The effectiveness of information feedback on the conformity behavior of children

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THE EFFECTIVENESS OF INFORMATION FEEDBACK ON THE

CONFORMITY BEHAVIOR OF CHILDREN

A Thesis
Presented to the
Department of Psychology
and the
Faculty of the Graduate College
University of Nebraska at Omaha

In Partial Fulfillment
of the requirements for the Degree
Master of Arts

by
John Jay Wicks
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Accepted for the faculty of the Graduate College of the University of Nebraska at Omaha, in partial fulfillment of the requirements for the degree Master of Arts.

Graduate Committee

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Chairman

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Chairman
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INTRODUCTION

This paper summarizes a developmental study concerning the effects of correctness feedback on the conformity behavior of children. Specifically, the study proposes to test the following assumption: (1) that conformity is a positive function of age on ambiguous stimulus tasks and (2) that the effectiveness of correctness feedback is greater for older than younger Ss. To test these assumptions, the Ss were divided, at each grade level, into three groups: (1) a reward conformity group where the Ss received a "correct" signal for agreeing with the group and a "wrong" signal for disagreeing, (2) a reward nonconformity group where Ss received a "correct" signal for disagreeing with the group and a "wrong" signal for agreeing, and (3) a control group which received no information feedback.

The assumptions listed above were proposed by Hamm and Hoving (1969) in a social learning theory of children's conformity. According to the theory, conformity and nonconformity are controlled by the positive or negative reinforcing properties of correctness and/or group agreement. The essential point of the theory is that the reinforcing properties of being correct increase with age. The preceding assumption, together with the proposition that the reinforcing properties of correctness reward conformity behavior on ambiguous tasks and independent behavior on unambiguous
tasks, leads to two developmental predictions. One is that on simple or unambiguous tasks one would expect conformity to be negatively related to age when the group consensus supports an objectively incorrect answer; that is, with increasing age the Ss would rely more on their own perceptions. Conversely, on difficult or ambiguous perceptual tasks one would expect conformity to be positively related to age; that is, the group's consensus is more likely to be construed by the older Ss as providing information or a clue to the correct answer on the difficult task.

One can readily find rational support for the contention that the reinforcing properties of correctness increase with age. For example, as a child matures in society, he is frequently rewarded for correct behavior, this is especially true in the school setting. Eventually, one might suspect that the reinforcing properties of correctness would gain increasing control of the child's behavior as he grows older and these rewarding experiences accumulate.

Recently, empirical support has been given to a social learning theory of children's conformity by a study performed by Hoving, Hamm, and Galvin. In this study, children were presented with stimuli, each of which consisted of two squares containing a number of small dots. The children's task was to judge which square contained the most dots. Each of the items was tested before the experiment to
operationally determine its ambiguity; only those items on which the Ss made approximately 1, 20, and 50% errors were employed. By scoring both the social influence items (in which each S appeared to be the last in a simulated group of three to respond) and noninfluence items (in which each S appeared to be the first or second person to respond), a measure was derived of the Ss' behavior when alone and when under a condition of social influence. After each stimulus presentation, the simulated group would appear to give wrong answers on the 1 and 20% error items, while the same simulated group chose an arbitrary answer on the 50% error items.

The results indicated that the relationship between age and conformity was a function of the ambiguity of the stimulus item the children judged. Thus, the Hoving et al. study demonstrated that as the task became more ambiguous conformity changed from a negative to a positive function of age. These findings agree with the results of earlier developmental studies (Hamm & Hoving, 1969; Hamm & Hoving, in press).

In a similar study, Hamm (in press) attempted to find additional support for the social learning theory of children's conformity by utilizing an imitation procedure similar to that used by Bandura and his associates (Bandura, Ross & Ross, 1963). A repeated measures design indicated changes in conformity which resulted by increasing the
reinforcing properties of correctness in second-, fifth-, and eighth-grade Ss. On Day 1, the E obtained a base measure of conformity. As in the Hoving et al., 1969 investigation, the Ss' task consisted of judging which square of a projected figure contained the most dots. In both studies the Ss indicated their answers via a modified Crutchfield apparatus, and a pretested error rate defined the ambiguity of the stimulus items. These stimuli consisted of items which produced 1, 45, and 83% errors.

On Day 2, approximately three weeks later, the E again presented the same conformity sequence except that before the Ss made their judgments, a video tape program was presented to them. One group, a reward contingency group, watched a video-taped TV program in which the Ss saw another group of children rewarded for correct answers on a series of discrimination problems. Another group, a no reward treatment group, watched the same imitation sequence except that no rewards were issued to the models. A final group rested during the period when the imitation sequence was presented to the other groups.

It was found that conformity on the 1% error items decreased more on Day 2 for the reward contingency treatment group than the reward modeling group. This seemed to support the contention that the reinforcing properties of correctness reward independent behavior on unambiguous tasks.
Although these results were not entirely consistent with Hamm's initial expectations, they suggested a relative difference in conformity on ambiguous tasks and unambiguous tasks which was produced by enhancing the reinforcing properties of correctness.

In addition, it was found that across all stimulus tasks conformity was a negative function of age. These results are in contrast with the several studies reported above in which conformity was found to be a negative function of age on unambiguous tasks and a positive function of age on ambiguous tasks. To account for the discrepancies between this study and the earlier studies, it was proposed that population differences or, more probably, task differences were responsible for these contrasting results.

In addition, a number of other empirical studies supported the assumption of a developmentally changing hierarchy of reinforcement. Outside of the conformity area, studies such as those of McCullers and Stevenson (1960) and Lewis, Wall, and Aronfreed (1963) suggested that younger children are more dependent on verbal social reinforcement than informational feedback. Older children relied equally on verbal social reinforcement and informational feedback. Similarly, Lucito (1964) demonstrated that bright children tend to be more "task-oriented" while dull children tend to be more "group-oriented."

As previously described, Hamm (in press) attempted to
test the social learning theory of children's conformity by enhancing the reinforcing properties of correctness with an imitation learning procedure. However, rewarding the conformity behavior of children with informational feedback may provide a more direct test of the social learning theory. Working within a traditional reinforcement context, Endler and his associates (Endler, 1965; Endler, 1966; Endler & Hoy, 1967) have demonstrated that conformity and nonconformity behavior can be manipulated in this manner. In these studies, perceptual (geometric forms) and verbal (obscure facts) items were presented to the Ss. The Ss then communicated with the E via a modified Crutchfield apparatus (1955) which the E used to simulate group answers and to provide informational feedback to the Ss.

The Endler procedure was used in the present investigation due to its similarity with classical operant techniques of manipulating behavior. By employing Endler's approach, this study attempted to provide an additional test of the social learning theory of children's conformity proposed by Hamm (in press). Therefore, if the reinforcing properties of correctness increase with age, as has been previously stated, one might expect that the effect of providing informational feedback would have a greater influence on the conformity behavior of older than younger children. A second prediction can be made. If ambiguous problems
are used in the present experiment to measure conformity, then conformity should be positively related to age. This second expectation is essentially a verification of the positive relationship between conformity and age on ambiguous tasks reported previously by Hamm and Hoving (1969).
METHOD

Subjects

The Ss consisted of 216 public school children, all of whom were white and predominantly middle-class, from the second, fifth, and eighth grades of School District 66, Omaha, Nebraska. The Ss were divided into 18 equal groups on the basis of grade, sex, and treatments. Each group contained 12 Ss.

Apparatus

The apparatus was housed in a music-practice room at Arbor Heights Junior High School and in the corner of a large storage room at Rockbrook Elementary School. The space utilized in both schools was approximately the same.

Each experimental room housed the Ss, a modified Crutchfield apparatus, a noise generator, a metronome, three sets of tables and chairs, a carousel projector, and two portable partitions. During the experiment, a slide projector was used to present a series of perceptual discrimination problems to the Ss. By using a metronome as a timer, the E was able to present each slide for approximately six seconds. After each stimulus presentation, the master control panel enabled the E to monitor the Ss' answers and to communicate to the Ss the simulated answers from the reference group. The noise generator presented a masking sound which served to minimize apparatus noise and S collaboration. The partitions served to keep the Ss from
observing each other during the experiment.

**Experimental Task**

The problems consisted of a series of slides which were projected onto a screen in front of the Ss; each slide was divided into two squares by a black line. Each square contained a variable number of dots arranged in a random order, and the Ss' task was to determine which square had the most dots and communicate his answer to the E.

Three different slide compositions were used differing with respect to the number of dots in each square. Ten slides had 7 dots in one square and 15 dots in the other; these are referred to in the text as either a 7-15 or a 15-7 slide. The right number refers to the number of dots in the right square, whereas the left number refers to the number of dots in the left square. Ten slides had 12 dots in one square and 15 dots in the other, and these are referred to as either a 12-15 or a 15-12 slide. These 15-15 slides are referred to as the ambiguous perceptual tasks as both squares contain an equal number of dots.

**Conformity Sequence**

The conformity sequence was composed of 3 training and 40 experimental slides. Twenty of the experimental slides consisted of unambiguous tasks; each of these 7-15, 15-7, 12-15, and 15-12 slides were represented by 5 items. Thus, the unambiguous tasks were balanced so that the
sequence did not reflect a position or number preference. The conformity measure was obtained from judgments made on an additional 20 slides 15-15 in the sequence. For 10 of these judgments, the 15-15 slides were presented under an influence condition while 10 identical 15-15 slides were presented under a noninfluence condition.

The two experimental conditions were defined in terms of the order Ss answered on the modified Crutchfield apparatus. In the noninfluence condition, the Ss reported their judgments before the E communicated the apparent answers of the reference group. Information from the Ss judgments in the noninfluence condition constituted a measure of the base tendency of Ss to choose, without the knowledge of the group's judgment, the same alternative that the E attributed to the reference group in the social influence condition. In the influence condition, the Ss answered after the E communicated to the Ss the answers attributed to the peers.

An attempt was made to partially balance the order in which the reference group judgments were communicated on the unambiguous perceptual tasks. Of the 20 unambiguous trials, each S seemingly answered first on 8 trials, second on 7 trials, and third on 5 trials. In addition, on both influence and noninfluence items, both squares were balanced for the number of reinforcements to be administered. Finally, a random selection procedure was used to determine the order
of presentation of the items.

Two measures of conformity and an error rate were derived for each S. First, a raw agreement score was determined for each task by totaling the frequency with which Ss agreed with the simulated group's judgment on the influence trials. However, this uncorrected measure is inflated because it reflects both errors in judgment as well as conformity responses. Studies have demonstrated that if the differential ability of various age children to make correct discriminations is not considered, the relationships between conformity and age are distorted (Iscoe, Williams, & Harvey, 1964; Hoving, Hamm, & Galvin, 1969).

To adjust this raw agreement score, a correction was made to account for perceptual errors committed by the Ss. On each task, a conformity-like response was defined by the Ss choosing on a particular item the same square which the E attributed to the group when that item occurs as an influence condition problem. The corrected measure of conformity was then found for each task by subtracting the number of conformity-like responses each S made on the noninfluence items from the number of times the S agreed with the group's judgment on the influence items. Therefore, on each task the conformity measure involved subtracting the number of conformity-like responses the S made on the noninfluence items from his raw agreement
score.

Procedure:

For each session, the E escorted three children of the same sex from their classroom(s) to the experimental room and seated them in individual cubicles. In each cubicle there was a control box which contained three rows of lights. The top two rows supposedly informed the Ss as to their peer's responses, while the bottom pair of lights indicated the S's own responses. The three pairs of lights were so arranged as to enable the E to label them with a small tag. The first two rows of each S's control box were labeled with the names of the two peers who were seated with him, while the last row remained tagless since it indicated to the S his own answer. A small green light in the upper right-hand corner indicated to the S when he should answer. In addition, there were two lights in the lower right-hand corner, a green light labeled "correct" and a red light labeled "wrong." During the conformity sequence, the E manipulated the apparent choices of the peers with the master control panel. This panel also permitted the E to monitor the Ss' answers on each trial and provide correctness feedback to the Ss by illuminating their "correct" and "wrong" lights appropriately.

After the Ss were seated, a set of standardized instructions were read concurrently with the showing of three training slides. The instructions were as follows:
"You are going to play a new kind of game today, a game in which you press buttons to tell me answers. I want to find out if people can do as well pushing buttons to answer as they do writing answers. Wouldn't it be easier to press a button to answer questions in school rather than writing answers?

I am going to show you pictures which have two squares with dots in them. I would like you to tell me which square has the most dots in it. Instead of writing your answers on paper, I would like you to tell me which square has the most dots in it. Instead of writing your answers on paper, I would like you to press one of the buttons on the boxes in front of you to indicate your answer. So, if you think that square number one has the most dots in it, you will push the button with the number one above it. If you think that square number two has the most dots in it, you will push the button with the number two above it. Now, here is the first problem (slide #1). (E points to the correct square and corrects Ss errors, if any.)

Now, for the next problem, we're going to do something a little different. Listen carefully, the green light in the upper right-hand corner of your box marked "answer" is going to be your signal when to answer. (E turns on green light.) This green light will be your signal when to answer. Do not answer until this light comes on, even if you know the right answer! Also, notice the black patch in front of your box. You are to place your finger, the one you use to push the button, on. Any questions? Fine. Then let's look at another picture. Look carefully because it will only be on for a few seconds (slide #2). (E corrects answers.)

Let's look at one more problem. This one will be a little more difficult. Remember to keep your finger on the black patch and wait for your green light to come on before you answer (slide #3). (E corrects answers.)

On all of the following pictures, I want you to press the button of the square which has the most dots. From now on you will be able to see what answers your classmates choose. If you look at your boxes, you will see three rows of lights. The bottom row belongs to each of you because it lights up when you press your button as you have all seen.

Now, let's talk for a minute about the top two rows of lights on your boxes. These two rows of lights are connected to your classmates' boxes. So that you can tell which row belongs to which of your classmates, I will put their names on the top two rows on your boxes. (E places
places name tags on Ss' boxes.)

Now, let me question you individually to be sure that you understand what the name tags mean. (E walks over to S#1.) Now #1, this top row is #2's; the middle row is #3's; and the bottom row is yours. Now if #2 were to push his button indicating that square number one had the most dots, which light would come on? Now if #3 were to push his button indicating that square number two had the most dots, which light would go on? Fine. In other words, this row is #2's; this row is #3's; and the bottom row is yours. (E repeats the contents of this paragraph to the other two Ss.)"

The above instructions were read to all three treatment groups. The reward conformity group and the reward nonconformity group, however, also received the following instructions:

"Now, I would like you all to look at the two lights in the lower, right-hand corner. Sometimes, but not all of the time, I'll let you know how well you are doing by turning on the green light marked "correct" if your answer is right or by turning on the red light marked "wrong" if your answer is not right. But I will only do this some of the time."

Finally, all three treatment groups received the following closing instructions:

"Before we begin, I will turn up this machine that makes a sound like radio static. This will cover up any noise from outside the room, and you should be able to concentrate better. Everyone look up at the screen now because we'll begin in about ten seconds. Remember to keep your finger on the black patch until your green answer light comes on, then you may push your answer button. From now on, I don't want anyone talking."

After the children finished the conformity sequence, they were thanked by the E and asked to keep what happened in the room a secret until the study was done.
Experimental Design

A repeated measures design was used to indicate any change in conformity which may have resulted from exposing children to one of the different treatment conditions. The repeated measures were the number of corrected conformity responses on the first five influence items (block #1) and the number of corrected conformity responses on the last five influence items (block #2). These corrected scores were subjected to a 3(Grades) X 2(Sex) X 3(Treatments) X 2(Trials) repeated measures analysis of variance. In addition, the control group data was subjected to a 3(Grades) X 2(Sex) X 2(Trials) repeated measures analysis of variance.
RESULTS

There are at least two reasons why children might agree with the group's answer because they desire to conform in the social sense. Second, they may choose the group's answer because, independent of a social influence process, they believe the answer is correct; this type of a response is termed a conformity-like response. To accurately measure conformity, any raw agreement score must be adjusted so that only conformity responses (not conformity-like responses) will be recorded.

To obtain this corrected conformity score, the E had to first derive the S's raw agreement score. This raw agreement score was simply the total number of times each S agreed with the simulated group's judgment on the influence trials. However, both conformity and conformity-like responses were included in this score. These conformity-like responses were defined by the S's choosing, on a particular noninfluence item, the same square which the E attributed to the group when that same item occurred as an influence condition problem. The corrected measure of conformity was then found by subtracting the number of conformity-like responses each S made on the noninfluence items from the number of times the S agreed with the group's judgment on the influence items. Therefore, on each task the conformity measure involved subtracting the number of conformity-like responses the S made on the noninfluence items
from his raw agreement score.

**Analysis of the Control Group**

The corrected conformity scores for the control group were subjected to a 3(Grades) X 2(Sex) X 2(Trials) repeated measures analysis of variance. By examining the control group separately from the reward treatment groups, the relationship between conformity and age was investigated independent of the differential effects of information feedback. A summary of the analysis is presented in Table I.

**Grades.** The corrected conformity means for the second-, fifth-, and eighth-grade control Ss were 5.00, 2.96, and 2.54, respectively. The main effect of age yielded an F value of 5.93 which was significant at less than the .01 level. This result indicated that differences did exist in the overall conformity of various age children when no informational feedback was provided. Individual F-tests revealed that the second-grade control Ss conformed significantly more than the fifth- (1/66, F=37.17, p<.001) and eighth-grade (1/66, F=53.90, p<.001) Ss; the fifth- and eighth-grade Ss, however, did not differ significantly. Although no other effects in Table I were significant, the main effect of trials approached significance (1/66, F=3.35, p<.20).

**Analysis of Treatment Groups**

In order to test the hypothesis that information feedback would be more effective in changing the conformity
behavior of older than younger children, the corrected conformity scores were subjected to a 3(Grades) X 2(Sex) X 3(Treatments) X 2(Trials) repeated measures analysis of variance. A summary of this analysis is presented in Table II.

**Treatments.** The corrected conformity means for the reward-conformity, control, and reward-nonconformity treatment groups were 4.14, 3.50, and 1.28, respectively. The main effect of treatments yielded and F value of 30.41 which is significant at less than the .001 level. A series of individual F-tests showed that the reward-conformity (1/198, F=143.75, p<.001) and control (1/198, F=73.22, p<.001) groups conformed significantly more than the reward-nonconformity group; however, no difference was found between the reward-conformity and control groups. These differences indicated that although information feedback did not have a significant effect in enhancing conformity behavior, it did have a significant effect on nonconformity behavior.

**Grades.** The main effect of age was significant at less than the .001 level with an F value of 7.41. However, this factor is confounded with the treatment groups because the main effect of age does not reflect the differential influences of the treatment conditions. If the treatment groups did alter conformity behavior as proposed, then this term would not be sensitive to any treatment differences.
which might exist. Therefore, little can be said about this factor per se.

**Grades X Treatments.** It was expected that information feedback would be more effective in changing the conformity behavior of older than younger children. Translated into the form of the analysis presented in Table II, such an effect would result in a significant age by treatments interaction. However, the $F$ value for this term, presented in Fig. 1, was a nonsignificant 1.30. Apparently, the treatments did not result in a greater change in the conformity behavior of older groups.

**Grades X Sex X Treatments.** This interaction term, presented in Fig. 2, yielded an $F$ value of 2.39 which approached significance at the .06 level. Further analysis revealed that significant differences were present in the reward-conformity ($F=2.42$, $p<.05$) and control groups ($F=2.30$, $p<.05$). A nonsignificant $F$ of .16 was found for the reward-nonconformity group. In analyzing the reward-conformity group, $F$-tests demonstrated that while the conformity behavior of males was not significantly different over the three grade levels ($F=.94$, $p<.05$), there was a significant difference for females over grade levels ($F=2.58$, $p<.05$). A series of Neuman-Keuls tests on the females in the reward-conformity group revealed that the eighth-grade females conformed significantly less than either the second- ($q=1.67$, $p<.05$) or fifth-grade ($q=2.08$, $p<.01$) female $S$s.
in the reward-conformity group. Finally, a series of 
F-tests revealed that the difference between males and 
females at the fifth-grade level was significant \( F=9.77, 
p<.01 \), while such differences for the second- \( F=1.89, 
p>.05 \) and eighth-grade \( F=1.56, p>.05 \) Ss were not found.

In the analysis of the control group, F-tests revealed 
significant for both males \( F=10.28, p<.01 \) and females 
\( F=9.88, p<.01 \) across the three grade levels. A series 
of Neuman-Keuls tests demonstrated that eighth-grade males 
conformed less than either second- \( q=3.00, p<.01 \) or 
fifth-grade males \( q=1.83, p<.01 \) and that both fifth- 
\( q=1.91, p<.05 \) and eighth-grade \( q=2.91, p<.01 \) females 
conformed less than the second-grade females in the control 
group. Finally, F-tests revealed that fifth-grade females 
conformed less than fifth-grade males \( F=5.63, p<.05 \), and 
that eighth-grade females probably conformed more than 
eighth-grade males (however, this final F-test only ap­
proached significance with an F of 3.51 which is significant 
at the .07 level).

Generally, these results suggest that the large sex 
differences found in the control group disappear when infor­
mation feedback is provided to the Ss. However, since the 
term is only marginally significant, caution should be used 
in interpreting the reliability of this interaction.

Trements X Trials. This term yielded and F value of 
5.10 which is significant at less than the .01 level. This
interaction effect demonstrated that a differential change across trials did exist as a function of treatment groups as seen in Fig. 3. A series of Neuman-Keuls tests performed to analyze the pattern of the interaction revealed that on the second block of trials, the control \((q=1.56, p<.01)\) and reward-conformity \((q=1.92, p<.01)\) groups conformed significantly more than the reward-nonconformity group; the tests on the first block of trials, however, yielded no significant differences. Apparently, learning, defined as a modification in the Ss' performance across trials, occurred in only the reward-conformity group.
DISCUSSION

The purpose of this investigation was to test two hypotheses derived from the social learning theory of children's conformity. These were (1) that conformity is a positive function of age on ambiguous stimulus tasks and (2) that the effectiveness of correctness feedback is greater for older than younger Ss. Neither hypothesis was supported in the present experiment.

In the Introduction of this paper, it was proposed that the reinforcing properties of correctness reward non-conformity on unambiguous tasks and an informational-seeking form of conformity behavior on ambiguous tasks. It was also proposed that the reinforcing properties of correctness increase with age. Accordingly, the prediction was made that conformity would increase with age on ambiguous tasks; that is, older Ss should conform more than younger children on the ambiguous tasks used in the present study. However, the results of the present investigation did not support this hypothesis.

The analysis of variance on the control group did reveal a significant main effect of age. However, the relationship between conformity and age was found to be negative instead of positive as predicted. Individual F-tests demonstrated that the second-grade Ss conformed significantly more than either the fifth- or eighth-grade Ss, while the latter two age groups did not reliably differ.
These results stand in contrast to a number of earlier studies (Hamm & Hoving, 1969; Hoving, Hamm, & Galvin, 1969) which showed conformity to be a positive function of age on ambiguous tasks. Just why the present study failed to confirm the hypothesis that conformity is a positive function of age on ambiguous tasks is unclear. However, two possible explanations should be mentioned which are based on differences between the present study and the two above-mentioned studies.

One obvious difference between the present investigation and the Hoving et al. (1969) and the Hoving and Hamm (1969) studies is the difference in the location of the populations from which the Ss were drawn. These latter studies used children from Ravenna City School District, Ravenna, Ohio, and from a Catholic youth camp located near Akron, Ohio. The present study used urban children from School District 66, Omaha, Nebraska. Generally speaking, the social-economic level for the Nebraska Ss was probably much higher than that of the Ohio Ss. It is possible that some geographical or social variable unaccounted for in this study is responsible for the seemingly contradictory results produced by these studies.

A second explanation is related to the fact that the Hoving et al. (1969) study employed different tasks of varying ambiguity while the present investigation utilized only ambiguous tasks. This result might be interpreted as
suggesting that conformity is a positive function of age only when varying levels of ambiguity are present. However, the Hoving & Hamm (1969) investigation which utilized the ambiguous autokinetic effect also found a positive relationship between conformity and age. Therefore, the presence of varying levels of ambiguity does not, in itself, seem to adequately account for the discrepant results reported by the above studies.

A final explanation, unrelated to the differences cited above, is also possible. If it can be assumed that the reinforcing properties of correctness increasingly gain control of the child's behavior with age, then the conformity of older children would be more affected than younger children by any reduction in the confidence of the group's judgment. Older children might be considered as being more perceptive and suspicious, and therefore, older Ss may have questioned the accuracy of the group's answers more than the younger children. If any doubt or suspicion were present, it would be expected that conformity would be a decreasing function of age. Unfortunately, no further arrangements were made to quantify and thereby test the adequacy of this explanation.

A most serious problem may exist if the Ss were not effectively deceived by the modified Crutchfield answering procedure, and there is an ever present possibility that a considerable number of Ss were not adequately deceived. Inasmuch as significant amounts of conformity and
nonconformity did occur appropriately, it can be argued that the experimental procedure had some general effectiveness. Informal discussions with the Ss after they had been tested seemed to indicate that the younger children were deceived by the procedure. On the other hand, the eighth-grade children were sometimes suspicious of both the purpose of the experiment and the procedure employed. The extent to which the Ss believed in the accuracy of the group's choices which were communicated to them, however, remains a matter of speculation.

The second hypothesis tested by the present study was that the effectiveness of reinforcement feedback would have a greater effect on the conformity behavior of older children. This was tested by the analysis of the treatment groups, and the main effect of treatments was found to be significant ($F=30.41$) at the .001 level. However, a series of individual $F$-tests indicated results which only partially agree with what was expected. Both the control and the reward-conformity groups were found to conform a great deal more than the reward-nonconformity group, while no significant difference was found between the control and reward-conformity group. The mean corrected conformity score for the control group was 3.50. With this relatively high level of conformity by the control group, the procedure employed was not adequate for measuring increases in the conformity level of the reward-conformity group. There was, however,
adequate space for the reward-nonconformity group to decrease its conformity score. Therefore, the lack of a significant treatment effect between the control and the reward-conformity groups seemed to indicate that a ceiling effect seriously reduced the capabilities of this procedure to measure any increase in conformity above the relatively high level attributed to the control group.

The ceiling effect mentioned above also interfered with a test of the grade by treatments interaction (second hypothesis) which is presented graphically in Fig. 1. It again appears that the extremely high level of conformity of the second-grade control Ss seriously impaired the ability of this procedure to measure increases in conformity above the conformity level of the control group.

The significant treatment by trials term demonstrated that a significant change in conformity over trials did exist. The reward-nonconformity group, as predicted, drastically lowered its level of conformity on the second block of trials; this may be taken as a sign that some form of learning took place. The reward-conformity group, however, did not significantly increase its level of conformity above that of the control group. These results are consistent with the lack of a significant reward-conformity and control group difference and are again best explained by the previously mentioned ceiling effect.

Of interest in Fig. 3 is that a significant decrease in
conformity across trials occurs not only in the control groups (1/198, F=22.88, p .01), but also in the reward-conformity group (1/98, F=15.89, p .01) which was predicted to increase, not decrease, its level of conformity. If learning took place in the reward-conformity group, then it would be expected that this group would conform more on the last five trials than on the first five trials of the experiment. The reduction in conformity across trials in the control group suggests that the Ss may not have been wholly deceived by the Crutchfield procedure; that is, the Ss may have had doubts about the accuracy of the information feedback they were receiving, and this may have significantly affected their responses. However, there is no additional evidence to support or reject this possibility.

In conclusion, this investigation did not confirm the hypothesis that conformity is positively related to age on ambiguous stimulus tasks. Secondly, it was found that due to the presence of a ceiling effect, the hypothesis that information feedback should be more effective in changing the conformity behavior of older than younger children was not adequately tested by the procedure employed in this study. Additional tests of these hypotheses should be conducted.

These additional tests should attempt to remedy some of the weaknesses of the present study. If the present
procedure is to be utilized, it would be advisable for the 
E to do a pilot study on the second-grade control group. 
If this group demonstrates the same high level of conform-
ity found in the present investigation, it would be advan-
tageous to utilize a different measure which would allow 
more variability and perhaps be more reflective of differ-
ences in conformity behavior due to informational feedback. 
In addition, a simple questionnaire should be administered 
to find out how effectively the procedure deceived the Ss. 
The question as to whether or not the Ss were deceived 
could then be adequately evaluated.
BIBLIOGRAPHY


### TABLE I

Analysis of Variance of Control Group

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* p .05  
** p .01  
*** p .001
# TABLE II

Analysis of Variance of Treatment Groups

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*p < .05
**p < .01
***p < .001
Fig. 1. Mean corrected conformity as a function of grades and treatments.
Fig. 2. Mean corrected conformity as a function of grade, sex, and treatments.
Fig. 3. Mean corrected conformity as a function of treatments and trials. (Block 1 is the first five experimental trials and Block 2 is the last five experimental trials.)