

Running Head: Human and Personified Animal Models.

The differential effectiveness of human and personified animal models  
in an observational learning situation.

A literature review

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### Abstract

Although models in person, in books, in play therapies (e.g., dolls and puppet shows) and on film, have been widely used to teach children lessons. There is little information available about some of the important characteristics of these models, in particular, personified animal models. Research pertaining to observational learning, personification, and children's comprehension of real and pretend models, is reviewed.

The differential effectiveness of human and personified animal models in an observational learning situation.

Imagine that a first grade teacher wants to teach his class an important lesson on fire safety. There are many avenues by which he can present this material to his class, and the teacher knows that in order to keep his class's attention, he ought to use an avenue that is at least interesting, if not entertaining. The teacher decides that he will present the lesson using an exciting story in which the main character will be faced with a dangerous fire situation and then will follow a number of important safety measures to remove himself or herself from danger. However, as the teacher begins to develop the story, he is presented with a problem. Should he choose a human character (Jamie, the junior firefighter) or a personified animal character (Smokey, the junior fire fighting bear)? It is very important that the children learn, generalize, and imitate the safety measures performed by the main character in the event of fire. The teacher speculates that Smokey the fire fighting bear may be more entertaining than Jamie the junior firefighter, but wonders whether Smokey is less likely to be an effective role model. He suspects there may be a difference in the extent to which children will model a human child and the extent to which children will model a personified animal.

## Observational Learning

Much of children's literature and children's television programming is constructed with the purpose of not only entertaining, but also imparting messages or story lessons. These lessons may focus on any of a range of topics, such as appropriate social behavior, moral paradigms, social problem-solving, family constructs, safety, individuality, self worth, and self awareness. These types of stories or programs are presented in a way that is meant to evoke an appropriate modeling response from children. In other words, it is intended that children integrate the story lesson into their own cognitive and behavioral schema. This type of learning is referred to as observational learning.

Much of human learning, from table manners to interpersonal relations at school and at work, depends on learning of this kind, rather than on reinforcement for a particular action (Bandura, 1986). In a now classic study (Bandura 1965), young children watched a film of an adult hitting and kicking a BoBo doll and displaying other novel aggressive responses. These children were later presented with a BoBo doll, and a significant number of children imitated the aggressive behaviors they had observed, demonstrating the effect of the model.

Bandura and Mischel (1965) demonstrated observational learning by showing that a self imposed delay of reward was determined, in part, by the delay of-reward pattern displayed by social models. Children who had shown a predominant pattern of immediate reward increased, and maintained, their willingness to wait for a more valuable reward after exposure to models who displayed longer-delay behavior.

Conversely, children who had previously exhibited a delayed-reward pattern, displayed an increased preference for immediate, but less valuable, rewards after observing social models who favored immediate gratification. A different group of children, were presented with written descriptions of a social model's responses which were opposite to the child's own gratification pattern. Although less pronounced, and less generalized, the effects of reading the model's responses were similar to those of watching live models. Both of these studies indicate that children can learn behavior by observation.

Since these classic studies, an enormous amount of research has been aimed at investigating the conditions under which children learn through observations. It has been established that not all models are equally effective. Bandura (1986) reviewed a number of the conditions which affect children's learning in observational situations and reported that children are most affected by models that are in authority positions, such as adults, parents, and teachers or who are models of a status that the child may admire, such as sports or movie celebrities. He also suggested that children are affected more by models with whom they can identify, such as those with a similarity to the child in appearance, ethnicity, age or gender. In addition, the consequences or the amount of reinforcement (both intrinsic and extrinsic) received after a model performs a given behavior, affects the likelihood that children will perform an observed behavior.

Whereas such factors as authority, reinforcement, and similarity to the child have been established as playing an important role in the effectiveness of a model, other variables have not been examined, including personification.

## Personification

Animism is a term used to describe the labeling of inanimate objects (e.g., a chair) as living. Personification is a sub-category of animism; and is the extension of human attributes (e.g., wearing clothes, going to school, talking) to any non-human (e.g., a dog or a tree) (Inagaki & Hatano, 1987). A tendency to engage in animism has in the past been attributed to immaturity. Piaget (1929) argued that children are generally animistic and personifying, suggesting that young children have not yet differentiated between animate and inanimate objects (Inagaki & Hatano, 1987). However, recently Gelman, Spelke and Meck, (1983) asserted that children are seldom animistic or personifying in their reasoning.

Although personification and its relationship to model effectiveness has not yet been examined, one study has examined children's use of personification. Inagaki and Hatano (1987), reported that children as young as four years of age when asked questions about a personified target (i.e., a animal), generally know that a personified target does not really possess human attributes. In other words, children know that personified animals are not real.

Whereas, personification as a model characteristic and its relationship to effectiveness is not known, realness as a model characteristic, has to some extent been examined.

## Realness

Children's comprehension of how real a model is may play a role in the effectiveness of a social model. Bandura, Ross and Ross (1963) examined the format in which a model is presented (i.e., live, filmed and cartoon) on children's imitation of aggressive behaviors, and found children imitated aggressive behaviors more when presented with live adult models, than when presented with filmed or cartoon models. They suggested that cartoons may have had the least effect on children's learning and modeling of aggression when compared to the other models because, to children, cartoons are less real than non-cartoons. In other words, they suggest that children's perceptions of how real a model is may increase or decrease a model's effectiveness.

More recent, in an attempt to investigate children's comprehension of real versus pretend televised portrayals, Downs (1990) presented each of eighty-six children with four two-minute video tapes from the following categories: "non-human cartoon" (Sylvester and Tweety), "human cartoon" (The Flintstones), "human non-cartoon" (The Brady Bunch), "non-human non-cartoon" (A Learning Program on Dolphins). The children were four to six years of age. Each selection contained a mildly aggressive and a non-aggressive event. After a child had viewed each selection, an experimenter asked the children four questions (in randomized order) about whether specific events were real or pretend. The responses were scored on the basis of the child's judgments as either real or pretend. Cartoon events (human and non-human) were more often judged pretend than judged real, and non-cartoon events (both human and non-human) were more often judged as real than pretend. Downs stated that character type (human and non-human)

had no effect on children's judgments. However, it must be noted that Downs asked the children questions about the events in each of the categories, not about the characters. For example, he did not ask the children whether "The Flintstones" were more real or pretend than "Sylvester and Tweety". This question may have been of importance, and may have affected his conclusions.

Downs also suggests that his results indicate that preschoolers' judgments of real and pretend televised portrayals may be dependent on the format of the events observed, (i.e., cartoon vs. non-cartoon). However, format and content seem to be confounded in this study. The content differs between cartoons and non-cartoons in that a character can do things in cartoons that are not possible in non-cartoons. Cartoon programs may not look as real as non-cartoon programs, and this may act as a visual cue that they are not as real.

Downs' study on children's comprehension of real and pretend in television portrayals, is an attempt to understand what cues children use in judging whether or not a television program is real. Its purpose was not only to establish these criteria but to use these judgments as predictors of whether or not children will be likely to imitate an aggressive behavior they have observed. Unfortunately, the study was not constructed in a way that allows any such conclusions. However, Downs' suggestion that children's perceptions of how real a model is plays a role in the effectiveness of the model, is in agreement with the suggestions posited by Bandura, Ross and Ross (1963).

In summary, children often learn through observation of others (Bandura, 1965). It has been established that not all role models are equally effective (Bandura, 1986).



Children's perceptions of both, how similar a model is and how real a model is, have been found to increase or decrease a model's effectiveness (Bandura, 1986, & Bandura, Ross & Ross, 1963). Generally, children as young as four years of age know that personified animal characters are not real (Inagaki & Hatano, 1987). Perhaps personification of an animal character acts as a content cue about the realness of a model. It may be that a personified animal model will be judged as being less real than a human model by children, therefore, children may be less likely to imitate a personified animal model.

The summary of literature reviewed, leads to a hypothesis that children are more likely to imitate behaviors they have observed when the model is a human, than they will if the model is a personified animal. Children's literature and children's television programming, by setting an observational learning situation, are often used to teach children some important concepts. To the extent that these media often use personified animals as social models, whether or not human models and personified animal models differ in their effectiveness becomes a question worthy of investigation.

## References

**Bandura, A., Ross, D., & Ross, S.** (1963) Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 66 no.1, 3-11.

**Bandura, A.**, (1965) Vicarious Processes: A case of no-trial learning. In L. Berkowitz (ed.) Advances in Experimental Social Psychology. 2, 1-55, New York: Academic Press.

**Bandura, A., Mischel, W.** (1965) Modification of self-imposed delay of reward through exposure to live and symbolic models. Journal of Personality and Social Psychology, 2, 698-705.

**Bandura, A.** Social foundations of thought and action. Englewood Cliffs, New Jersey: Prentice-Hall, 1986.

**Downs, A. C.** (1990) Children's judgments of televised events: the real vs. pretend distinction. Perceptual and Motor Skills. 70, 779-82.

**Gelman, R., Spelke, E., & Meck, E.** (1983) What preschoolers know about animate and inanimate objects. In D. Rogers (ed.) The development of symbolic thought. (297-326) New York: Plenum.

**Inagaki, K., Hatano, G.**, (1987) Young children's spontaneous personification as analogy. Child Development, 58, 1013-1020

## Annotated Bibliography

**Bandura, A., Ross, D., & Ross, S. (1963)** Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology,66 no.1,3-11.

In a test of the hypothesis that exposure of children to film mediated aggressive models would increase the probability of subjects aggression to subsequent frustration, one group of subjects observed real life aggressive models. A second group of subjects observed these same models on film, while a third group observed an aggressive cartoon character. Following exposure, subjects imitation of observed model aggression provided evidence that the effects of such exposure are to some extent a function of the sex of the model, sex of the child, and the reality cues of the model. Cartoon characters were found to have the least effect on children's imitation.

**Bandura, A.,(1965)** Vicarious Processes: A case of no-trial learning. In L.Berkowitz (ed.)Advances in Experimental Social Psychology. 2,1-55, New York: Academic Press.

Young children watched a film of an adult hitting and kicking a BoBo doll and displaying other aggressive behaviors. The consequences to the adult of behaving aggressively varied for different groups of children. One group of children saw a film strip in which the adult's behavior was punished, a second saw it rewarded, and a third group saw no consequences. A fourth group saw no film at all. The children were then presented with a BoBo doll and their behavior was observed and recorded. Children who had seen aggression modeled and rewarded imitated aggressive behavior most; those who saw no aggression imitated the least. This study is important to the present review,

because it demonstrates an observational learning situation, as well as demonstrating the importance of observing consequences or outcomes on children's behavior.

**Bandura, A., Mischel, W. (1965)** Modification of self-imposed delay of reward through exposure to live and symbolic models. Journal of Personality and Social Psychology, 2, 698-705.

Fifty age 9-11, 33 girls, 17 boys, were presented with a series of paired rewards. In each of these pairs children were asked to select either a small reward that could be obtained immediately or a larger reward, contingent on a delay of one - four weeks. Children were then assigned to 5 groups there were 3 treatment conditions. In one treatment 2 groups of children were independently presented with a live adult who exhibited a delay of reward pattern opposite to the child's own self-gratification pattern. In a second treatment 2 groups of children were similarly presented with a model displaying delay of reward patterns opposite to their own, with the exception that model's responses were presented in written form only. In a final condition 1 group of children had no exposure to any models. Right after experimental procedure children's delay-of-reward responses were measured. Children who had previously shown an immediate gratification pattern, increased and maintained their willingness to wait for a more valuable delayed reward. Conversely, children who had previously shown a delayed gratification pattern, displayed an increased preference for immediate less valuable rewards. The effects of seeing model's written responses were similar to responses of those who had seen live models, although less pronounced and less generalized. This study is of particular importance to the present review as it establishes that children sometimes learn by observing others behavior. In addition this kind of learning situation

can be set in a written form as well as live models.

**Bandura, A.** Social foundations of thought and action. Englewood Cliffs, New Jersey: Prentice-Hall, 1986.

This book presents Bandura's cognitive social learning theory. Expanding his original theory, it places new emphasis on reciprocal connections between behavior, environment, and the individual. Bandura outlines the construct of social learning theory, in particular, observational learning situations and how they eventually effect social development. Further, Bandura outlines conditions which may effect the observational learning construct. Children are more affected by social models who are in authority positions. Children are more likely to imitate models who are similar to them in appearance, age, gender, and ethnicity. Bandura also expands on observation of outcomes as affecting behavioral imitation outcomes.

**Downs, A. C.**(1990) Children's judgments of televised events: the real vs. pretend distinction. Perceptual and Motor Skills.70, 779-82.

Twelve 3,4,5,7, and 9 year olds and 12 adult controls were asked 20 questions about exemplars of each of 16 categories of animate beings and inanimate objects. Questions were selected to probe a wide variety of animate properties. Although the 3 and 4 year olds made the greatest number of errors, these errors were distributed no differently than those of adults, and were not skewed toward animism. This investigation establishes that children as young as 4, are not animistic, as was previously assumed.

**Gelman,R., Spelke,E., & Meck, E.** (1983) What preschoolers know about animate and inanimate objects. In D. Rogers (ed.) The development of symbolic thought.(297-326) New York: Plenum.

Thirty four children were questioned about the attributes and emotions of inanimate and animate targets in different situations. When the target was put into a personified context, children used personification of the target in their answers. When the target was described in a non-personification context, children gave reasonable answers dependent on target attributes. When asked if targets really possessed human attributes, most children gave reasonable answers. This study adds information about under what conditions children use personification in their reasoning.

**Inagaki, K., Hatano, G., (1987)** Young children's spontaneous personification as analogy. Child Development, 58,1013-1020.

Eighty kindergarten children were questioned about the attributes of a rabbit, a tulip and a person. In addition they were asked about what these targets reactions would be in novel situations. Most children gave correct answers for observable attributes, but over extended human characteristics when the target was faced with a human context situation. When children were asked about a rabbit or tulip in an unfamiliar situation in which personification was not already implied, very few children used personification to generate unreasonable answers. This study suggests that children do not use personification unless they are induced to do so or are unfamiliar with a targets attributes. In addition, when asked questions about a personified target children generally know that personified targets are do not really possess human attributes.

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Personified Animal Model

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Algoma University College

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## Abstract

Although models in person, in books, in play therapies (e.g., dolls and puppet shows) and on film, have been widely used to teach children lessons, there is little information available about some of the important characteristics of these models. This study examined whether human and personified animal role models are differentially effective. First grade children, ages 6-7 years, were recruited from the Sault Ste. Marie public schools and screened to determine individual gratification patterns in making reward choices (i.e., either preference for small immediate rewards or preference for larger delayed rewards). Eighty of the 91 children screened made immediate reward choices and were selected for random assignment to one of four treatment groups. In each treatment condition participants heard a story in which either a human child or a personified bear made a delayed gratification reward choice. Participants were then asked to choose either a small immediate reward or a larger delayed reward. Most of the children who had heard a story in which a human child had delayed gratification also made delayed gratification choices. Most of the children who heard a story in which a personified bear had delayed gratification, chose small immediate rewards. Human models were very effective at eliciting imitation from children, whereas personified animal models were not.



## Acknowledgments

Much appreciation is extended to the following : Carole McFee Superintendent of Sault Ste. Marie Public Schools, Principals: Dave McArthur, Bob Pratt, Bob Avery , and Emily Nobel , all of the 1<sup>st</sup> grade students who participated in this study and their teachers. Much gratitude to Dominick Grace, Algoma University, for writing the stories that were used during this study. I would also like to thank Dr. Cheryl Reed- Elder , Algoma University , for her supervision of this thesis. And finally, much appreciation is extended to my thesis advisor, Dr. David Brodbeck , Algoma University, for his support and excellent instruction.

The differential effectiveness of human and personified animal models in an observational learning situation.

Imagine that a first grade teacher wants to teach his class an important lesson on fire safety. There are many avenues by which he can present this material to his class, and the teacher knows that in order to keep his class's attention, he ought to use an avenue that is at least interesting, if not entertaining. The teacher decides that he will present the lesson using an exciting story in which the main character is faced with a dangerous fire situation and then will follow a number of important safety measures to remove himself or herself from danger. However, as the teacher begins to develop the story, he is presented with a problem. Should he choose a human character (Jamie, the junior firefighter) or a personified animal character (Smokey, the junior fire-fighting bear)? It is very important that the children learn, generalize, and imitate the safety measures performed by the main character in the event of a fire. The teacher speculates that Smokey the fire-fighting bear may be more entertaining than Jamie the junior firefighter, but he wonders whether Smokey is less likely to be an effective role model. He suspects there may be a difference in the extent to which children will model a human child and the extent to which children will model a personified animal.

Much of children's literature and children's television programming is constructed with the purpose not only of entertaining, but also of imparting messages or story lessons. These lessons may focus on any of a range of topics, such as appropriate social behavior, moral paradigms, social problem-solving, family constructs, safety,

individuality, self-worth, and self awareness. These types of stories and programs are presented in a way that is meant to evoke an appropriate modeling response from children. In other words, it is intended that children integrate the story lesson into their own cognitive and behavioral schema. This type of learning is referred to as observational learning. Much of human learning, from table manners to interpersonal relations at school and at work, depends on learning of this kind, rather than on reinforcement for a particular action (Bandura,1986).

An enormous amount of research has been aimed at investigating the conditions under which children learn through observation and it has been established that not all models are equally effective. Bandura (1986) reviewed a number of the conditions which affect children's learning in observational situations and reported that children are most affected by models that are in authority positions, such as adults (e.g., parents, and teachers) or who are models of a status that the child may admire, such as sports or movie celebrities. He also reported that children are affected more by models with whom they can identify, such as those with a similarity to the child in appearance, ethnicity, age or gender. In addition, the consequences or the amount of reinforcement (both intrinsic and extrinsic) received after a model performs a given behavior, affects the likelihood that children will perform the observed behavior.

Whereas such factors as authority, reinforcement and similarity to the child have been established as playing an important role in the effectiveness of a model, other variables have not been examined, including personification. Personification is the extension of human attributes to any non-human.

Although personification and it's relationship to model effectiveness has not yet

been examined, one study has investigated children's use of personification. Inagaki and Hatano (1987), reported that when children as young as 4 years of age were asked questions about a personified animal target, children generally reported knowing that the personified animal did not really possess human attributes. In other words, that personified animals were not real.

Children's comprehension of models as being either real or pretend may also play a role in the effectiveness of a social model. Bandura, Ross and Ross (1963), examined the effects of model presentation (live, film, and cartoon) on children's imitation of aggressive behaviors, and found children imitated aggressive behaviors more when presented with live adult models, than when presented with filmed or cartoon models. Bandura, Ross and Ross (1963) suggested that cartoons may have had the least effect on children's learning and modeling of aggression when compared to the other models because, to children, cartoons are less real than non-cartoons. In other words, they suggest that children's perceptions of how real a model is, may increase or decrease that model's effectiveness.

Many of the visual format cues about the realness of a model can be removed by presenting a model to children using the format of a book or story rather than as a cartoon or a film. However, in this case, children may rely on content cues (e.g., the personification of an animal character) in making judgments about how real a model is. Perhaps a personified animal model will be judged as less real than a human model, and therefore children may be less likely to imitate a personified animal model.

Many of the characteristics of model type discussed here have not yet been examined. For example, it may be that the format and/or content in which a model is

presented, and the similarity and/or realness of a model, play a role in the effectiveness of a model, or that some interaction exists between two or more of these variables.

However, in the present study, only the question of whether or not human and personified animal models are differentially effective is examined.

### Present Study

The literature presented above indicates that children know that personified animals are not real. In addition, children's perceptions of how real a model is may increase or decrease a model's effectiveness. Based on this literature, it is hypothesized that children in an observational learning situation will exhibit more imitation of a human model than of a personified animal model.

To test this hypothesis the independent variable, model type (i.e., human and personified animal) have been presented in the form of stories (i.e., four conditions). In two of these conditions one model is presented, either a human child, or a personified bear and the model makes a delayed gratification choice of rewards. In two other conditions, two models are presented within the same story (i.e., a human child and a personified bear) and in which one model makes a delayed gratification choice of reward while the other model makes an immediate choice of reward. These two conditions (two models, opposing gratification choices) have been included because, it is expected that the first two conditions might reveal fairly close observations and that an extra measure of children's choice of best model to imitate may be necessary.

The dependent variable, imitative responses, has been defined as a subject

displaying a similar gratification preference to the model or models they have observed, when given a choice of immediate or delayed rewards.

## Method

### Participants

Ninety-one first grade children ages 6-7 years were recruited from the Sault Ste. Marie Public schools. Only children having no food allergies to chocolate were considered for subject selection.

### Materials

Four short stories were required for this study. The four stories were similar in content but varied in model type (i.e., a human child named Sanjoy, a personified bear named Sitka, or both of these models). The names of these models were chosen because they were likely to be unfamiliar to the children and therefore considered gender neutral. Both models were described as being 1<sup>st</sup> graders and all four stories were set in the context of a cherry orchard. In each story, the model or models, are given a choice between two cherries that can be obtained immediately or a whole basket of cherries that requires a lengthy delay. In every story, the model or models are described as being happy with their choice of rewards (see appendix A).

## Procedure

Consent forms were obtained from the Superintendent of the Sault Ste. Marie Public School System, and teachers of the students who participated in the study. Negative consent was required from parents of any children who were not to be considered for participation (parents or guardians were required to call and notify the teacher if they did not wish their children to participate in this study). Along with the negative consent forms, all parents and teachers received a summary of the study's purpose, as well as a detailed description of testing procedures. Parents were asked, to answer questions pertaining to any food allergies or diabetic reactions that their children may have to the candy coated chocolates that were used as reward choices in pre-test and post exposure phases.

### Phase 1- pretest screening

Ninety-one children were individually presented with a series of standard questions about their likes and dislikes, only one of these questions was actually pertinent to screening. The screening question was, if they were given a choice between a small box of Smarties (a candy coated chocolate) that they could obtain immediately, or a larger box of Smarties that could only be obtained much later, which reward would they choose? Both of these reward choices were visible to the children. Each child's reward choice was recorded. Eighty children made immediate reward choices and only these

children were selected for treatment groups. Children who made delayed reward choices were treated as if they were part of this study, however, they were not actually included in the data analysis. In this way, no children included in the pretest screening phase were excluded in any way from feeling that they had participated.

### Phase 2-treatment

Eighty children were randomly assigned to one of five groups of 16 subjects and each group was presented with a different treatment condition. Children in the control group were not presented with any treatment. Participants in each of the four treatment conditions heard an audio-taped story. These stories were all narrated by the same person. In condition 1, Animal Delayed (AD) subjects heard a story in which the main character, a personified bear, delayed gratification when given a choice of rewards. In condition 2, Animal Delayed, Human Immediate (ADHI) subjects heard a story in which a personified bear delayed gratification while a human child chose an immediate reward when the two models were presented with a choice of rewards. In condition 3, Human Delayed (HD) subjects heard a story in which the main character was a human child who delayed gratification when given a choice of rewards. In condition 4, Human Delayed, Animal Immediate (HDAI) subjects heard a story in which a human child delayed gratification while a personified bear chose an immediate reward when the two models were presented with a choice of rewards.

### Phase 3- post exposure

Immediately after exposure to the stories, each subject was individually presented



again with the two rewards and asked to actually make choices between a small box of Smarties that could be obtained immediately or a larger box that could only be obtained much later. Each child's choice was recorded and compared with their pretest (hypothetical) choice.

In addition, as an extra measure for gathering information for future investigations, children from groups ADHI and HDAI, were asked whether or not each of the models in the story that they had listened to could be real, and which model was more like them. The responses to these questions were merely of interest to the researcher and were not included in any statistical analysis. All children who participated in this study were then given the largest reward choice offered without the contingent delay.

### Results and Discussion

The table below represents the data collected during this study.

	C	AD	ADHI	HD	HDAI
Delayed	3	4	3	14	14
Immediate	13	12	13	2	2

An analysis of the data above using a test of Chi-square reveals a value at 4 d.f. of  $\chi^2 = 17.5$ ,  $p < .05$ . These findings indicate that there is a statistically significant difference between observations obtained and expectancies of chance. Before exposure to the models during the treatment phase, all participants had made immediate reward choices when given a choice of rewards. Conclusions as to whether or not children

imitated a particular model can be drawn by comparing the number of delayed gratification choices to the number of immediate gratification choices after exposure to the models in each condition. As seen in the table above, in the control condition, in which participants were not presented with any model, most children maintained their preference for small immediate rewards. In the two conditions in which a personified animal model had delayed gratification (AD and ADHI) again, most children maintained their preferences for small immediate rewards. However, in the two conditions in which a human model delayed gratification (HD and HDAI), most children changed their preference for small immediate rewards to a preference for larger delayed rewards. These findings indicate that human models were effective as social models on children's imitation of gratification preference, whereas, personified animal models were found not to be effective.

It was hypothesized that more children would imitate a human model than would imitate a personified animal model. Although this was found, it was also expected that children would, to some extent, also imitate the personified animal model. This proved not to be the case. Observations obtained from conditions ADHI and HDAI were almost identical to observations obtained from conditions AD and HD. In other words, there seemed to be little or no effect of having a choice of models, human models were effective, personified animal models were not.

Children in groups ADHI and HDAI, were asked whether or not both models in the stories they had heard could be real, and which one of the two models was most similar to them. The purpose of these questions was to gather information that might help in the construction of future investigations of what characteristics may lead to the

differential effectiveness of these models. All the children in groups ADHI and HDAI reported both, that only the human child character could be real and that the human child was most similar to them.

Future investigations of variables such as content, format, realness and similarity or their possible interactions are necessary in order to gain a better understanding of the conditions under which children learn through observation. The findings of the present study may not generalize to learning situations that contain visual cues about the models (e.g., cartoons, puppet shows). However, children's literature is often used as an educational tool to teach children important concepts. Although personified animal characters have often been used as role models in children's literature, the findings of this study suggest human characters would be much more effective role models.

Appendix A.

Now or Later

By

Dominick Grace

Story 1 - condition (AD)

Sitka a first grade bear was playing in the cherry orchard. It was late spring. The sun was shining, and the sky was clear. The trees provided shade, but it was still very warm out, and Sitka had been running about all morning. Now, as lunch-time approached, Sitka was a hot and hungry, and thirsty, little bear cub.

The cherry season had not fully come, but a few cherries had ripened. Sitka could see dark red clusters here and there in the trees. Most were out of reach, but some of the branches drooped near the ground. Stretching on back legs, even a cub as young and small as Sitka might be able to reach a few. Lunch would be ready soon, but a few cherries wouldn't hurt. They might help wet a dry throat and soothe a grumbling stomach.

Sitka looked around for a branch hanging low enough to reach. One of the smaller trees, further into the orchard, had two branches that hung almost to the ground. There were a few cherries on each of them.

Just as Sitka reached the tree, gardener Badger stepped into view. He was grooming the trees, trimming away dead branches to encourage new growth, and he was also checking to see how many cherries were ready to pick. He was

looking for Sitka, too, for the cub's mother had asked the badger to keep his eyes open. It was noon, and Sitka had to go in for porridge.

"Sitka," the badger called out, when he saw the cub standing upright and straining for a cherry. "Your mother wants you to go in now. Run along quickly. There's porridge waiting for you."

"Oh!" said Sitka, "couldn't I wait a minute? These cherries look so tasty." "You don't want me to get in trouble, do you?" said the badger. "Off you go. Cherries will spoil your lunch anyway."

"No they won't! There's hardly anything to them at all! I'll still eat everything! I promise!"

The badger smiled. "Well, all right," he said, "I'll tell you what. You can have two cherries now, if you really, really want them." Sitka grinned broadly and reached up again. "But," said the badger, before Sitka could pick even one, "If you're good, and go in now, I'll cast a magic spell that will make the trees give you a whole basket of cherries later today."

"Can't I have two now, and the basket later?" asked Sitka.

"No," the badger laughed. "The magic only works before any cherries have been picked."

Sitka looked mournfully at the cherries on the branch, sighed, and scampered into the hollow tree where Sitka and mother bear lived for lunch.

Later that afternoon, when it was nearly dinner-time, Sitka went looking for the badger, who had seemed to vanish after lunch. Finally, Sitka found him in the centre of the orchard.

"Did the magic work?" asked Sitka.

"What do you think," asked the badger, smiling. From behind his back, he produced a big basket, filled with dozens of cherries. "Take these home to your mother," he said.

Sitka shouted in delight, took the basket, and ran home. That night, Sitka had a big bowl of cherries and honey for dessert. The smell of cherry pie cooking spread throughout the tree, and Sitka knew what to expect for dessert for tomorrow. "I'm glad I waited," Sitka thought, spooning up another big helping of cherries and honey.

## Story 2- condition(ADHI)

### Now or Later

Sanjoy a first grade child and Sitka a first grade bear were playing in the cherry orchard. It was late spring. The sun was shining, and the sky was clear. The trees provided shade, but it was still very warm out, and they had been running about all morning. Sometimes the child chased the bear cub, and sometimes the cub chased the child, in game after game of tag. Now, as lunch-time approached, they were hot and hungry, and thirsty. Sanjoy's shirt was sticky, and Sitka's fur (and nose!) were all full of dust.

The cherry season had not fully come, but a few cherries had ripened. They could see dark red clusters here and there in the trees. Most were out of reach, but some of the

branches drooped near the ground. Even on hind legs, Sitka probably could not reach even the lowest branch, but Sanjoy could, on tip-toes. Lunch would be ready soon, but a few cherries wouldn't hurt. They might help wet dry throats and soothe grumbling stomachs.

Sanjoy and Sitka looked around for a branch hanging low enough to reach. One of the smaller trees, further into the orchard, had two branches that hung almost to the ground. There were a few cherries on each of them.

Just as they reached the tree, one of the gardeners stepped into view. He was grooming the trees, trimming away dead branches to encourage new growth, and he was also checking to see how many cherries were ready to pick. He was looking for the child and the bear, too, for their mothers had asked the gardener to keep his eyes open. It was noon, and each of them had to go in for lunch, tomato soup for Sanjoy and porridge for Sitka.

"Hello," the gardener called out, when he saw the two standing tip-toe and straining for the cherries. "Your mothers want you to go in now. Run along quickly. There's soup for you, and porridge for you."

"Oh!" said Sanjoy, "couldn't I wait a minute? These cherries look so tasty."

"Yeah," said Sitka, in growly voice. "We'll only eat a few."

"You don't want me to get in trouble, do you?" said the gardener. "Off you go. Cherries will spoil your lunch. There's hardly anything to cherries at all!" said Sanjoy.

"Yeah," rumbled Sitka. "I'll still eat all my porridge!" "I promise!" they both said.

The gardener smiled. "Well, all right," he said, "I'll tell you what. You can have

two cherries each now, if you really, really want them." Sanjoy grinned broadly and reached up again. "But," said the gardener, before Sanjoy could pick even one, "If you're good, and go in now, I'll cast a magic spell that will make the trees give each of you a whole basket of cherries later today."

"Can't we have two now, and the basket later?" asked Sanjoy.

"No," the gardener laughed. "The magic only works before you've had any cherries at all."

Sitka looked mournfully at the cherries on the branch, snuffled, and lumbered off to the hollow tree Sitka shared with mother Bear, for lunch. But Sanjoy decided to have two cherries now than wait, so the gardener plucked two plump ones and handed them over. Sanjoy then ran along home.

Later that afternoon, when it was nearly dinner-time, Sitka went looking for the gardener, who had seemed to vanish after lunch. Finally, the bear cub found him in the centre of the orchard.

"Did the magic work?" asked Sitka.

"What do you think?" asked the gardener, smiling. From behind his back, he produced a big basket, filled with dozens of cherries. "Take these home to your mother," he said.

Sitka roared in delight, took the basket, and scampered home. That night, Sitka had a big bowl of cherries and honey for dessert. The smell of cherry pie cooking spread throughout the hollow tree, and Sitka knew what to expect for dessert for tomorrow. "I'm glad I waited," Sitka said to Sanjoy later that night, spooning another big helping of cherries and ice cream into his mouth. But Sanjoy was eating a big bowl of ice cream and



was perfectly happy with the two cherries eaten earlier.

### Story 3 Condition ( HD)

#### Now or Later

Sanjoy a first grade child, was playing in the cherry orchard. It was late spring. The sun was shining, and the sky was clear. The trees provided shade, but it was still very warm out, and Sanjoy had been running about all morning. Now, as lunch-time approached, Sanjoy was hot and hungry, and thirsty.

The cherry season had not fully come, but a few cherries had ripened. Sanjoy could see dark red clusters here and there in the trees. Most were out of reach, but some of the branches drooped near the ground. Stretching on tip-toes, even someone as young and small as Sanjoy might be able to reach a few. Lunch would be ready soon, but a few cherries wouldn't hurt. They might help wet a dry throat and soothe a grumbling stomach.

Sanjoy looked around for a branch hanging low enough to reach. One of the smaller trees, further into the orchard, had two branches that hung almost to the ground. There were a few cherries on each of them.

Just as Sanjoy reached the tree, one of the gardeners stepped into view. He was grooming the trees, trimming away dead branches to encourage new growth, and he was also checking to see how many cherries were ready to pick. He was looking for Sanjoy, too, for the child's mother had asked the gardener to

keep his eyes open. It was noon, and Sanjoy had to go in for soup and sandwiches.

"Sanjoy," the gardener called out, when he saw the child standing tip-toe and straining for a cherry. "Your mother wants you to go in now. Run along quickly. There's tomato soup and bologna sandwiches waiting for you."

"Oh!" said Sanjoy, "couldn't I wait a minute? These cherries look so tasty."

"You don't want me to get in trouble, do you?" said the gardener. "Off you go. Cherries will spoil your lunch anyway."

"No they won't! There's hardly anything to them at all! I'll still eat everything! I promise!"

The gardener smiled. "Well, all right," he said, "I'll tell you what. You can have two cherries now, if you really, really want them." Sanjoy grinned broadly and reached up again. "But," said the gardener, before Sanjoy could pick even one, "If you're good, and go in now, I'll cast a magic spell that will make the trees give you a whole basket of cherries later today."

"Can't I have two now, and the basket later?" asked Sanjoy.

"No," the gardener laughed. "The magic only works before any of the cherries have been picked."

Sanjoy looked mournfully at the cherries on the branch, sighed, and ran into the house for lunch. He had decided to wait until later, in order to get more cherries.

Later that afternoon, when it was nearly dinner-time, Sanjoy went looking

for the gardener, who had seemed to vanish after lunch. Finally, Sanjoy found him in the centre of the orchard.

"Did the magic work?" asked Sanjoy.

"What do you think," asked the gardener, smiling. From behind his back, he produced a big basket, filled with dozens of cherries. "Take these home to your mother," he said.

Sanjoy shouted in delight, took the basket, and ran home. That night, Sanjoy had a big bowl of cherries and ice cream for dessert. The smell of cherry pie cooking spread throughout the house, and Sanjoy knew what to expect for dessert for tomorrow. "I'm glad I waited," Sanjoy thought, spooning down another big helping of cherries and ice cream.

#### Story 4 - condition(HDAI)

##### Now or Later

Sanjoy a first grade child and Sitka a first grade bear were playing in the cherry orchard. It was late spring. The sun was shining, and the sky was clear. The trees provided shade, but it was still very warm out, and they had been running about all morning. Sometimes the child chased the bear cub, and sometimes the cub chased the child, in game after game of tag. Now, as lunch-time approached, they were hot and hungry, and thirsty. Sanjoy's shirt was sticky, and Sitka's fur (and his nose!) were all full of dust.

The cherry season had not fully come, but a few cherries had ripened. They could see dark red clusters here and there in the trees. Most were out of reach, but some of the branches drooped near the ground. Even on hind legs, Sitka probably could not reach

even the lowest branch, but Sanjoy could, on tip-toes. Lunch would be ready soon, but a few cherries wouldn't hurt. They might help wet dry throats and soothe grumbling stomachs.

Sanjoy and Sitka looked around for a branch hanging low enough to reach. One of the smaller trees, further into the orchard, had two branches that hung almost to the ground. There were a few cherries on each of them.

Just as they reached the tree, one of the gardeners stepped into view. He was grooming the trees, trimming away dead branches to encourage new growth, and he was also checking to see how many cherries were ready to pick. He was looking for the child and the bear, too, for their mothers had asked the gardener to keep his eyes open. It was noon, and each of them had to go in for lunch, tomato soup for Sanjoy and porridge for Sitka.

"Hello," the gardener called out, when he saw the two standing tip-toe and straining for the cherries. "Your mothers want you to go in now. Run along quickly. There's soup for you, and porridge for you."

"Oh!" said Sanjoy, "couldn't I wait a minute? These cherries look so tasty."

"Yeah," said Sitka, in a growly voice. "We'll only eat a few."

"You don't want me to get in trouble, do you?" said the gardener. "Off you go. Cherries will spoil your lunch."

"There's hardly anything to cherries at all!" said Sanjoy.

"Yeah," rumbled Sitka. "I'll still eat all my porridge!" "I promise!" they both said.

The gardener smiled. "Well, all right," he said, "I'll tell you what. You can have

two cherries each now, if you really, really want them." Sanjoy grinned broadly and reached up again. Sitka licked his nose. "But," said the gardener, before Sanjoy could pick even one, "If you're good, and go in now, I'll cast a magic spell that will make the trees give each of you a whole basket of cherries later today."

"Can't we have two now, and the basket later?" asked Sanjoy.

"No," the gardener laughed. "The magic only works before you've had any cherries at all."

Sanjoy looked mournfully at the cherries on the branch, sighed, and ran into the house for lunch. But Sitka decided to have two cherries now than wait, so the gardener plucked them for Sitka and sent Sitka along home.

Later that afternoon, when it was nearly dinner-time, Sanjoy went looking for the gardener, who had seemed to vanish after lunch. Finally, Sanjoy found him in the centre of the orchard.

"Did the magic work?" asked Sanjoy.

"What do you think," asked the gardener, smiling. From behind his back, he produced a big basket, filled with dozens of cherries. "Take these home to your mother," he said.

Sanjoy shouted in delight, took the basket, and ran home. That night, Sanjoy had a big bowl of cherries and ice cream for dessert. The smell of cherry pie cooking spread throughout the house, and Sanjoy knew what to expect for dessert for tomorrow. "I'm glad I waited," Sanjoy said to Sitka later that night, spooning down another big helping of cherries and ice cream. But Sitka was munching on a big honey cone for dessert and was quite satisfied with the two cherries the bear had eaten earlier.

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