구 관련자
본 연구에 대한 의문 사항이 있는 경우에는 연락하여 주십시오.
연구원: 박 수 원(서울대학교 교육학과 및 보라매병원 정신건강의학과)
전화: 010-0000-0000 이메일: swpark.memory@gmail.com

연구 참여자의 권익에 대한 정보를 얻고자 하는 경우에는 연락할 수 있는 곳은 다음과 같습니다.
서울특별시 서울대학교 연구윤리위원회 (http://snuethics.snu.ac.kr/)
대표전화: TEL : 02 - 880 - 5153
위치: 서울시 관악구 관악로 599 서울대학교 행정관 (60동) 5층 연구윤리지원팀

바쁜 가운데에서도 성실하고 진지하게 연구에 협조해 주셔서 감사합니다.
Appendix C. Scripts for absence of symbolic modeling

글 1. 나의 교복
저는 이번에 장롱 속에 있던 교복을 꺼내 중고 매장에 팔았습니다. 이제는 입지 않을 교복을 어떻게 해야 할지 물리 처리할 수 있는 방법에 대해 고민하다가 생각해낸 방법이었습니다. 몇몇 친구들과 함께 오랜만에 교복을 입고 사진도 찍고 재미있는 시간이었습니다. 마치 옛날로 돌아간 것 같았습니다. 교복을 팔기 위해 저희들끼리 서로 어디가 좋을지 장소나 업체, 교복을 팔 수 있는 방법에 대해 알아보았습니다. 출게 볼 일 없이 잘 팔았으면 좋겠다는 생각으로 알이지요. 돈도 벌어서 좋았습니다!

글 2. 디베로 지역 나홀로 여행
처음 글을 쓰려니, 뽀리네요.. ^^ 저는 대학에 입학하고 처음 맞는 방학을 알차게 보내보고자, 지난 주말에 디베로 지역에 나홀로 여행을 다녀왔습니다. 시골마을이었는데, 다녀온 신분들이 거의 없어 처음엔 잘 다녀올 수 있을까 걱정도 되고 있었지만, 어느 것도 없었고 보람도 없지 않았습니다. 혼자 여행을 다니기 시작한지는 얼마 되지 않았지만, 여행을 준비하고 다니는 힘든 힘든가 너무 행복해야요. 더 열심히 다녀가겠어요!

글 3. 대학생 울타리요리 교실
안녕하세요. 저는 평소 요리를 좋아하는 저의 취미를 살려 대학생 울타리 요리교실에 들어가게 되었습니다. 돌아가며 모임 장소를 섭외하여 요리를 하고 자신의 요리솜씨를 뽀내는 기회를 가집니다. 바로 어제는 제가 장소를 섭외하였고, 맛있는 음식들을 만들고 왔네요. 저는 볶음밥, 샌드위치를 맛있게 만들고 왔습니다. 요리교실에서 비법 소스를 배우고 자만의 레시피를 발전시키는 작업은 요즘 저의 취미 중 하나입니다. 발전시킨 레시피는 아직 아무에게도 공개하지 않고 있어요! 이런 좋은 요리교실을 만들어주시신 분과 다른 분들에게도 감사의 박수를 보냅니다. 행복하고 또 행복한 시간이었습니다.
Appendix D. Scripts for presence of symbolic modeling

글 1. 우리사회 청소년을 위한 나눔
저희는 몇 명의 대학생들이 모여 사회에 공헌할 수 있는 방법이나, 함께 더불어 지내는 사회를 만들 수 있는 방법에 대해 고민하고, 또 실천하는 친구들을 모았습니다. 이번에는 청소년기를 보내고 있는 아이들에게 아주 조금이라도 도움이 되고자 맞춤교복을 전해주면서 어쩔까 하는 생각을 하게 되었습니다. 저희들끼리도 서로 함께 지지해주고, 밀어주면서 여기저기 지원받을 수 있는 방법에 대해 알아보았습니다. 함께 협동하며 살아가는 세상이 되었으면 하는 바람으로 말이지요. 다른 사람을 돕는 과정에서 우리 동아리원들끼리의 사이도 참 돋보해지고 좋습니다.

글 2. 디버로 지역아동센터를 다녀와서
처음 글을 쓰려니, 말이네요.. ^^ 저는 대학에 입학하고 처음 만난 방학을 알차게 보내보고자, 지난 한달간, 매주 주말마다 디버로 지역아동센터에 봉사활동을 다녀왔습니다. 처음엔 잘 할 수 있을까 걱정도 되고 있었지만 아이들도 너무 착하고 친절하고, 저 역시 아이들에게 얻는 것도 많고 보람도 많이 느낍니다. 봉사 시작한지 얼마 되지는 않았지만, 봉사하는 하루하루가 너무 행복하네요. 더 열심히 봉사해야겠습니 다!

글 3. 대학생 울타리봉사단의 착한 식탁 나눔과 봉사
안녕하세요. 저는 평소 요리를 좋아하는 저의 취미를 살려 요리를 하여 사회의 소외된 분들에게 힘을 주는, 대학생 울타리봉사단에 들어가게 되었습니다. 그리고 바로 어제, 지역 아동복지관을 방문하여 소외된 아이들의 착한 식탁과 먹거리를 후원하고 왔네요. 영아의 정이 그리울지 모르는 아이들에게 조금이라도 힘이 되고자 열심히 복음밥, 샌드위치를 만들고 왔습니다. 아이들에게 조금이라도 도움이 되길 바라는 마음으로.. 이런 좋은 모임을 만들어주신 봉사단장님과 다른 봉사원들에게도 감사의 박수를 보냅니다. 참 좋은 사람들, 아이들, 만들 수 있어 행복하고 또 행복한 시간이었습니다.
Appendix E. Scripts and questions used in the first pilot study

다음은 읽기능력 향도개발을 위한 사전 설문입니다.
아래의 글을 읽고 1) 글의 핵심주제가 무엇인지, 2) 글에 등장하는 인물의 특성과 무엇인지 3) 글의 난이도가 어땠는지 응답해 주시기 바랍니다.

가수 김씨가 지난 달 15일, 양로원을 찾아 ’2014 봄맞이 자선음악회’를 열었다. 이번 공연은 김씨의 47회 자선공연으로, 공연 전에 어르신들에게 식사도 대접했다. 김씨는 그동안 소외된 이웃들에게 용기와 희망을 주기 위해 꾸준히 자선공연을 펼쳐왔다. 뿐만 아니라 10년간 적십자 봉사원으로 목욕봉사 등 지역발전을 위한 봉사 활동을 전개하였다. 이에 대한 공로로 지금까지 김씨는 선행 시민상, 총재 표창장, 예술상 등을 받았다.

1) 핵심 주제
2) 등장인물의 특성
3) 글의 난이도: 매우 쉽다 – 쉽다 – 보통이다 – 어렵다 - 매우 어렵다

어려운 이웃을 지원하기 위해 ‘꽃보다 이웃사랑’ 기증운동을 맺친 이씨를 비롯한 17명이 모범선행시민상을 받는다. 평소 서울시는 이웃을 위해 범죄·봉사해온 시민을 찾아, 모범사례를 널리 알리고 활성화시켜 쇼핑몰과 지역사회 분위기를 조성하기 위해 매년 표창해 오고 있다. 올해에는 자소 득주 아동의 학습지원을 위해 어머니 봉사단을 운영하고 있는 박씨, 기부도 통한 나눔 정신을 실천하고 있는 한 씨, 봉사회를 구성해 소외계층을 위해 봉사하고 있는 오씨 등이 수상하였다.

1) 핵심 주제
2) 등장인물의 특성
3) 글의 난이도: 매우 쉽다 – 쉽다 – 보통이다 – 어렵다 - 매우 어렵다

oo문화재단은 제27회 '유정선행상' 시상식을 개최하고 대상으로 선정된 김씨에게 상패와 상금을 수여했다. 김씨는 34년 전부터 봉사활동을 펼쳐왔 다. oo문화재단은 "소외된 이웃을 34년간 한 걸음 한 걸음 보살핌 정, 도움이 곧 필요한 사람들과 봉사자들을 연결해 나눔의 사각지대를 없애는데 기여한 점을 높이 평가해 김씨를 올해 유정선행상 대상 수상자로 선정했다"고 밝혔다.

1) 핵심 주제
<table>
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<tr>
<td>올해로 32주년을 맞이한 전국대학학생자원봉사대회에서 27명의 학생이 교육부, 여성가족부 장관상을 수상 받았다. 수상자 중 한 명인 이 씨는 평소의 선행뿐만 아니라, 봉사활동을 하고 싶어도 어떻게 해야 하는지 모르는 친구들을 돕고자 하는 마음에서 알림봉사단을 만들고, 1:1 상담을 통해 장애, 화장, 외모의 봉사활동 등을 물어본 후 성향에 맞는 봉사활동을 개발해 주는 봉사활동을 꿈꾸던 점에서도 주목받고 있다.</td>
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<tr>
<td>장애를 안고 태어난 이 씨는 이로 인해 어린 시절 외부와 공항장애를 겪은 경험이 있다. 하지만 본인보다 힘든 사람을 도우며 살고 싶다는 생각에 양로원을 찾아 5년째 꾸준히 봉사활동을 하고 있으며, 청소와 알刳, 식사 보조 등 자신이 할 수 있는 일에 최선을 다하며 성실하게 봉사한다. 이러한 모습에 양로원의 어르신들은 모두 고마운 마음을 가지고 계시다고 한다.</td>
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Appendix F. Prosocial scripts and questions used in the second pilot study

언어능력조사지 개발을 위한 파트입니다. 아래에 제시된 실제 사례 글(활동 후기) 3가지를 읽고 이어지는 물음에 답해주시기 바랍니다.

글 1. 소외빈곤가정의 청소년들과 조손가정의 학생을 위한 나눔

지회 원진공동체에서는 2014년 하복을 준비하는 소외빈곤 가정의 청소년들에게 하복 100여벌(약 2,000만원 상당)을 후원하였습니다. 이러한 자선활동은 공동체 구성원들이 자발적으로 나서서, 소외된 아픔 속에서도 공부를 하고자 하는 청소년들을 돕기 위해 시작되었습니다. 열악한 환경과 의류의 품질 면지 등의 환경 속에서 도움의 의지 를 불사르는 우리 공동체원들은, 우리의 조그마한 나눔이 청소년들에게 희망을 줄 수 있다는 마음으로 기꺼이 재능을 기부하고 있습니다. 이뿐만 아니라, 사회 여러 기관들 역시 함께 힘을 모아 2015년부터는 저소득층 학생들을 위한 사회적 네트워크를 만들어가기로 하였습니다. 우리 공동체의 구성원들은 수익금을 다시 사회로 환원하는 사회공헌 나눔을 이어나갈 예정입니다. 모두의 한걸음이 모여 행복하고 아름다운 사회가 되기를 원합니다. 감사합니다. [나눔 일자: 2014.4.10.~2014.4.27. (학교 별 교복이 달라 제작기간이 소요됨)]

글 2. 디베로지역아동센터 봉사 후기입니다.

처음 글을 쓰려니, 떨리네요.. ^^ 저는 지난 한달 간, 매주 주말마다 디베로지역 아동센터에 봉사활동을 다녀왔습니다. 처음엔 잘 할 수 있을까 걱정도 되고 있었지만 아이들도 너무 착하고 잘 따라주고, 저희 아이들에게 얻는 것도 많고 보람도 많이 느낍니다. 봉사 시작한지 얼마 되지는 않았지만, 봉사하는 허리하루가 너무 행복하네요. 행복하다는 것이 무엇인지, 우리가 왜 그러야하는지 몰소 깨닫고 있습니다. 더 열심히 하겠습니다! 좋은 휴가 남길게요 ~ 앞으로도 잘 부탁드려요~ [봉사 일자: 2014.5.02.~2014.5.27.]

글 3. 서대문구 울타리봉사단의 착한식탁 나눔과 봉사

안녕하세요. 제가 몹쓸고 있는 서대문구 울타리봉사단은 주부들의 봉사단입니다. 저희는 지역 아동센터나 복지관을 방문하여 소외된 아이들의 착한 식탁과 먹거리를 후원하고 있습니다. 아이들과 대화 소통을 통해 음료음을 줄일 수 있도록 도와주고, 사랑과 정이 넘치는 착한 식탁 김장밥, 떡볶이, 샌드위치를 후원하여 퇴학 위기 아이들에게 영양분을 공급하게 하고 있습니다. 엄마의 정이 그릴듯 아이들에게 쉽게 먹어도 될 필요성을 교육하여 안도하고자 노력하고 있습니다. 아이들에게 조금이라도 도움이 되길 바라는 마음으로.. 이런 좋은 모임을 만들어주신 고복순 회장님과 다른 봉사원들에게도 감사의 마음을 보냅니다 짜릿하게^^ 좋 좋은 사람들의, 아이들, 만날 수 있어 행복하고 또 행복합니다. [봉사일자 2013~2014.2.6.]

Q. 각 글을 쓴 작성자의 특성에 대해 (간단히) 적어주시기 바랍니다.

글 1.
글2.

글3.
Appendix G. Control scripts and questions used in the second pilot study

언어능력조사지 개발을 위한 파트입니다. 아래에 제시된 실제 사례 글(활동 후기) 3가지를 읽고 이어지는 물음에 답해주시기 바랍니다.

글 1. '도록 날씨, 교복 하복 생산'
저희 원진공장에서는 2014년 청소년들의 하복을 생산하여 판매 중에 있습니다. 특히 이번 달 초에는 지금까지 생산해오지 않았던 다른 학교의 새로운 디자인 하복 100여 벌(약 2,000만원 상당)을 생산하였습니다. 이러한 생산은 보다 다양한 교복을 만들어 기술력을 높이고 다양한 소비자들 대상으로 교복을 판매해야 한다는 우리 단체 구성원들의 자발적인 생각에서 시작되었습니다. 더불어 판매율도 높일 수 있구요. 저도 그럴 용서, 우리 단체의 사람들 각각은 의류의 옷감 터치 등의 열악한 환경 속에서도 자신의 일을 목록히 그리고 열심히 해나가고 있습니다. 이 뿐만 아니라, 사회의 타 기업 및 단체들과 협의하여 교복의 생산 효율을 높이고 좋은 질의 교복을 생산할 수 있게 옷감 공급 및 운송 비트워크를 만들어가기로 하였습니다. 단체의 구성원들은 계속해서 잘 줄은 교복을 만드는 작업을 이어나가고 예정입니다. 저희 노력이 결실을 맞이 나오는 교복 완성품을 볼 때와 상품을 소비자에게 판매할 때에는 참 뿌듯합니다. 감사합니다. [작성 일자: 2014.4.10]

글 2. '디베로지역 나홀로 여행 후기입니다.'
처음 글을 쓰려니, 헐리네요.. ^^ 저는 지난 주말에 디베로지역에 홀로 여행을 다녀왔습니다. 주변 지인이 소개해주신 시골마을이었는데, 다녀온 분들이 거의 없어 처음엔 잘 다닐 수 있을까 걱정도 되고 있었지만 너무 잘 다녀왔습니다. 걱정했던 것 보다 훨씬 좋던 점들은 없었고요, 안전에 유의해서 그런지 위험하지도 않았습니다. 여행을 통해 얻은 것도 알고 새로운 좋은 경험들을 할 수 있었습니다. 혼자 여행을 시작한지 얼마 되지는 않았지만, 여행을 준비하고 여행가는 하루하루가 너무 행복네요. 혼자 여행을 다니는 것이 무엇인지, 살아가며 내가 왜 그렇게하는지 몰소 깨닫고 있었습니다. 더 열심히 다녀올거요! 졸업 후기 남길게요~ 앞으로도 잘 부탁드려요~ [작성 일자: 2014.5.26]

글 3. '서대문구 올타리요리단의 요리교실'
안녕하세요. 제가 몸담고 있는 서대문구 올타리 요리단은 주부들의 요리모임입니다. 저희는 돌아가며 장소를 석별하여 각자 요리를 하고 자신의 요리장을 빼내는 가회를 가집니다. 장소는 일이나 우수요리를 만드시는 거의 대부분 혼자 결정할 수 있는 자유성이 있는 모임입니다. 그날그날 만들고 싶은 요리를 만들어보세요. 그 중에서도 상상한 재료와 맛은 고기로 만든 으뜸 뿌듯한 아이들에게도, 주부들에게도 인기 만점이었습니다. 여기서서 요리단에서 배운 소스를 개발하고 저만의 레시피를 발전시키는 작업은 요즘 저의 취미 중 하나입니다. 저만의 비법 양념법은 다른 사람들이 알리주라고 해도 알려주지 않고 있어요. 앞으로도 계속 맘있는 음식들을 개발해가겠어요! 이런 좋은 요리단 모임을 만들어주시고, 혜택본 회원님과 다른 주부님들에게도 감사의 박수를 보냅니다 짧게 짧게~^^ [작성 일자 2014.2.6]

Q. 각 글을 쓴 작성자의 특성에 대해 (간단히) 적어주시기 바랍니다.
글 1.

글 2.

글 3.
<table>
<thead>
<tr>
<th>Item</th>
<th>Item in Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>나는 신체 장애자나 나이가 드신 어른을 도와준 적이 있다.</td>
</tr>
<tr>
<td>2</td>
<td>길을 가다가 처음 보는 사람이라도 어려운 일을 당하면 그냥 지나치지 않고 도와준 적이 있다.</td>
</tr>
<tr>
<td>3</td>
<td>나는 낯선 사람이 들고 가는 물건을 들어준 적이 있다.</td>
</tr>
</tbody>
</table>
Appendix I. Questionnaire for social responsibility and concern goal

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>다른 사람에게 도움이 되는 것을 가치 있게 생각한다.</td>
</tr>
<tr>
<td>2</td>
<td>내가 생각하는 목표가 내가 속해있는 공동체에 도움이 되는지를 생각한다.</td>
</tr>
<tr>
<td>3</td>
<td>사회의 일원으로서 사회에 기여하는 목표를 가지려고 한다.</td>
</tr>
<tr>
<td>4</td>
<td>내가 생각하는 목표가 다른 사람들에 배려하는지를 중요하게 생각한다.</td>
</tr>
</tbody>
</table>
### Appendix J. Questionnaire for empathy

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>나는 다른 사람이 부당하게 대우받는 것을 보면 정말 화가 난다.</td>
</tr>
<tr>
<td>2</td>
<td>나는 나보다 불행한 사람을 보면 연민의 정과 함께 걱정하는 마음이 생긴다.</td>
</tr>
<tr>
<td>3</td>
<td>나는 어떤 사람이 이용당하는 것을 보면 그를 보호하고 싶은 마음이 든다.</td>
</tr>
<tr>
<td>4</td>
<td>힘없는 노인을 보면 내 마음이 아프다.</td>
</tr>
</tbody>
</table>
Appendix K. Screen capture of the online survey asking the amount of appeal of the requests
Appendix L. Signature sheet for the signature campaign

서울대학교 서명운동

이름에 늘어 있는 환경의 중요성에 관한 서명운동을 진행하고 있습니다. 
이름에 대한 마음을 담아 서명에 참여해주시면 놀랍게 잘 전달하도록 하겠습니다.

<table>
<thead>
<tr>
<th>번호</th>
<th>성명</th>
<th>전공</th>
<th>서명</th>
<th>번호</th>
<th>성명</th>
<th>전공</th>
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Appendix M. Scenes of laboratory experiment
Appendix N. Modified version of scramble sentence test for absence of symbolic modeling

조금 전 읽었던 세 가지 글의 문장이 순서에 관계없이 섞여있습니다. 3분 동안 각 글에 해당하는 문장을 꼭 번호 순서대로 적어주시기 바랍니다. (제목은 고려하지 않으셔도 됩니다)

① 시골마을이었는데, 다녀오신 분들이 거의 없어 처음엔 잘 다녀울 수 있었을 까 걱정도 되고 하였지만 얻는 것도 많았고 보람도 많이 느꼈습니다.
② 바로 어제는 제가 장소를 석외하였고, 맛있는 음식들을 만들고 왔네요.
③ 몇몇 친구들과 함께 오랜만에 교복을 입고 사진도 찍고 재미있는 시간이었습니다.
④ 저는 대학에 입학하고 처음 맞는 방학을 알차게 보내보고자, 지난 주말에 디베로 지역에 나홀로 여행을 다녀왔습니다.
⑤ 저는 이번에 장롱 속에 있던 교복을 꺼내 중고 매장에 팔았습니다.
⑥ 요리 교실에서 비법 소스를 배우고 저만의 레시피를 발전시키는 작업은 요즘 저의 취미 중 하나입니다. 발전시킨 레시피는 아직 아무에게도 공개하지 않고 있어요!
⑦ 이제는 잃지 않을 교복을 어떻게 해야 할지 몰라 처리할 수 있는 방법에 대해 고민하다가 생각해낸 방법이었습니다.
⑧ 이런 좋은 요리교실을 만들어주신 분과 다른 분들에게도 감사의 박수를 보냅니다. 행복하고 또 행복한 시간이었습니다.
⑨ 마치 옛날로 돌아간 것 같았습니다. 교복을 팔기 위해 저희들끼리 서로 어디가 좋을지 장소나 업체, 교복을 팔 수 있는 방법에 대해 알아보았습니다.
⑩ 저는 평소 요리를 좋아하는 저의 취미를 살려 대학생 울타리 요리교실에 들어가게 되었습니다.
⑪ 좋게 볼 일 없이 잘 팔았으면 좋겠다는 생각으로 알이지요. 돈도 벌어서 친구들에 좋았습니다!
⑫ 혼자 여행을 다니기 시작한지는 얼마 되지 않았지만, 여행을 준비하고
다니는 하루하루가 너무 행복하네요.
⑬ 더 열심히 다녀야겠어요!
⑭ 돌아가며 모임 장소를 섭외하여 요리를 하고 자신의 요리솜씨를 뽑내는 기회를 가집니다.
⑮ 처음 글을 쓰려니, 떨리네요.. ^^
⑯ 안녕하세요.
⑰ 저는 볶음밥, 샌드위치를 맛있게 만들고 왔습니다.

글1.

글2.

글3.
Appendix O. Modified version of scramble sentence test for presence of symbolic modeling

조금 전 읽었던 세 가지 글의 문장이 순서에 관계없이 섞여있습니다. 3분 동안 각 글에 해당하는 문장을들 골라 번호 순서대로 적어주시기 바랍니다. (제목은 고려하지 않으셔도 됩니다)

① 처음엔 잘 할 수 있을까 걱정도 되고 하였지만 아이들도 너무 착하고 친절하고, 저 역시 아이들에게 얻는 것도 없고 보람도 많이 느낍니다.

② 그리고 바로 어제, 지역 아동복지관을 방문하여 소외된 아이들의 착한 식탁과 먹거리를 훈련하고 왔네요.

③ 저희들끼리도 서로 함께 지지해주고, 맞어주면서 여기저기 지원받을 수 있는 방법에 대해 알아보았습니다.

④ 저는 대학에 입학하고 처음 맞는 방학을 알차게 보내보고자, 지난 한달 간 매주 주말마다 디비로 지역 아동센터에 봉사활동을 다녀왔습니다.

⑤ 저희는 몇 명의 대학생들 모여 사회에 공헌할 수 있는 방법이나, 함께 더불어 지내는 사회를 만들 수 있는 방법에 대해 고민하고, 또 실천하는 친구들 모임입니다.

⑥ 아이들에게 조금이라도 도움이 되길 바라는 마음으로..

⑦ 이번에는 청소년기를 보내고 있는 아이들에게 아주 조금이라도 도움이 되고자 맞춤교복을 전해주면서 끝까지 하는 생각을 하게 되었습니다.

⑧ 이런 좋은 모임을 만들어주신 봉사단장님과 다른 봉사원들에게도 감사의 박수를 보냅니다.

⑨ 함께 협동하며 살아가는 세상이 되었으면 하는 바람으로 말이지요.

⑩ 저는 평소 요리를 좋아하는 저의 취미를 살려 요리를 향하여 사회의 소외된 분들에게 힘을 주는, 대학생 울타리봉사단에 들어가게 되었습니다.

⑪ 다른 사람을 돕는 과정에서 우리 동아리원들끼리의 사이도 참 돈독해지고 좋습니다.
봉사 시작한지 얼마나 되지는 않았지만, 봉사하는 하루하루가 너무 행복하세요.

더 열심히 봉사해야겠습니다!

참 좋은 사람들, 아이들, 만날 수 있어 행복하고 또 행복한 시간이었습니다.

처음 글을 쓰려니, 떨리네요.. ^^

안녕하세요.

엄마의 정이 그리울지 모르는 아이들에게 조금이라도 힘이 되고자 열심히 봉음밥, 샌드위치를 만들고 왔습니다.
## Appendix P. PANAS scale (used as a filler task)

다음에 나오는 각 단어는 감정이나 기분을 기술한 것입니다. 각 단어를 읽고, 지금 이 순간 느끼는 기분의 정도를 가장 잘 나타낸 곳에 O 표시해주십시오.

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Appendix Q. Modified version of lexical decision task for absence of symbolic modeling

Q. 다음에 제시되는 내용이 글에 있었는지의 여부를 판단해주십시오. (너무 헷갈리는 경우에 D로 응답할 수 있음)

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Appendix R. Modified version of lexical decision task for presence of symbolic modeling

Q. 다음에 제시되는 내용이 글에 있었는지 여부를 판단해주세요. (너무 혼란스러운 경우에는 △로 응답할 수 있음)

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Appendix S. Script for requesting prosocial behaviors

본 연구는 여기까지입니다. 연구에 참여해주셔서 감사합니다.

아, 그리고 가시기 전에 한 가지 드리고 싶은 말이 있는데요.

제가 병원에서 임상 연구원으로 있다 보면 아픈 아기들이나 어린이들을 종종 마주치게 되는데, 아픈 아기들 중에서도 치료비가 없어서 제때에 올바른 치료를 받지 못해 건강해질 수 있었는데도 건강해지지 못하는 아기들을 보면서, 이렇게 공부하며 지내는 것도 물론 중요하지만, 주변을 돌려보고 제가 할 수 있는 일들을 하는 것도 중요하다는 생각을 하게 됐고, 결연후원을 하기 시작했습니다.

그래서 지금 환아를 위한 지원금 향상을 지지하는 서울대학교 학생들 서명운동과 기부금 모집을 하고 있습니다. (손으로 가르키기)

참여하시는 건, 기부금을 내시는 건 정말 본인의 의사대로 하시면 되시구요 절대 강요가 아니니까 부담 가지지 않길 바랍니다. 다만 백원 이백원도 좋고, 천원 이천원도 좋으니 마음가시는대로 부탁드립니다.

여기 환아를 위한 서명운동이 있구요(서명운동지를 가르키기), 혹시 관심 있으신 분들은 참여부탁드립니다. !

감사합니다.
디브리핑 문

안녕하세요. 바쁘신 와중에 연구에 참여해주셔서 감사합니다. 본 문서는 '언어인지와 사고' 연구에 참여해주신 연구참여자분들에 본 연구의 목적 및 내용을 알려드리기 위해 작성되었습니다. 본 연구는 언어 인지와 사고가 아닌, 사회맥락이 개인의 친사회적 행동에 미치는 영향을 확인하기 위해 설계되었습니다. 연구 참여자분들에게 정확한 연구의 정보를 사전에 알려드리지 못해 죄송합니다.

이 같은 눈가림 법을 실시했던 이유는 다음과 같습니다. 먼저, 개인의 친사회적 행동에 대해 연구한다는 것을 밝히게 될 경우, 자신의 자유로운 의지의 발현을 제대로 알아볼 수 없기 때문입니다. 본 연구는 개인이 사회 맥락에 의해 자연스럽게 발생하는 친사회적 행동에 대해 확인하고자 하는 연구였기에 친사회적 행동이 종속변인이라는 것을 밝히게 될 경우, 사회적 바람직성에 크게 영향을 받을 수 있어 이를 밝힐 수 없었습니다. 둘째, 사회맥락의 영향력을 정확하게 파악하기 위함이었습니다. 연구에 참여해주신 여러분께서 읽으신 글과 주변사람들의 행동이 여러분의 친사회적 행동에 큰 영향을 미친다는 것이 본 연구의 가설이었습니다. 그런데, 사회맥락의 경우 대부분이 개인이 의식하지 못하게 영향을 미칩니다. 따라서 연구의 본 목적을 알려드릴 경우, 이는 더 이상 인식하지 못하는 자연스러운 영향이 아닌, 의도적으로 인식된 영향으로 변하기 때문에 본 목적을 알려드릴 수 없었습니다.

본 연구에 동의해주신 여러분들은 원래의 연구목적을 알지 못했기 때문에, 원하실 경우 '앞마련지' 등의 문의를 철저히 하고 연구참여 정보 및 관련 데이터를 삭제할 수 있는 권리를 지니십니다. 이를 원하실 경우, 연구책임자 박수원 swpark.memory@gmail.com, 혹은 010-0000-0000로 연락주시기 바랍니다. 편하게 말씀해주시기 바랍니다!!


다시 한번 더 연구에 참여해 주셔서 감사합니다.
Appendix U. Formula for coefficient comparison in logistic regression

\[
\frac{(b_1 - b_2)^2}{\text{var}(b_1) + \text{var}(b_2) - 2\text{cov}(b_1, b_2)} \sim \chi_1^2
\]
Appendix V. Participation agreement (연구참여자용 동의서)

동 의 서

1. 나는 이 설명서를 읽었으며 담당 연구원과 이에 대하여 의논하였습니다.
2. 나는 위험과 이득에 관하여 들었으며 나의 질문에 만족할 만한 답변을 얻었습니다.
3. 나는 이 연구에 참여하는 것에 대하여 서면적으로 동의합니다.
4. 나는 이 연구에서 얻어진 나에 대한 정보를 현행 법률과 생명윤리심의위원회 규정이 허용하는 범위 내에서 연구자가 수집하고 처리하는데 동의합니다.
5. 나는 담당 연구조사 위임 받은 대리인이 연구를 진행하거나 결과 관리를 하는 경우와 보건 당국, 학교 당국 및 서울대학교 생명윤리심의위원회가 실태 조사를 하는 경우에는 비밀로 유지되는 나의 개인 신상 정보를 직접적으로 열람하는 것에 동의합니다.
6. 나는 언제라도 이 연구의 참여를 철회할 수 있고 이러한 결정이 나에게 어떠한 해도 되지 않을 것이라는 것을 약합니다.
7. 나의 서명은 이 동의서의 사본을 받았다는 것을 드리며 연구 참여가 끝날 때까지 사본을 보관하겠습니다.

<table>
<thead>
<tr>
<th>연구참여자 성명</th>
<th>서 명</th>
<th>날짜 (년/월/일)</th>
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<td>동의서 받은 연구원 성명</td>
<td>서 명</td>
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<td>연구책임자 성명</td>
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국문 요약

1. 서론

나와 직접적인 관계를 가지지 않는 타인이나 사회를 위하는 친사회적 행동은 사회의 유지와 발전에 중요한 역할을 한다(Eisenberg et al., 2007). 친사회적 행동이 개인의 안녕감을 높이는 데 긍정적이라는 사실을 확인한 최근의 연구 결과들과 함께 많은 분야의 연구자들은 친사회적 행동을 이해하고 이를 높일 수 있는 방안에 대한 고민을 계속해왔다(Aknin et al., 2013; Anderson et al., 2014; Thoits & Hewitt, 2001). 특히, 이기주의가 팽배하고 학교폭력과 같은 사회문제가 증가하는 실정에서 인간의 긍정적인 측면인 친사회적 행동에 집중하고 이를 증가시킬 수 있는 방법을 고안하는 것은 개인의 바람직한 성장을 위해 사회가 무엇을 할 수 있는가에 대한 실마리를 제공한다(Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005).

친사회적 행동과 관련된 대다수의 연구들은 인간의 친사회적 행동이 비교적 안정적으로 발현되는 행동이라는 관점을 지닌다(e.g., Buss, 2004). 예를 들어 이타적 성격과 친사회적 행동 간의 관계를 확인한 연구나 부모의 양육방식이 아동의 친사회성에 미치는 영향을 확인한 연구들은 인간의 친사회적 행동이 상황에 따라 급격하게 변화되지 않음을 가정한다(Hilbig, Glöckner, & Zettler, 2014; Knafo & Plomin, 2006a). 그러나 인간의 행동이 환경과 상호작용하며, 직·간접적으로 타인의 행동에 영향을 받아 변화할 수 있음을 주장하는 이론들도 존재한다.

사회인지이론(social cognitive theory)은 타인에 의해 개인의 행동이 변할 수 있음을 지지하는 대표적인 이론 중 하나이다(Bandura, 1971). 인간은 타인의 행동을 관찰함으로써 학습할 수 있고, 이로 인해 새로운
행동을 학습하거나 특정 상황에서 다른 행동을 수행하게 된다. 이때 타인은 신문 등을 통해 간접적으로 관찰할 수 있는 인물이 될 수도 있고(상징적 모델링, symbolic modeling), 개인의 옆에 실제로 존재하는 인물(실제적 모델링, live modeling)이 될 수도 있다(Bandura et al., 1969).

사회인지이론을 주장한 반두라는 상징적 모델링과 실제적 모델링 모두가 개인의 행동에 중요한 영향을 준다고 주장하였다(Bandura & Menlove, 1968). 실제적 모델링의 경우에는 사회적 영향(social influence)이라는 측면에서 그 효과가 뚜렷함이 밝혀져 왔으나, 상징적 모델링의 영향에 있어서는 일관된 효과가 보고되지 않고 있다(Doyen et al., 2012; Shanks et al., 2013; Tear & Nielsen, 2013). 반두라의 주장은 반면적이었다 연구들과는 달리(Bargh et al., 2001; Kawakami, Dovidio, & Dijksterhuis, 2003), 최근 연구들은 매체를 통한 상징적 모델링은 개인의 행동을 변화시키는 데 큰 영향을 미치지 못함을 보여주었다(Ferguson & Kilburn, 2009; Ferguson, 2007). 이 같은 상반된 결과들은 상징적 모델링의 효과를 보다 면밀히 확인할 필요가 있음을 시사한다. 또한 본 연구에서는 비디오나 게임을 통한 모델링이 아닌, 글을 통한 상징적 모델링에 주목하였다. 실제로 많은 교육 상황에서는 위인전 잉기와 같은 글을 통한 상징적 모델링이 이루어지고 있다. 그러나 사회인지이론을 바탕으로 한 기존의 연구들은 대부분 영상매체나 게임이 학생의 행동에 미치는 영향을 밝혀왔기 때문에, 글을 통한 상징적 모델링이 미치는 영향에 대한 연구는 부족한 설정이다.

본 연구는 타인의 행동이 개인의 행동에 중요한 영향을 미친다는 이론적 틀 하에 타인의 영향을 상징적 모델링과 실제적 모델링으로 구분하여 그 효과를 확인하는 데 목적을 둔다. 상징적 모델링은 전사회적 행동을 수행하는 내용의 글을 읽는 것으로, 실제적 모델링의 효과는 연구공모자들의 전사회적 행동을 통해 조정하였다. 특히, 본
연구에서는 연구참여자의 친사회적 행동을 측정하는 데 있어 단순히 친사회적 행동을 실행하고자 하는 개인의 의도나 자기보고식 응답이 아닌 행동 그 자체를 측정함으로써 사회맥락이 친사회적 행동에 미치는 영향을 직접적으로 밝히고자 하였다.

II. 연구 문제

연구문제 1. 모델링은 친사회적 행동에 영향을 미치는가?
   1-1. 상징적 모델링은 친사회적 행동에 영향을 미치는가?
   1-2. 실제적 모델링은 친사회적 행동에 영향을 미치는가?

연구문제 2. 실제적 모델링은 상징적 모델링에 비해 친사회적 행동에 더 큰 영향을 미치는가?

연구문제 3. 실제적 모델링의 영향은 상징적 모델링의 존재 여부에 따라 달라지는가?

III. 연구 방법

본 연구에는 서울 소재 대학에 재학 중인 대학생 125 명이 참여하였다. 이들은 상징적 모델링 존재 유무 및 실제적 모델링의 존재 유무에 따른 총 4 개의 집단에 무선 배정되었다. 상징적 모델링은 친사회적 행동을 수행하는 인물에 대한 내용이 적힌 글을 읽는 것으로 조성되었고, 실제적 모델링은 세 명의 연구 공모자가 직접 친사회적 행동을 수행하는 것으로 조성되었다. 결과의 신뢰성을 위해 본래의 목적을 공개하지 않는 눈가림법을 이용하여, 연구참여자들에게는 글을 읽고 이를 이해하는 과정을 확인하는 것이 연구의 목적이라 소개하였다. 집단 간 사전 동질성을 확인하기 위해 실험 연구에 참여하기 일주일 전 연구참여자들은 웹을 통한 사전설문에서 연구참여자들이 평소 수행하는 친사회적 행동의 정도와 사회공헌목표 및 공감 문항에 응답하였다.
설문응답으로부터 일주일이 지난 뒤, 실험 연구가 수행되었으며 평균적으로 세 명의 연구참여자와 세 명의 연구공모자가 함께 연구에 참여하였다. 연구자는 연구참여자들에게 본 연구가 글을 읽고 이를 어떻게 처리하는 가를 확인하는 연구라고 소개하였다. 연구참여자들은 천사회적 행동을 묘사한 글(상징적 모델링 존재 조건) 혹은 일반적 일상 생활을 묘사한 글(상징적 모델링 부재 조건)을 읽은 뒤, 이 글과 관련된 과제인 문장 순서 맞추기와 제시되었던 단어 재인하기를 수행하였다. 연구 참여자가 과제를 모두 마치면, 연구자는 연구가 모두 종료되었다는 안내를 하였다. 이후 연구자는 연구참여자들이 실험실을 나가기 전, 환아(患兒)를 위한 서명운동과 기금 모집이 진행되고 있음을 알렸다. 이때, 실제적 모델링이 존재하는 조건에서는 연구에 참여하고 있던 세 명의 공모자들이 모두 환아를 위한 서명운동과 기금모집에 참여하였다. 반면, 실제적 모델링이 존재하지 않은 실제적 모델링 부재조건의 경우에는 어떤 공모자도 서명 운동이나 기금 모집에 참여하지 않았다. 연구참여자의 천사회적 행동의 정도는 서명운동의 참여 여부와 기부한 액수를 통해 측정되었다. 환아를 위한 서명 운동 및 기금 모집에 대한 연구자의 안내에서 호소력의 차이를 통제하기 위해 모든 그룹에 동일한 안내 원고를 이용하였고, 연구에 참여한 세 명의 공모자가 연구참여 직후 호소력 수준에 대한 설문에 응답하였다.

모델링이 천사회적 행동에 미치는 영향을 확인하기 위해 로지스틱 회귀분석과 이원분산분석을 실시하였다. 로지스틱 회귀분석은 서명운동 참여 여부 차이를 확인하기 위해 사용되었으며, 이원분산분석은 기부금액 차이를 확인하기 위해 사용되었다. 이때, 기부금액의 경우 정규성 가정과 (Kolmogorov-Smirnov D (115)=0.44, p < .001) 등분산 가정을 만족하지 못하였기 때문에 (Levene’s F=15.95, p <.001) 자유도를 보정한 이원분산분석을 실시하였다(Box, 1954; Feldt
또한 상징적 모델링만 존재하는 조건과 실제적 모델링만 존재하는 조건 간 기부 금액의 차이를 확인하기 위해, 자유도를 보정한 *t*-test 가 실시되었다.

### IV. 연구 결과

사전설문을 통해 평소 수행하는 친사회적 행동의 정도 *(F(3, 121)=1.21, \( p > .1 \))* 및 공감 *(F(3, 121)=0.17, \( p > .1 \))*에 있어 집단 간 차이가 존재하지 않음을 확인함으로써 사전동질성을 확인하였다. 또한 공모자들의 설문을 통해 연구자가 연구참여자들에게 제공한 안내의 호소력도 그룹에 따라 다르지 않음을 확인하였다 *(F(3, 25)=0.15, \( p > .1 \))*. 상징적 모델링과 실제적 모델링이 친사회적 행위에 미치는 영향을 확인한 결과, 실제적 모델링만이 유의한 영향을 주는 것으로 나타났다. 즉, 상징적 모델링과 실제적 모델링 각각을 독립변인으로 하는 로지스틱 회귀분석 결과, 실제적 모델링의 존재만이 서명운동 참여 확률을 유의하게 높이는 것을 확인할 수 있었다 *(b=2.42, \( p < .001 \), \( \text{승산비}=11.22 \))*. 또한 이원분산분석 결과, 실제적 모델링의 주효과만이 유의하였다 *(F(0.81, 89)=12.71, \( p = .004 \), \( \eta^2=.06 \))*. 실제적 모델링과 상징적 모델링의 효과를 비교하였을 때에도 실제적 모델링이 상징적 모델링에 비해 친사회적 행동을 유발하는 데 더 높은 영향력을 가진다는 것을 확인할 수 있었다. 즉, 상징적 모델링 *(b=0.42, \( p > .1 \))과 실제적 모델링 *(b=2.46, \( p < .001 \))의 두 가지 독립변수를 동시에 투입한 로지스틱 회귀분석에서의 회귀계수 값을 비교한 결과, 두 회귀계수 간 차이가 유의하였다 *(\( \chi^2(1)=12.63, p < .001 \))*. 기부금액에 있어서도 실제적 모델링 존재 조건이 상징적 모델링 존재 조건에 비해 기부액이 유의하게 큰 것으로 나타났다 *(\( t(39.03)=2.49, p = .017 \))*. 

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마지막으로 실제적 모델링의 효과가 상징적 모델링의 존재 여부에 따라 달라지는 지를 확인한 결과, 서명운동 참여 \((b=-0.04, p>.1)\)나 기부금액 \((F(0.81, 89)=1.97, p>.1)\)에 있어 두 모델링 간 상호작용 효과는 나타나지 않았다.

V. 논의 및 결론

본 연구에서는 타인의 행동이 친사회적 행동에 미치는 영향을 확인하였다. 연구결과, 주변에 존재하는 타인이 환아를 위한 서명운동 참여하거나 기부 행동을 수행하는 경우 연구참여자의 서명운동 참여 정도와 기부 정도가 높아지는 것을 확인할 수 있었다. 반면, 친사회적 행동을 달은 금을 읽는 것은 연구참여자의 친사회적 행동에 영향을 미치지 않았다.

본 연구는 학생의 친사회적 행동을 이해하는 데 있어 개인의 내적 특성뿐만 아니라, 당시의 즉각적인 사회적 환경을 고려하는 것이 중요함을 보여준다. 현재까지 심리학 및 교육학분야에서 대다수의 친사회적 행동과 관련한 연구들이 성별이나 양육환경, 교우관계 등과 같이 비교적 지속적으로 영향을 미치는 환경에 주목해왔다(예: Knafo & Plomin, 2006). 이 같은 연구의 흐름에서 즉각적인 사회 환경이 친사회적 행동을 증가시킬 수 있음을 보여준 본 연구는 친사회적 행동에 대한 보다 다각적인 이해에 기여한다. 또한 지금까지 사회적 맥락과 행동에 관한 연구들이 학생의 폭력적 행동 및 반사회적 행동을 낮추는 방책에 주목했던 것을 넘어 본 연구에서는 인간의 긍정적 특성을 촉진할 수 있는 방법을 확인했다는 점에서 긍정심리학의 발전에 기여한다.

폭력적인 게임이나 텔레비전 프로그램이 학생의 폭력적 행동을 증진시키는가에 대한 논의는 교육학자와 심리학자, 사회학자 등 많은 분야의 연구자들이 주목해온 연구 주제이다(Anderson & Bushman,
이러한 측면에서 본 때, 본 연구 결과는 신문기사 등을 통해 타인의 친사회적 행동을 접하는 것은 개인의 친사회적 행동을 증가하는 데 효과를 가지지 못함을 보여준다. 이는 본 연구에서 주목한 친사회적 행동이 나와 친한 개인을 넘어, 사회를 위한 친사회적 행동이었기 때문에 나타난 결과일 수 있다. 사회를 위한 행동은 친사회적 행동들 중에서도 가장 늦게 발현되며 상대적인 공감의 결여로 인해 쉽게 이끌어낼 수 없는 행동의 범주라는 점을 생각해볼 때(Fraser et al., 2012), 단순히 친사회적 내용을 포함하는 글을 읽는 것은 친사회적 발현을 이끄는데 충분한 영향력을 가지지 못했을 것이다.

주변인의 반응에 맞추어 자신의 행동을 바꾸는 동조(conformity) 현상은 사회심리학 연구에 있어 인간의 가장 핵심적인 행동 특성 중 하나로 여겨져 왔다(Cialdini & Goldstein, 2004). 본 연구에서도 친사회적 행동은 주변에 있던 타인이 어떻게 행동하느냐에 따라 달라졌다. 즉, 공모자들이 환아를 위한 서명운동에 참여하고 기부금을 내는 경우, 연구참여자들이 서명운동에 참여하는 정도와 기부금을 내는 정도가 높아졌다. 이는 타인의 행동이 즉각적인 사회적 규범(social norm)을 형성한다는 측면에서 이해할 수 있다(Berns et al., 2005). 즉, 연구공모자들의 행동은 무엇을 하는 것이 사회적으로 승인받는 행동인가에 대한 단서를 제공하고 이에 따라 연구참여자들은 자신의 행동을 바꾸게 된다. 특히 친사회적 행동을
수행하는 것이 바람직한 행동임을 강조하는 사회의 분위기를 생각해볼 때 타인이 수행하는 친사회적 행동이 개인에게 미치는 효과가 보다 극대화되었을 수 있다(Davidio et al., 2006).

또한 상징적 모델링의 경우에는 실제적 모델링과 함께 제시되었을 때에도 가산적 영향을 가지지 못함을 확인하였다. 기존의 연구들은 상징적 모델링이 특정 주제에 대한 정신적 표상의 활성(activation of mental representation)을 이끌고, 활성화된 표상은 행동하고자 하는 동기를 증가시킨다고 주장한다(Custers & Aarts, 2007). 그러나 본 연구 결과는 친사회적 행동을 이끌 수 있는 충분한 영향력을 가진 실제적 모델링과, 상징적 모델링이 함께 제시된 경우에도 상징적 모델링은 정신적 표상의 활성을 통한 추가적 영향력을 보이지 못한다는 것을 보여준다. 둔감화 이론(Desensitization theory)은 게임이나 텔레비전을 통해 전달되는 내용이 개인의 행동에 영향을 주기 위해서는 반복된 노출을 통한 가치의 변화가 필요하다고 주장한다(Rule & Ferguson, 1986). 즉, 상징적 모델링이 가산적 효과나 실제적적 효과를 가지기 위해서는 단순히 정신적으로 해당 내용을 활성화시키는 것을 넘어, 개인의 가치를 변화시킬 수 있어야 하는 것이다.

여기서 한 가지 주목할 점은, 추가 분석을 통해 확인된 지각된 친사회적 행동의 이유이다. 사회적 영향에 의해 친사회적 행동이 증가하였지만 모든 연구참여자들이 친사회적 행동을 수행한 이유에 있어 사회적 영향에 대한 언급을 하지 않았다. 대다수의 연구참여자들은 환아를 위해 기부하는 행동이 가치롭다고 생각했기 때문에 이에 참여했다는 응답을 하였다. 즉, 개인의 의지로 친사회적 행동을 수행하였다고 지각하는 것이다. 의무적으로 수행된 봉사활동이 미래의 봉사활동 참여 의지를 낮추는 부정적인 영향을 미친다는 점을 고려해볼 때(Stukas et al., 1999), 본 연구 결과는 학생들이 자율성을 지각하면서도 자연스럽게사회에 공헌하는
친사회적 행동을 수행할 수 있는 방안에 대한 실마리를 제공했다는 점에서도 의의를 지닌다.

학생들의 친사회적 행동은 개인적 특성으로만 해석할 수 없다. ‘좋은 아이’와 ‘나쁜 아이’라는 이분법적 사고는 관한의 편의성과 명료성을 제공해주지만 이는 교육상황에서 반드시 지양되어야 할 선입견이다. 연구자들은 학생의 친사회적 행동을 이해하는 데 있어 이들이 처해있는 사회 환경에 관심을 가질 필요가 있으며, 특히 주변에 존재하는 타인의 행동이 친사회적 행동을 유발할 수 있다는 점에 주목해야 한다.

이러한 접근은 친사회적 행동이 오로지 개인적 특성에 의해서가 아니라 환경적 맥락에 의해 촉발될 수 있다는 것을 보여주므로써 교육자들의 노력 여하에 따라 학생들의 행동이 변화할 수 있다는 가능성을 기대를 제공해준다. 특히, 친사회적 행동이 개인과 사회의 성장을 담보하는 보편적인 가치이며, 교육되고 길러져야 마땅하다는 점을 고려했을 때, 본 연구의 결과는 공교육 현장에서 친사회적 행동을 교육하기 위한 교수전략과 수업환경에 대한 실마리를 제공해주었다는 점에서 의의가 있다. 향후, 친사회적 행동을 길러주는 교수 전략들이 교육 현장에서 활발하게 적용된다면, 개인을 보다 성숙한 인간으로 성장시키고, 더 나아가 공동체와 사회의 발전을 이끄는 데 있어 중요한 역할을 할 수 있을 것이다.
국문 초록

상징적 모델링과 실제적 모델링이 친사회적 행동에 미치는 영향

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타인의 이익과 사회의 이로움을 생각하는 친사회적 행동은 사회의 유지와 발전에 필수적이다. 많은 분야의 학자들은 이 같은 친사회적 행동을 이해하기 위한 노력들을 계속해왔다. 지금까지 이루어진 대다수의 연구들은 친사회적 행동을 비교적 안정적인 특성으로 간주하고 이를 이해해 왔다. 그러나 사회인지이론은 친사회적 행동이 사회적 환경에 의해 변화될 수 있음을 보여준다.

본 연구에서는 사회인지 이론을 바탕으로 미디어에 등장하는 인물들은 관찰함으로써 일어나는 상징적 모델링과 직접 다른 사람을 관찰함으로써 발생하는 실제적 모델링이 친사회적 행동에 미치는 영향을 확인하였다. 간접적 사회맥락은 친사회적 행동을 묘사한 글을 읽는 것으로, 직접적 사회맥락은 연구에 함께 참여한 세 명의 연구공모자가 친사회적 행동을 직접 수행하는 것으로 조성되었다. 친사회적 행동은 환아를 위한 서명운동과 기금모집에 참여한 정도로 측정되었다. 총 125 명의 대학생이 본 연구에 참여하였고, 연구 결과 연구공모자들이 친사회적 행동을 수행할 경우 연구참여자의 친사회적 행동이 증가하는 것을 확인할 수 있었다. 반면, 친사회적 행동이 묘사된 글을 읽는 것은 개인의 친사회적 행동을 유발하는 데 영향을 미치지 못하였다. 또한 실제적 모델링과 상징적 모델링의 효과를 직접 비교해 보았을 때, 실제적 모델링의 효과가 큰 것으로 나타났고, 두 모델링 간 상호작용은 존재하지 않았다.
본 연구는 개인의 친사회적 행동이 사회맥락의 영향을 통해 증진될 수 있음을 보여준다. 학생들이 보이는 친사회적 행동은 개인 주변의 타인들이 어떠한 행동을 하느냐에 따라 달라진다. 이와 같은 결과는 친사회적 행동을 수행하는 타인들이 존재하는 환경을 직접적으로 경험하는 것이 학생의 친사회적 행동을 높이는 데 기여할 수 있음을 보여준다. 연구자들과 교육자들은 개인의 친사회적 행동이 사회적 맥락에 따라 급격하게 변화할 수 있음을 주지하고 개인의 긍정적 행동을 촉진시킬 수 있는 사회적 환경을 조성하도록 노력해야 할 것이다.

주요어: 친사회적 행동, 상징적 모델링, 실제적 모델링
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