An investigation of a problem solving situation as a paradigm of the double bind.

A. F. Hamilton.

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Summary of results and conclusions

In the previous chapter, individual sets of results were discussed separately and some conclusions were reached concerning their significance. Now, the obtained results will be applied to the specific hypotheses that the present experiment was designed to test, and finally, all relevant evidence will be drawn together and discussed in relation to Bateson's double bind hypothesis.

The first two hypotheses were concerned with the effects of different intensities of frustration on the number of correct answers subjects obtained, and predicted that double bind and contradiction subjects would show a significant increase in the number of errors in the second trial, as a result of the frustration experienced then, and that these errors would remain at a high level in the third trial. The double bind subjects were expected to have a greater number wrong than the contradiction subjects, as frustration was expected to be more severe for them (see p. 24)

These hypotheses essentially involved a test of the BC interaction effect (i.e. the interaction between group type and trial number.) Indirect evidence relevant to these hypotheses was also provided by the Fb and Fc values.

The Fb value of 27.55 indicated significant differences between each treatment group in terms of the total number correct,
but when the variance was split up and its components examined, it was found that, as expected, the continually punished subjects obtained significantly fewer correct responses than any other group and that the double bind and contradiction subjects (who were equivalent in number correct), had significantly more correct than the B2 subjects, and the B1 subjects had the highest number of correct responses.

F value for the effect of trial number on the number of errors was also significant (Fc = 9.37), and the t-ratios indicated that the smallest number of errors for all subjects occurred in the second trial, which was in the opposite direction to the predictions made by hypotheses 1 and 2.

These two significant F values, when viewed separately, suggest that the punished subjects, out of all subjects, obtained fewest correct over the whole experiment and that all subjects got most correct in the second trial. However, the most direct test of the first two hypotheses was provided by the Fbc interaction values which estimated the combined effect of trial number and subject group on the number of correct answers. However, the Fbc values for the total correct and for the total number correct plus half the ? responses did not quite reach the required significance level. There was a tendency for the number of correct answers obtained by each group of subjects to vary from trial to trial, and because these results were important for the hypotheses, E decided to examine it more closely. These
results are represented in fig. 6.

If hypotheses 1 and 2 are to be supported, B3 and B4 curves would have to fall from trial 1 to 2, and rise again to trial 3, while the curves for the B1 and B2 subjects would go in the opposite direction. The graph reveals that this trend does occur for the B4 subjects, but not for the B3 subjects. There was no significant change in the total number correct for the double bind subjects from the first to the second trials, and a fall in the total number correct in the third trial. B1 and B2 subjects’ correct answers rose in the second trial, most probably as a result of practice and familiarity with the problem. Only B4 subjects’ performance declined in the second trial, and this change did not appear to be significant.

From these results, the conclusion was reached that a change from one soluble problem to a new soluble problem seemed to result in subjects making more errors than the change from a soluble situation to an insoluble situation in the same problem. However, the above comments must remain speculative, as the Fbc value for both total correct and for the total number correct + half the ? answers was not significant.

In summary, the data revealed that non-? subjects obtained significantly more correct answers than the ? subjects, and it was suggested that this could be due either to confusion of the ? subjects when confronted with a ? button or to the importance of
feedback provided by a negative instance, in the eventual attainment of a concept by the non-? subjects, or both.

The significant Fb value showed that the continually punished subjects got significantly fewer correct than both the contradiction and double bind subjects. Significant Fc values, plus the insignificant Fbc value led E to reject hypotheses 1 and 2. Although there was a tendency for contradiction subjects to do worse in the second trial (i.e. fewer correct answers) this tendency was not significant, and so the null hypothesis of no change in the number of correct answers from trial to trial by the double bind and contradiction subjects must be maintained.

The third and fourth hypotheses were concerned with the effect of different types of frustration on subjects' response latencies. These hypotheses together predicted that double bind and contradiction subjects' response times would increase significantly, and that their response latencies would remain large in the third trial as an after-effect of the frustration experienced in the second trial. Double bind subjects were expected, in terms of the Bateson hypothesis, to have longer response latencies than contradiction subjects.

Examination of the F values for subjects' mean response times gives only limited support to these two hypotheses.

Fb value of 26.05 showed that groups of subjects differed significantly in response latencies over the whole experiment.
When total variance was analysed by a number of t-tests, it was found that continually punished subjects had the greatest response latencies throughout the experiment, and that contradiction and rewarded subjects together had the lowest response latencies. Double bind subjects fell between the two groups suggesting that the treatment they received was causing some uncertainty which was reflected in their large response latencies, as fig. 1 shows.

Main trial effect also had an important influence on all subjects' response latencies (F=8.91). However, when individual t-ratios were examined, it was found that the greatest response latencies occurred for subjects as a whole, in the first trial, and least in the third. From this it must be concluded that familiarity with the problem solving situation had a powerful effect on all subjects, causing them to respond, on the whole, more quickly with each succeeding trial, in spite of the change of problem or treatment for the B4 and B3 subjects respectively.

Significant A3 interaction when further analysed by means of t-ratios, indicated that in general, all groups of subjects without the ? button had smaller response latencies, the difference was greatest for the double bind subjects (fig. 8). This seemed to support the hypothesis advanced earlier about the role of feedback in the speed of subjects' (especially double bind subjects') performance.
However, the most direct test of the third and fourth hypotheses was provided by the significance of the BC interaction. Fbc for mean response times = 2.66 which didn't quite reach the required significance level. As fig. 9 illustrates, contradiction subjects' response times remained fairly stable over the three trials, thus leading to the rejection of hypothesis no. 4.

Double bind subjects' response latencies remained the same for the first and second trials and then declined in the third, and it was suggested earlier that perhaps the double bind subjects' familiarity with the problem to some extent counteracted the effect of the problem becoming insoluble in the second trial.

Hypothesis no. 5 predicted that subjects with an escape button (i.e. ? subjects) would have smaller response latencies throughout the experiment than subjects without an escape button (non-? subjects.) This prediction was derived from Bateson's fifth point, which stresses the importance of the inability of the victim of the double bind to escape from an unpleasant situation. Maier's rats also, only exhibited abnormally fixated behaviour when forced to respond to the stimulus. Thus, in the present experiment it was predicted that frustrated subjects who were unable to escape from an unpleasant choice situation would manifest their psychological discomfort by vacillating in their decision making and by taking longer to respond.
Fa value of 47.91 indicated a reliable difference between ? and non-? subjects, but in the opposite direction to that predicted by the hypothesis. As subjects with only two response buttons to press had significantly shorter response latencies, it appears that the ? button has failed in its function as an "escape mechanism" enabling subjects to escape from an unpleasant choice situation.

When the AB interaction was examined, it was found that for all subjects, the addition of a ? button had a disrupting effect on the speed of their performance. For those subjects who experienced some kind of frustration during the experiment (B2, B3 and B4 subjects) those with a ? button had longer response latencies overall. The most likely explanation seems to lie in the value of a wrong response as a source of information (negative information) about the correct concept (see earlier discussion of results). It could also be argued that for subjects without any experience of frustration (the continually rewarded subjects) negative instances had little intrinsic value, as they were correct so often during the experiment.

Thus, in view of the reliable tendency for subjects without a ? button to have shorter response latencies, hypothesis no. 5 must be rejected.

The results that were obtained raise two important questions. The first is aimed at a basic theoretical point the experiment was designed to test, i.e. the importance of the victim's inability to escape from the unpleasant choice situation in the development of psychopathology.
Maier, in his experiments with rats, found that they didn't manifest disturbed behaviour until forced to respond, and on this basis E predicted that subjects who were forced to respond (i.e. non-? subjects) would perform worse in terms of number correct and longer response latencies. However, all significant Pa values have shown that subjects with an escape mechanism (?? subjects) had longer response times, and it was hypothesised that this was due to the importance of a wrong response in providing information to the subject about the problem, and thus in speeding up the problem solving process.

It appears that the present experiment, involving a fairly complex conceptual problem solving task was an unsuitable way of testing the importance of escape from frustration. That is, in the present situation, being wrong did not have purely negative value for subjects (the shock did not worry them) and it appeared that subjects were intellectually challenged by a wrong response, and got some positive value from it (in the form of negative feedback.)

In view of the negative results described above, it seems that if an experimenter is interested in determining the effect of escape mechanisms in frustrated subjects' responses, then the escape mechanism must offer an attractive alternative response and that both the punishment experienced when wrong, and the inability to escape, must be entirely negative in their effects, otherwise it would be unlikely that really strong fixations like those exhibited by Maier's rats exhibited, will be forthcoming.
According to hypotheses no. 6 and 7, double bind and contradiction subjects would be expected to have a significant increase in their number of fixations in the third trial, after the frustration experienced in the second trial. However, an examination of the main B effect (subject group) and C effect (trial number) and the BC interaction did not support either hypothesis. 

F value of 69.64 was significant and indicated that the four groups of subjects varied systematically from one another in the number of fixated response they made, but when the variance was further analysed by t-tests, it emerged that most of the significance was contributed by the large differences between the B2 subjects and all other groups. Double bind subjects made significantly fewer fixated responses, and did not differ from the rewarded subjects in this respect.

Subjects generally made the same number of fixated responses in the first and third trials (F(1, n.s.) and there was no significant interaction between trial number and group type.

This evidence then leads to the rejection of both hypotheses 6 and 7, as neither the contradiction nor the double bind subjects had a significant increase in the number of fixations in the third trial. The index of fixation was used to give E some measure of the "abnormality" of a response. For the purposes of the present experiment it was defined as more than two successive responses to the same side of the screen and could only be regarded as "abnormal" if
it occurred in a soluble problem situation. That is why all results from the second trial were eliminated, because the contradiction subjects, by having to respond to the right-hand slide, were in fact being rewarded for stereotypy.

The continually punished subjects made a large number of fixated responses, but their fixations could not be called abnormal in that it was the only "rational" solution to an insoluble problem. As Yates (1962) says, "A stereotype, therefore, does not indicate frustration, it may be a normal response to an insoluble situation.... A stereotype is a sign of frustration only if it is shown to be fixated when the animal has an opportunity to change it." As the B2 subjects had no opportunity to change their fixated responses, their behaviour could not really be called abnormal.

Failure to produce a significant number of fixations in subjects after frustration leads to two important questions. The first raises doubts about the sensitivity of the index of "fixation" as an adequate measure of human subjects' level of frustration. This proved a valuable indicator for Maier in his experiments with rats where their choice was between two distinct alternatives.

In the present situation the difference between two alternatives was not so obvious, with the result that subjects kept trying to find the correct answer and didn't exhibit obviously maladjusted behaviour such as fixations. The second more basic question asks whether the experimental treatment in the second trial was really frustrating. Subjects' answers to the questionnaires suggest that they found being wrong frustrating, so it seems that what is needed is a more sensitive
way of measuring the "abnormality" of human subjects' responses to an insoluble situation. The method of counting the number of "fixated responses" seemed to work for Maier, who was using rats as subjects, but the present evidence suggests that another measure of the amount of frustration other than the number of fixated responses should be developed.

Hypotheses 8 and 9 predicted that double bind and contradiction subjects would press the ? button more often than any other group of subjects, especially in the second and third trials. By this index E hoped to get a measure of subjects' indecisiveness in decision making, and their desire to leave the field.

Although the number of subjects pressing the ? button was small, some support was given to the two hypotheses. As fig. 11 showed, in the first trial, B3 and B4 subjects' ? responses were high, while B2 and B1 subjects' ? responses were at a fairly low level, and in the second and third trials, ? responses of these subjects remained about the same. In the second trial, the number of ? responses for B4 subjects dropped sharply from its peak in trial 1, and then dropped again in the third trial. Although this sudden drop from trial 1 to 2 wasn't predicted by the hypothesis, B4 subjects still had a greater number of ? responses than B1 and B2 subjects.

The results of the B3 subjects do give limited support for hypothesis no. 8, because in the second trial (when the problem became insoluble) the number of ? responses were not much lower than
in the first trial, and in the third trial, when they were given a new soluble problem, the number of '?' responses declined sharply.

Although some of the results did give limited support for hypothesis no. 8, and 9, in view of the small size of the sample, one cannot say the hypothesis was supported, but the results do suggest that subjects who were frustrated after initially being correct, tend to become uncertain of their efficiency and felt the need to escape from the unpleasant situation by pressing the '?' button.

After examination of subjects' results, E found that the data provided another measure of subjects' efficiency in the problem solving situation. This new index noted the time in each trial when the subjects spontaneously stated a partly correct hypothesis about what the correct concept was. In the experiment it was quite possible for subjects to be partly correct and still get some wrong answers, because of the nature of the concept used (i.e. a "disjunctive" concept was used, see p. 45).

Although the results obtained weren't large enough to warrant statistical analysis, some interesting trends came out, and are shown in fig. 12. This figure shows that for both contradiction and double bind subjects, the number of hypotheses fell away in the second trial, and for the latter, rose again in the third. Results for punished and rewarded groups went in the opposite direction, i.e. there was an increase in the number of hypotheses.
they formed in the second trial.

On the basis of these results it was suggested that the B3 and B4 subjects' frustration in the second trial was shown by a drop in the number of successful hypotheses, whereas for the other two groups, continuation of the same problem resulted in increased efficiency. These results were taken as providing indirect support to hypotheses 8 and 9, where it was predicted that double bind and contradiction subjects' performance would become less confident in the second trial as a result of frustration experienced then.

Hypothesis no. 10 predicted that H.A. subjects would have a lower general efficiency level than L.A. subjects. This was predicted after a review by Mednick (1957) suggested that schizophrenic thought disorder might be related to high anxiety levels within the individual. In the present study, an abbreviated MAIS was used to measure anxiety and it was predicted that H.A. subjects would have a greater number of fixed responses, longer response latencies and fewer correct responses.

The obtained correlation coefficients were in the hypothesised direction, but were not significant, hence hypothesis no. 10 was not supported. It was suggested that the lack of correlation could have been due to the restricted sample of subjects used in the experiment, i.e. they were all university students, and their anxiety scores were all fairly low (see p. xxix appendix).
Hypotheses 11 and 12 were concerned with subjects' subjective feelings of anger, dissatisfaction, frustration, confidence, etc. in relation to the three trials of the experiment. These hypotheses predicted that double bind and contradiction subjects would both report feelings of dissatisfaction, discouragement etc., especially after the second trial, and that such reports would be more frequent for the double bind subjects.

Material bearing on these hypotheses was taken from subjects' written responses to three questionnaires. Generally, B2 subjects reported feelings of dissatisfaction with their performance throughout the whole experiment, while B1 subjects were most satisfied throughout. Attitudes of the B3 and B4 subjects changed quite markedly from trial to trial, and generally speaking, they appeared much less satisfied with their performance in the second trial than in either the first or third trials. The trend appeared more marked for the B3 subjects, and can be seen in figs. 11, 13 and 14.

Subjects did not differ in their reports of how anxious or discouraged they felt when wrong. However, as explained earlier, the lack of a difference could have been the result of the unsatisfactory wording of the question.

Considering the data obtained from the questionnaires and bearing in mind the fairly qualitative nature of the data, the experimenter tentatively concluded that the 11th and 12th
hypotheses seemed to be supported.

The present experiment was designed to test two main aspects of the double bind situation in an attempt to discover their significance in the production of "schizophrenic like" thinking disturbances. The dependent variable could be called "subjects' problem solving efficiency" and was measured by the number of correct answers, response times, number of fixations and so on. Factors which E varied, to measure their effect on subjects' behaviour were, the conflict between levels of communication (the B factor, representing different types of conflict and frustration) and the importance of being forced to remain in an unpleasant situation. The general aim of the study was to show that double bind subjects' performance was poorer, in terms of the number correct etc., than subjects who experienced the ordinary frustration situation.

A fuller interpretation of the results was made earlier, and there it was found that few of the hypotheses were supported.

In general, subjects who were continually punished throughout the experiment performed worst. This was to be expected because of the high level of wrong responses arbitrarily set by the experimenter.

In only two measures did the double bind subjects do worse than the contradiction subjects. Double bind subjects made more fixated responses and pressed the ? button more often, suggesting
that the double bind type of frustration had more confusing effects than the ordinary type of frustration. However, in all other measures, double bind and contradiction subjects did not differ significantly from each other, although both differed significantly from the rewarded subjects. Hence, the evidence obtained provided only limited support for hypotheses 1 - 4, and 6 - 9, and was supported to some extent by the BC interaction values. These values represented the significance of the combined effect of trial number and subject class. The Fbc results did suggest some interaction effects, but as these values did not quite reach statistical significance, most of these hypotheses were rejected.

The other condition the experiment was designed to measure was the importance of the ? button as a safety valve, allowing some subjects to escape from the unpleasant choice situation. Hypothesis 5 predicted that subjects with a ? button would have shorter response latencies than subjects without, because, if in doubt about a particular pair of slides, they could press the ? button and avoid making a decision, whereas the former would be forced to spend a longer time vacillating between response alternatives. However, the results went in a direction opposite to the one predicted, and it was concluded that being wrong did not have strong enough negative effects on subjects' behaviour. Subjects apparently didn't mind being wrong as it gave them some information about the correct concept, probably as much
information as being correct did, resulting in faster responses and a quicker solution of the problem. This conclusion was supported by the number of correct responses.

Failure of the data to confirm the hypotheses and practical difficulties which occurred during the experiment suggest a number of points which would be worthwhile following up in future experiments.

The first suggestion concerns the severity of punishment for a wrong response. In the present experiment electric shock of 1 milliamp. was used to punish subjects for a wrong response. Few subjects found this obnoxious and so it didn’t seem particularly effective as an aversive stimulus. However, E wanted the experience of being wrong itself to be intrinsically punishing, as this appeared to be closer to the definition of the double bind. Subjects themselves said that when they became annoyed, they were more annoyed with themselves for being wrong than with the shock. However, the experience of being wrong was probably of little importance to the subjects, as the situation was far removed from their everyday life. If subjects were told that results on this test would have an important bearing on yearly grades they may have become more emotionally involved in the experiment. As all subjects were first year Psychology students, they were required to be subjects for experiments in order to get their full quota of marks, and so it would be quite possible
to introduce an element of emotion or prestige into the situation in this manner.

Also, the type of problem subjects had to work on could be changed to decrease the positive value of being wrong (the importance of feedback as mentioned earlier.) Thus, the first important alteration to the experiment would involve a sharpening of the positive value of success and making it more relevant to subjects' daily life, and of the negative value of being wrong (preferably not by increasing an extrinsic punishment such as shock) but by increasing the intrinsic punishment, and this would be bound up with the value of making a correct response.

The next major difficulty involved the fact that the experiment was, to some extent, removed from a real-life situation and so it was impossible to produce, in an experimental situation, similar behaviour to that observed by clinicians in a real life situation. In the introduction it was said that the present situation could only approximate behaviour in the real family environment. The fact that the results did suggest some differences between the double bind type of frustration and ordinary frustration does support the hope that the double bind is qualitatively distinct from the ordinary type of frustration and also supports the hope that the double bind, although a clinical phenomenon, is amenable to objective measurement.
SUMMARY

The present experiment was designed to examine some of the features of the double bind hypothesis developed by Bateson et al., in 1956 to account for the etiology of schizophrenia. Most of the evidence in the field consisted of the subjective interpretation of data obtained from clinical interviews.

Some experimenters, such as Berger (1965), Ciotola (1961), Ringuette and Kennedy (1966) attempted to subject the global concept of the double bind to experimental investigation, but seemed to miss the essential point of the double bind, i.e. the conflict between levels of communication. The present experiment therefore, was designed to investigate the effects of conflict between levels of communication on subjects' behavior and also one other condition; the importance of some sort of escape mechanism in determining a subjects' response to a frustrating double bind situation.

The experiment itself was based on the procedure Maier (1949) used in his study of frustration in rats. He found that a type of frustration quite similar to the double bind type of frustration as defined by Bateson et al., produced disturbed behavior in the rats. Other experimenters, such as Harquart (1948), and Jones (1954) working with normal human subjects and Peters (1953) with schizophrenics used a similar experimental design to Maier's and the present study represents an attempt to continue work.
along this line.

It was predicted that subjects who experienced the double bind type of frustration would exhibit more of these schizophrenic-like behaviours than subjects who were subjected to the ordinary frustrating situation simply involving punishment when wrong.

The results indicated that double bind subjects did in some ways differ from frustrated subjects e.g. they pressed the escape button more often and made more fixated responses, but over all, these differences were not statistically significant, and the hypotheses were rejected.

Examination of the results did suggest the possibility that the concept of the double bind is amenable to experimental investigation. The Experimenter must disagree with the opinion expressed by Ringuette and Kennedy (1966, p. 141) that the double bind isn't an objectively-measurable phenomenon. The present results, although not statistically significant, do indicate that the concept of the double bind can be objectively measured, but only if the relation between the concepts of double bind and frustration and the amount, severity and type of punishment is thoroughly worked out by theoreticians and by experimenters working in this area.
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| **A2** | **Trial 1** | **Trial 2** | **Trial 3** | **Trial 1** | **Trial 2** | **Trial 3** | **Trial 1** | **Trial 2** | **Trial 3** |
|-------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1     | 26           | 40           | 35           | 28           | 38           | 21           | 37           | 33           | 22           |
| 2     | 31           | 27           | 34           | 34           | 29           | 28           | 26           | 30           | 36           |
| 3     | 38           | 47           | 34           | 23           | 36           | 26           | 31           | 26           | 33           |
| 4     | 44           | 50           | 44           | 22           | 31           | 28           | 38           | 37           | 35           |
| 5     | 25           | 33           | 23           | 29           | 36           | 27           | 41           | 43           | 26           |
| 6     | 28           | 33           | 26           | 37           | 31           | 27           | 49           | 32           | 42           |
| 7     | 35           | 43           | 42           | 20           | 49           | 21           | 28           | 27           | 27           |
| 8     | 41           | 48           | 45           | 35           | 31           | 32           | 38           | 42           | 33           |
| 9     | 48           | 48           | 42           | 33           | 38           | 18           | 32           | 39           | 32           |
| 10    | 46           | 50           | 31           | 31           | 22           | 26           | 22           | 40           | 32           |

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| **TOTAL** | **394** | **317** | **346** |          |          |          |          |          |          |
| Trial 1 | Trial 2 | Trial 3 | Trial 1 | Trial 2 | Trial 3 | Trial 1 | Trial 2 | Trial 3 | Trial 1 | Trial 2 | Trial 3 | Trial 1 | Trial 2 | Trial 3 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1       | 10.72   | 6.63    | 7.37    | 9.00    | 8.49    | 9.52    | 6.59    | 11.16   | 18.09   | 5.16    | 5.01    | 8.35    | 11.38   | 8.56    | 10.61   |
| 2       | 10.43   | 6.54    | 6.48    | 26.79   | 23.50   | 17.37   | 13.86   | 11.37   | 6.21    | 5.91    | 6.06    | 5.71    | 11.38   | 8.56    | 10.61   |
| 3       | 3.42    | 2.70    | 2.90    | 10.94   | 8.11    | 6.34    | 4.99    | 5.84    | 4.00    | 11.38   | 8.56    | 10.61   | 5.91    | 6.06    | 5.71    |
| 5       | 3.15    | 3.13    | 4.37    | 19.13   | 19.42   | 18.77   | 24.32   | 31.00   | 10.55   | 40.29   | 44.01   | 27.30   | 11.38   | 8.56    | 10.61   |
| 6       | 12.29   | 3.59    | 7.82    | 7.08    | 8.50    | 7.73    | 2.59    | 3.59    | 2.69    | 5.31    | 3.34    | 3.97    | 11.38   | 8.56    | 10.61   |
| 8       | 8.94    | 4.37    | 8.26    | 30.46   | 51.95   | 14.72   | 20.43   | 22.21   | 6.28    | 8.50    | 2.71    | 15.33   | 11.38   | 8.56    | 10.61   |

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<td>116</td>
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<td>139</td>
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Abbreviated form of the M.A.S. administered to each subject before the experiment.

A Biographical Inventory
(for teaching purposes only).

4. I do not tire quickly. TRUE FALSE
5. I am often sick in my stomach. TRUE FALSE
7. I am about as nervous as other people. TRUE FALSE
11. I have very few headaches. TRUE FALSE
13. I work under a great deal of strain. TRUE FALSE
14. I cannot keep my mind on one thing. TRUE FALSE
16. I worry over money and business. TRUE FALSE
18. I frequently notice my hands shake when I try to do something. TRUE FALSE
24. I blush as often as others do. TRUE FALSE
25. I have diarrhoea once a month or more. TRUE FALSE
26. I worry quite a bit over possible troubles. TRUE FALSE
27. I practically never blush. TRUE FALSE
33. I am often afraid that I am going to blush. TRUE FALSE
35. I have nightmares every few nights. TRUE FALSE
36. My hands and feet are usually warm enough. TRUE FALSE
37. I sweat very easily even on cool days. TRUE FALSE
38. When embarrassed I often break out in a sweat, which is very annoying. TRUE FALSE
41. I do not often notice my heart pounding and I am seldom short of breath. TRUE FALSE
43. I feel hungry almost all the time. TRUE FALSE
44. Often my bowels don't move for several days at a time. TRUE FALSE
48. I have a great deal of stomach trouble.       TRUE  FALSE
51. At times I lose sleep over worry.            TRUE  FALSE
54. My sleep is restless and disturbed.         TRUE  FALSE
56. I often dream about things I don't like to tell other people. TRUE  FALSE
66. I am easily embarrassed.                    TRUE  FALSE
67. My feelings are hurt easier than most people's. TRUE  FALSE
77. I often find myself worrying about something. TRUE  FALSE
82. I wish I could be as happy as others.        TRUE  FALSE
83. I am usually calm and not easily upset.     TRUE  FALSE
86. I cry easily.                               TRUE  FALSE
87. I feel anxious about someone or something almost all the time. TRUE  FALSE
94. I like to study and read about things I am working at. TRUE  FALSE
99. It makes me nervous to have to wait.         TRUE  FALSE
100. I commonly hear voices without knowing where they come from. TRUE  FALSE
103. Sometimes I become so excited that I find it hard to get to sleep. TRUE  FALSE
107. I have sometimes felt that difficulties were piling up so high that I could not overcome them. TRUE  FALSE
112. At times I have been worried beyond reason about something that did not matter. TRUE  FALSE
117. I do not have as many fears as my friends. TRUE  FALSE
123. I have been afraid of things or people that I know could not hurt me. TRUE  FALSE
136. I certainly feel useless at times.          TRUE  FALSE
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<tr>
<td>138. I find it hard to keep my mind on a task or a job.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>145. I am more self-conscious than most people.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>152. I am the kind of person who takes things hard.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>153. I am a very nervous person.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>153. Life is often a strain for me.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>164. At times I think I am no good at all.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>168. I am not at all confident of myself.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>163. At times I feel that I am going to crack up.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>167. I don't like to face a difficulty or make an important decision.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
<tr>
<td>190. I am very confident of myself.</td>
<td>TRUE</td>
<td>FALSE</td>
</tr>
</tbody>
</table>
The first "Level of Aspiration" questionnaire administered to each subject between the first and second trial.

QUESTIONNAIRE 1.

NAME: ____________________________ AGE: ______

SEX: __________ DATE: __________

This questionnaire is designed to discover your reactions to the problem on which you are working and I would like you to answer the following brief questions.

For each question, a number of alternatives are provided; please tick the answer that comes closest to how you feel AT THE PRESENT MOMENT.

Do not omit any questions.

There are no right or wrong answers, I am only interested in finding out your INDIVIDUAL views of the problem at this moment.

You will have all the time you need to answer all the questions, but work as fast as you can.

If you have any queries about the meaning of a particular question, please ask the examiner.

YOU MAY NOW TURN THE PAGE AND BEGIN.
The first "Level of Aspiration" questionnaire administered to each subject between the first and second trial.

**QUESTIONNAIRE 1.**

NAME: ____________________________________________ AGE: ______

SEX: ________________ DATE: _____________________

This questionnaire is designed to discover your reactions to the problem on which you are working and I would like you to answer the following brief questions.

For each question, a number of alternatives are provided; please tick the answer that comes closest to how you feel AT THE PRESENT MOMENT.

Do not omit any questions.

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You will have all the time you need to answer all the questions, but work as fast as you can.

If you have any queries about the meaning of a particular question, please ask the examiner.

YOU MAY NOW TURN THE PAGE AND BEGIN.
1. Do you think that the problem you have been working on is:
   a. very hard.
   b. moderately hard.
   c. moderately easy.
   d. very easy.

2. Are you satisfied with your performance on the previous trial of the experiment?
   a. very satisfied.
   b. moderately satisfied.
   c. moderately dissatisfied.
   d. very dissatisfied.

   Give reasons for your answer above.

3. On the next trial, do you think you will perform
   a. better than.
   b. about the same.
   c. worse than you did on the previous trial?
4. Although you haven't been able to compare your results with those of other subjects, how do you think your performance on the previous trial might compare with theirs?
   a. better than.
   b. same as.
   c. worse than theirs.

5. Did you become ANNOYED when you were punished for a wrong response?
   a. very annoyed.
   b. mildly annoyed.
   c. not annoyed at all.

6. If you were annoyed, which annoyed you most?
   a. shock.
   b. being wrong.
   c. both.
   d. anything else (Please specify)

7. Did you feel DISCOURAGED when you were punished for a wrong response?
   a. very discouraged.
   b. mildly discouraged.
   c. not at all discouraged.
8. If you did feel discouraged, which discouraged you most?
   a. shock.
   b. being wrong.
   c. both.
   d. anything else (Please specify).

9. What effect did this discouragement/annoyance have on your attitude to the problem?
   a. made you want to try harder.
   b. no change in attitude toward the problem.
   c. made you feel like giving up.
   d. anything else (Please specify).

10. Do you think you could have done better than you did? YES/NO
    If so, how much better?
    a. a little better.
    b. a lot better.

11. Give reasons for your answer to (10) above.
12. Did you feel ANXIOUS when you were punished for a wrong response?
   a. very anxious.
   b. mildly anxious.
   c. not anxious at all.
13. If you did feel anxious, what led to this anxiety?
   a. shock.
   b. being wrong.
   c. both.
   d. anything else (Please specify)

14. Did you feel that you were getting the right answer without really knowing why? YES/NO
15. Did you follow a definite plan in making your choice? YES/NO
The Second "level of aspiration" questionnaire administered to each subject between the second and third trials.

1. Do you think that the problem you have just been working on is;
   a. very hard.
   b. moderately hard.
   c. moderately easy.
   d. very easy.

2. Are you satisfied with your performance on the previous trial? (i.e. on the second trial).
   a. very satisfied.
   b. fairly satisfied.
   c. rather dissatisfied.
   d. very dissatisfied.

Give reasons for your answer above.

________________________________________________________________________
________________________________________________________________________
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3. On the next trial, do you think you will perform
   a. better than.
   b. about the same.
   c. worse than you did on the previous trial?
4. Although you haven't been able to compare your results with those of other subjects, how do you think your performance on the second trial might compare with theirs on the same trial?
   a. better than.
   b. same as.
   c. worse than theirs.

5. Did you become ANNOYED when you were punished for a wrong response?
   a. very annoyed.
   b. mildly annoyed.
   c. not annoyed at all.

6. If so, which annoyed you most?
   a. shock.
   b. being wrong.
   c. both.
   d. anything else (Please specify)

7. Did you feel DISCOURAGED when you were punished for a wrong response?
   a. very discouraged.
   b. mildly discouraged.
   c. not at all discouraged.
8. If you did feel that way, which discouraged you most?
   a. shock.
   b. being wrong.
   c. both.
   d. anything else (Please specify)

9. What effect did the discouragement/annoyance have on your attitude to the problems?
   a. made you want to try harder.
   b. no change in your attitude toward the problem.
   c. made you feel like giving up.
   d. anything else (Please specify)

10. Do you think you could have done better than you did? YES/NO
    If so, how much better?
    a. a little.
    b. a lot.

11. Give reasons for your answer to (10) above.
12. Did you feel that you were getting the right answers without really knowing why?  

13. Did you feel ANXIOUS when you were punished for a wrong response?
   a. very anxious.
   b. mildly anxious.
   c. not anxious at all.

14. If you did feel anxious, what do you think led to this feeling?
   a. shock.
   b. being wrong.
   c. both.
   d. anything else (Please specify)

15. Did you follow a definite plan in making your decisions?  

   Please explain further.
16. Did you change your method of solving the problem? YES/NO
   If so, a. when?

   ____________________________________________________________

   ____________________________________________________________

   b. why?

   ____________________________________________________________

   ____________________________________________________________

17. Did the problem itself seem to change in any way? YES/NO
   If so, a. when?

   ____________________________________________________________

   ____________________________________________________________

   b. how?

   ____________________________________________________________
The third "level of aspiration" questionnaire, administered to each subject after the third trial.

1. How interesting did you find the problem?
   a. very interesting.
   b. moderately interesting.
   c. rather boring.
   d. extremely boring.

2. Do you think that the problem as a whole was
   a. very hard.
   b. moderately hard.
   c. moderately easy.
   d. very easy.

3. Were you satisfied with your performance AS A WHOLE?
   a. very satisfied.
   b. moderately satisfied.
   c. moderately dissatisfied.
   d. very dissatisfied.

Give reasons for your answer above.

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4. Although you haven't been able to compare your performance with that of other subjects, how do you think your overall performance might compare with theirs?
   a. better than.
   b. the same as.
   c. worse than theirs.

5. Did your attitude toward the problem change at all during the experiment? YES/NO
   5a. If so, in what way?

6. Do you think you could have done better than you did?
   a. much better.
   b. a little better.
   c. no better.
   d. worse than you did.

7. Give reasons for your answer to (6) above.
8. Did you feel you were getting the right answer without really knowing why? YES/NO

9. Did you change your method of solving the problem? YES/NO

   If so, approximately how often? ________________________

   when?

   ___________________________________________________

   ___________________________________________________

   why?

   ___________________________________________________

10. Did you feel you were getting punished for no good reason? YES/NO

    Reasons for your answer.

    ___________________________________________________

    ___________________________________________________

    ___________________________________________________

    ___________________________________________________

    ___________________________________________________

11. Do you think that you attained a final solution to the problem? YES/NO

    What is it?

    ___________________________________________________

    ___________________________________________________
a. What are your reasons for thinking that you have achieved a solution?

____________________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________________

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12. Are you satisfied with your final answer?  YES/NO

13. Do you think that there was a solution to be obtained from the problem?  YES/NO

   Why?

   ____________________________________________________________________________

   ____________________________________________________________________________

14. What do you consider the purpose of the experiment to be?

   ____________________________________________________________________________

   ____________________________________________________________________________

   ____________________________________________________________________________

   ____________________________________________________________________________

15. Did the problem itself seem to change in any way?  YES/NO

   If so, a. when?

   ____________________________________________________________________________

   ____________________________________________________________________________
16. On which of the three trials do you think you performed best?
   a. the first.
   b. the second.
   c. the third.

17. Do you think that there was more than one solution to the
    problem? YES/NO
    Why?

18. Which was the easiest of the three trials?
   a. the first.
   b. the second.
   c. the third.
   d. all the same.
   e. reasons for your choice above.
Fig. 19. Frequency distribution of M.A.S. scores of subjects in the sample.
Fig. 19. Frequency distribution of M.A.S. scores of subjects in the sample.
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