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THE RELATIONSHIP BETWEEN EGOCENTRISM AND CONFORMITY IN YOUNG CHILDREN

by

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B. A., University of Toronto, 1971

A Thesis
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ABSTRACT

A recently emerging field of study in psychology is that of social-cognitive development. Social-cognitive development may be defined as the study of the child's growing knowledge about his social, human world (Flavell, 1970). The study of such development allows the researcher to examine how cognitive variables mediate social behaviours. For example, it is possible that egocentrism, a cognitive variable referring to the child's inability to take the point of view of another (Piaget & Inhelder, 1956), may be related to social conformity. Conformity may be defined as a change in the behaviours or beliefs of an individual in the direction of some socially imposed norms. As a result, an individual may often forego independence for the sake of group harmony. It appears, from the above definitions, that conformity, or yielding to the point of view of a group, is a social behaviour which would not be emitted by an egocentric child who is unable to take another's point of view. Accordingly, with the decline of egocentrism, the probability of yielding to social influence would increase.

The purpose of the present study was to investigate the relationship between egocentrism and conformity in children. On the basis of Hartup's (1970) suggestion that an egocentric orientation leads to nonconformity, it was hypothesized that a negative relationship would exist between the children's score on a measure of communicative egocentrism and subsequent conformity.

Fifty-two Grade one and Kindergarten children were individually administered tests of intelligence (P.P.V.T.), communicative egocentrism, and conformity. The communicative egocentrism task required

that the child describe novel drawings to a listener who could not see the child. On the conformity task, the child had to judge which of three designs matched a standard. These judgments were made twice. First, the child independently decided which designs matched the standard, and secondly, the child made the same judgments after seeing the judgments of three simulated peers. The measure of conformity consisted of the number of times the child changed his original response to one in accord with the judgments of the peer group.

Contrary to expectation, the results showed that children who exhibited a high degree of egocentrism elicited a greater number of conformity responses. It was also discovered that a negative relationship existed between IQ and conformity. Moreover, those children from three sibling families produced the higher conformity scores as compared to those children with one or two siblings.

One explanation which may account for the greater conformity behaviour of the more egocentric children derives from a recent study by Weinheimer (1972). His investigation considered the relationship between egocentrism and social influence in children. According to Weinheimer, the egocentric child cannot simultaneously acknowledge the existence of two points of view. As a result, during situations involving social influence, the child either centers on his own point of view (responds independently from the group answer) or he centers on the point of view of the peer group (conforms). A three stage hierarchy of decentration skills may account for the children's behaviour in situations of social influence. The first stage may involve the child's centering on only his judgments. Secondly, upon entering school, increased peer interaction may force the child to center on the opinion of others in his environment. Finally, with increased

environmental emphasis on being correct, the child may begin to decenter his perspective and simultaneously take both the judgments of others and his own into consideration. The positive relationship found between egocentrism and conformity suggests that the seven-year-olds in the present study were in stage two of the proposed developmental hierarchy.

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Chapter I

INTRODUCTION

A recently emerging field of study in psychology is that of social-cognitive development. Social-cognitive development may be defined as the study of the child's growing knowledge about his social, human world (Flavell, 1970). The study of such development allows the researcher to examine how cognitive variables mediate social behaviours. For example, it is possible that egocentrism, a cognitive variable referring to the child's inability to take the point of view of another (Piaget & Inhelder, 1956), may be related to social conformity. Conformity may be defined as a change in the behaviours or beliefs of an individual in the direction of some socially imposed norm. As a result, an individual may often forego independence for the sake of group harmony. It appears, from the above definitions, that conformity, or yielding to the point of view of a group, is a social behaviour which would not be emitted by an egocentric child who is unable to take another's point of view. Accordingly, with the decline of egocentrism, the probability of yielding to social influence would increase.

The purpose of the present study is to investigate the relationship between egocentrism and conformity in children. Impetus for this study stems from the work of Hartup (1970) and Costanzo and Shaw (1966) who have hypothesized a negative relationship to exist between egocentrism and conformity.

Background and Theoretical Considerations

The study of the developmental nature of children's conformity began with the work of Berenda (1950). Since that time, three developmental trends have been reported in the literature. Hamm and Hoving (1969; 1971) and Hoving, Hamm and Galvin (1969) have found conformity behaviour to increase with age. On the other hand, Berenda (1950), Hoving (1964), Hoving, et al. (1969) and Hamm (1970 a) have found a negative relationship to exist between conformity and age. The third trend reported in the literature is a curvilinear relationship in which conformity increases to some asymptotic level (approximately between nine and thirteen years of age) and then decreases in adolescence. This has been found by Iscoe, Williams, and Harvey (1963; 1964), Costanzo and Shaw (1966) and Hoving, et al. (1969). A summary of the findings of the research dealing with the conformity-age relationship is presented in Table 1.

Hamm (1970 b), in reviewing previous studies of conformity, has suggested that methodological discrepancies may underlie the different developmental trends reported in the literature. For example, a negative relationship between conformity and age has been found with tasks on which the subject makes few errors when reporting independent judgments on stimuli in which a number of different items are compared to a standard (unambiguous tasks). A positive conformity-age relationship has been reported in studies in which the tasks result in a relatively high degree of error during independent judgments (ambiguous tasks). A curvilinear relationship has been obtained in those studies which have used tasks producing a level of error intermediate between that elicited by ambiguous and unambiguous tasks

Table I

Summary of Studies reporting developmental changes in conformity and the degree of ambiguity employed in these studies.

	AMBIGUOUS	PARTIALLY AMBIGUOUS	UNAMBIGUOUS
Early Childhood (7-9 yrs)	Low conformity: Hamm and Hoving (1969, 1971) Hoving et al (1969)	Low conformity: Barber and Calverley (1963) Iscoe et al (1963, 1964) Costanzo and Shaw (1966)* Costanzo (1970) Zohner (1970) Hoving et al (1969)	High conformity: Messerschmidt (1933) Berenda (1950) McConnell (1963) Hoving (1964) Coon and Odom (1968) Hoving et al (1969) Hamm (1970a) Bishop and Beckman (1971) Janney et al (1969)
	High conformity: Hamm (1970a)	High conformity: Hamm (1970a)	
Late Childhood (9-12 yrs)	High conformity: Hamm and Hoving (1969, 1971) Hoving et al (1969)	High conformity: Barber and Calverley (1963) Iscoe et al (1963, 1964) Costanzo and Shaw (1966)* Zohner (1970) Hoving et al (1969) Costanzo (1970)	Low conformity: Messerschmidt (1933) Berenda (1950) Tuddenham (1961) McConnell (1963) Hoving (1964) Coon and Odom (1968) Janney et al (1969) Query (1968) Hoving et al (1969) Hamm (1970a) Bishop and Beckman (1971)
	Low conformity: Hamm (1970a)	Low conformity: Hamm (1970a)	

Table I Continued

	AMBIGUOUS	PARTIALLY AMBIGUOUS	UNAMBIGUOUS
Adolescence and Adulthood	High conformity: Hamm and Hoving (1969, 1971) Hoving et al (1969) Low conformity: Hamm (1970a)	Low conformity: Barber and Calverley (1963) Iscoe et al (1963, 1964) Costanzo and Shaw (1966)* Zohner (1970) Hoving et al (1969) Costanzo (1970) Hamm (1970a)	Low conformity: Marple (1933) Messerschmidt (1933) Berenda (1950) Tuddenham (1961) McConnell (1963) Coon and Odom (1968) Query (1968) Hamm (1970a) Landsbaum and Willis (1971) Hoving et al (1969)

* The level of ambiguity employed by Costanzo and Shaw (1966) has been defined by Hamm (1970b) as partially unambiguous, (see Appendix A). However, only two errors were made out of a total of 480 judgments, which, according to the definitions given above, render the level of ambiguity in this study to be unambiguous.

(partially ambiguous tasks).

The major weakness of Hamm's interpretation was his post hoc decision concerning the level of ambiguity of the stimuli used. For example, whenever the error rate during independent judgment was not reported, Hamm speculated the level of task difficulty. Moreover, when comparing conformity studies, it would seem difficult, if not impossible, to accurately equate ambiguity across investigations.

On the basis of the results found using the aforementioned levels of ambiguity, Hamm (1970,b) has proposed the following functional analysis of developmental conformity behaviour. Hamm assumed that when unambiguous stimuli were presented, i.e., when a correct answer was clearly evident, it would be more reinforcing for the eleven-to thirteen-year-olds to be correct than to agree with the false alternatives offered by the other members of the group. This was interpreted as being partly due to the increasing environmental emphasis on being correct. However, under ambiguous conditions, where a correct answer was not readily evident, Hamm believed that it would be more reinforcing for the preadolescent to agree with the group. This was because the most readily available clue to the solution of the ambiguous problem was the group's answer.

Seven-to eight-year olds, unlike preadolescents, emit the greatest amount of conformity responses under unambiguous rather than ambiguous conditions. Hamm's only interpretation of the younger children's behaviour was that they were more willing to be wrong. Clearly, this is not an adequate explanation for the finding that conformity is greater under unambiguous conditions than under ambiguous ones. Furthermore, it does not account for the fact that the seven-to

eight-year-olds and the thirteen-year-olds show similar levels of conformity under partially ambiguous conditions.

One interpretation which may account for the similarity between the conformity behaviour of the seven- to eight-year-olds and the thirteen-year-olds may lie in Piaget's (1932) theory concerning developmental changes in the child's conception of the rules of the game. The rules of the game, in this sense, refer to the group decision regarding conduct in a specific situation. This theory may also provide an explanation for the transition in conformity behaviour on ambiguous and unambiguous tasks, evident in children of approximately nine-to eleven-years of age. Constanzo and Shaw (1966) and Hartup (1970) have based their interpretations of the relationship between conformity and age on Piaget's early observations. Piaget has outlined three consecutive stages of the child's moral judgment. The first is represented by the egocentric nature of the child, i.e., although he may be aware of the rules, he does not apply them. His egocentrism is reflected in the inability to take the point of view of another. Thus, the egocentric child plays as if he were alone, even in the presence of other children.

In the second stage, the child conceives of rules as being "sacred and untouchable". For this child, any change in the existing structure of the rules is wrong. By the third stage, the child realizes that rules are established by humans, and, as such, may be altered.

Hartup (1970) has pointed out that Piaget's observations of children's conceptions of rules adequately account for some aspects of the conformity behaviour of children. Hartup, however, deals only with studies reporting a curvilinear relationship and neglects the

positive and negative relationships which have been reported. Moreover, Hartup does not account for the relationship between conformity behaviour and task ambiguity.

According to Hartup, the young egocentric child does not conform because he approaches the problems on his own, unconcerned with the norms set by his peers. The child of approximately seven-to ten-years of age, however, emits the greatest amount of conformity because he reasons that adherence to the norms of the groups is manditory.

The older child, or preadolescent, on the other hand, does not conform to the same degree as the child who is less cognitively mature. This is because the older child realizes that norms are not sacred but rather a product of human consent. He thus feels less constrained to adhere to the norms set by the group. Hamm's analysis of the conformity behaviour of the older children, in terms of social learning theory is not inconsistent with Hartup's application of Piaget's findings concerning the same age group. Once the child has reached the stage of cognitive development at which he realizes the arbitrariness of a group's norms, he is set free, as it were, to conform to the group standard in an ambiguous situation where the group may provide information as to the correct response. On the other hand, he is also cognitively able to disregard the group's incorrect decision in situations in which the correct answer is obvious. In other words, it is possible that the reinforcing properties of being correct and being in agreement with the group become operative in the conformity situation only after the child understands the relativity of the rules of the game.

The major disadvantage of Hartup's analysis is that it does not

deal with the fact that when the stimulus items presented are unambiguous, the child of seven- to eight-years of age conforms more than the child of eleven- to thirteen-years (Hoving, et al., 1969). The conformity behaviour of the eleven- to thirteen-year old has been adequately accounted for by both Hamm's analysis and Hartup's discussion of the rules of the game. However, Hartup's application of the concept of egocentrism to explain the conformity behaviour of the 7-8-year-olds needs further elaboration if it is to adequately account for the behaviour of this age group. One possible explanation for the behaviour of the 7-8-year-olds may be found in the literature dealing with the relationship between egocentric speech and task difficulty.

Piaget (1926) has defined egocentric speech as speech which fails to take into account the needs of a listener. A number of investigators have varied the level of task difficulty in order to study the characteristics of egocentric speech. Luria (1961), Vygotsky (1962), Kohlberg, Yaeger, and Hjertholm (1968) and Deutsch (1970) have found that as the difficulty of the task increases, the amount of egocentric speech increases proportionately. Feigenbaum, Geiger and Gevorsky (1970) have demonstrated that when a child is required to explain a situation about which he is unfamiliar (i.e., adult-adult scenes vs. child-child scenes) there is a resulting rise in egocentric responding.

Generally, then, these studies have indicated that as difficulty or unfamiliarity with the tasks increases, the egocentric speech of the child increases as well. It may be possible to draw a parallel between these findings and the findings concerning conformity behaviour. The age of the youngest group of children employed in conformity research has been approximately seven-to eight-years. At this age most children are typically overcoming their egocentric orientation. Therefore,

In situations of social influence, egocentric responses may be less likely to occur than at an earlier age. However, when the task is ambiguous a possible regression may occur (as it did in the studies of egocentric speech) and thus the egocentric response may also be more likely to occur. That is, for these children, a highly ambiguous situation produces an increased egocentric orientation, which, in turn, results in less conformity.

In summary, then, the conformity behaviour of 11-13-year-old children has been adequately explained by both social learning theory and cognitive maturation. With the realization of the relativity of group norms, this group of children may choose to agree with the group's decision, particularly under ambiguous situations, where the group provides the best clue to the correct answer. Under situations where the correct answer is obvious, these children are free to ignore group judgment and choose the correct response.

The conformity behaviour of 7-8-year-old children appears to be best accounted for by Piaget's notion of egocentrism. The egocentric child fails to take the point of view of another in social situations, a cognitive ability necessary in order to yield to group opinion. Highly ambiguous tasks produce an increase in this child's egocentrism thus leading to a decrease in conformity. Under situations of low ambiguity, however, his declining egocentrism results in more conformity behaviour. This occurs because, under these circumstances, he is more cognitively able to take the point of view of another thus increasing the probability of yielding to that point of view.

A Statement of the Problem

In the present study, the purpose was to investigate the relationship

between conformity, ambiguity of task stimuli and egocentrism. Grade one children (approximately six to seven years of age) were selected as subjects because this age group typically produces the highest variability in the egocentric response (Rubin, 1971). Also, Piaget has found that six or seven years is the approximate age at which children typically overcome their egocentrism. Therefore, a regression towards a more egocentric orientation is more likely to occur at this age rather than at an older age.

Hartup's (1970) suggestion that an egocentric orientation leads to nonconformity was the basis for the first hypothesis. It was hypothesized that a negative relationship would exist between the subjects' scores on a measure of egocentrism and subsequent conformity independent of task ambiguity. Task difficulty was expected to affect the conformity behaviour of some of the subjects. On unambiguous tasks, it was hypothesized that the less egocentric subjects would conform more than the highly egocentric subjects. Assuming that a regression towards a more egocentric response occurs on a difficulty task, it was expected that on the ambiguous tasks the less egocentric subjects would not conform (i.e., remain independent). Less regression was assumed for the highly egocentric subjects and thus it was expected that they would remain independent on ambiguous, as well as unambiguous tasks. These expectations stemmed from the literature unvestigating the relationship between egocentric speech and task difficulty.

A measure of intelligence was also obtained from each subject in this study. The subjects' I.Q. scores were expected to be negatively related to their conformity scores. This hypothesis stemmed from the findings of Crandall, Orleans, Preston and Robson (1958) and Iscoe, et al (1963) who found that the more intelligent subjects exhibited

less conformity. Further, it was hypothesized that a positive relationship would exist between the subjects' I.Q. scores and their egocentrism scores as had been previously found by Kohlberg, et al (1968) and Rubin (in press).

Chapter II

METHOD

Subjects

The sample for this study was drawn from an elementary separate school in Windsor. Forty-seven subjects (26 boys and 21 girls) composed the entire group of grade one students from whom parental consent was received. The oldest 5 students (2 boys and 3 girls) in the kindergarten class of the same school were also selected in order to complete the sample. The mean age of the subjects in this sample was 81.98 months with a standard deviation of 12.92. The age range extended from 75 to 101 months.

Materials

Test of egocentrism. Since Rubin (1971) has demonstrated that the three basic measures of egocentrism, spatial, role-taking, and communicative, interrelate highly, only one measure, communicative egocentrism, was used in this study. The rationale for choosing this particular measure rather than one of the others was because of the ease of administering and scoring involved in this task. The communicative egocentrism measure was based on a test devised by Glucksburg and Krauss (1967).

Two identical sets of 10 nonsense figures (Glucksburg & Krauss, 1967) were drawn on 5 inch x 7 inch index cards. These drawings are presented in Figure 1. The speaker and listener were separated

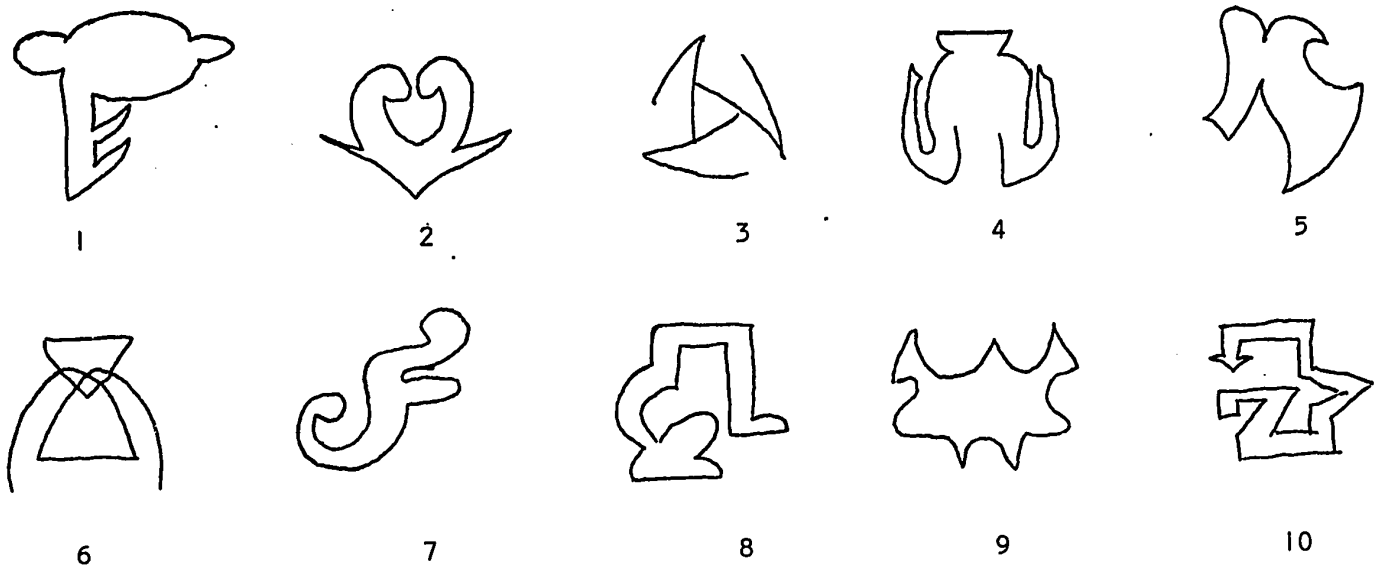


Figure 1. The graphic designs used in the communicative egocentrism task.

visually from each other by an opaque screen.

Conformity task. A wooden box (18 inches x 30 inches x 15 inches) was constructed to contain both the stimulus cards and a power supply. A slot at the front of the box was designed to hold one stimulus card. A total of twenty-four stimulus cards (28 inches x 6 1/2 inches) were used. Four squares (each 5 inches x 3 inches) were drawn on each stimulus card. The squares were outlined in black on a white background. One square, designated the "standard card", was on the left and separated from the rest by 7 3/4 inches. Each of the three remaining cards, designated the "choice cards", were separated from each other by 2 1/2 inches.

Four squares (each 5 inches x 3 inches) were cut from the front panel of the wooden box so that when a stimulus card was placed in the seat, only the four squares drawn on the card were visible. On the box, below each of the right three squares, there were four lights and a pushbutton. The pushbutton was located directly below the bottom right light (see Figure 2). Three of the four lights under each square were controlled by E by means of a control panel located behind the box. The bottom right light was controlled by the S by means of the pushbutton.

The control panel behind the box allowed E to individually illuminate any of the nine pilot lights located on the front panel of the conformity box. Also, three lights were located on the control panel which were illuminated when the S pressed the pushbutton under his choice. The E could, therefore, determine which button S had chosen as each of the three bottom right lights below each of the three right-hand squares were connected to one of the three pilot lights on the control panel.

The twenty-four stimulus cards contained a varying number of dots

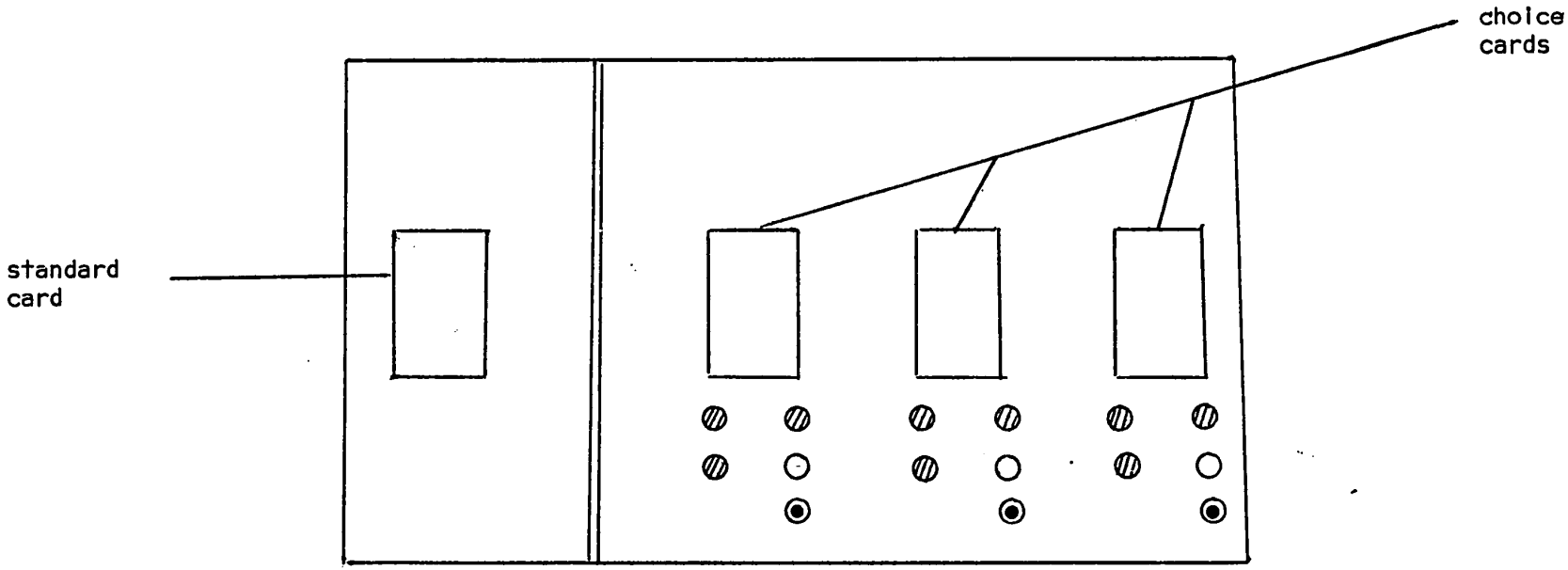


Figure 2. The conformity apparatus

confederate light

subject light

subject pushbutton

arranged in patterns in matrices of various sizes. (An illustration of one stimulus card and a complete description of each card set are presented in Appendix B.) Twelve of the dot patterns were previously determined to be ambiguous, and the remaining twelve were determined to be unambiguous. (The basis for choosing the various dot patterns and the criterion for ambiguity are explained in Appendix C.) Three different designs appeared on the three choice cards. A design identical to one of those appearing on a choice card appeared on the standard card.

Procedure

Each S was seen individually in two half-hour sessions. The Peabody Picture Vocabulary Test (P.P.V.T.) and the test of communicative egocentrism were both administered during the first half-hour session. After these 2 tasks were given to all Ss, the conformity task was then administered individually to each S in the second session.

P.P.V.T. and communicative egocentrism. Each S was individually escorted from the classroom to the experimental room by the E who introduced herself to S and engaged in friendly conversation prior to the administration of the P.P.V.T. After the P.P.V.T. was given, the test of communicative egocentrism was administered to the S in the same session.

The communicative egocentrism task requires that two persons, who can not see each other, communicate with one another about novel, low-encodable, graphic designs. The listener has to select one of the novel figures from the total set of figures on the basis of a

verbal message provided by a speaker. In this study, the S played the role of the "speaker" and the E served as the "listener".

Both speaker and listener had identical sets of the ten nonsense figures referred to in the Materials section. The speaker, who was visually separated from the E, had his ten cards turned faced down in a pile in front of him. The E then instructed S as follows:

> The idea of this game is for us to match as many of our cards together as possible. However, since you cannot see my cards, and I cannot see yours, the only way we can match them is if you tell me all you possibly can about each of your cards.

The S then proceeded by describing one card at a time.

All conversation was tape recorded and transcribed such that the mean number of distinctive features per item could be computed from S's response. An example of a distinctive feature is, "The top part (of the figure) is shaped like a lemon" (Rubin, 1971 - see Figure 1, number 1).

In addition, each subject was required to recommunicate his description of each card to E. The E followed the S's description of each card by replying, "I don't understand which one you mean, can you tell me more about it?"

The S's recommunication was scored as follows:

0 = silence

1 = repetition of first description, i.e., egocentric

2 = modified description -- a modification of the first description

3 = new description -- S likens the referent to a different object.

From the transcript, the S's mean "Glucksburg-Krauss" score per item was computed. The mean number of distinctive features per item

was added to the "Glucksburg-Krauss" score to give the total communicative egocentrism score. A low communicative egocentrism score indicated a high degree of egocentrism.

Conformity task. The second session occurred approximately ten days after the initial testing. The S was taken to the same room and was seated in front of the conformity box. A practice card was inserted into the box by E. The E was seated next to S and instructed S as follows:

> Today we're going to play a matching game. Do you see this picture here on the left? (E pointed to the standard card). Well, one of these 3 pictures (E pointed to each of the 3 choice cards individually) has the very same design as this picture here on the left (E pointed to it again). I want you to choose the card which is the very same. Do you understand?

The instructions were repeated if S indicated that he did not understand. The S was then told:

> When you have picked the card that is the very same as the one on the left, push the button below your choice (E showed S where the buttons were located). When you push the button the light will flash.

If S failed to select the correct card, E demonstrated why his choice was incorrect. The second practice card was then inserted into the box and S was instructed:

> Here is another card. I want you to choose the card that is the very same as this one on the left as you did with the first card. After you choose the card, push the button below your choice.

Each S was required to make 2 consecutive correct responses before the test trial began. Once S had performed to criterion E went back behind the box and inserted the first test card. The S was instructed:

> Now let's play the same matching game with different cards. Remember to choose the card that is the very same as the one on the left, as you did before.

There were two conditions in this task; an "alone" and an "influence" condition. In the "alone" condition, the S was presented with each of the 24 stimulus cards (the standard card and the three choice cards). The initial order of presentation of the 24 cards was determined beforehand by a table of random numbers. Each S received the same presentation order. There were several restrictions concerning the order of presentation. The correct choice card of each ambiguous and unambiguous stimulus card appeared equally in the left, middle and right window of the conformity box (i.e., twice in each window) and both ambiguous and unambiguous choice cards occurred six times in each block of 12 trials.

After S had completed the 24 stimulus items of the "alone" condition, the same 24 items were presented again to the S in the "Influence" condition. The first stimulus card inserted into the conformity box was a practice card and the S was instructed as follows:

> Now we are going to play this matching game a little bit differently. Before you decide which of the three cards is the very same as the one on the left, I am going to show you which card 3 other grade one children thought was the correct answer. Here is the one that Bobby chose (E flashed a light below a card). Do you see Bobby's light? Now here is the one that Kenny chose. Do you see his light go on? Now here is the one that Frankie chose. Do you see his light go on? Now that you can see which card Bobby, Kenny, and Frankie chose, you go ahead and make your choice as before. I still want you to pick the one that you think is right. Which one do you choose?

The 24 test items were then individually inserted into the slot and before the S responded, he was told:

> Remember, before you make your choice, wait until you see the other children's choices. Now, here is the one that Bobby chose, here is Kenny's choice and here is Frankie's choice.

If the S was female, the same instructions were given, except the names of the children were Margy, Laura, and Pattie, in the place of boys names.

The presentation order of the 24 stimulus cards was determined beforehand, as in the "alone" condition, by a table of random numbers. The same restrictions on the presentation order were included in the "influence" condition as indicated in the description of the presentation order of the "alone" condition. Moreover, in the "influence" condition, there were 12 critical trials in which the 3 simulated peers chose the incorrect choice cards. In the 12 critical trials, the correct choice card appeared equally in the middle, left and right windows for ambiguous and unambiguous items (i.e., twice in each window). Also, a critical trial could not occur more than three consecutive times.

On trials in which an incorrect choice was simulated, half of the Ss were told one of the two nonmatching stimuli was correct and the other half were told the second of the two nonmatching stimuli was correct (i.e., half were told the A stimuli was correct and half were told the B stimuli was correct).

Chapter III

RESULTS

In this study there were three dependent measures of conformity. The first measure was the total conformity score. This consisted of the total number of times S changed his original decision to agree with the incorrect judgments of the group. The second measure was the conformity to ambiguous items score. This measure included the number of times S changed his original decision to agree with the group's incorrect choice on the ambiguous items. The third measure was the conformity to unambiguous items. This third measure was derived from the number of times S changed his original response to agree with the incorrect group choice on unambiguous items. Each of Ss' scores on the three dependent measures of conformity are presented in Appendix E.

In addition, each S received three scores on the measure of communicative egocentrism. The total egocentrism (T.C.E.) score was derived from the sum of S's mean distinctive features (D.F.) score and the mean recommunicative score. To determine interjudge scoring reliability, two scorers rated 12 randomly selected communicative egocentrism transcripts. The correlations between ratings were .83 on the D.F. scores, .97 on the Recommunicative scores, and .93 on T.C.E. scores. All were significant at well beyond the .001 level. The mean distinctive features score for all the Ss was 1.17 with a S.D. of .65. The mean recommunicative score was 1.11 with a S.D. of .64. The mean total communicative egocentrism score was 2.28

with a S.D. of 1.00. Each of Ss' scores on the egocentrism measure are also presented in Appendix E.

The percent error made on each of the twenty-four stimulus items in the alone condition is presented in Appendix F. The mean error rate of the ambiguous and unambiguous items was 11.7 percent and 1.8 percent, respectively. As previously mentioned, ambiguity was determined in an earlier pilot study, (see Appendix C). The mean pre-experimental error rates for the same items were 48.5 percent for the ambiguous items and 5.9 percent for the unambiguous ones. Although the mean pre-experimental error rates are considerably higher than those obtained in the present study, a non-parametric Wilcoxin Matched-Pairs Signed-Ranks Test (Siegel, 1956, p. 75) indicated that the Ss made significantly more errors on the ambiguous items than on the unambiguous items ($z = -5.17$, $p < .001$).

Non-parametric statistics were used to analyze all of the conformity data. This was because the conformity scores were bimodally distributed and because there were a large number of zero scores.

I. Relationships between Egocentrism and Conformity

a) Total communicative egocentrism score and conformity. To further investigate the relationship between egocentrism and conformity, a Median test (Conover, 1971, p. 167) was calculated. The total communicative egocentrism (T.C.E) scores were divided into three groups composed of 15 scores each. Ss who received a T.C.E. score between .20 and 1.80 were placed in the high egocentrism group. Those Ss who scored between 2.00 and 2.60 were placed in the middle egocentrism group. Ss who received a score of 2.90 to 5.10 were placed in the low egocentrism group. Due to the fact that there were 15 scores

per group, the scores of seven of the 52 subjects were not included in the analysis. These seven scores were located between the low and middle egocentrism groups and between the middle and high groups. These scores were discarded in order to establish a sharper distinction between the three groups and to maintain an equal number of scores in each group.

The number of errors made in the "alone" condition for the Ss in the three egocentrism groups were first compared. No significant differences among the groups were found.

The conformity scores of the three egocentrism groups were then compared. The median test indicated that the total conformity scores were significantly different for the three groups ($T = 9.51$, $df = 2$, $p < .01$). The distribution of total conformity scores above and below the median are presented in Table 2. Follow-up median tests indicated that the high egocentrism group conformed significantly more than the low egocentrism group ($T = 8.60$, $df = 1$, $p < .005$). The middle egocentrism group was not significantly different from either the high or low group. (See Appendix G for a comparison, among the three egocentrism groups, of the distribution of conformity scores about the median.)

The same pattern of results was found for the conformity to ambiguous item scores. High, middle and low egocentrism groups of the three groups produced a significant effect ($T = 9.51$, $df = 2$, $p < .01$) (Table 2). Follow-up median tests revealed that the high egocentrism group conformed significantly more than the low egocentrism group ($T = 8.60$, $df = 1$, $p < .005$). Once again, the conformity scores of the middle group were not significantly different from the high or low groups (Appendix G).

The conformity to unambiguous items scores also produced a

Table 2

Distribution of Conformity Scores About the Median for the Three T.C.E. Groups

Group		T. C. E. Score		
		Low	Middle	High
I. Total Conformity Score	> Median	3	5	11
	⩽ Median	12	10	4
II. Conformity to Ambiguous Items Score	> Median	3	5	11
	⩽ Median	12	10	4
III. Conformity to Unambiguous Items Score	> Median	3	4	9
	⩽ Median	12	11	6

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

significant difference among the three egocentrism groups (T = 6.00, df = 2, $p < .05$) (Table 3). Follow-up median tests indicated that a non-significant trend existed between the low and high groups (T = 3.40, df = 1, $p < .10$). In this case, as with the other measures of conformity, the middle egocentrism group was not significantly different from the high or low groups (see Appendix G).

b) Distinctive features scores and conformity. The distinctive features (D.F.) scores were also divided into three groups composed of 15 scores each. As before, seven scores were not included in the analysis. Ss who received a D.F. score of .00 to .90 were placed in the high egocentrism group. Ss who scored between 1.00 to 1.30 composed the middle egocentrism group. Those Ss who received a score of 1.50 to 3.20 were placed in the low egocentrism group.

The median test used to compare the total conformity scores of the three groups revealed that there was a significant difference among the groups (T = 9.10, df = 2, $p < .025$). (See Table 3 for the distribution of total conformity scores about the median). Follow-up median tests indicated that the high egocentrism group conformed more than the low egocentrism group (T = 6.65, df = 1, $p < .01$). The total conformity scores of the middle group did not differ significantly from the high or low groups (Appendix G).

Conformity to ambiguous items was significantly different for the three levels of egocentrism (T = 9.10, df = 2, $p < .025$) (Table 3). Follow-up tests showed that the high egocentrism group, once again, produced significantly more conformity than the low egocentrism group (T = 6.65, df = 1, $p < .01$). Also, the middle group did not differ significantly from the high or low groups (Appendix G).

Conformity to unambiguous items was also significantly different

Table 3

Distribution of Conformity Scores About the Median for the Three D.F. Groups

Group		D. F. Score		
		Low	Middle	High
I. Total Conformity Score	> Median	3	8	10
	< Median	12	7	5
II. Conformity to Ambiguous Items Score	> Median	3	8	10
	< Median	12	7	5
III. Conformity to Unambiguous Items Score	> Median	2	7	10
	< Median	13	8	5

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

for the three egocentrism groups ($T = 9.23$, $df = 2$, $p < .01$) (Table 3). Follow-up tests revealed that the high egocentrism groups conformed significantly more than the low egocentrism group ($T = 8.94$, $df = 1$, $p < .005$). The middle group also conformed more than the low egocentrism group ($T = 3.96$, $df = 1$, $p < .05$). The scores of the middle group, however, were not significantly different from the conformity scores of the high group (Appendix G).

c) Recommunicative score and conformity. As with the T.C.E. and D.F. scores, the recommunicative scores were divided into three groups composed of 15 scores each. Once again, seven scores were not included in the analysis for the reasons mentioned above. Those Ss who received a recommunicative score between .00 and .70 were placed in the high egocentrism group. Those Ss who received a score of .80 to 1.40 composed the middle egocentrism group. The low egocentrism group was made up of scores between 1.60 and 2.50.

Median tests computed among the three egocentrism groups revealed that no significant main effect existed for total conformity scores, conformity to ambiguous items scores, and conformity to ambiguous items scores (see Table 4). Follow-up median tests were then computed to test for differences among the three groups as were previously found for the other two measures of egocentrism.

There was a non-significant trend which indicated that, for total conformity scores, the high egocentrism group conformed more than the low egocentrism group ($T = 3.36$, $df = 1$, $p < .10$) (Appendix G).

On the ambiguous items, the high egocentrism group conformed significantly more than the low egocentrism group ($T = 4.86$, $df = 1$, $p < .05$). Also, the middle group conformed more than the low egocentrism group ($T = 4.86$, $df = 1$, $p < .05$) on the measure of conformity to ambiguous items (Appendix G).

None of the follow-up median tests for conformity to unambiguous items

reached significance.

Table 4

Distribution of Conformity Scores About the Median for the Three Recommunication Groups

		Recommunication Score		
		Low	Middle	High
I. Total Conformity Score	> Median	3	7	7
	< Median	12	8	8
II. Conformity to Ambiguous Items Score	> Median	3	7	7
	< Median	12	8	8
III. Conformity to Unambiguous Items Score	> Median	4	7	5
	< Median	11	8	10

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

II. Egocentrism, Level of Task Ambiguity and Conformity Within Groups

For the purpose of investigating the relationship between egocentrism, level of task ambiguity, and conformity, the data were subjected to the following analysis. Wilcoxin tests were computed on the conformity scores to ambiguous and unambiguous items for each of the three T.C.E. groups. The results indicated that the Ss conformed significantly more to the ambiguous items than the unambiguous ones in the low egocentrism group ($T = 4.0$, $p < .0025$); in the middle egocentrism group ($T = 11.0$, $p < .025$); and in the high egocentrism group ($T = 5.0$, $p < .005$).

III. Intelligence and Egocentrism

Each of Ss' scores on the P.P.V.T. (both M.A. and I.Q.) are presented in Appendix E. The mean I.Q. was 103.62 with a S.D. of 10.97. Pearson product-moment correlations between I.Q. and the three measures of egocentrism are presented in Table 5. All correlations were non-significant.

The relationship between intelligence and egocentrism was further examined by means of a simple one-way analysis of variance computed on the I.Q. scores of the Ss in the three T.C.E. groups. (See Table 6.) The groups were significantly different from each other ($F = 5.89$, $df = 2/42$, $p < .01$). Follow-up Newman-Keuls analysis indicated that the middle egocentrism group had a significantly higher mean I.Q. score than both the high egocentrism and the low egocentrism group (Table 7). The low and high egocentrism groups did not differ significantly.

IV. Intelligence and Conformity

To examine the relationship between conformity and intelligence,

Table 5

Product-Moment Correlations between C.A., I.Q., Number of Siblings and Egocentrism

			Egocentrism		
	I.Q.	No. of Sibs	D.F.	Rec.	T.C.E.
C.A.	.71*	.22	.24	.07	.21
I.Q.		-.23	.12	.20	.21
No. of Sibs			.02	-.02	.00
Egocentrism: D.F.				.22	.78*
Rec.					.78*

* $p < .01$

Table 6

Analysis of Variance

Level of T.C.E. and I.Q. Score

Source	df	MS	F
Among	2	440.36	5.89*
Within	42	74.81	
Total	44		

* $p < .01$

Table 7

Post Hoc Newman-Keuls Analysis of Differences between I. Q. Scores for Each of the Three Levels of T. C. E.

$\bar{x}$ =	High 99.00	Low 102.60	Middle 109.27
Low	3.60		
Middle	10.27 *	6.67*	
	7.67	6.38	

* $p < .05$

the I.Q. scores were divided into three groups of 15 scores each. Seven scores were eliminated from further analysis as they were in the egocentrism groups. Those Ss who received a score of 78 to 96 were placed in the low I.Q. group. Ss receiving a score of 100 to 108 composed the middle I.Q. group. Ss who scored between 111 and 127 were placed in the high I.Q. group. Median test were then computed on the data.

The total conformity scores of the three I.Q. groups were significantly different ($T = 7.28$, $df = 2$, $p < .05$ (Table 8). Follow-up tests indicated that the low I.Q. group conformed significantly more than the high I.Q. group ($T = 7.07$, $df = 1$, $p < .01$). Also the middle I.Q. group conformed significantly more than the high I.Q. group ($T = 4.00$, $df = 1$, $p < .05$). The middle and low I.Q. groups were not significantly different from each other (Appendix G).

Conformity to ambiguous items produced a significant difference among the three I.Q. groups ($T = 7.28$, $df = 2$, $p < .05$) (Table 8). The follow-up median tests, revealed differences at the .10 level to exist between the low and high I.Q. groups ($T = 3.36$, $df = 1$) and between the middle and high I.Q. groups ($T = 3.36$, $df = 1$) Appendix G).

Median tests revealed no significant differences to exist between the three I.Q. groups on the measure of conformity to unambiguous items (Table 8). The follow-up tests also revealed no significant differences (Appendix G).

V. Number of Siblings and Conformity

In order to investigate the relationship between number of siblings and conformity, each subject was asked how many brothers and sisters he had. The number of siblings of each S is presented in Appendix E. The Ss were divided into three groups on the basis of the number

Table 8

Distribution of Conformity Scores About the Median for the Three I.Q. Groups

Group		I. Q. Score		
		Low	Middle	High
I. Total Conformity Score	> Median	9	7	2
	< Median	6	8	13
II. Conformity to Ambiguous Items Score	> Median	9	7	2
	< Median	6	8	13
III. Conformity to Unambiguous Items Score	> Median	6	7	3
	< Median	9	8	12

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

of siblings in the family. Those Ss who had one to two siblings (N = 20) composed Group 1. Ss with three siblings (N = 14) were placed in Group 2. Ss with four or more siblings (N = 18) were placed in Group 3. All Ss were included in the analysis.

The distribution of total conformity scores above and below the median for each of the three family sizes is presented in Table 9. Median test revealed that a non-significant trend existed between the three groups for total conformity ($T = 5.73$, $df = 2$, $p < .10$). Follow-up tests indicated that the group with three siblings conformed significantly more than the group with one to two siblings ($T = 4.97$, $df = 1$, $p < .05$). The group with four or more siblings conformed more than the groups with one to two siblings at the .10 level ($T = 3.79$, $df = 1$). Group 2 and 3 were not significantly different (Appendix G).

Once again a non-significant trend existed between the three groups on conformity to ambiguous items scores ($T = 5.73$, $df = 2$, $p < .10$) (Table 9). As with the total conformity scores, follow-up median tests revealed that Group 2 conformed significantly more than Group 1 ($T = 4.97$, $df = 1$, $p < .05$) and Group 3 conformed more than Group 1 at the .10 level ($T = 3.79$, $df = 1$). No significant differences existed between Groups 2 and 3 (Appendix G).

Conformity to unambiguous items showed a slightly different pattern of results. The three groups were significantly different from each other on this measure of conformity ($T = 7.08$, $df = 2$, $p < .05$) (Table 9). Follow-up tests indicated that Group 2 conformed more than Group 1 ($T = 6.83$, $df = 1$, $p < .01$). Group 3 conformed more than Group 2 at the .10 level ($T = 3.04$, $df = 1$). No significant differences existed between Groups 1 and 3 (Appendix G).

Table 9

Distribution of Conformity Scores About the Median for the Three Family Sizes

Group		Family Size		
		1-2 Sibs	3 Sibs	4 or more Sibs
I. Total Conformity Score	> Median	4	8	9
	< Median	16	6	9
II. Conformity to Ambiguous Items Score	> Median	4	8	9
	< Median	16	6	9
III. Conformity to Unambiguous Items Score	> Median	4	9	6
	< Median	16	5	12

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

VI. Sex and Egocentrism, Conformity and I.Q.

To examine the existence of sex differences on the three measures of egocentrism, t tests were computed to compare male and female T.C.E. scores, D.F. scores, and Recommunicative scores. All tests indicated that there were no significant sex differences. The means and S.D.s for the male and female Ss for T.C.E., D.F., and Recommunicative scores are presented in Table 10.

A median test was computed in order to compare the number of errors made by male and female Ss in the "alone" condition. No significant differences were found.

Median tests were also computed to compare male and female scores on the three measures of conformity. No significant differences were found in conformity as a function of sex.

Finally, the I.Q. scores of the male and female subjects were compared by means of a t test. The boys had a mean I.Q. of 105.82 and a S.D. of 10.94. The girls' mean I.Q. was 101.04 with a S.D. of 10.90. The difference between the scores was not statistically significant.

Table 10

Means and Standard Deviations by Sex for D.F.,

Recommunication and T.C.E. Scores

	D. F.	Rec.	T. C. E.
Male (N = 28)			
Mean	1.26	1.09	2.35
S.D.	.54	.60	.86
Female (N = 24)			
Mean	1.12	1.17	2.29
S.D.	.70	.64	1.04

CHAPTER IV

DISCUSSION

The purpose of this investigation was to examine the relationship between egocentrism and conformity in seven-year-old children. It was predicted that a negative relationship would exist between the incidence of conformity behaviours and egocentrism. This prediction stemmed from Hartup's (1970) interpretation of the findings concerning the conformity behaviour of young children. Generally, it had been found that seven-eight-year-old children did not conform when confronted with ambiguous and partially ambiguous tasks, (e.g., Costanzo & Shaw, 1966; Hoving, et al., 1969). The hypothesis was not confirmed. In fact, the results of this experiment indicated that there was significantly more conformity behaviour in those children who exhibited the most egocentrism on a measure of communicative skill.

One explanation which may account for the greater conformity behaviour of the more egocentric children derives from a recent study by Weinheimer (1972). His investigation considered the relationship between egocentrism and social influence in children. Weinheimer's social influence manipulation was designed such that three different responses for each stimulus array were possible. The first type of response was a "conformity" response in which the S rejected his own judgment for that of another's. The second type of response was an "independent" response in which S rejected another's judgment as incorrect and retained his own as the only possible asnwer. The third type of response was a "reconciliation" response in which S accepted both his own and another's judgments as possible solutions to the problem. The latter response was the

correct response since the stimuli were arranged such that only a part was visible to S. Since certain aspects of the stimuli were not visibly available to him, S thus had to acknowledge that his own judgments and the other's could be correct.

Weinheimer (1972) found that the Ss' reconciliation scores were positively related to their scores on a measure of role-taking egocentrism. Thus, the less egocentric the subject was, the more reconciliation responses he emitted.

According to Weinheimer, then, the child's egocentrism is reflected in both conformity and independence on the measure of social influence. This occurs because the egocentric child can only center on a single aspect of a situation of a time. In Weinheimer's social influence manipulation, the egocentric child either centered on his own point of view or that of the other's.

The predictions that follow from Weinheimer's and Hartup's analysis of the effect of egocentrism on conformity behaviour are, of course, inconsistent. Hartup (1970), for example, stated that the egocentric child would not conform because he centered on only one point of view--his own. Hartup did not acknowledge the possibility that the egocentric child, unable to simultaneously consider two points of view, could choose to focus on another's judgments rather than his own. The inability to decenter, in this case, would lead to conformity behaviour.

As stated previously, Weinheimer's (1972) analysis of the behaviour of egocentric children leads to the expectation that both independence and conformity would result. Therefore, no consistent relationship

between egocentrism and conformity could be expected with the type of task used in the present study. However, it was found that egocentric seven-year-old children conformed significantly more than their less egocentric agemates. This finding is not surprising when one considers the ambiguity level of the tasks involved. The average percent error on the items defined as ambiguous in this study was 11.7 percent. This level of difficulty is generally comparable to the difficulty level previously employed in studies using unambiguous tasks. For example, Hoving, et al. (1969) selected items on which Ss produced 1, 20, and 50 percent error as the unambiguous, partially ambiguous and ambiguous items, respectively. Those studies which have employed unambiguous tasks have found that seven-eight-year-old children conformed more than ten-eleven-year-olds (e.g., Berenda, 1950; Hoving, et al., 1969). Thus, on simple tasks seven-year-olds conform more than ten-year-olds. Moreover, among the seven-year-olds in the present study, those who were more egocentric conformed to a greater degree. It cannot be stated, then, that independence and conformity are equally likely to occur among seven-year-olds, as the Weinheimer (1972) analysis would indicate.

Thus, the findings of the present study suggest that there may be three sequential stages in the child's decentering of his egocentric orientation. In the first stage, the young child may center on his own judgments. This form of centration would result in independent behaviours. As the child matures and begins to attend school, the amount and importance of peer interaction increases. The centre of attention may shift from the child himself to other children and adults in his environment. This

form of centration may result in increased conformity and a simultaneous decrease in independent responses.

Finally, with continued cognitive growth, as well as an increased environmental emphasis on being correct, the child begins to decenter. He is able to reconcile both his own judgments and those of others in his decision making processes. The child's behaviour under conditions of social influence becomes dependent on the nature of the situation. As previously discussed, social learning theory adequately accounts for the behaviour of the cognitively mature child. Conformity becomes self-reinforcing under highly ambiguous situations where the group's response is the best clue to the correct answer. Under unambiguous situations, independent behaviour is more reinforcing since the solution to the problem is self-evident.

The egocentric seven-year-olds in the present study may be in the second stage of the proposed egocentric decentration hierarchy. If this is truly the case, then the proposed hierarchy would explain the greater conformity behaviour of the egocentric children as compared to their less egocentric agemates.

Theoretical impetus for the suggested developmental sequence of the decentration of egocentrism stems from the work of Feffer (1959; 1970), Looft (1972) and Rubin (in press). These investigators were concerned with the relationship of various forms of decentration. Rubin (in press), for example, has found that egocentrism and conservation skills are highly interelated and represent a single developmental factor. This factor was labelled "decentration." It may be that the development of

egocentrism is analogous to that of conservation. For example, the development of conservation skills in young children has generally been thought to involve three stages (Flavell, 1963). During the first two stages the child vascillates between a centering on one of the two changing aspects of the situation. Thus, in a typical conservation of discontinuous quantity task, the non-conserver shifts his attention from the height to the width of the container, but fails to simultaneously take both situational cues into consideration. The conserver, on the other hand, decenters and acknowledges the reciprocal changes in height and width. He thereby conserves the equality of the transformation. Given that egocentrism and conservation are highly related developmental variables, it may follow that the processes of decentration would be similar in both. Thus, the three stage notion of egocentrism offered above is indirectly supported through its relationship with conservation.

Further support for the suggested ordering of the stages of egocentrism arises from the differential conformity behaviour of young children on ambiguous and unambiguous problems. Seven-eight-year-old children have previously been found to conform on unambiguous tasks. However, children of this age group do not conform, i.e., they remain independent, on ambiguous tasks (Hoving, et al., 1969). These findings suggest a regression of centration responses during frustrating or ambiguous situations. This is consistent with earlier studies of egocentrism in which highly ambiguous tasks increased the quantity of egocentric utterances (Luria, 1961). Thus, the increased independence of seven-year-olds on ambiguous tasks suggests that a regression from alter-centered to less mature, ego-centered responses occurs as a function of task difficulty.

Finally, it must be added that the proposed hierarchy of egocentrism in childhood is probably highly situation specific. In social situations where cues are readily discernible and highly familiar, children may overcome their inability to decenter at an early age. Thus, for example successful identification of facial expressions, an activity requiring role-taking skills, has been found to exist among three-year-olds (Borke, 1971). In this case the relevant cues were highly specific and readily identifiable. However, in the present conformity study, the cues indicating the judgments of the simulated peers, although very salient, would not be as familiar to the children as facial expressions. Therefore, it would appear likely that children would pass through the suggested developmental hierarchy at a later age on social influence tasks. On tasks involving spatial role-taking skills, the cues necessary to perform the task successfully are often very subtle and not mastered until a later age (Rubin, 1971). Thus, it may be that children pass through the suggested hierarchy at still a later age for tasks of spatial role-taking.

It appears possible that a horizontal decalage, analogous to that found for Piagetian conservation tasks, may exist in the child's ability to decenter during potentially social situations. The specific task used in studies of egocentrism appears to be a crucial factor in determining whether or not young children will demonstrate the ability to decenter.

Intelligence was also found to be a significant factor in conformity behaviour. Those children with the highest I.Q. scores conformed the least. This finding is consistent with previous research in which the amount of conformity has been found to be negatively related to I.Q. (e.g., Crandall,

Orleans, Preston, & Rabson, 1968; Iscoe, et al., 1963). Unfortunately, since non-parametric statistics had to be used to analyze the data, I.Q. could not be partialled out from theegocentrism-conformity relationship.

Surprisingly, the present study found no significant relationship to exist between I.Q. and egocentrism. This had been found previously by Kohlberg, et al. (1968) and Rubin (in press). One possible explanation for the failure to find a relationship between these two variables may lie in the validity of the P.P.V. T. The P. P. V. T. only tests verbal ability and thus may not be a sufficient indicator of the child's intellectual capacities. For example, no quantitative cognitive skills are tested which may be related to those skills implied in the typical Piagetian test.

One incidental finding worth noting was the positive relationship found to exist between the number of siblings in the family, and conformity behaviour. Children with three siblings conformed significantly more than those children with two or less siblings. A nonsignificant trend indicated that those children with four or more siblings were more similar in their conformity behaviour to those children with three siblings. Previous conformity research has indicated that the presence of three confederates is sufficient to elicit the group pressure necessary to produce conformity behaviour (Asch, 1951).

Families with four or more children may provide an analagous situation to that produced by the three confederates. In the presence of group pressure, represented by the other members of the family, the dominant mode of response for the child may be conformity. Children with one or two siblings, on the other hand, may not be faced with enough pressure to conform when opposition eminates from only two.

In conclusion, the results of the present study indicate that social conformity may be mediated by egocentrism. Since this was a correlational study, a cause-effect relationship between the two variables can only be postulated. In seven-year-old children, an egocentric orientation was found to be positively related to conformity on relatively unambiguous tasks. The findings of this study suggest the need for future research in this area.

For example, a developmental study might be undertaken to compare the behaviour of preschool children with that of grade one and grade four students. The stage sequence of egocentricity offered above could then be tested as it related to conformity. Also, in order to more fully investigate the effect of task ambiguity, stimulus items which produce at least a 50 percent error rate should be used in this suggested developmental study.

Finally, as Weinheimer (1972) has demonstrated, a task which allows for a reconciliation response, as well as conformity and independence, should be utilized. This would allow the investigator to determine the nature of independent responses. The researcher would be able to distinguish between an egocentric lack of acknowledgement of the other's opinion or a more cognitively mature consideration of the incorrectness of the other's judgment. Weinheimer's social influence manipulation, as described above, appears to be a useful task in that it allows for all three types of responses to be recorded.

APPENDIX A

REVIEW OF LITERATURE

The following review of literature will focus upon two areas of concern in the study of conformity: (a) methodology and (b) developmental changes of conformity with age.

Methodology

Early sociological investigations of the study of conformity and peer pressures has lent much to the understanding of group functions. The techniques typically employed to study gang and group pressure include case history reports and observational studies (Thrasher, 1927). Also used were sociometric data, status hierarchy maps (Whyte, 1943; Coleman, 1961), questionnaires and taped interviews (Hollingshead, 1949).

The methodology employed in these studies, although informative, lacks experimental control. Questionnaire data may often be misleading in that respondents may falsify their answers. Observational techniques also present problems in that they lend themselves to the subjectivity of the investigator.

The pioneer efforts of Sherif (1935), Asch (1951), and Crutchfield (Krech, Crutchfield & Ballachey, 1962) have led to the development of the three most widely used techniques for the study of conformity behaviour under controlled experimental settings. These techniques have been used in the investigation of both adult and child conformity.

Sherif's (1935) classical experimental study of conformity in adults utilized the autokinetic effect. The subject was placed alone in a dark room and asked to make individual judgments as to the extent to which a single dot of light moved. Subsequently, subjects were placed in groups of two and three and what typically occurred was the convergence of individual judgments around a group mean.

The "Asch technique" (Asch, 1951, 1952, 1956) represents another classical paradigm that has been used in the study of compliance behaviour. This technique involves two conditions; (a) an alone condition and (b) a condition of social influence. In the alone condition, the subject was asked to individually match one of three lines to a standard line. The social influence condition involved the subject and a number of confederates. The confederates' responses were prearranged by the experimenter. Judgments were made sequentially, with the confederates responding before the subject. On the "critical" trials, the confederates gave unanimously incorrect answers. Asch found that approximately one third of the subjects complied with the judgments of the confederates.

The third classical conformity paradigm is the Crutchfield technique (Krech, Crutchfield & Ballachey, 1962). This technique was designed to test the conformity behaviour of a number of subjects at the same time. Subjects were seated in individual soundproof booths. Each booth had a panel with a row of numbered switches which the person used to signal his judgments. Also displayed on the panel were signal lights which supposedly indicated the judgments of the other members of the group. However, all signal lights were controlled by the experimenter. Each subject

thought he was the last to respond as the judgments of the other "subjects" were fed to each subject at the same time. This technique allowed many subjects to be tested at the same time and eliminated the use of several confederates.

Investigators who have compared the effects of a simulated group technique and a face-to-face situation have found results which indicate that only small or nonsignificant differences in performance exist between the two (Blake & Brehm, 1954; Blake & McConnell, 1953; Olmstead & Blake, 1956).

Developmental Studies of Conformity

Hamm (1970,b), in reviewing previous studies of conformity, has pointed out that three developmental trends have been reported in the literature; a positive, negative, and curvilinear relationship with age. Each different developmental trend will be discussed individually. The theoretical interpretations explaining these relationships will then be outlined.

Negative relationship. A negative relationship between conformity and age implies that conformity decreases with increasing age. The early literature appears to deal mainly with "suggestibility" as opposed to conformity. Both concepts involve the mechanisms of social influence. The major difference between suggestibility and conformity lies in the experimental procedures used in the study of the two concepts. In studies dealing with suggestibility, the experimenter typically makes suggestions to the subject as to the nature of the stimulus array presented to the subject and measures the degree of influence exerted by this suggestion (e.g., Marple, 1933; McConnell, 1963). In the conformity paradigm, the subject is usually presented

with conflicting judgments made by a group of other subjects. The measure of conformity is the number of times the subject changes his original response to one in agreement with the group's.

Marple (1933) compared high school, college, and adult subjects on a measure of suggestibility. The measure involved judgments concerning controversial problems and topics on which there appeared to be wide differences of opinion. The list drew heavily from particular policies in economics, education and politics as well as dealing with social and ethical situations (for example, "The white race is mentally superior to all othe races,"). The results indicated that the adults were consistently less suggestible than the younger groups.

Eleven measures of suggestibility were used in an experiment by Messerschmidt (1933). An example typifying the suggestibility measures employed in this study is the "Trap Line". This was a fairly simple task in which the subjects were presented with a series of twelve different lines and asked to reproduce these lines on a sheet of paper in front of them. However, four lines were trap lines in that they were the same length as the lines immediately preceding. Suggestibility was measured by the increase in the length of drawings of the trap lines. Messerschmidt found that the highest scores were obtained by the seven year old subjects and then decreased with increasing age.

One of the initial studies that dealt with conformity in children was conducted by Berenda (1950). Berenda's subjects ranged in age from seven to thirteen years. The subjects were required to make perceptual judgments on the original Asch-line problems. The difference between the standard line and the comparison lines

ranged from two inches, one inch, one-quarter of an inch and three-quarters of an inch. Twelve pairs of lines were presented to the subjects.

Berenda conducted a series of four experiments. The first experiment involved a majority of eight bright subjects as opposed to a minority of one student of average intelligence. The subjects were divided into two groups; young subjects who were seven to ten years of age, and older subjects who were ten to thirteen years of age. The results indicated that the effect of the majority was more pronounced on the seven to ten year old group (43 percent made decisions independent of the majority) than on the ten to thirteen year old group (54 percent did not conform). Berenda found this 11 percent difference to be statistically significant.

The three other experiments also revealed conformity to be negatively related to age. Moreover, Berenda found that different lines were differentially affected by the experimental conditions in that the lengths which produced the most errors in judgments in the alone conditions, also produced the greatest amount of following in the group condition.

McConnell (1963) also found that suggestibility significantly decreases with age. Four measures of visual perceptual suggestibility were obtained from a sample of 290 children in grades one through twelve. He found that prestige and conformity suggestions with ambiguous stimuli produced the greatest amount of influence. The least influence was exerted when the stimuli were unambiguous. This result is in keeping with the findings of Berenda (1950), i.e., there was greater conformity on the lines which produced the most errors in the alone condition.

A study by Hoving (1964), as described by Hamm (1970b), revealed that conformity was negatively related to age when subjects made judgments on relatively unambiguous tasks. The ambiguity or difficulty of the stimulus is defined in terms of the number of errors that occur when the subject makes judgments on the items independently, i.e., in the alone condition. A high percentage of errors made in this condition indicates that the task is a difficulty one, whereas when few or no perceptual errors are made, the task may be defined as relatively simple or unambiguous. Hoving used several modifications of the Asch-line problems in this experiment. The results indicated that when the adult and peer models chose the same false answer, 40 percent of the second grade subjects yielded to their incorrect answers, whereas only 18 percent of the fourth grade subjects yielded.

In order to test the stability of children's transitivity of length judgments, Coon and Odom (1968) investigated the amount of yielding in a conformity situation in which subjects were faced with incorrect transitive judgments. The subjects were seven, eleven and fifteen years old. The results of this study indicated that as the age of the subjects increased, the amount of conformity decreased. According to the authors, the younger children were distracted by irrelevant cues, such as the "V's" of the Mueller Leyer illusion. This distraction is an example of the young child's perceptual dominance, i.e., his inability to centre on more than one aspect of a situation or stimulus array at a time (Piaget, 1952).

Query (1968), Janney, Mallory, Rossetto and Simon (1969), and Bishop and Beckman (1971) all used the Asch technique to study developmental conformity. In all cases the results supported the hypothesis that group pressures have less effect on the individual

as he grows older and learns to rely on his own judgments and experience.

A negative relationship between conformity and age was also found by Hamm (1970,a). Subjects from grades two, five and eight were required to judge which of six squares in a projected figure contained the most dots. Prior to the conformity manipulation, ninety children made independent judgments on the dot patterns. On the basis of this pre-experimental session, dot discriminations which produced 1, 45, or 83 percent error were chosen as the three levels of ambiguity to be used in the experiment. These comparisons were referred to respectively as the unambiguous, partially ambiguous and ambiguous tasks.

Hamm manipulated social influence by exposing subjects to the supposed judgments of three peers by means of the Crutchfield apparatus. On Day 1 of the experiment, a base measure of conformity was obtained by having subjects make discriminations on the three types of dot patterns in the social influence condition.

On Day 2, the subjects were given the same conformity sequence as in Day 1. However, before they made their judgments , one of three different treatments was presented. One of these treatments, a reward treatment, was designed to increase the reinforcing properties of correctness by exposing subjects to models who were rewarded for correct answers. The other two treatments were control treatments.

The results of this study indicated that on Day 1, across all levels of ambiguity, conformity was a significant negative function of grade, and that all subjects conformed more on the more ambiguous tasks (45 and 83 percent errors) than on the one percent error tasks. Subjects in the rewarded model condition displayed a greater decrease in conformity on Day 2 for the one percent items than subjects in

the two nonreward control treatments. The treatments did not differentially affect conformity on either the 45 or 83 percent error items.

Finally, Landsbaum and Willis (1971) found that conformity was greater in the younger subjects (age 13 - 14) than in the older ones (age 18 - 21). Subjects were required to judge the length of various lines. These results also support the curvilinear relationship, to be discussed in the following section.

The foregoing review of the literature represents a summary of those studies which have found a decrease in conformity with increasing age. The age range of subjects used in these studies extends from seven years to adulthood. Apart from the Hamm (1970a) study, one characteristic common to these studies is the generally low level of task difficulty or ambiguity. However, Hamm did find that conformity was significantly lower across all age levels on the unambiguous items as compared to the more ambiguous ones.

Curvilinear relationship. Subjects aged six to twenty-two were tested by Barber and Calverley (1963) in order to measure "hypnotic-like" suggestibility. The subjects were told that they were to be tested for imaginative ability and were then given eight standardized test suggestions, for example, thirst hallucination, verbal inhibition, selective amnesia, etc. The authors found a curvilinear relationship between suggestibility and age. Responsiveness increased from ages six to eight, with the maximum responsiveness level attained at ages eight to ten. Gradually responsiveness to suggestibility decreased from ages ten to fourteen and a stable plateau of response from age fourteen and older was obtained.

Iscoe, Williams and Harvey (1963) required subjects (seven, nine, twelve and fifteen years of age) to make judgments of the

number of metronome clicks before and after a simulated group judgment was given. There were two levels of task difficulty: "Easy" (5 to 15 clicks) and "Difficulty" (21 to 38 clicks). In order to measure conformity, the authors compared the number of errors the subjects made in the Alone condition with the number made in the Group condition. The number of conformity responses decreased with increasing age. After adjustment of error scores for initial counting ability, the results showed that conformity increased until twelve years of age and then decreased at age fifteen for the girls. The conformity responses of the boys, however, continued to increase to fifteen years of age. The authors also found that the number of errors made in the group condition was not related to the level of task difficulty.

In a second study by Iscoe, et al. (1964) conformity was measured by the influence on subjects of three simulated peers on the counting of metronome clicks. Race was included as a variable in this experiment. The results indicated significant main effects for age and race. There was a curvilinear relationship for conformity and age. White children increased in conformity until age twelve, then decreased, whereas Negro children decreased from age nine.

In comparing the level of task difficulty of these two studies with those that have found a decreasing relationship, it appears that the task employed in Iscoe, et al.'s two studies (1963, 1964) is more difficult. An objectively correct answer is still available but the subject when couting metronome clicks must rely on his memory for the correct response.

Four age groups: 7 - 9, 11 - 13, 15 - 17, and 19 - 21, were used in a study by Costanzo and Shaw (1966). Asch stimulus cards were

used in which one of three comparison lines was the same length as the standard, one was 1/4" shorter, and the third was 1/4" longer. The authors found that conformity was related to age in a curvilinear fashion, with maximum conformity appearing at ages 11-13.

Once again, the difficulty level of this task is higher than that found in the studies finding a decreasing relationship. In her study, Berenda (1950), used comparison lines that differed from the standard line by 1", 2", 3/4" and 1/4". This is a much more readily detectable difference than the difference employed by Costanzo, et al. (1966). Therefore, Berenda's task was a less ambiguous one.

Costanzo (1970) replicated the findings of his previous study, in an experiment designed to measure conformity development as a function of self-blame. The subjects ranged in age from seven to twenty-one. Conformity scores were computed as the frequency with which subjects conformed to the incorrect line judgments as a simulated peer majority in the Crutchfield situation. (The same task was employed in this study as in the Costanzo & Shaw, 1966, study.) The results indicated that conformity produced a curvilinear relationship with age.

One study that dealt with suggestibility also revealed a curvilinear relationship with age. In an attempt to replicate the findings of McConnell (1963), Zohner (1970) asked subjects from grades two to twelve to choose the larger of two objects or to specify "neither", if both were the same. All objects were objectively the same size, but due to an optical illusion, the white stimuli appeared larger than the black. Each subject was given one of four sets of instructions that were designed to induce him to choose one of the objects. These instructions represented four types of

suggestion. The relationship between suggestibility and grade level was found to be curvilinear; suggestibility increased between seven to thirteen years, then decreased.

The presence of an optical illusion in the preceding study would tend to increase the difficulty of the task and render the subjects with less confidence in his judgments. Thus it seems as if all the studies which have demonstrated a curvilinear relationship of conformity with age have used tasks which are more difficult and ambiguous than those used by experimenters finding the negative relationship.

Positive relationship. Findings of positive relationships between conformity and age are representative of a distinct minority of developmental conformity studies. Hoving and his associates have been responsible for the majority of the findings.

Hamm and Hoving (1969), for example, investigated the conformity behaviour of children in an ambiguous perceptual situation. Maximum ambiguity was provided by the autokinetic effect. The subjects were seven, ten and thirteen years of age. The results of their study indicated that the tendency to conform was significantly related to age. The seven year olds had lower mean scores in conformity than the ten or thirteen year olds. The latter two age groups, however, did not differ significantly. These results, then, are also not inconsistent with those studies reporting a curvilinear relationship.

A second study which found conformity to be positively related to age was also conducted by Hamm and Hoving (1971). In this study, the subjects were selected from grades two, five, eight, and eleven. The subject's task was to match a standard line with one of seven comparison lines which differed from the standard in length, in angular orientation, or a combination of both. During the social

influence condition, the subjects were given different but equally correct judgments for adult and peer reference groups. These investigators found that when either reference group chose one of the equally correct answers, conformity to the chosen alternative line was a positive linear function of age. Older subjects were found to conform more than younger ones across the entire developmental continuum.

It appears that a positive relationship between conformity and age is obtained when subjects are confronted with a situation in which no or many objectively correct answer(s) exist.

One further study designed to measure social influence at three age levels bears particular mention in that all three developmental relationships were found as a function of stimulus ambiguity. Hoving, Hamm and Galvin (1969) used children from grades two, five and eight. These subjects were required to judge which of a projected slide had the greater number of dots. Prior to the experiment, the investigators had children of similar ages make judgments on these slides under noninfluence conditions. Slides on which these children had made correct judgments approximately 50, 80 and 98 percent of the time represented ambiguous, partially ambiguous, and unambiguous stimuli respectively. It was found that peer influence varied significantly with the ambiguity of the task and the age of the subject. Conformity on unambiguous slides was negatively related to age, whereas conformity to completely ambiguous slides was positively related to age. The task which produced an intermediate level of ambiguity resulted in a curvilinear relationship of conformity with age. These findings are not in agreement with those found in a study by Hamm (1970,a) which was reported above. Hamm also used three levels of ambiguity but found a negative relationship between

conformity and age for all levels of ambiguity. Hamm attributes his failure to replicate the findings of the Hoving, et al. (1969) study to a change made from a two alternative task as used by Hoving, et al., to a six alternative task which he employed. Hamm felt that in the type of task which he used, the children may have lost confidence in the group's judgments.

The results of the Hoving et al. (1969) study then, support the contention that the different developmental trends in children's conformity behaviour are a function of task difficulty.

Theoretical Interpretations

Hamm (1970,b), as mentioned in the Introduction, has interpreted the aforementioned findings in terms of social learning theory. His basic assumption is that the child's hierarchy of reinforcement changes with increasing age.

> With age, children are increasingly reinforced for choosing the correct alternative on unambiguous tasks... On ambiguous tasks, in contrast, children are increasingly reinforced for adopting an informational form of conformity behaviour. (p. 33)

A second theoretical interpretation has been advanced by Costanzo and Shaw (1966) and Hartup (1970). These investigators interpret the early literature in terms of Piaget's (1932) observations of the developmental changes in a child's conceptions of the "rules of the game". The rules of the game, in this sense, refer to the group decision regarding conduct in a specific situation. Piaget outlined three consecutive stages of the child's moral judgement: the first is represented by the egocentric nature of the child, i.e., although he may be aware of the rules, he does not apply them. His egocentrism is reflected in his inability to take the point of view of another.

The egocentric child of approximately three to five years of age plays as if he were alone, even in the presence of other children.

In the second stage, the child conceives of rules as "sacred and untouchable". For this child, any change in the existing structure of the rules is wrong. By the third stage, the child realizes that rules are established by humans, and as such may be altered.

Hartup (1970) has pointed out that Piaget's observations of children's conceptions of rules adequately account for the curvilinear relationship of conformity with age. The young egocentric child does not conform because he approaches the problems on his own, unconcerned of the norms set by his peers. The child of approximately seven to ten years of age emits the greatest amount of conformity because he reasons that adherence to the norms of the group is manditory. The older child, on the other hand, realizes that norms are not sacred but rather a product of human consent and thus feels less compelled to adhere to the norms set by the group.

As indicated in the introduction, the two theoretical interpretations are not incompatible when accounting for the behaviour of older children. The conformity of the younger children, however, cannot be understood fully in terms of social learning theory. This theory does not predict the differential performance of younger children as a function of task difficulty.

In the one study in which all three levels of task ambiguity were employed (Hoving, et al. 1969), there were task relevant statistically significant differences in the conformity of the youngest (grade two) subjects. For example, it was found that conformity on the unambiguous trials was significantly greater than on ambiguous trials. There was

also a significant difference in mean corrected conformity scores on ambiguous as opposed to partially ambiguous trials. Thus, on the ambiguous tasks children conformed to a signficantly lesser degree than on the partially ambiguous tasks. These findings are directly opposite to what has been found with older children (Hoving, et al., 1969).

One manner in which one may interpret the former findings is to examine the structure of thought of younger children. Prior to approximately seven years of age, the child's thought is egocentric in nature. Egocentrism is a cognitive variable which has been defined as the inability to take the point of view of another (Piaget & Inhelder, 1956).

Psychological studies have found that egocentric children are generally less competent in role-taking (Flavell, Botkin, Fry, Wright, & Jarvis, 1968; Miller, Kessell, & Flavell, 1970), spatial (Davol & Hastings, 1966; Piaget & Inhelder, 1956), and communicative (Glucksberg & Krauss, 1967; Piaget, 1926) activities than their less egocentric agemates. Thus to Piaget (1950) and Feffer (1959, 1970), the cognitive variables, egocentrism and/or decentration (the ability to shift attention from one aspect of an object or situation to another) may be utilized to explain the development of a number of social behaviours in childhood. With regard to conformity, it may be expected that an egocentric child will not conform, due to his inability to take the perspective of another child or adult.

Moreover, the notion of egocentrism might also be used to explain the different conformity behaviours of young children on tasks of varying difficulty. For example, the level of task difficulty has been varied by a number of investigators in order to study the

characteristics of egocentric speech. Piaget (1926) has defined egocentric speech as speech which fails to take into account the needs of a listener. Luria (1961), Vygotsky (1962), Kohlberg, Yaeger, & Hjertholm (1968) and Deutsch (1970) have found that as the difficulty of the task increases, the amount of egocentric speech increases proportionally. Feigenbaum, Geiger, and Gevorsky (1970) have demonstrated that in tasks in which the child is unfamiliar (i.e., adult-adult scenes vs. child-child scenes) there resulted a rise in egocentric responding.

Generally, then, these studies have indicated that as difficulty or unfamiliarity with the task increases, the egocentric responding of the child increases as well. In relation to the conformity research, the youngest subjects have been at the age (approximately seven years) at which children are overcoming their egocentric orientation and are becoming increasingly able to decentre their perspective. Thus, for these subjects, it would be predicted that on tasks of low ambiguity, egocentric responding would be less likely to occur. The child is most probably advancing towards Piaget's second stage, in which conformity to the rule is considered manditory. Task involving a high degree of ambiguity, however, would result in the child's responding in an egocentric fashion, and little conformity would be expected.

APPENDIX B

STIMULUS CARDS FOR CONFORMITY TASK

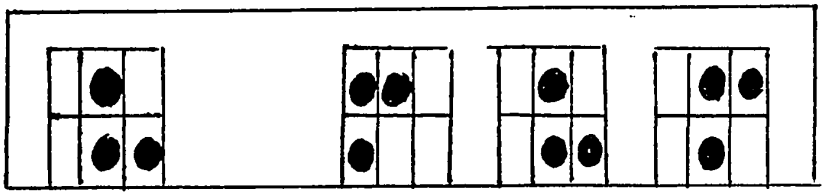


Figure 3. Illustration of one of the 24 stimulus cards used in the study.

Description of Each Stimulus Card and Order of Presentation in "Alone" and "Influence" Conditions

Presentation Order		Difficulty Level		Number of Dots	Size of Matrix	Location of correct Response
Alone	Influence	Ambiguous	Unambiguous			
1	20		X	8	5 x 5	L
2	18	X		8	5 x 5	L
3	23		X	5	3 x 4	L
4	19		X	3	2 x 3	M
5	14	X		3	2 x 3	L
6	15	X		5	3 x 4	R
7	21		X	5	3 x 3	M
8	13	X		8	5 x 5	R
9	10	X		2	2 x 3	R
10	17		X	4	3 x 3	R
11	24	X		4	3 x 3	M
12	9		X	5	4 x 4	M
13	22	X		2	2 x 3	M
14	16		X	5	3 x 4	R
15	1	X		3	2 x 3	R
16	3	X		4	3 x 3	M
17	5	X		2	2 x 3	M
18	7		X	4	3 x 3	L
19	2		X	3	2 x 3	M
20	8	X		8	5 x 5	L
21	6	X		8	5 x 6	L
22	4		X	8	5 x 6	L
23	12		X	3	2 x 3	R
24	11		X	5	3 x 5	R

APPENDIX C

PRE-EXPERIMENTAL INVESTIGATION

Previous investigators (Hoving, Hamm & Galvin, 1969; Hamm, 1970) have found that the amount of conformity varies with the level of ambiguity of the stimuli presented to children.

The purpose of the present investigation was to objectively determine the level of ambiguity of a given stimulus. Twelve stimulus cards which produced the lowest percent error and twelve cards which produced the highest percent error in grade one children were required in order to determine the relationship between conformity and level of ambiguity in a subsequent investigation.

Method

Subjects

One hundred and thirty-five boys and girls from grade one were selected from two Windsor elementary schools to serve as subjects.

Materials

Three booklets, with 20 different sets of problems each, were used. (See Appendix D for an example of one of the booklets used). A problem set contained four squares, i.e., one standard square on the left separated horizontally from the three choice squares by one inch. Each square measured 1 3/4" x 2". Below each choice square there was a space in which the child could indicate his choice. The squares were outlined in black on white paper. There were four problem sets on each page and each booklet contained five pages.

One of the three choice squares was identical to the standard square. Each problem set (i.e., the four squares) contained the same

size matrix and number of dots.

Procedure

All Ss were seated in their classrooms. Two Es distributed the three booklets equally in each class. Once each S had received a booklet, the class was instructed as follows:

> I want you all to look at the square on the left of the picture on the front of the booklet. (E demonstrated to the Ss the square to which he was referring). Well, one of these three squares (E pointed to the three squares) is the very same as this one on the left. Which one do you think it is? (E waited for students from the class to volunteer answers). This one in the middle is the same because the dots are in the same squares as this one on the left. Now, I want you to go ahead and open the book. Put a check under the square that you think is the very same as the one on the left.

The two Es then walked around the class to insure that each S fully understood the nature of the task.

RESULTS AND DICUSSION

The twelve stimulus items which produced the highest percent error and the twelve items which produced the lowest percent error are presented in the following table along with their respective percent errors. The error range for the unambiguous items was 3-9% with a mean of 5.9%. The error range for the ambiguous items was 33-73% with a mean of 48.5%. The percent error was calculated by dividing the total number of errors per item by the number of Ss completing that item.

Percent Error of Each of the Twenty-Four Stimulus Items

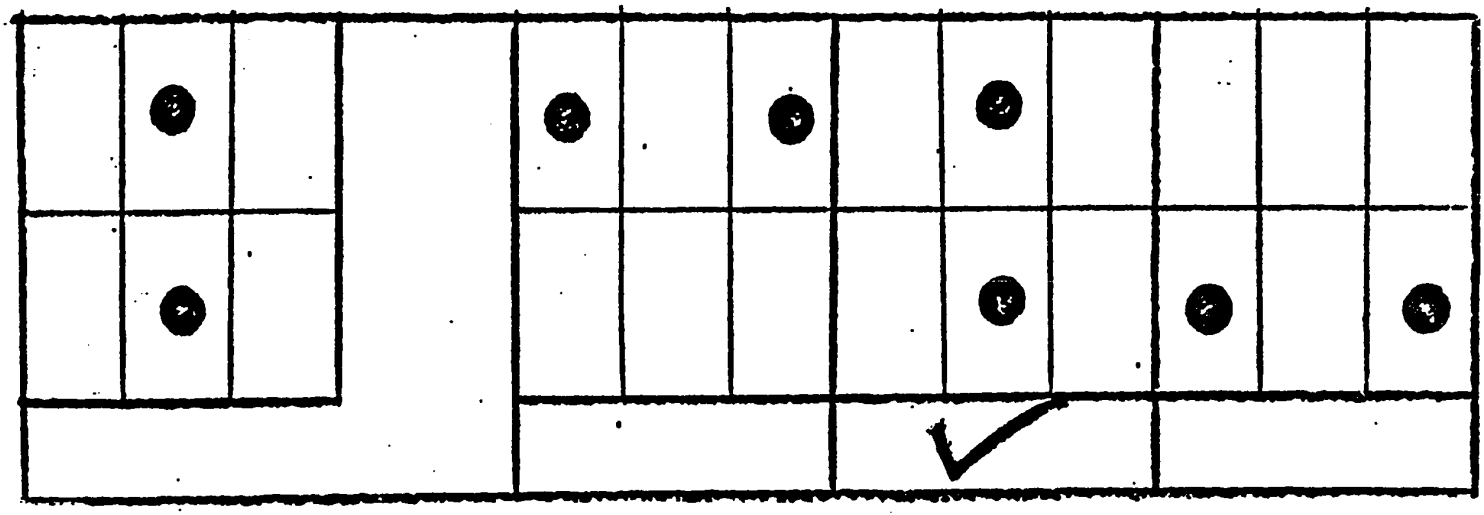
Presentation Order	Difficulty Level		Percent Error
	Ambiguous	Unambiguous	
1		X	4
2	X		73
3		X	6
4		X	4
5	X		69
6	X		35
7		X	9
8	X		40
9	X		46
10		X	4
11	X		35
12		X	7
13	X		41
14		X	3
15	X		37
16	X		43
17	X		59
18		X	9
19		X	7
20	X		33
21	X		71
22		X	7
23		X	8
24		X	3

Note - The presentation order refers to the order of presentation of that item in the "Alone" condition of the Egocentrism-Conformity experiment.

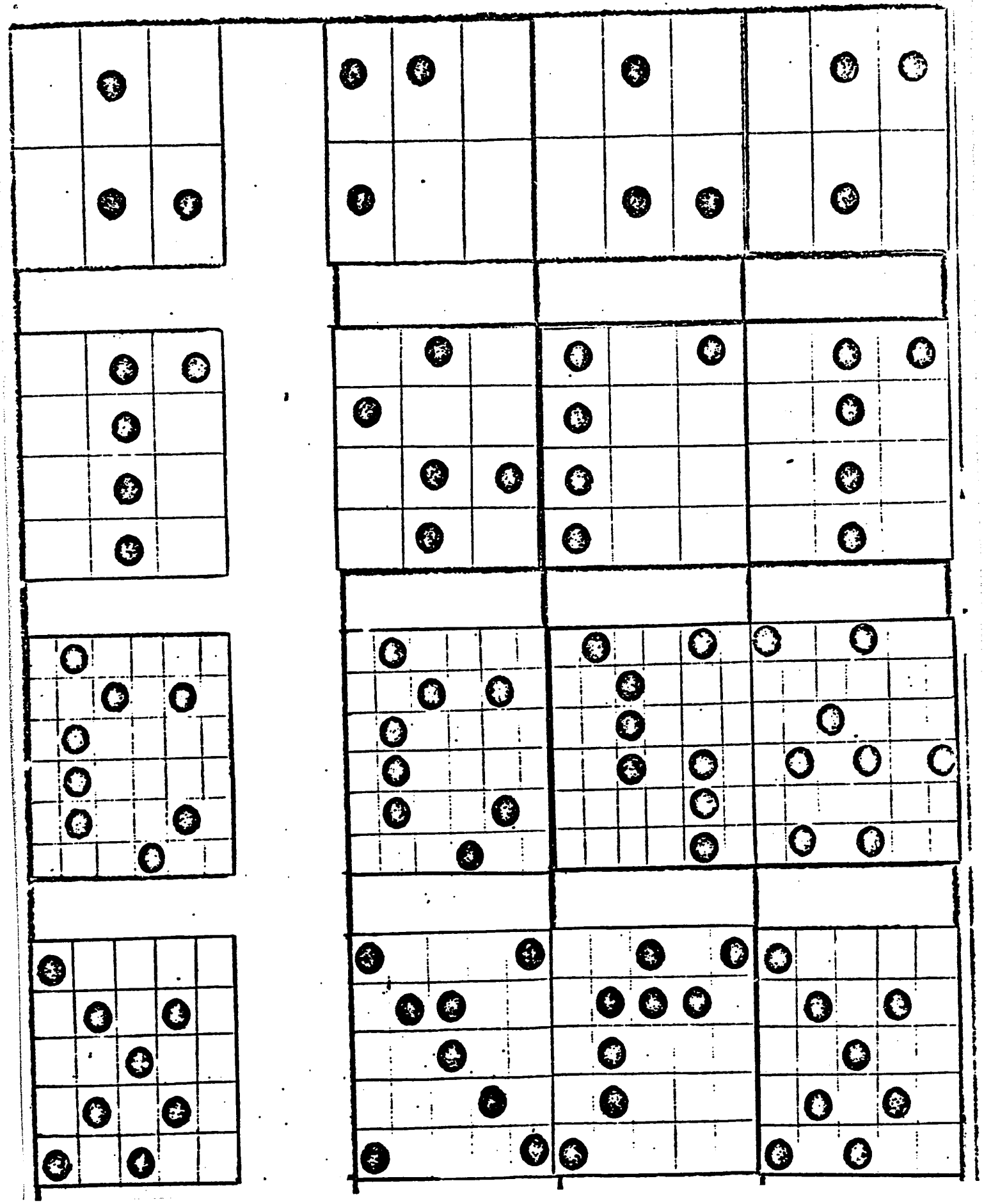
APPENDIX D

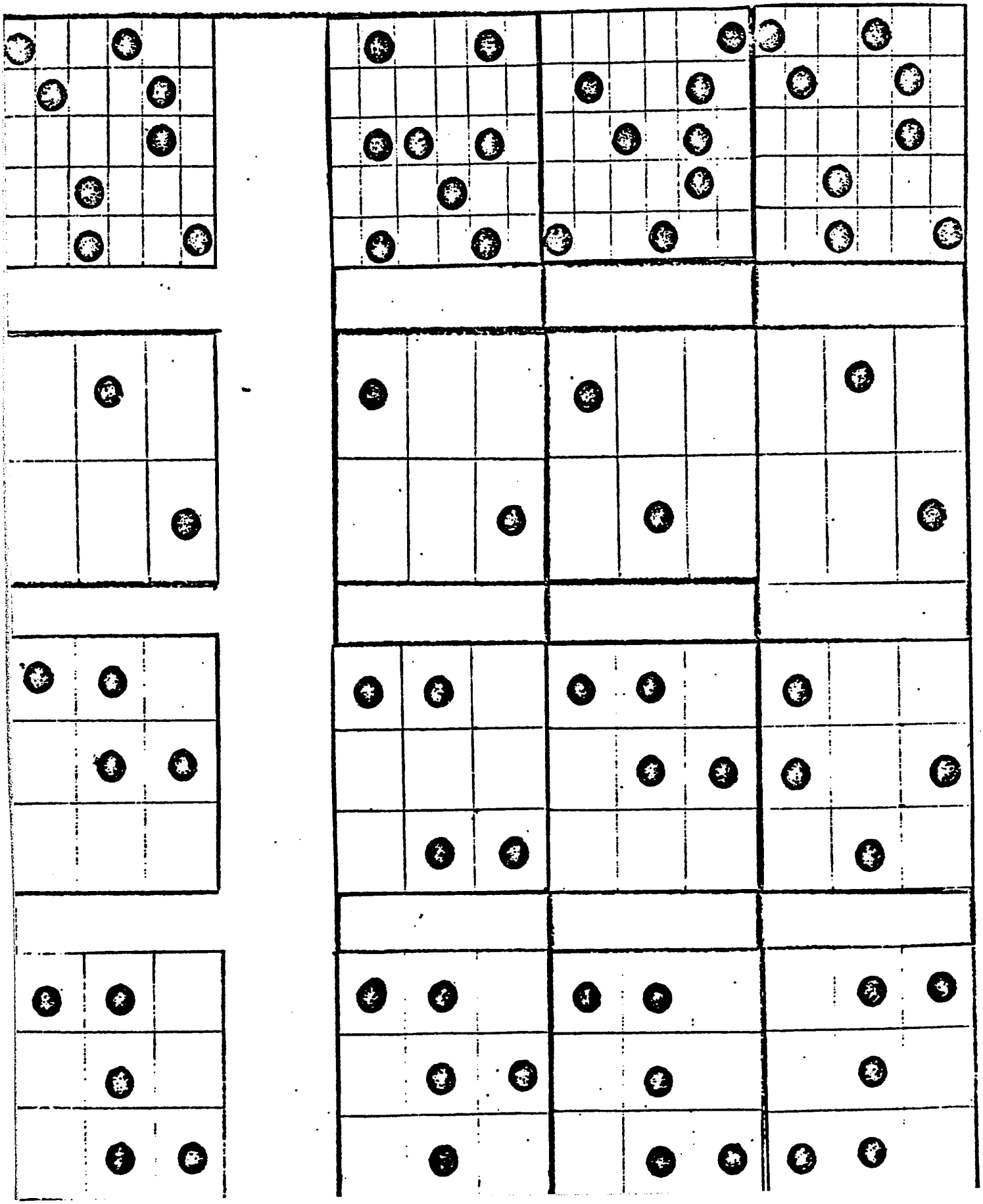
Illustration of one of the three booklets
Used in the Pre-experimental investigation

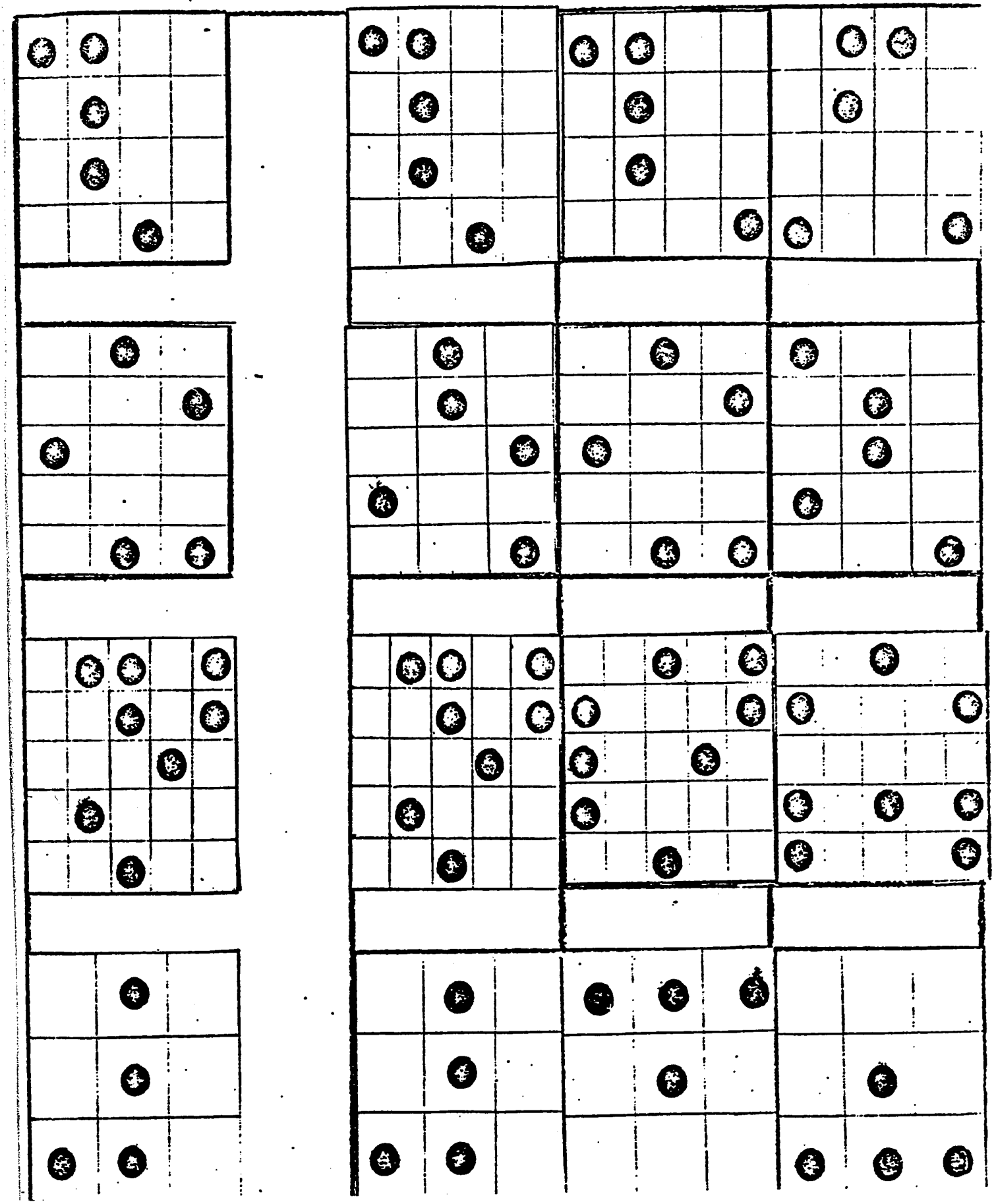
PUT A CHECK UNDER THE SQUARE THAT IS THE VERY SAME AS THE ONE ON THE LEFT. HERE IS HOW YOU DO IT:

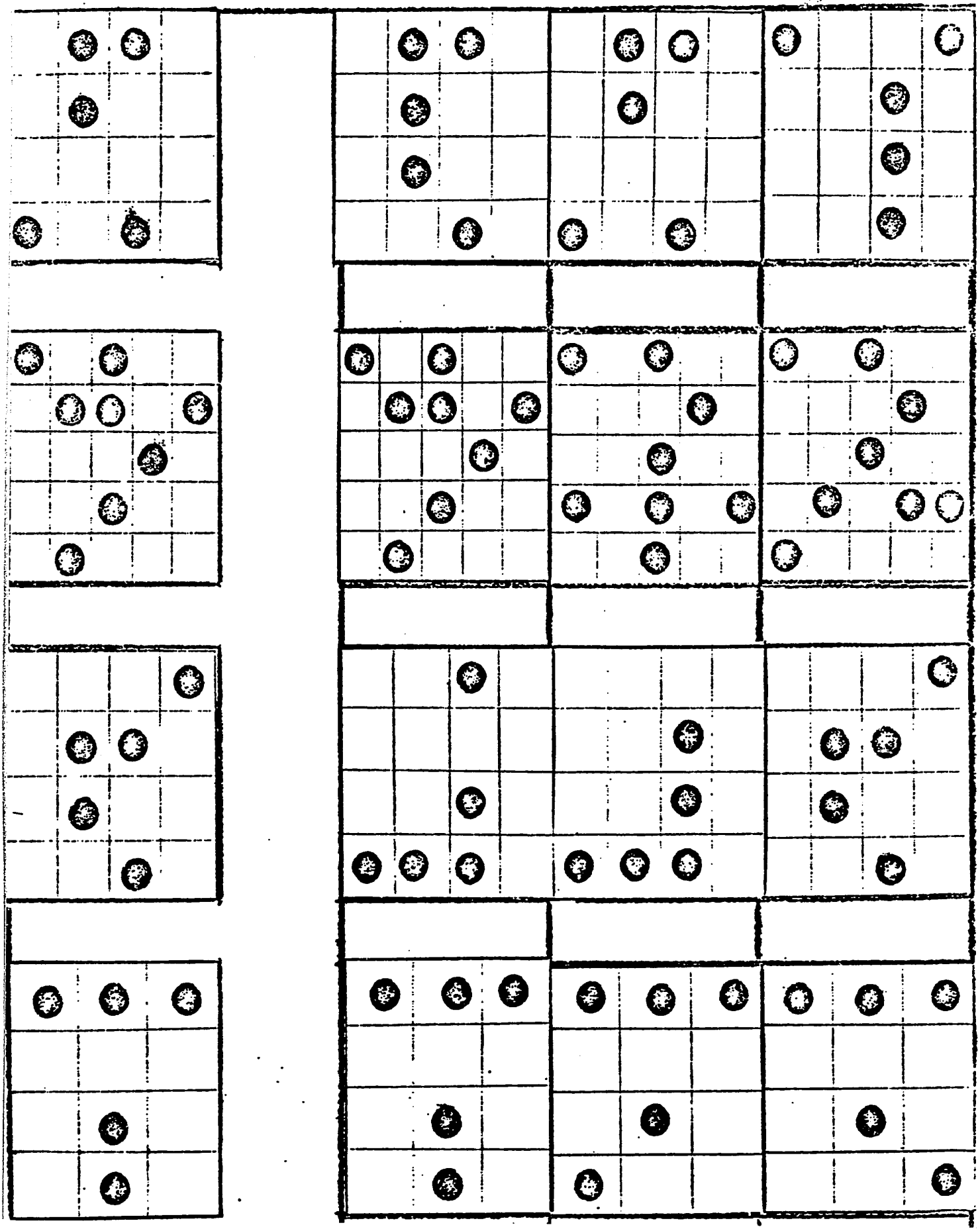


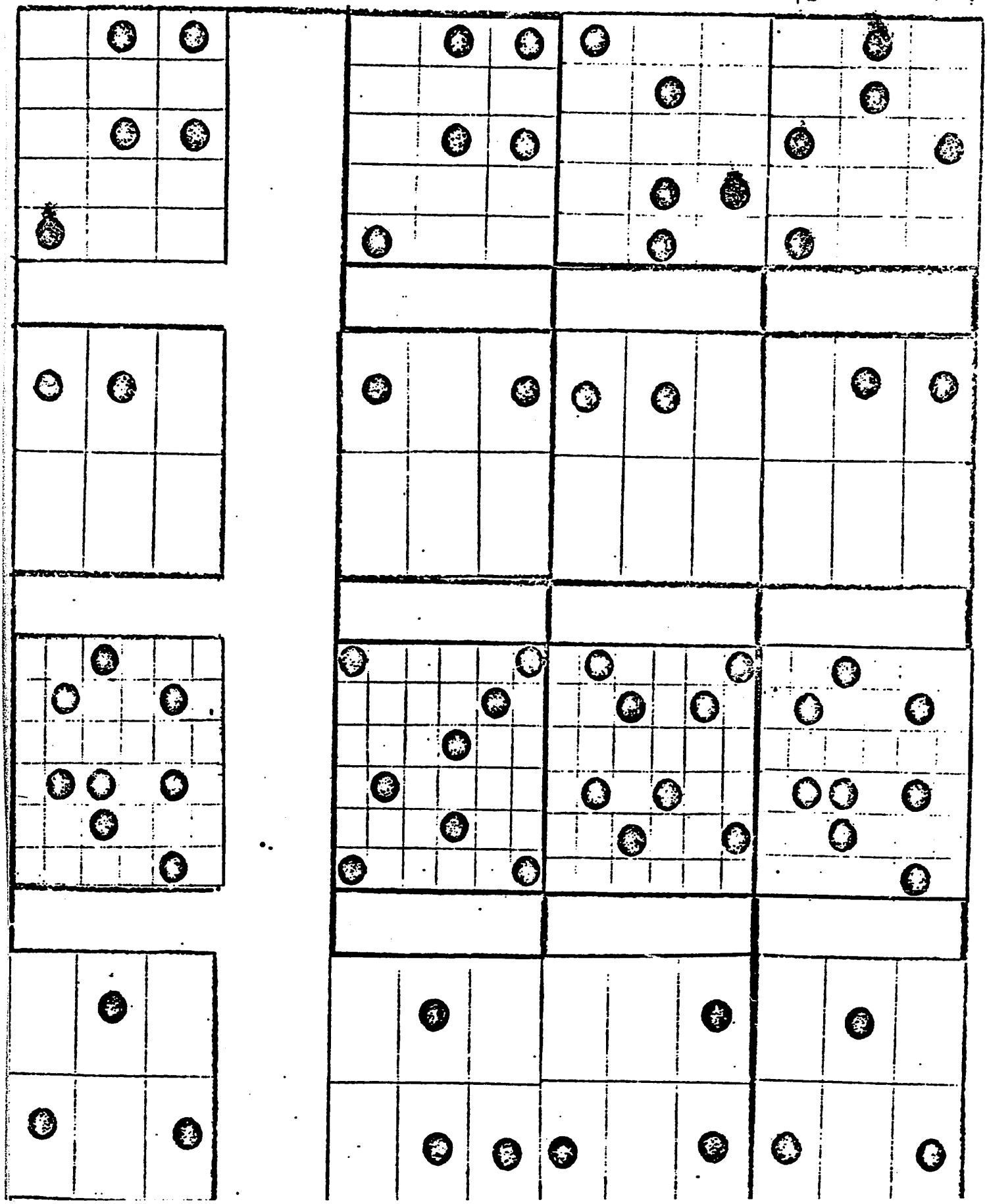
NOW GO AHEAD AND FINISH THE BOOK.











APPENDIX E

RAW DATA

S#	Sex M=1 F=2	Grade K=1 G1=2	C.A	M.A.	I.Q.	# of Sibs	$\bar{X}$ D.F.	$\bar{X}$ Rec.	$\bar{X}$ TCE.	Conformity to Unambiguous	Conformity to Ambiguous	Total Conformity
1	1	2	88	107	120	1	1.50	1.00	2.50	0	2	2
2	2	2	83	75	93	2	1.30	2.20	3.50	0	0	0
3	1	2	84	101	114	3	.60	1.70	2.30	0	0	0
4	1	2	81	73	91	1	1.40	1.70	3.10	0	1	1
5	1	2	78	80	96	7	.50	.90	1.40	8	7	15
6	2	2	87	90	104	6	.70	1.50	2.20	8	8	16
7	1	2	88	73	91	2	1.10	1.80	2.90	8	7	15
8	1	2	87	105	118	2	.00	.40	.40	0	1	1
9	2	2	78	67	85	3	.90	1.50	2.40	8	8	16
10	2	2	83	85	100	6	2.40	1.70	4.10	7	8	15
11	2	2	85	75	93	3	.40	.80	1.20	7	7	14
12	1	2	81	97	110	4	1.50	1.90	3.40	0	1	1
13	1	2	79	90	104	4	.40	.70	1.10	8	8	16
14	1	2	92	67	78	4	1.10	.40	1.50	0	5	5
15	2	2	88	85	100	3	1.90	.00	1.90	0	2	2
16	1	2	93	110	111	2	.90	1.00	1.90	1	1	2
17	1	2	85	87	102	5	1.00	.40	1.40	0	0	0
18	1	2	84	103	116	4	1.40	.90	2.30	0	1	1
19	1	2	88	99	112	2	1.30	1.00	2.30	0	1	1
20	2	2	88	71	89	3	1.20	.40	1.60	1	3	4
21	1	2	88	92	106	2	1.50	.60	2.10	0	2	2
22	1	2	83	110	122	5	2.20	2.20	4.40	0	0	0
23	2	2	79	78	95	1	.70	1.10	1.80	3	5	8
24	2	2	85	85	100	4	1.00	.20	1.20	1	0	1
25	2	2	77	78	105	3	1.10	.70	1.80	3	3	6
26	2	2	101	110	111	2	1.00	.60	1.60	1	3	4
27	1	2	81	94	108	3	1.70	1.70	3.40	1	1	2
28	2	2	84	87	102	4	1.50	1.20	2.70	0	3	3
29	2	2	84	107	120	1	1.00	1.40	2.40	0	2	2
30	2	2	78	78	95	3	1.00	1.70	2.70	0	1	1
31	1	2	80	94	108	2	1.90	1.50	3.40	0	2	2
32	2	2	79	103	116	2	3.20	1.90	5.10	0	2	2
33	1	2	81	71	89	4	1.90	.10	2.00	0	1	1
34	2	2	81	62	81	4	.00	.80	.80	0	3	3
35	1	2	80	85	100	2	2.30	.70	3.00	0	2	2
36	1	2	83	116	125	3	1.00	1.60	2.60	0	1	1
37	2	2	78	94	106	6	1.10	.80	1.90	0	1	1
38	1	2	84	75	93	6	1.00	.00	1.00	0	3	3
39	1	2	85	87	102	5	1.00	1.00	2.00	7	6	13
40	1	2	97	113	113	3	1.30	.50	1.80	6	7	13
41	1	2	97	94	99	3	.90	1.30	2.20	8	6	14
42	2	2	89	85	92	2	2.20	.90	3.10	0	2	2
43	1	2	91	107	109	2	2.10	.50	2.60	0	3	3
44	1	2	81	90	104	1	1.80	1.40	3.20	0	1	1
45	2	2	82	73	91	4	1.00	1.90	2.90	0	1	1
46	2	2	79	87	102	3	.90	2.50	3.40	8	8	16

Raw Data Continued

S#	Sex M=1 F=2	Grade K=1 G1=2	C.A.	M.A.	I.Q.	# of Sibs	$\bar{X}$ D.F.	$\bar{X}$ Rec.	$\bar{X}$ TCE	Conformity to Unambiguous	Conformity to Ambiguous	Total Conformity
47	2	2	85	85	100	3	.60	1.30	1.90	8	7	15
48	2	1	77	80	107	1	.00	.20	.20	0	0	0
49	1	1	76	85	111	1	1.00	1.80	2.80	0	0	0
50	2	1	76	85	111	3	1.00	1.30	2.30	0	1	1
51	1	1	75	85	111	5	1.10	1.80	2.90	0	1	1
52	2	1	75	103	127	1	.80	1.50	2.30	0	0	0

APPENDIX F

PERCENT ERROR OF EACH OF THE 24 STIMULUS ITEMS IN THE "ALONE" CONDITION

Presentation Order	Difficulty Level		Percent Error
	Ambiguous	Unambiguous	
1		X	0
2	X		6
3		X	0
4		X	2
5	X		0
6	X		29
7		X	0
8	X		4
9	X		29
10		X	2
11	X		13
12		X	0
13	X		6
14		X	4
15	X		4
16	X		10
17	X		19
18		X	2
19		X	2
20	X		12
21	X		8
22		X	4
23		X	4
24		X	2

APPENDIX G

Follow-up Median Tests

Distribution of Conformity Scores About the Median for the Low and Middle T.C.E. Groups

Group		T.C.E. Score: Low	T.C.E. Score: Middle
I Total Conformity Score	> Median	3	5
	≤ Median	12	10
II Conformity to Ambiguous Items Score	> Median	7	8
	≤ Median	8	7
III Conformity to Unambiguous Items Score	> Median	4	9
	≤ Median	11	6

Note - Group I Median = 2; Group II Median = 1.5; Group III Median = 0.

Distribution of Conformity Scores About the Median for the Low and High T.C.E. Groups

Group		T.C.E. Score: Low	T.C.E. Score: High
I Total Conformity Score	> Median	3	11
	≤ Median	12	4
II Conformity to Ambiguous Items Score	> Median	3	11
	≤ Median	12	4
III Conformity to Unambiguous Items Score	> Median	4	4
	≤ Median	11	11

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

Distribution of Conformity Scores About the Median for the Middle and High T.C.E. Groups

Group		T.C.E. Group	
		Middle	High
I Total Conformity Score	> Median	4	9
	≤ Median	11	6
II Conformity to Ambiguous Items Score	> Median	4	6
	≤ Median	11	9
III Conformity to Unambiguous Items Score	> Median	4	9
	≤ Median	11	6

Note - Group I Median = 3; Group 2 Median = 3; Group III Median = 0.

Distribution of Conformity Scores About the Median for the Low and Middle D.F. Groups

Group		D. F. Group	
		Low	Middle
I Total Conformity Score	> Median	3	8
	≤ Median	12	7
II Conformity to Ambiguous Items Score	> Median	3	8
	≤ Median	12	7
III Conformity to Unambiguous Items Score	> Median	2	7
	≤ Median	13	8

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

Distribution of Conformity Scores About the Median for the Low and High D.F. Groups

Group		D. F. Score	
		Low	High
I Total Conformity Score	> Median	3	10
	⩽ Median	12	5
II Conformity to Ambiguous Items Score	> Median	3	10
	⩽ Median	12	5
III Conformity to Unambiguous Items Score	> Median	2	10
	⩽ Median	13	5

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

Distribution of Conformity Scores About the Median for the Middle and High D.F. Groups

Group		D. F. Score	
		Middle	High
I Total Conformity Score	> Median	5	9
	⩽ Median	10	6
II Conformity to Ambiguous Items Score	> Median	4	9
	⩽ Median	11	6
III Conformity to Unambiguous Items Score	> Median	4	9
	⩽ Median	11	6

Note - Group I Median = 4; Group II Median = 3; Group III Median = 1.

Distribution of Conformity Scores About the Median for the Low and Middle Recommunicative Group

Group		Recommunicative Score	
		Low	Middle
I Total Conformity Score	> Median	3	7
	≤ Median	12	8
II Conformity to Ambiguous Items Score	> Median	4	10
	≤ Median	11	5
III Conformity to Unambiguous Items Score	> Median	4	7
	≤ Median	11	8

Note - Group I Median = 2; Group II Median = 1; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Low and High Recommunicative Group

		Recommunicative Score	
		Low	High
I Total Conformity Score	> Median	5	10
	≤ Median	10	5
II Conformity to Ambiguous Items Score	> Median	4	10
	≤ Median	11	5
III Conformity to Unambiguous Items Score	> Median	4	5
	≤ Median	11	10

Note - Group I Median = 1; Group II Median = 1; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Middle and High Recommunicative Groups

Group		Recommunicative Score	
		Middle	High
I Total Conformity Score	> Median	7	7
	≤ Median	8	8
II Conformity to Ambiguous Items Score	> Median	7	7
	≤ Median	8	8
III Conformity to Unambiguous Items Score	> Median	7	5
	≤ Median	8	10

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Low and Middle I.Q. Groups

Group		I. Q. Score	
		Low	Middle
I Total Conformity Score	> Median	7	6
	≤ Median	8	9
II Conformity to Ambiguous Items Score	> Median	6	5
	≤ Median	9	10
III Conformity to Unambiguous Items Score	> Median	6	7
	≤ Median	9	8

Note - Group I Median = 3; Group II Median = 3; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Low and High I.Q. Groups

Group		I. Q. Score	
		Low	High
I Total Conformity Score	> Median	9	2
	≤ Median	6	13
II Conformity to Ambiguous Items Score	> Median	10	5
	≤ Median	5	10
III Conformity to Unambiguous Items Score	> Median	6	3
	≤ Median	9	12

Note - Group I Median = 2; Group II Median = 1; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Middle and High I.Q. Groups

Group		I. Q. Score	
		Middle	High
I Total Conformity Score	> Median	7	2
	≤ Median	8	13
II Conformity to Ambiguous Items Score	> Median	10	5
	≤ Median	5	10
III Conformity to Unambiguous Items Score	> Median	7	3
	≤ Median	8	12

Note - Group I Median = 2; Group II Median = 1; Group III Median = 0.

Distribution of Conformity Scores About the Median for the Small and Middle Family Sizes

Group		Family Size	
		0-2 Sibs	3 Sibs
I Total Conformity Score	> Median	4	8
	⩽ Median	16	6
II Conformity to Ambiguous Items Score	> Median	4	8
	⩽ Median	16	6
III Conformity to Unambiguous Items Score	> Median	4	9
	⩽ Median	16	5

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Small and Large Family Sizes

Group		Family Size	
		0-2 Sibs	4 or more Sibs
I Total Conformity Score	> Median	4	9
	⩽ Median	16	9
II Conformity to Ambiguous Items Score	> Median	4	9
	⩽ Median	16	9
III Conformity to Unambiguous Items Score	> Median	4	6
	⩽ Median	16	12

Note - Group I Median = 2; Group II Median = 2; Group III Median = 0.

Distribution of Conformity Scores about the Median for the Middle and Large Family Sizes

Group		Family Size: 3 Sibs	Family Size: 4 or more Sibs
I Total Conformity Score	> Median	8	6
	≤ Median	6	12
II Conformity to Ambiguous Items Score	> Median	6	6
	≤ Median	8	12
III Conformity to Unambiguous Items Score	> Median	9	6
	≤ Median	5	12

Note - Group I Median = 3; Group II Median = 3; Group III Median = 0.

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