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# Conceptual attainment through a televised modeling event

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Conceptual attainment through a  
televised modeling event

by

Albert Dunning King

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## INTRODUCTION

In the past 25 years, a large body of investigations has been completed which demonstrate the effects of television on the behavior of children. The bulk of these studies has concentrated on antisocial behaviors learned from television viewing. This emphasis has concentrated on violence and the resultant aggressive behavior and approval of violence by children. A much smaller body of work has been accumulated which deals with prosocial effects of television. This work has demonstrated increases in altruism, sharing, helping, delay of gratification and setting high standards of performance after exposure to televised models exhibiting these behaviors.

A still smaller body of prosocial research has been done dealing with the educational potential of television and the mechanisms that stimulate learning among children. This work has been principally limited to evaluation studies of educational television's productions such as "Sesame Street" and "Electric Company." These evaluation studies have examined the programming effects and evaluated whether their goals have been met. The studies have had, by virtue of the situation, very little control in an experimental sense.

This study was designed to investigate conceptual attainment in the context of a controlled experimental design rather than the loosely controlled nonexperimental designs frequently used in

television research. Specifically, this study examined prosocial attainment of a simple concept by kindergarten children and the absence or inclusion of reinforcement of the televised modeling event. The televised modeling event was the demonstration by either an adult female or a puppet of a simple clustering task presented in an established children's television program which is produced and broadcast at a local television station. The reinforcement of the modeling event was verbal praise of the demonstration of the task. This praise established the vicarious reinforcement of the event for the observers.

Psychologists and educators have often investigated the effects of television in the context of imitation theory. Bandura and Walters (1963) originally defined this theory in terms of personality development. The theory was further refined as social learning theory by Bandura (1969) and later in Bandura and Jeffery (1973). This theory was used for this investigation because it is well-developed and has extensive empirical support. In the most recent refinements, the theory has been divided into four major processes: attentional processes, retention processes, motor reproduction processes and motivational processes.

The attentional process is divided into the modeling stimuli and the characteristics of the observer. The modeling stimuli refers basically to the model event and modeler and the distinctiveness, affective valence, complexity, prevalence and functional value.



The observer characteristics include sensory characteristics, arousal level, perceptual set and past reinforcement. The attentional process basically regulates the sensory registration of the modeled event through elements of the stimuli itself and characteristics of the observer.

The retention process includes symbolic coding, cognitive organization, symbolic rehearsal and motor rehearsal. The retention process is the conversion of transitory inferences into internalized guides for memory representation. In Bandura (1971), a discussion of retrieval is also included at this point. The primary emphasis for retrieval is a system of mnemonic keys. The mnemonic system for modeled events makes the component parts of the retention process available from memory storage.

Motor reproduction processes govern the combining of separate elements of the modeled event, which have been retained, into patterns and sequences which would be required should the event be enacted. These processes include physical capacities, availability of component responses, self-observations of reproductions and accuracy feedback. Rosenthal (1975) simplifies this to simple response-making skills. This is the distinction between acquisition and possible performance. The acquisition of information may be eminently complete and accurate, stored and retrievable but response skills although not overtly demonstrated must be available in order to turn the knowledge of the modeled event into overt performance.

The motivational processes include external reinforcement of the observer, vicarious reinforcement of the event or modeler and self-reinforcement or intrinsic reinforcement of the observer on himself. These processes function to determine if the acquired responses or learning will be activated into overt behavior.

Research in the effects of television has pointed to two factors in social learning theory as being preeminently critical. These factors are vicarious reinforcement as it influences the motivational process and the status of the model as it influences the attentional process. Vicarious reinforcement and the resultant consequences refer to the rewards and/or punishment the observer sees applied to the modeling event as a result of the model's behavior. Bandura (1965) clearly demonstrated that the nature of vicarious reinforcement elicited reproduction of learned aggressive behavior. It was reported that children who viewed the model as being rewarded materially were significantly more likely to reproduce the aggressive behavior than were children that observed punishment of the model for the aggressive behavior.

The status of the model has been demonstrated to be especially relevant to television observational learning. Harvey and Rutherford (1960) demonstrated that high status models were imitated more than low status models. The perception of competence of the model was also reported as eliciting imitation by Britt (1971). Warmth and nurturant models, high status models, environmental situations

similar to the child's and the perception that the model is similar to the child was demonstrated by Bandura (1969) as stimulating imitative behavior.

In summary, this study investigated the attainment of a simple concept through observation of a televised modeling event. The use of vicarious reinforcement or no vicarious reinforcement was also investigated. The difference between a human and puppet model both of which were familiar to the subjects was also considered.

## REVIEW OF LITERATURE

## Concept Attainment

Current research in the context of social learning theory has demonstrated that concepts may be attained through observation of models. The implication is that human influential capacities allow for teaching concepts by simply showing the process involved and the final state or arrangement of events.

Studies which have demonstrated conceptual attainment have generally formulated some kind of task which was modeled with or without verbal cues. Rosenthal, Alford and Rasp (1972) studied observationally induced acquisition, generalization and retention of a clustering concept in second graders. In this study experimental groups scored significantly higher than their own baseline scores for the clustering task as well as higher than control groups. The use of verbal cues generated significantly greater learning than did the presentation of the model without verbal cues. The analysis of the attainment of the clustering concept was found to be significantly greater for males than females in the initial acquisition of the concept but failed to be significant for generalization and retention. Similar results were found in other clustering studies (Zimmerman and Rosenthal, 1972a; Alford and Rosenthal, 1973; Rosenthal and Zimmerman, 1973; Winters and Brzoska, 1976).

Rosenthal, Moore, Dorfman, and Nelson (1971) studied the attainment of a simple concept involving the construction of different triangles as the result of different stimuli. Modeling of the novel triangle building task which was paired to different stimuli resulted in significant learning of the solution of the task with and without verbal cues in imitation as compared to premodeling baseline scores and control groups for 3, 5, and 6 year old samples. Significant difference between baseline and transfer of the understanding of the solution of the task was found only in the 6 year old sample. The modeling event with verbal cues and without verbal cues yield no significant differences in any case except for the transfer phase among 6 year olds. Apparently the event accompanied by verbal cues assisted these children in the solution of the task requiring transfer of the solution to different stimulus and response materials among the more verbal 6 year olds. In a second study, Rosenthal, Feist and Durning (1972) used the same task with disadvantaged 6 year olds with virtually identical results. In a study with retardates, Rosenthal and Kellogg (1973) further confirmed the learning of the solution to this task through modeling.

Rosenthal and Zimmerman (1973) further studied the concept attainment by presenting a difficult multi-dimensional task to third and fifth graders which involved selection of objects by color and number according to the color and direction of an arrow

on a stimulus apparatus. In all cases the modeling of the task event elicited significant learning in the imitation and generalization phase of the experiment as compared to premodeling baseline scores and control groups. Additionally, the design also compared subjects that received guided practice with those that did not receive guided practice in both modeling and nonmodeling contexts. Modeling and modeling with practice was found to yield significantly greater learning than reinforced practice in terms of acquisition of the solution of the task. Zimmerman and Rosenthal (1972a) using the same task without the guided practice but including verbal cues defining the task found virtually identical results in the acquisition of the solution of the task in terms of both imitation and transfer. The use of verbal cues with modeling produced significantly greater results than modeling and verbal cues alone.

Although sex differences among subjects have been found in social learning theory research (Bandura, 1965; Cook and Smothergill, 1973; Harris and Siebel, 1976), sex differences have been rarely found in conceptual attainment research in the social learning theory context. Studies that have found differences have tended to have culturally related sex characteristics. Most conceptual attainment research (Bandura and Harris, 1966; Carroll, Kossuth and Rogers, 1971; Rosenthal and Zimmerman, 1972b; Alford and Rosenthal, 1973; Rosenthal, Moore, Dorfman and Nelson, 1971; Rosenthal, Feist and Durning, 1972; Rosenthal and Zimmerman, 1973; Zimmerman and

Bell, 1972) have not found sex differences. Conceptual attainment research (Rosenthal, Alford and Rasp, 1972; Rosenthal and White, 1972) which has found sex differences tended to find those differences in single phases or interactions of marginal importance. Perhaps these differences might be treated as chance occurrences especially since replications did not yield those findings.

#### Television and Learning

Research considering children's learning from television has centered on the learning of social behavior both prosocial and antisocial. Within this context, research methodology has centered on survey correlation types of studies and to a lesser extent on laboratory experimental studies. Both formats have been severely criticized. The correlation studies have the usual difficulty in showing valid causation. The experimental studies have lacked the realism of the child's viewing in his naturalistic setting.

Experimental studies (Stein and Bryan, 1972; Walters, Leat, and Mezei, 1963; Walters and Willows, 1968; Wolf, 1972; Friedrich and Stein, 1975) dealing with sharing and self-control while viewing altruistic models have found significant learning of these prosocial behaviors. With televised models demonstrating aggressive and nonaggressive behaviors, research (Stein and Friedrich, 1972; Steuer, Applefield and Smith, 1971; Friedrich and Stein, 1975; Friedrich and Stein, 1973; Hicks, 1965) has also demonstrated

learning of these behaviors at least immediately after viewing. Results have been somewhat mixed in regard to the retention of these behaviors. Overall results by sex has demonstrated that males are more likely to imitate aggressive behaviors while females are more likely to imitate prosocial behaviors.

Correlational studies (Comstock and Rubenstein, 1972; Lange, Baker, and Ball, 1969; Lefkowitz, Eron, Walder, and Huesmann, 1972) have found similar results when compared to experimental studies. There has been an increase in aggressive behaviors with prosocial models. Results for retention and sex differences have paralleled experimental study results.

Research pertaining to fostering intellectual development and conceptual attainment has been much more limited in scope. Ball and Bogatz (1970) and later Bogatz and Ball (1972) typify the research effort in this area. These studies are evaluative in nature centering on the evaluation of the educational aims of "Sesame Street." In these studies large numbers of children were assigned to either a control condition or a viewing condition. The lack of researchers ability to control whether there was viewing and the amount of viewing rendered any comparison of the effects of the show in terms of viewing or not viewing impossible.

The subjects were pretested and then, after exposure to the program, they were posttested. The tests centered on knowledge of body parts, letters, numbers, forms, matching, relationships,



sorting, and clarification. The sample was divided into quartiles based on the amount of viewing based on teacher and parental reports. Combined scores by quartiles demonstrated dramatic increases in knowledge of the subjects in all cases with more dramatic increases with greater viewing time. An analysis by subtests produced high percentage gains for all eight subtests. Gains were also reported in an analysis of advantage, disadvantaged and Chicano subjects.

Although the implication of these studies is that television is an effective teacher, the lack of control makes it difficult to attribute the gains exclusively to the television show. Better controlled research investigating the mechanisms of observational learning from television is needed.

McCall, Parke, and Kavanaugh (1977) investigated imitation behavior of live and television models with 18, 24, and 34 month old subjects. Rather than some task being presented by a model, there was a modeling of play with several objects. The assessment procedure involved spontaneous play with the objects by the subjects, live or televised modeling, and imitation by the subjects. An additional variable of interest was the experimenters instruction to imitate after the modeling versus no instructions.

The results were that subjects imitated both live and televised models. There were no differences in whether instruction was given or not. With the younger subjects imitation was greater with the

live model. There was virtually no difference between live and television models at 36 months.

Further investigation of 24 month old subjects compared the use of toys without modeling and with modeling and imitation and delayed imitation of target behavior use of the toys. The results were that in both immediate and delayed imitation, subjects clearly imitated the televised model in terms of the target behavior as compared to nonmodeling situations.

The bulk of summative instructional television research has according to Barbatsis (1978) centered on the comparative effectiveness of live instruction and televised instruction; utilization studies comparing methods of teacher use of television; and identification of various observer characteristics towards different methods of media presentation. These investigations do not address the question of the mechanisms of observational learning and conceptual attainment in the context of television viewing.

Literature dealing with conceptual attainment as defined by solution or replication of a task has been well-documented. The idea that children learn prosocial and antisocial social behaviors has also been found. To a lesser extent learning has been documented in terms of play and intellectual development.

The next step in defining the mechanisms of the potential for children learning from television would seem to be a need for research wherein there is a combining of conceptual attainment research and observational research using television.

## METHODOLOGY

## Subjects

Sixty-four subjects were included in the study. The subjects were randomly selected from Ames, Iowa public and private kindergarten programs and randomly assigned to four experimental groups. Eight male and eight female subjects were assigned to each of the groups. A questionnaire (see Appendix A) was completed by parents to determine demographic information and the viewing habits of the subjects. The subjects, at the time of testing, ranged from 60 to 74 months with a mean age of 65.4 months. Eighty-five percent of the sample had attended some form of prekindergarten school or day care setting. One hundred percent of the sample had one or more televisions in the home with 49% of the homes having two or more televisions. Seventy-two percent of the homes had at least one color television. The program selection was either controlled directly by the parents or the child's selection was guided by the parents in 80% of the sample. The subjects watched television between one-half hour to five hours per day with the average of 2.14 hours. The composition of the sample was 92% white, 3% black, 3% oriental and 2% other. Although direct information concerning the social economic status and educational level of the parents was unavailable, the community as a whole tends to be within a mid-range social economic status and above average educational level when

compared to national levels. For information regarding the use of human subjects review and approval see Appendix E.

#### Task and Materials

The task was the clustering of stimulus objects by class and color. This task formed the basis of the understanding of the simple concept. The clustering of the objects was done by removing the objects from a paper plate divided into three sections and placing them in a response receptacle. The response receptacle was 20 plastic nine-ounce glasses mounted on a 14 x 17 inch white cardboard rectangle. Two sets of stimulus objects were prepared. The first set of objects included nine wheels (poker chips), nine plastic beads and nine Lego blocks. Each of the object sets were subdivided into groups of three red, three white and three blue (RWB) objects. These RWB stimulus objects were used to establish a baseline score as well as used in the televised modeling event and the assessment of imitative learning. The second set of stimulus objects were used to test transfer of the learning of the simple categorization concept. The materials used were nine buttons, nine small wooden barrels and nine plastic cubes. Each of the object sets were subdivided into three yellow, three green and three orange (YGO) objects.

The concept used in the task required the subjects to cluster one object of each class together with all three colors represented in each cluster. For example, an appropriate cluster might have

included one red wheel, one blue block and one white bead. The color-object combination was irrelevant as long as there were three different objects and three different colors in each cluster. Scoring of baseline, imitation and transfer was identical. The scoring was simply the number of correct clusters the subject put into a glass mounted on the response receptacle. Only the correct clusters were counted. Any other clusters or partial clusters were not counted. Scores could range from zero (no correct clusters) to nine (the maximum number of correct clusters). For example, if a subject placed all of the Lego blocks in one glass, all of the beads in another glass, and all of the wheels in a third glass, the score would be zero. If a subject placed three different objects using three different colors in a glass and repeated this procedure nine times using nine glasses, the score would be nine.

#### Procedure

The establishment of baseline scores was done by asking the subjects in groups of one, two, three or four to move the RWB stimulus objects from the plate into the response receptacle. This was done in a preschool classroom. Where more than one subject was present the children were unable to see each other. The following instructions were given by the same person for all groups of subjects.

"We are going to play a game of picking things. See these things. Here are some red, white and blue wheels, some red, white and blue blocks, and some red, white and blue beads.

What I would like you to do is to put all of these things into the glasses the best way you know how until they are all in the glasses. O.K., now go over to your table and do it."

The number or correct clusters of objects by color established the baseline score.

Upon completion of this task, the subject(s) were invited to watch a television show. The television show was one of four 15-minute videotaped versions of a popular locally produced children's program. Seventy-seven percent of the subjects watch this show with some regularity according to parental reports. The shows were identical to the broadcast version except for the length which was reduced by one half. The program consisted of the usual opening, a cartoon version of a children's song, modeling of the clustering concept, a short movie describing Iowa children and the regular program ending. Commercials did not appear in the research versions of the program. A more detailed description of the program appears in Appendix B.

The four research versions of the program were identical except for the modeling event. These differences formed the basis of four experimental manipulations of the modeling event.

Experimental group one was shown a version in which the host of the program, an adult female, clustered the objects. While clustering the objects a high code verbalization of what was being done was given. An example of this code was "I'll take a red wheel, a blue bead and a white block and put it here." The

television camera focused on the hands of the modeler as each object was taken from the paper plate and transferred to the response receptacle. Concurrent to this, a hand puppet gave concurrent and excited vicarious reinforcement as each cluster was completed. This reinforcement included statements such as "She did it." "Good, that's right." "Wow! She did it again."

Experimental group two viewed the program with the puppet acting as the model and the host giving vicarious reinforcement. The text of the high code verbalization of the model and the verbal reinforcement was identical to that used in the program shown to experimental group one.

Experimental group three viewed the identical program with the exception of the modeling event. In this case, the host clustered the objects with the same high code verbalization with no vicarious reinforcement.

Experimental group four viewed the program with the same high code verbalization and modeling done by the puppet with no vicarious reinforcement.

Immediately after viewing the program, the subjects were asked to return to their table and move the RWB stimulus objects from the paper plate to the response receptacle. The number of correct clusters that the subjects made were counted and formed the measure of immediate imitation learning.

Upon completion of this task, the RWB objects were removed and replaced by the YGO objects. The YGO objects were introduced to the subjects as follows:

"Here are some new things. Some yellow, green and orange buttons, some yellow, green and orange barrels, and some yellow, green and orange cubes. Now go back to your table and the best way you know how, pick these things up and put them into the glasses."

The number of clusters with three different objects and three different colors were counted. This count was considered a measure of transfer of the observational learning of the concept.

An ancillary point of interest to the primary focus of this study was the status of the models. This was measured by simply asking the subjects if they knew the name of the adult and puppet. This was done during the program's introduction individually with the subjects. The introduction part of the broadcast version of the show was identical to the research version. In this introduction the characters are shown on the set interacting with each other. This provided a naturalistic setting within which the subjects could be asked to name each character.

#### Design and Analysis

The learning effects were based on a comparison of the baseline, imitation and transfer scores. These comparisons were assessed by the Friedman two-way analysis of variance test. Multiple comparisons of all pairs of conditions were done using the Wilcoxon signed rank procedure for paired data.



Differences among treatments were assessed by a four (modeling by adult with vicarious reinforcement, modeling by puppet with vicarious reinforcement, modeling by adult without reinforcement, modeling by puppet without reinforcement) by two (male, female) factorial design with imitation scores as the dependent variable. A second analysis was performed with the transfer scores as the dependent variable using the identical factorial design. A priori multiple comparisons of means for treatments were tested by t-tests.

A Fisher's exact analysis of knowledge of the model by imitation and transfer learning results controlling for experimental groups was conducted. This analysis determined the influence of the subject's knowledge of the model on observational learning in each experimental condition. A median split was used to dichotomize the continuous measures.

A second ancillary point of interest was considered since subjects observed the television program and were tested in various size groups. Chi square analysis was done on group size by imitation and transfer controlling for experimental groups. This analysis yielded implications as to the probability of group size influencing observational learning. A median split was used to dichotomize the continuous measures.

A parental report of the frequency of viewing the broadcast version of the television program formed the basis of a third ancillary point of interest. Chi square procedures were used to

analyze the viewing frequency by observational learning, both imitation and transfer, controlling for experimental groups. A median split was used to dichotomize the imitation and transfer measures.

### Hypotheses

The null hypotheses tested for learning effects for each experimental condition were as follows:

1. No significant differences between baseline, imitation and transfer scores are present in each of the four experimental conditions.
  - a. Baseline scores are equal to imitation scores.
  - b. Baseline scores are equal to transfer scores.
  - c. Imitation scores are equal to transfer scores.

The following null hypotheses were tested for differences among experimental groups, using imitation and transfer as dependent measures:

2. There are no significant differences among experimental groups.
  - a. Experimental group one equals experimental group two.
  - b. Experimental group one equals experimental group three.
  - c. Experimental group one equals experimental group four.
  - d. Experimental group two equals experimental group three.
  - e. Experimental group two equals experimental group four.
  - f. Experimental group three equals experimental group four.

3. There are no significant sex differences.
4. There is no significant interaction between sex and experimental groups.

Null hypotheses for the ancillary points of interest are as follows:

5. There is no dependence on knowledge of the modelers and observational learning of the concept for each experimental condition.
6. There is no dependence on size of group and observational learning of the concept for each experimental condition.
7. There is no dependence on the frequency of the subject's viewing the broadcast version of the television program and observational learning of the concept for each experimental condition.

## RESULTS

## Observational Learning

The mean correct responses for measures of the clustering concept by experimental group is found in Table 1. The baseline scores of zero indicated an absence of knowledge of the clustering concept. Higher mean responses for imitation and transfer indicated learning had occurred. To demonstrate significance of these differences, nonparametric procedures were selected because of difficulties in homogeneity of variance, model additivity and distribution problems principally as a result of baseline scores of zero. Nonparametric procedures were selected over transformations of the data because of the small sample size and the number of zeros which occurred in the data. The analogous parametric analysis is found in Appendix C.

Overall analysis was done using Friedman's two-way analysis of variance. The results of this analysis is presented in Table 2. For experimental groups one, two and three, the null hypothesis that there was no differences among measures of the clustering concept was rejected. The results for experimental group four failed to demonstrate significant differences between measures.

Multiple comparisons of mean rank responses using Wilcoxon's matched-pairs sign-ranks test was done to define where the differences between measures of the clustering concept occurred. This analysis is presented in Table 3.

Table 1. Mean correct responses for measures of the clustering concept by experimental group

Experimental condition	Baseline	Imitation	Transfer
Group I (n = 16)	0.00	5.06	4.19
Group II (n = 16)	0.00	4.50	2.69
Group III (n = 16)	0.00	2.75	1.87
Group IV (n = 16)	0.00	1.50	0.56

Table 2. Friedman two-way analysis of variance rank mean and chi square results for observational learning by experimental group

Experimental condition	Rank Means			Chi Square
	Baseline	Imitation	Transfer	
Group I (n = 16)	1.19	2.44	2.38	15.875***
Group II (n = 16)	1.44	2.56	2.00	10.125**
Group III (n = 16)	1.34	2.50	2.16	11.281**
Group IV (n = 16)	1.81	2.19	2.00	1.125

\*\*p < .01.

\*\*\*p < .001.

Table 3. Wilcoxon matched-pairs sign-ranks test z score results for multiple comparisons for observational learning

Experimental condition	Observational Learning		
	Baseline Imitation	Imitation	Transfer
Group I (n = 16)	Baseline Imitation	3.180***	3.180*** 1.244
Group II (n = 16)	Baseline Imitation	2.934**	2.366* 2.132*
Group III (n = 16)	Baseline Imitation	3.059**	2.366** 2.132**
Group IV (n = 16)	Baseline Imitation	1.826	1.342 1.835

\*p < .05.

\*\*p < .01.

\*\*\*p < .001.

In experimental group one which had the female adult as model with vicarious reinforcement from the puppet, imitation was significantly greater than the baseline ( $z = 3.180, p < .001$ ). The transfer score was significantly greater than the baseline ( $z = 3.180, p < .001$ ). The null hypothesis of no differences between transfer and imitation failed to be rejected.

The results for experimental group two, the puppet modeling with vicarious reinforcement from the adult female, was significant ( $z = 2.934, p < .01$ ) for imitation and baseline. The transfer measure was significantly greater than the baseline ( $z = 2.366, p < .05$ ) as was imitation greater than transfer ( $z = 2.132, p < .05$ ).

The adult female modeling with no vicarious reinforcement in experimental group three imitation was found to be significantly greater than the baseline ( $z = 3.059, p < .01$ ), transfer significantly greater than the baseline ( $z = 2.366, p < .01$ ), and imitation greater than transfer ( $z = 2.132, p < .01$ ).

As expected, since the Friedman test yielded no significant differences, no significant comparisons were found in experimental group four which had the puppet modeling with no reinforcement.

The results of analysis of variance using imitation as a dependent measure with experimental groups and sex as factors is found in Table 4. Parametric procedures were used in this phase of analysis because problems with homogeneity of variance,



Table 4. Analysis of variance of imitation by experimental groups and sex

Source of variation	df	Mean square	F
Experimental groups	3	42.641	2.765*
Sex	1	1.266	0.108
Experimental groups x Sex	3	1.728	0.172
Residual	56	27.105	
Total	63	13.394	

\*p < .05.

distribution, and additivity no longer were present with imitation as a single dependent measure.

The null hypothesis of no differences among experimental groups was rejected ( $F = 2.765$ ,  $df = 3/56$ ,  $p < .05$ ). The sex factor and interaction between sex and experimental groups was found to have no significant results thus failure to reject the null hypotheses.

A priori comparison of means to determine where differences among experimental groups lies is found in Table 5. A pooled t-test was used to measure these differences since tests of homogeneity of variances failed to yield differences among the variances. The sex and interaction factors were also pooled with the residual of the full model since there was no significant contribution of these factors to the explanation of variance. Adult female modeling with vicarious reinforcement, group one, was found to be significantly different ( $t = 2.917$ ,  $df = 60$ ,  $p < .01$ ) from group four, the puppet modeling with no reinforcement. Significant results were also found between the puppet modeling with vicarious reinforcement, group two, as compared to group four, the puppet modeling without reinforcement ( $t = 2.456$ ,  $df = 60$ ,  $p < .05$ ). There was failure to reject all other null hypotheses for comparison of means with imitation as the dependent measure.

The results of the analysis of variance using transfer as the dependent measure and experimental groups and sex as factors is found in Table 6. Parametric procedures were used in this phase

Table 5. Multiple comparisons of means for experimental groups using the pooled t-test with imitation as the dependent variable

Experimental groups	Mean differences	df	t value
I and II	.5625	60	.461
I and III	2.3125	60	1.893
I and IV	3.5625	60	2.917**
II and III	1.7500	60	1.433
II and IV	3.0000	60	2.456*
III and IV	1.2500	60	1.024

\*p < .05.

\*\*p < .01.

Table 6. Analysis of variance of transfer by experimental groups and sex

Source of variation	df	Mean square	F
Experimental groups	3	36.849	3.206*
Sex	1	0.391	0.045
Experimental groups x Sex	3	1.599	0.185
Residual	56	8.649	
Total	63	9.525	

\*p < .05.

of analysis because problems with homogeneity of variance, distribution, and additivity no longer were present with transfer as a single dependent measure. The null hypothesis of equality among experimental groups was rejected ( $F = 3.206$ ,  $df = 3/56$ ,  $p < .05$ ).

There was failure to reject null hypotheses dealing with sex and interaction factors.

A priori comparisons of means of experimental groups is found in Table 7. A pooled t-test was used to measure these differences since tests of homogeneity of variance failed to yield differences among the variances. The sex and interaction factors were also pooled with the residual of the full model since there was no significant contribution of these factors to the explanation of variance. As in the analysis for imitation, differences were found for the adult female modeling with vicarious reinforcement, group one, and the puppet modeling without vicarious reinforcement, group four, ( $t = 3.589$ ,  $df = 60$ ,  $p < .001$ ) and the puppet modeling with vicarious reinforcement, group two, and the puppet modeling without vicarious reinforcement, group four, ( $t = 2.104$ ,  $df = 60$ ,  $p < .05$ ). An addition rejection of the null hypothesis of equality between the adult female modeling with vicarious reinforcement, group one, and the adult female modeling without vicarious reinforcement, group three, was found ( $t = 2.290$ ,  $df = 60$ ,  $p < .05$ ). No other pairs of means were found to have significantly large differences to elicit rejection of null hypotheses.

Table 7. Multiple comparisons of means for experimental groups using the pooled t-test with transfer as the dependent variable

Experimental groups	Mean differences	df	t value
I and II	1.5000	60	1.485
I and III	2.3125	60	2.290*
I and IV	3.6250	60	3.589***
II and III	0.8125	60	0.805
II and IV	2.1250	60	2.104*
III and IV	1.3125	60	1.300

\*p < .05.

\*\*\*p < .001.

### Ancillary Results

The results concerning the subjects knowing the modelers in terms of being able to name them was not significant in all cases measured. Fisher's exact statistic for both imitation and transfer with the ability to name the female model controlling for experimental groups resulted in probabilities greater than .45 and less than .63. The results for knowledge of the puppet's name with both imitation and transfer controlling for experimental groups was less conclusive in that no subjects in experimental groups three and four could name the puppet. Insignificant results for experimental group one and experimental group two using Fisher's exact statistic elicited probabilities greater than .15 and less than .70. These nonsignificant results may be found in more detail in Appendix D.

There was failure to reject the null hypotheses regarding group size during observation of the television program and testing and observational learning, both imitation and transfer, controlling for experimental groups in all cases. Chi square analysis yielded probabilities greater than .10 and less than .73. These non-significant results may be found in detail in Appendix D.

The third ancillary point of interest dealing with the frequency of viewing the broadcast version of the television program and its influence on observational learning, both imitation and transfer, controlling for experimental groups was analyzed by chi square procedures. In all cases, there was failure to reject

no dependence with probabilities ranging from .06 to .75. For more detail, these nonsignificant results may be found in Appendix D.



## DISCUSSION AND CONCLUSIONS

This study was primarily undertaken to investigate the learning of a simple concept by observation of a modeling event in a television program and the influence of vicarious reinforcement on that learning. The results indicate that the data support the observational learning proposition. Although the results are somewhat mixed, the data also support the contention that vicarious reinforcement does influence this learning. There will also be a discussion of ancillary results, recommendations for further research, and implications for educational use of television with kindergarten children.

## Observational Learning

For experimental group one in which the female modeled the concept with reinforcement from the puppet, the data support the notion that kindergarten children learned the concept by viewing this modeling event. Scores for imitation of the concept as well as transfer of the concept to other objects as compared to baseline scores which indicated an absence of the concept were highly significant. In this situation there was no indication that immediate transfer of the concept produced scores different from the imitation of the concept.

Analysis of the puppet modeling with reinforcement from the female produced similar results. The subjects were able to

imitate and transfer the demonstrated concept as compared to an absence of the concept as measured by baseline scores. The comparison of imitation and transfer produced results which indicated a slight decline in the child's ability to transfer the concept as compared to the immediate imitation.

The results for group three in which the female modeled the concept without reinforcement was somewhat surprising when compared to the results of group four which had the puppet modeling the concept without reinforcement. Group three results were very similar to groups one and two in that significant learning had occurred in both imitation and transfer. This group also showed a slight but significant decline in transfer as compared to the imitation phase. Group four had no significant learning. It might have been expected that the learning without reinforcement in group four might have been the same as that in group three. This may be due in part to the difference in status of the subject's perception of the puppet and human. This possibility will be discussed further in ancillary findings. Comparison of group four and group two results also produced a difference in learning. The puppet with reinforcement elicited observational learning while the puppet without did not. The between experimental groups discussion found later in this section will deal more specifically with this observation.

In general these results confirm the idea that children learn from viewing television. It also reconfirms the general findings

of the body of social learning theory literature which has been accumulated. It also parallels the findings principally of Rosenthal and Zimmerman dealing with conceptual attainment in the social learning context.

#### Between Groups Analysis

The results of the analysis of differences among experimental groups indicated significant group differences on both transfer and imitation measures of learning. The reinforcement of the female and puppet produced significantly greater learning than the puppet modeling without reinforcement for imitation. It is somewhat surprising that the analysis did not yield differences between the puppet and female modeling with reinforcement and the female modeling without reinforcement. The key to this failure to produce significance would seem, as mentioned previously, related to the possible high status of the female model as compared to the puppet.

The transfer results also yielded differences between the female and puppet modeling with reinforcement and the puppet modeling without reinforcement. An additional finding for transfer was the difference between the female modeling with reinforcement over the female modeling without reinforcement. For transfer the implication that reinforcement vicariously observed by the subjects produced greater learning. The exception to this conclusion is, as in the imitation analysis, the lack of significant finding between the puppet with

reinforcement and the female without reinforcement. Again, this would seem to indicate the difference in the puppet and female as perceived by the subjects.

Although not totally consistent, as in the case of the puppet, these results would indicate vicarious reinforcement enhanced the learning of the simple concept. This supports previous finding (Liebert and Fernandez, 1970; Rosenthal, Feist, and Durning, 1972; Rosenthal, Moore, Dorfman, and Nelson, 1971) in studies using other than television that vicarious reinforcement enhanced learning significantly.

The sex and interaction of sex and experimental groups were found to be nonsignificant. This lack of significance parallels the findings of other prosocial television literature (Friedrich and Stein, 1973; Friedrich and Stein, 1975).

#### Ancillary Results

Knowledge of the models measure was based on the ability to name the female and puppet. The female naming results were found to have no influence on the subjects attainment of the concept as measured by imitation and transfer in all experimental groups. The results for the puppet are for experimental groups one and two not significant. None of the children could name the puppet in experimental groups three and four, therefore, a comparison was not possible. As indicated previously, the status of the model would

seem to be of a key to some of the inconsistency of results previously reported. It is probable that the assumption that the subject's naming ability was an inadequate measure to elicit the precision needed for analysis of this variable. This obvious limitation is discussed in terms of recommendations for further research.

The size of groups observing the television program yielded no significant results. This would indicate that within the context of a small group of four or less the children were able to watch the program without the distraction of others concurrently watching. Informal observation of the subjects during the testing and viewing period led this researcher to the expectation that this may not have been the case. When viewed in groups, the subjects were allowed to view the program as they wished. Although not measured, there was a considerable amount of talking among some of the subjects about things irrelevant to the program or the concept being modeled. It might be concluded that the dynamic quality of the television as well as the concentrated perceptual field of the screen transcended these distractions. Further research would be needed to confirm this possibility.

The frequency of viewing the broadcast version of the research program was found to have no significant bearing on the subject's performance of the task for either imitation or transfer measures. This would indicate that familiarity with and frequency of viewing the show did not influence the subject's observational learning.

With this finding, it might be considered that the status of the models previously discussed would not be as important as implied. A second possibility might be that the child, without previous knowledge of the model or frequent viewing of the model, may well create an immediate perception of that status rendering familiarity or frequency of viewing an inadequate measure. This may well be true given the concentrated perceptual field television seems to produce. Concrete conclusions about this problem are beyond the limitations of this study and warrants further investigation.

#### Recommendations for Further Research

As previously stated, there would seem to be need for additional research regarding the nature and status of the modeler as viewed on television. The surprisingly low effectiveness of the puppet would be of particular interest considering the high use of puppets in children's programming.

A second area of interest is the nature of the distractability of children from the concentrated perceptual field television tends to offer. This is in effect a call for investigation of the attentional process of the children when television is viewed.

A third recommendation is based on the need for studies of retention. A distinct limitation of this study was the fact that imitation and transfer measures were collected fairly soon after

the modeling event was viewed. The question of how long the learned concept was retained should be answered. A second and related question should also be investigated. Since television programming and commercials for children tend to be repeated with great frequency, the influence of this repetition on retention of conceptual learning might be investigated.

#### Implications for Education

This study presents empirical evidence which confirms the notion that kindergarten children can learn by viewing a modeled concept with television as the medium of expression. It confirms experimentally the quasi-experimental literature which demonstrated learning occurs as children watch television. The use of television in the kindergarten classroom would seem to be reconfirmed as a viable teaching tool for conceptual attainment. The use of vicarious reinforcement incorporated into either video productions made for this use as well as teaching also seemed to enhance conceptual attainment. No evidence was found that children do not learn in small groups as compared to viewing programming individually. This implication would imply that classroom use of television with small groups of children left to their own attentional process can successfully teach children.

#### Summary

The primary focus of this study was to extend the knowledge of conceptual attainment in the context of social learning theory

to the area of children's learning from television. It was found that kindergarten children who view a task learn the task with an adult female modeling, when a puppet model is reinforced by an adult female, and an adult female is reinforced by a puppet. This learning was true for not only immediate imitation of the task but for transfer of the task to different materials.

A comparison of experimental conditions also produced significant differences. When the modeling event included reinforcement, there was significantly greater learning than when a puppet modeled alone in both imitation and transfer phases. Unexpectedly, the adult female modeling was not significantly different from conditions which included reinforcement for the imitation phase. The adult female model with reinforcement was found to be significantly more effective than the adult female without reinforcement for transfer. The puppet with reinforcement was not found to be significantly different from the female modeling alone in imitation and transfer. The subjects were more inclined to learn when the adult female was involved as the model or reinforcer than when the puppet was the model or reinforcer.

There was no significant findings based on group size viewing the television show, knowledge of the name of the adult female and puppet, or frequency of viewing the broadcast version of the program upon which the research program was based.



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A special thanks to the parents and children who participated in this research project.

APPENDIX A  
PARENT'S LETTER AND QUESTIONNAIRE

Iowa State University *of Science and Technology* Ames, Iowa 50011



Child Development Department  
101 Child Development Building  
Telephone 515-294-3040

Dear Parent:

The impact of television on society and especially our children is seemingly very great both positively and negatively. I am very interested in research that will improve television and demonstrate the possible use of television for its positive learning effects. This kind of research is producing the basis for children's programming such as "Sesame Street" and "Electric Company."

I would like your permission to involve \_\_\_\_\_ in this type of prosocial television research. Your child will be asked to participate in a school-like situation at the Child Development Laboratories at Iowa State University. This school-like situation will be conducted by early childhood educators and child development experts. Your child will be asked to cluster objects into categories. Then we will watch a video tape about 15 minutes long which has been produced at WOI television. In this videotape, which is very similar to a local children's TV show, the clustering task will be demonstrated by an adult female or a puppet with different camera techniques as well as different words being used to describe what is going on. Your child will then be asked to cluster the objects again. I am also asking you to fill out a brief questionnaire.

I do not anticipate any discomfort for your child in the entire process. The facility in which the entire research process will be done is designed specifically for the safety and comfort of young children. Should your child feel discomfort, one of two things could happen: (1) you could join the group as a nearby observer, thus comforting your child or (2) your child would not be required to continue. If you would like to observe the entire process assuring yourself that your child's comfort and safety are continuously being considered, we have observation facilities from which you may observe without your presence being known to the child. The entire observation and testing should take less than one hour. Your child has been randomly assigned to different testing periods. This information is given on the consent form. It would be appreciated if you could bring your child to the Laboratory room at the Child Development Department. If this would be inconvenient, I may be able to arrange transportation of your child.



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The testing results and questionnaire will be kept completely confidential and will be destroyed after necessary statistical tests are completed.

If you have any questions, feel free to call (294-7598, 292-6679, or 294-3040 to leave a message). Please fill out the informed consent form below as soon as it is convenient and return it in the enclosed envelope.

Sincerely,

*Albert D. King*  
Albert D. King  
Assistant Professor  
205 Child Development Building

*Anton Netusil*  
Anton Netusil  
Professor  
Professional Studies

-----  
CONSENT FORM AND VIEWING HABITS QUESTIONNAIRE

\_\_\_\_\_ I agree to allow my child to be a part of the research described above.

\_\_\_\_\_ I do not agree to allow my child to be a part of the research described above.

\_\_\_\_\_  
Your signature

Your child has been randomly assigned to the following testing date and time: \_\_\_\_\_

If this date is not possible a second date has also been selected: \_\_\_\_\_

Please indicate which date you would be able to have your child participate by checking the box next to the date. If both dates are possible check both boxes. If neither of the dates are possible and you would otherwise agree to participation, I will contact you as to possible participation times. If you need transportation for your child, indicate this need by checking this box.

## VIEWING HABITS QUESTIONNAIRE

As a part of the total research process, please fill out the following questionnaire. Your answers are confidential and will be analyzed as group data. Individual responses will not be released. After appropriate statistics are completed this questionnaire will be destroyed.

Please check the appropriate response for each of the following.

For each of the following shows, check your child's viewing frequency.

1. Capt. Kangaroo

Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Daily \_\_\_\_\_

2. The Floppy Show

Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Daily \_\_\_\_\_

3. The Magic Window

Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Daily \_\_\_\_\_

4. Sesame Street

Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Daily \_\_\_\_\_

5. Road Runner

Never \_\_\_\_\_ Rarely \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_ Daily \_\_\_\_\_

6. How many TV sets are in the home?

None \_\_\_\_\_ One \_\_\_\_\_ Two \_\_\_\_\_ Three or More \_\_\_\_\_

7. Do you have at least one color TV set?

Yes \_\_\_\_\_ No \_\_\_\_\_

8. Who selects the programs your child watches most of the time?

The Child \_\_\_\_\_ Siblings \_\_\_\_\_ Parent(s) and/or other adults \_\_\_\_\_

Not applicable \_\_\_\_\_

9. Does your child's play reflect that which he/she watches?

Not observed \_\_\_\_\_ Not very often \_\_\_\_\_ Sometimes \_\_\_\_\_ Often \_\_\_\_\_

Very Often \_\_\_\_\_

10. On the average, about how much time in hours would you say your child watches TV per day?

\_\_\_\_\_

11. Who filled out this questionnaire?

Mother \_\_\_\_\_ Father \_\_\_\_\_ Both \_\_\_\_\_ Other adult \_\_\_\_\_

12. Did your child help answer the questions?

Yes \_\_\_\_\_ No \_\_\_\_\_

13. Did your child attend any kind of preschool program other than Sunday School?

Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, about how long? \_\_\_\_\_

14. Your child's age as of September 1, 1978: \_\_\_\_\_ years \_\_\_\_\_ months.

Thank you for your time. Please return this questionnaire with the consent form in the enclosed envelope.

Albert D. King  
205 C. D. Building

APPENDIX B  
SCRIPT FOR THE MODELING EVENT

The script for the modeling event is given below. The actress and puppet were instructed to be consistently positive and smiling. The puppet was a hand puppet that could appear to smile. The task was presented as an enjoyable new game. Camera techniques were for the most part identical for each of the four productions with only minor variations. Generally the focus was on the stimulus objects and movement of those objects to the response receptacle. Occasionally, the camera would move to the actress or puppet as reinforcement was being made. Both the opening and closing of the event had all the materials and both characters in view. The set was made up of the usual broadcast set. This set included a table upon which the objects were located and a puppet stage at the back of the set. The puppet was moved from the puppet stage to the table for the modeling event.

In the first program made for viewing by experimental group one, the script was spoken as given below. The second program viewed by experimental group two, the script was unchanged except the roles were reversed. For program three which was shown to experimental group three, the script was unchanged for the role marked female or F. The puppet or P role was eliminated. Only the female was on camera for this take. In the fourth program shown to experimental group four, the puppet took the female or F role and again the puppet or P role was eliminated. The female was not on camera. Since the puppet had problems picking up the

materials a pair of hands of an unseen person moved the objects in programs two and four as the puppet said the lines.

The script is as follows:

Female - Today I have a game of putting things together.

Puppet - Good! Let's see it.

F - (Shows the paper plate holding the objects then picks up each object as the following is read.)

There are red, white and blue wheels. There are red, white and blue beads. There are red, white and blue blocks.

P - I know this game. Show me if you know it.

F - First I'll take a red wheel, a white block and a blue bead and put them here. (Move the clustered objects to the response box. Camera close.)

P - Good! That's right?

F - Then I'll take a white block, a blue bead and a red wheel and put them here.

P - You're right again!

F - Then I'll take a blue bead, a red wheel and a white block and put them here.

P - You know what you're doing!

F - Then I'll take a red block, a white bead and a blue wheel and put them here.

P - Right again!

F - Then I'll take a white bead, a blue wheel and a red block and put them here.

- P - Wow! She (he) did it again!
- F - Then I'll take a blue wheel, a red block and a white bead  
and put them here.
- P - You really know how to play this game.
- F - A red bead, a white wheel and a blue block and put them here.
- P - You didn't say it the same way but you said it right!  
(Camera on the reinforcer.)
- F - A white wheel, a blue block and a red bead - right here.  
(Camera on the objects.)
- P - I bet you can do it again and do it right.
- F - A blue block, a red bead and a white wheel - right here.
- P - Right...Right...Right...Right.  
(Camera on both characters for the first and second programs.)
- F - There it's all done.  
(Camera on the modeler for the third and fourth programs.)
- P - And it's ok, I knew you could do it.

APPENDIX C

ALTERNATIVE REPEATED MEASURES ANOVA



Table 1. Repeated measures (baseline, imitation, and transfer) ANOVA with experimental groups and sex factors

Source of variation	Mean square	df	F
Experimental groups	51.86758	3	4.57**
Sex	1.02075	1	.09
Experimental groups X sex	32.93677	3	.97
Error	11.34662	56	
Measures	198.50391	2	44.19***
Experimental groups X measures	13.81051	6	3.07**
Sex X measures	.31763	2	.07
Sex X measures X experimental groups	5.40084	6	1.20
Error	4.49178	112	
Total	13.30198	192	

\*\*p < .01.

\*\*\*p < .001.

Table 2a. Repeated measures ANOVA for baseline, imitation and transfer for experimental group one

Source of variation	df	Mean square	F
Between people	15	13.26667	
Between measures	2	117.14583	22.474***
Residual	30	5.21250	
Total	47	12.54610	

\*\*\*p < .001.

Table 2b. Paired t-test for comparison of means of measures

Variables	Means	df	t-value
Baseline	.000	15	5.62***
Imitation	5.063		
Baseline	.000	15	5.12***
Transfer	4.188		
Imitation	5.063	15	1.27
Transfer	4.188		

\*\*\*p < .001.

Table 3a. Repeated measures ANOVA for baseline, imitation and transfer for experimental group two

Source of variation	df	Mean square	F
Between people	15	14.89861	
Between measures	2	82.02083	13.376***
Residual	30	6.13194	
Total	47	12.15913	

\*\*\*p < .001.

Table 3b. Paired t-test for comparison of means of measures

Variables	Means	df	t-value
Baseline	.000	15	4.72***
Imitation	4.500		
Baseline	.000	15	3.02**
Transfer	2.688		
Imitation	4.500	15	2.34*
Transfer	2.688		

\*p < .05.

\*\*p < .01.

\*\*\*p < .001.

Table 4a. Repeated measures ANOVA for baseline, imitation and transfer for experimental group three

Source of variation	df	Mean square	F
Between people	15	9.72778	
Between measures	2	31.5833	9.78485***
Residual	30	3.22778	
Total	47	6.50887	

\*\*\*p < .001.

Table 4b. Paired t-test for comparison of means of measures

Variables	Mean	df	t-value
Baseline	.000	15	3.47**
Imitation	2.750		
Baseline	.000	15	3.03**
Transfer	1.875		
Imitation	2.750	15	1.96
Transfer	1.875		

\*\*p < .01.

Table 5a. Repeated measures ANOVA for baseline, imitation and transfer for experimental group four

Source of variation	df	Mean square	F
Between people	15	6.73194	
Between measures	2	9.18750	2.78526
Residual	30	3.29861	
Total	47	4.64495	

Table 5b. Paired t-test for comparison of means of measures

Variables	Means	df	t-test
Baseline	.000	15	.079
Imitation	1.500		
Baseline	.000	15	.227
Transfer	.563		
Imitation	1.500	15	.161
Transfer	.563		

APPENDIX D

NONSIGNIFICANT ANCILLARY RESULTS

Table 1. Fisher's exact probabilities for subjects naming modelers by imitation and transfer controlling for experimental groups

Experimental condition	Naming female		Naming puppet	
	Imitation	Transfer	Imitation	Transfer
Group I	.55	.45	.70	.30
Group II	.55	.65	.15	.21
Group III	.63	.54		
Group IV	.60	.56		

Table 2. Chi square analysis of group size by imitation controlling for experimental groups

Experimental condition	Chi square	df	p value
Group I	.762	2	.6832
Group II	1.304	3	.7283
Group III	.800	2	.6703
Group IV	6.154	3	.1044



Table 3. Chi square analysis of group size by transfer controlling for experimental groups

Experimental condition	Chi square	df	p value
Group I	2.794	2	.2474
Group II	2.269	3	.5185
Group III	3.200	2	.2019
Group IV	1.778	3	.6198

Table 4. Chi square analysis of frequency of viewing the broadcast program by imitation controlling for experimental groups

Experimental condition	Chi square	df	p value
Group I	1.923	4	.7499
Group II	6.654	3	.0838
Group III	7.111	3	.0684
Group IV	1.121	3	.7719

Table 5. Chi square analysis of frequency of viewing the broadcast program by transfer controlling for experimental groups

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Experimental condition	Chi square	df	p value
Group I	1.923	4	.7499
Group II	6.070	3	.1082
Group III	3.809	3	.2828
Group IV	4.622	3	.2016

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APPENDIX E  
USE OF HUMAN SUBJECT REVIEW

Vice President for Research  
Dean, The Graduate College  
201 Beardshear Hall  
Ames, Iowa 50010

IOWA STATE  
UNIVERSITY

Telephone: (515) 294-4531

Date: September 12, 1978

To: Albert King

From: Mary Lou Arends, Secretary  
University Human Subjects Review Committee

Re: Human subjects review of project entitled "Concept attainment  
through a televised modeling event".

Your research project was reviewed and approved by the Human  
Subjects Review Committee on September 8, 1978. Materials submitted  
by you for the review are enclosed. One copy has been retained for  
our files.

cc J Ahmann  
File



3. Procedures Which May Involve Risk or Discomfort

- a. Physical \_\_\_\_\_  
 b. Psychological   X    
 c. Social \_\_\_\_\_

Clearly identify procedure(s): Children will observe a video tape of the "Magic Window" television program produced at WOI TV within which a clustering of objects will be modeled. The children will then be asked to cluster objects. The pressure on the child to be correct will be low since the idea of correctness will be unknown to the child. Some discomfort may be felt because of separation from the parent during observation and testing periods.

4. Explanation of Risks and/or Discomforts

The risk and/or discomfort should be minimal. If any, it would be due to the fact the the testers will be strangers, the environment may seem strange, and separation from their parents.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Alternative Procedure Which May Be Used

If anxiety is high is high in the child (ren) the following could be done:

- (1) The parent may be present in the observation-testing situation and/or  
 (2) The child will not be required to continue.
- \_\_\_\_\_
- \_\_\_\_\_

6. Legal and/or Ethical Concerns (including confidentiality of data)

Data will be analyzed on a group basis. All data will be kept confidential and only summary reports will be released. At no time will individual performance or results be released.

\_\_\_\_\_

\_\_\_\_\_

7. Safety Precautions Being Taken (provisions for facilities, professional attention, and procedures to assure health and safety of the human subjects)

Observation of the video tape and all testing will be done at the Child Development Laboratories at Iowa State University. These facilities are designed to assure the health and safety of the child. Each child will have a trained Child Developmentalist present at all times.

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8. Justification for Procedures Which Involve Risk or Discomfort

It is believed that in the testing and observation process risks and/or discomforts have been minimized. While it would be better not to have parents present during observation and testing for reasons of validity and reliability, compromise, as indicated in no. 5 above, will be made on this issue.

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9. Informed Consent \*

Written informed consent will be obtained. Yes

Written informed consent will not be obtained. \_\_\_\_\_

\* Attach copy of written informed consent form if one is being used. The written form should contain:

- a. Brief explanation of procedures.
- b. Purpose of research and procedures (uses).
- c. Description of any risks, discomforts, or benefits that can be reasonably expected.
- d. Alternative procedures. (if appropriate).
- e. Offer to answer any questions subjects have.
- f. Understanding that subject may withdraw consent and discontinue participation at any time.
- g. Assurance of confidentiality of data (if necessary).



10. Justification of waiver of written informed consent (and explanation of alternative procedure).

Not applicable

11. If deception of the subject is involved, describe and justify.

Not applicable

What will be the debriefing procedure?

Note: Additions to or changes in procedures involving human subjects after the program has been reviewed must be brought to the attention of the Vice President for Research and the University Committee on the Use of Human Subjects in Research. I agree to provide the proper surveillance of this project to insure the rights and welfare of the human subjects are properly protected.

Albert D. King  
205 C. D. Bldg  
294 7598

*Albert D. King*  
Principal Investigator or  
Program Director

*8/15/78*  
Date

*a. j. [unclear]*  
*[unclear]*

I confirm the information stated above. I am familiar with and approve the procedures that involve human subjects.

Head or Chairman

Department of

Date

Professional Studies  
Aug 23, 1978