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The Relationship of Goals, Plans and Intentions
to Choice Behavior

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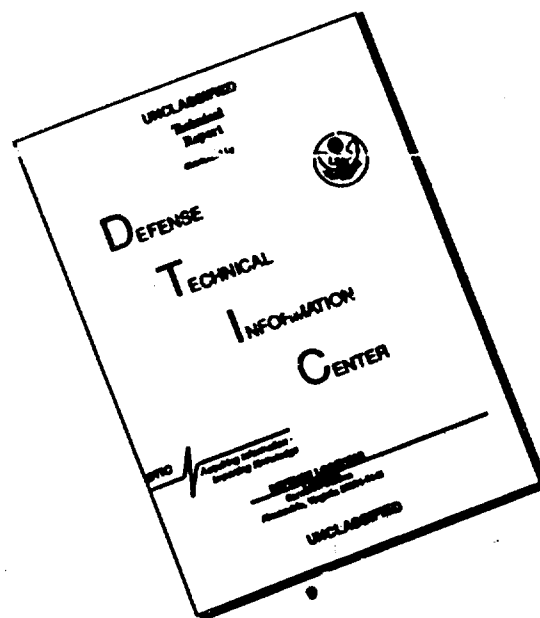
Abstract

The relationship of conscious goals, plans and intentions to choice behavior were studied in two experiments using a word scrambling task. S was allowed to choose the difficulty (length) of the task (word) he was to work on. Significant relationships were found between both experimentally varied and individually chosen goals, plans and intentions (rated according to difficulty) and the difficulty of the task choices. The relationship of incentive condition to choice behavior was found to be a function of the degree to which goals, plans and intentions changed in response to such incentives.

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The Relationship of Goals, Plans and Intentions
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Heretofore, most approaches to choice behavior have viewed choice as either determined by extrinsic reinforcements (e.g., behaviorism) or as a joint function of (subjective) probability of success and the utility of the outcome (e.g., the decision under uncertainty theories; see Feather, 1959, for a review). What has been ignored in both these approaches is the effect of variation in the individual's conscious goals and intentions on choice behavior. Such things as the goal the individual is trying for, the way in which he goes about getting it, and the degree to which he tries to get it are taken as constants or deliberately controlled. Theories which utilize such measures as subjective probability assume that all individuals in a given situation will react in the same way to the same probability of success (this is not true of Atkinson's, 1957, theory, however). To the degree that individual variables are considered as independent parameters, they tend to be relatively permanent, non-conscious motives of the individual (e.g., need for achievement).

However, recent work in the area of verbal learning and awareness (see Spielberger, 1965, for a review) has drawn attention to the conscious goals and intentions of the subject as determinants of the direction and level of

his behavior. For instance, Spielberger, Bernstein, and Ratliff (1965) found that the intention to obtain verbal reinforcement ("mm-hmm") led to a higher acquisition rate for "human noun" responses on a "free association" task than those not so motivated. Similarly, Dulany (1962) found a strong relationship between behavioral intentions (to give a certain response or get a certain reinforcement) and performance on three different verbal learning tasks. What these findings suggest is that temporary and conscious "motives" of the individual can be systematically related to his subsequent behavior. The purpose of the present investigation was to explore the relationship of such conscious motives to choice. Unlike most previous choice experiments (and experiments on learning and awareness) where the individual has a choice of response, in the present study the subjects were given a choice of the difficulty of the task they were to work on. In addition, unlike many previous studies where the task was such that the individual had no influence over the outcome (e.g., Edwards, 1954a, b), in the present case the outcome was dependent upon the individual's own skill.

For the purposes of the present investigation three levels of conscious motives were delineated analytically. Motives at the most abstract level were called goals and were taken to refer to the general outcome the individual was seeking or "what he was trying to do." Motives at a somewhat more specific level were called plans and were defined as the general strategy or means of going about making choices the individual will use in seeking his goal. (This concept has something in common with Miller, Galanter and Pribram's, 1959, plan, but is used in a somewhat more restricted sense here.) Motives at the most specific level were called behavioral intentions, defined as the determination to make a certain choice. (The concept of intention is similar to that used by Dulany, 1962; and Ryan, 1958, 1965².) A simpler way

of conceptualizing goals, plans and intentions is to view them as answers to the questions "Where are you going?", "How will you get there?", and "What exactly, will you do?", respectively. Since intentions, as conceived here, are conceptually closest to actual behavior and most specific, it was hypothesized that they would predict choice behavior best, followed by plans and then goals.

The experiments reported here examined the relationship between both experimentally manipulated and individually chosen goals, plans and intentions and choice behavior. Also of interest was the relationship between aspects of the situation (in this case, incentive conditions) and both conscious motives and choice behavior. It was hypothesized that incentives would affect behavior only to the degree that they affected the individual's conscious goals, plans and intentions. This was based on Spielberger's (1965) conclusion based on examination of the verbal learning and awareness literature that behavior is a joint function of awareness (which in the present investigation was not varied) and the subject's intention to achieve a certain result or get a certain reward, as well as Ryan's (1958, 1965) theoretical arguments along these same lines.

Experiment 1

Method

Task. The task was word unscrambling. On each trial the individual had a choice of working on any one given word length from 3 to 11 letters. The individual chose his word length before seeing any of the words and then worked on his chosen word for 45 seconds. All words of any given word length were of approximately equal difficulty, i.e., words were selected from word frequency tables so that all words of a given length (across trials) were of the same approximate familiarity. There were 36 trials (i.e., 36 opportunities

to make a choice) consisting of six practice trials followed by three experimental blocks of 10 trials each.

Thus, the general task (i.e., word unscrambling) was the same for all subjects but they were allowed to choose the difficulty level of the specific problem on which they wanted to work on each trial (i.e., the length of the word they were to unscramble).

Subjects. The subjects were 22 Trenton State Teachers College female members of an introductory psychology course. The subjects volunteered to participate in the experiment and were paid for their time.

Procedure. After the rules for unscrambling the words (e.g., no proper nouns or foreign words) were given, all subjects worked on six practice trials. The format of the work booklet was such that the subjects circled the word length they planned to work on on one page and then turned the page and worked on the word length they had chosen until the time was up. If they unscrambled the word they had chosen before the time limit, they were to put down their pencils until the next trial began.

Each subject had another booklet containing goal, plan, and intention rating scales. Before the first experimental block of ten trials, all subjects put a 2, 1, or 0 beside each of six listed goals to indicate if they would try for it: "definitely," "maybe," or "not at all," respectively, during the next ten trials. The listed goals were to: "have as much fun as possible;" "take it as easy as possible;" "attain as much of a sense of personal accomplishment as possible;" "learn as much about the different word lengths as possible;" "attempt to overcome the greatest challenges possible," and "become involved as little as possible." The subjects were told they could choose any goal or combination of goals they wished. No incentives were offered for this trial block. The next page asked S about her plan for

reaching the goals she had chosen for the next 10 trials. The scale contained 5 categories ranging from the plan to "choose the easiest words possible" to the plan to "choose the hardest words possible" of which S had to check one. The next sheet contained the intention question (for the first experimental trial only) and asked S "What will you try and do on the next trial?" and was identical to the plan scale in content. The only conceptual difference was that the intention scale asked S only about the next single choice whereas the plan questions asked S about her intended choices for the 10 trials as a whole. S filled out a new intention scale before each of the first 10 experimental trials.

Before the second experimental block of 10 trials the subjects were told that on the next block they would receive 2¢ for each word correctly solved regardless of the length of the word. Before this second block the subjects filled out a goal scale similar to the previous one except that the goal to "make as much money as possible" was added to the scale. The subject then filled out a plan scale identical in format to the previous one describing her plans for the next 10 trials; and an intention scale identical to the previous ones before each of the 10 trials in the block.

Before the third block of 10 trials the subjects were offered 10¢ for each word correctly solved in that block regardless of length. Before these trials they filled out goal and plan scales identical to those used for the previous block. They also filled out an intention scale before each trial on this block.³

Measures. The independent variables were the incentive conditions (0¢, 2¢, and 10¢), and the difficulty ratings of the goals, plans and intentions of the subjects. The plan and intention ratings were quantified as to difficulty by numbering the responses from 1 "choose the easiest words possible"

to 5 "choose the hardest words possible." The list of goals was given to 15 employees (B.A.'s or higher) of the American Institutes for Research. They were asked to quantify each goal along the same five point scale as described above; they were to give the goal a rating of 1 if they thought the goal would lead them to choose "very easy words" and so on to 5 if they thought pursuing the goal would lead them to choose "very hard words." The only goals for which there was substantial agreement were "take it as easy as possible" and "make as much money as possible" (given ratings of 1); "attain as much of a sense of personal accomplishment as possible" (given a rating of 4); and "attempt to overcome the greatest challenges possible" (given a rating of 5), therefore, only these goal responses were used in the subsequent analysis.

For each individual and each experimental block her rating of 0, 1 or 2 for each goal (indicating how much she would try for the goal) was multiplied by the goal difficulty rating for that goal and divided by the sum of the former ratings (to control for the total amount of interest shown in all goals) to yield mean goal difficulty scores for each subject for each experimental block. Corresponding plan difficulty scores were simply the plan ratings which preceded each block. Corresponding intention difficulty scores were obtained by averaging (for each block) the 10 intention ratings made before each of the 10 trials in each block. The dependent variable was the mean word length choice for each experimental block (the word length being a direct measure of difficulty).⁴

In addition to the "raw" goal, plan, intention and word choice difficulty scores for each trial block, for each of the above measures change scores were computed for each individual by subtracting her corresponding scores on block I from block II, block II from block III, and block I from block III.

Results

(a) The interrelationship of goals, plans and intentions. The correlations between the mean goal, plan and intention difficulty raw and change scores for the 22 subjects are shown in Table 1. The first column shows the correlations for the raw scores averaged across the three experimental blocks. The second column shows corresponding correlations for the change scores averaged for the three pairs of experimental blocks. In both cases only the Plan-Intention correlations are significant. This may indicate in part the rather crude measure of goal difficulty used, and the fact that all the subjects' goal ratings could not be used due to lack of agreement as to what difficulty choices the goals suggested.

Insert Table 1 about here

(b) The relationship of goals, plans, and intention to word choice. The correlations between mean goal, plan and intention difficulty scores and mean word length choice are shown in Table 2. Again, the first column of the table shows the correlations between raw scores and choice averaged across the three trial blocks, and the second column of the table shows the corresponding correlations for the change scores averaged for the three pairs of blocks. In both cases the correlations of choice with both plans and intentions are significant. Also of interest is the fact that in both cases the intention-choice correlation was the highest (the mean within individual intention-choice correlation was .81), the plan-choice correlation was the second highest, and the goal-choice correlation was the lowest, thus supporting the conceptual distinction between different levels of abstraction made earlier (i.e., the hypothesis that the best predictions would be made from measures conceptually closest to actual behavior).

Insert Table 2 about here

(c) The relationship of incentive condition to goals, plans, intentions and choice. Table 3 shows that t-ratios for the mean changes in goals, plans, intentions and choice difficulty between blocks I and II, II and III, and I and III (i.e., 0¢ vs. 2¢; 2¢ vs. 10¢; and 0¢ vs. 10¢). In all three cases both the mean intention and choice difficulty scores changed significantly in the "easier" direction (as more money was offered for each correct solution regardless of word length). There was a significant change in the same direction in mean goal difficulty for the 0¢ vs. 2¢ comparison and, consequently, for the 0¢ vs. 10¢ comparison but not for the 2¢ vs 10¢ comparison. There was also a significant mean plan difficulty change for the 0¢ vs. 10¢ comparison. This suggests that the effect of incentives on choice was at least accompanied by corresponding changes in intentions and, in some cases, by corresponding changes in goals and plans. It remains to be seen, however, whether or not changes in goals, plans and intentions are necessary for changes in behavior to occur. A partial answer to this question can be found by examining behavioral (word choice difficulty) changes for subjects classified within each condition as to their conscious goals, plans and intentions.

Insert Table 3 about here

(d) Does the use of goals, plans and intentions as independent variables improve the predictability of the effects of incentives? To test this possibility, for each pair of blocks three different dichotomous classifications of the subjects were made: i) those whose mean goal difficulty scores changed in the "easier" direction vs. all others; ii) those whose mean goal and plan difficulty scores changed in the "easier" direction⁵ vs. all others; and

iii) those whose mean goal, plan and intention scores changed in the "easier" direction⁶ vs. all others. t-ratios for the mean word choice changes of each sub-group were then computed. The results are shown in Table 4. In all cases subjects classified as "Change towards Easier" subjects on the basis of goals, plans and intentions or combinations thereof showed greater (and significant) changes in word length choice in the "easier" direction than subjects in the "all other" category. In the latter groups, only one of nine t-ratios showed significant change (block I-II subjects classified by goals only) and this group contained many subjects whose plan and intention changes contradicted their goal changes. It is evident that for the block II-III and I-III changes, all reclassifications also yielded higher t-ratios for the "easier" subjects than using the "incentive condition" alone to predict (i.e., using all subjects as reported in the bottom row of Table 3). For all three pairs of blocks classifying subjects simultaneously by goal, plans, and intentions yielded far higher t-ratios than classification by condition alone. In addition classification by goals, plans and intentions simultaneously yields better predictions than classification by goals and plans simultaneously, and the latter is better than classification by goals alone. Thus, information from each level adds something to the accuracy of prediction. It should also be mentioned that simultaneous classification of subjects by changes in direction of goals, plans and intentions resulted in only one incorrect individual prediction as to direction of change in word length choice for the three pairs of conditions (i.e., only one person who was predicted to change in the "easier" direction actually changed in the "harder" direction) and the absolute mean change in word length choice was only 1/10 of a letter in that case (probably below the change detection threshold for

most subjects). On the other hand, classification by condition alone would have led to 14 (out of a possible 66) incorrect predictions as to direction of change for the three pairs of conditions.

Insert Table 4 about here

Discussion

The first study supported the notion that choice behavior could be predicted from knowledge of the subjects' goals, plans and intentions. It also suggested that classification of subjects according to their stated conscious motives can improve the predictability of the effects of incentives. It appeared that the effects of incentive conditions were mediated by the subjects' conscious goals, plans and intentions.

However, the study left something to be desired in several respects. For example, the mean goal difficulty measures were not totally adequate as some of the subjects' goal ratings could not be adequately quantified. In addition the empirical distinction between plans and intentions was not very adequate as the same questions were used to measure each. Finally, only female subjects were used, thus restricting the generality of the findings. The second study was aimed at correcting some of these difficulties.

Experiment II

Method

Task. The task was the same as that used in the previous study. The only difference was that in this case there were three instead of six practice trials and two instead of three blocks of 10 experimental trials each.

Subjects. The subjects were 70 University of Maryland, paid volunteers who responded to a college newspaper advertisement. Twenty-seven subjects were female and 43 were male.

Procedure. After three practice trials, each subject was assigned one of three different goals to pursue for the first block of 10 trials. These goals were assigned to subjects at random and were chosen to resemble ^{as far as} the three goals

on the last study which showed the least ambiguity. Twenty-three subjects were told to "try and achieve as much success as possible;" 23 subjects were told to "try and achieve as great a sense of personal accomplishment or personal achievement as possible;" and 24 subjects were told to "try and overcome the greatest possible challenges (even if you do not often make it)." Then all subjects were given two minutes to describe in their own words their plan for going about reaching their goal on the succeeding trials. The subjects next filled out a five point behavioral intention scale to indicate their intended choice distribution (in general) for the next 10 trials; the five response categories ranged from "very easy words" to "very hard words." All subjects were told that they were not committed to their choices but simply to indicate what "they thought they would do now." After this subjects worked on 10 different word choices for 45 seconds each, choosing whatever word length they wished on each trial.

Before the second experimental block the subjects were told that on the last 10 trials they could choose any goal or goals they wished. They were also told that they would be paid 4¢ for each word correctly solved on these last 10 trials, but that they did not have to go for the money unless they wished. All subjects then described the goal or goals they would pursue in their own words and also completed two multiple choice items asking them about how much money they would try to make on the 10 trials (one item was relatively qualitative in nature and one was quantitative). The subjects were then given two minutes to describe in their own words their plan for going about achieving their goal or goals and to fill out a behavioral intention scale identical to that used for the first block.⁷ All subjects then worked on 10 different choices for 45 seconds each, choosing whatever word length they wished each time.

Measures. The "success," "personal achievement," and "challenge" goals

were given a priori difficulty ratings of 1 ("very easy"), 3 ("neither too hard nor too easy"), and 5 ("very hard"), respectively.⁸ The plan descriptions for both blocks were given difficulty ratings by the two Experimenters from 1 ("very easy") to 5 ("very hard") as were the goal descriptions given before the second block⁹. The behavioral intention responses were also given difficulty ratings from 1 ("very easy words") to 5 ("very hard words"). Thus, each subject had a "raw" mean goal, plan and intention difficulty score for each of the two experimental trial blocks. Mean goal, plan and intention difficulty change scores from block I to block II were also computed for each subject. The dependent variable was again the mean word length (i.e., word difficulty) choice for each subject on each experimental block.¹⁰

Results

(a) The interrelationship of goals, plans and intentions. The correlations between the raw mean goal, plan and intention difficulty scores for block I (trial 1-10) and block II (trials 11-20) and the change scores on these measures between blocks I and II are shown in Table 5. All the correlations are highly significant. In addition those levels that are conceptually closest to each other (Goals-Plans, and Plan-Intentions) are correlated more highly than those levels conceptually farthest from each other (Goals-Intentions) in all three cases.

Insert Table 5 about here

(b) The relationship of goals, plans and intentions to word choice. The correlations between mean goal, plan and intention difficulty scores and mean word length choice are shown in Table 6 for both experimental blocks and for the changes between block I and block II. In all cases, all the correlations are highly significant. The correlation between goal difficulty

and choice for block I, it will be recalled, applies to the effect of the experimental manipulation of the goals by instructions. It was shown above (section a) that these goals led to "congruent" (significantly correlated) plans and intentions. Table 6 shows that these goals also led to "congruent" choice behavior, i.e., the harder the goal the harder the word length choice. It is also of interest to note that these differences in word length choice coincided with the empirical probabilities of success for each goal group in block I. The correlation between mean word length choice and mean number of word choices solved correctly was $-.70$ for all subjects combined. Those given the "success" goal succeeded in solving 76% of their word length choices correctly, those given the "achievement" goal solved 48% correctly, and those given the "challenge" goal were able to solve only 33% of their choices correctly.

Insert Table 6 about here

As in the previous experiment, the highest correlations with word choice are for intentions, followed by plans, and followed by goals; thus again the accuracy of the predictions are a function of the conceptual closeness of the motivation measure to actual behavior.

(c) The relationship of incentive condition to goals, plans, intentions, and choice. All t -ratios for changes in mean difficulty of goals, plans, intentions, and word length choice from block I to block II were significant at the .001 level or better; the t values ranged from 7.31 (Plans) to 6.83 (Word Choice). In all cases the mean changes were in the "easier" direction. As before, this suggests that changes in actual behavior in response to a monetary incentive are accompanied by corresponding changes in goals, plans and intentions, except in this experiment the degree of correspondence is

better.

(d) Does the use of goals, plans and intentions as independent variables improve the predictability of the effect of incentives? A positive answer to this question is suggested by the fact that changes in goals, plans and intentions (measured before behavior) from block I to II were highly correlated with changes in word length choice. Of more relevance are the correlations between the two multiple choice items, asking S how much money he would try to make on the second block, and mean word length choice. The correlations were .62 and .60 for the relatively qualitative and the quantitative items, respectively ($p < .01$, in both cases).

Of equal interest is Fig. 1 where the mean word length choice changes are shown as a function of the sum of the changes in goal, plan, and intention difficulty scores. It can be seen from this figure that subjects showing an overall negative (i.e., in the "more difficult" direction) goal + plan + intention change chose harder words on the average on block II than on block I. Subjects showing no (0) goal + plan + intention change showed almost no word length change. Subjects showing positive goal + plan + intention changes showed proportional positive changes (i.e., towards easier words) in word length choice. These results suggest that knowledge of the degree to which S plans to try for a reward (e.g., money) and knowledge of the goals, plans and intentions he develops in response to an extrinsic incentive can greatly increase the precision with which the effects of incentives on choice can be predicted.

Insert Fig. 1 about here

Discussion

The results of the second experiment confirmed those of the first

experiment. The major difference was that the results in the second study were in practically all cases more highly significant than those of the first study, a consequence, no doubt, of the experimental manipulation of the goals in block I and the more careful measurement of both goals and plans. Of considerable interest in the second study was the fact the goal difficulty scores were significantly related to choice behavior. This is of interest because the relationship of goals to behavior is not as conceptually and operationally "obvious" in the same way that the intention-choice and, to a lesser extent, the plan-choice relationships were "obvious." It will be recalled that the intention questions in both studies and the plan questions in the first study simply asked S directly what he or she was going to do (i.e., what types of words he or she was going to choose). The goal items, however, were at a somewhat more abstract level: e.g., in the second study (block II) S was asked "What will you try and do on the next 10 trials...etc." In spite of this, in the second study the correlations between goals and choice behavior were not far worse than the correlations between intentions or plans and behavior.

Implications

The present findings suggest that conscious goals, plans and intentions have a considerable influence on choice behavior and that they enable one to increase the precision of prediction of behavior in response to incentives substantially. It can be suggested that theories of choice behavior which attempt to move directly from properties of the situation (stimulus properties) to the behavior of the organism (responses) without taking account of "conscious" motives, would seem at best to be reducing their accuracy of prediction over what it might be, and at worst to be confined to limited and highly probabilistic predictions. When conscious motives are either explicitly

or implicitly assumed to be "constant," variation in behavior which results from differences in goals and intentions which do occur is relegated to the category of error variance. Since in any given situation wide variation in goals and intentions is commonplace, it would seem that the assignment of the effects of conscious motives to the realm of error variance and the consequent failure to give such goals major status in theory would severely limit the general applicability and precision of such theories.

From an even more practical research standpoint, in cases where the effects of extrinsic or stimulus variables fail to yield significant behavior change, the reasons for such failure cannot be easily determined unless some account is taken of "what the subjects were trying to do" in the situation. For instance, it is often found in research that subjects do not want to obtain the reinforcement which E offers or pursue the goal which E requests and instead substitute their own reinforcements or goals for those given by the Experimenter. Although the results of the present studies show that it is certainly possible to obtain significant changes in choice behavior with the introduction of extrinsic incentives (e.g., money) without taking account of the goals, plans, and intentions of the subjects, there is some risk and many implicit assumptions (e.g., that S wants money) involved in such a procedure. For it appears that the effects of such incentives, as investigated in the present studies at least, are effective in changing behavior only to the extent that they are effective in altering the subjects' conscious motives. Even were one to argue that both conscious motives and behavior are ultimately conditioned by extrinsic reinforcement (which we do not),¹¹ it would seem that to ignore the effects of conscious motives results in considerably more error in prediction than would otherwise be the case. In the second experiment reported here particularly, the effect of

(monetary) incentives was directly proportional to the desire or aspiration of the subject to obtain the incentive. This result strongly supports previous findings in the area of verbal learning and awareness (e.g., see Spielberger, 1965) where similar results were obtained, using verbal rather than monetary reinforcement.

It should be noted that theories which do not take account of conscious motives explicitly must do so implicitly (e.g., by using a reward which it is assumed S wants and will work to get). But the consequence of relegating conscious motives to the implicit level is to imply that they are not important and thus encourage other researchers to bypass or ignore the entire problem. The result of such a strategy in the verbal learning and awareness area was to (initially) yield a large number of erroneous conclusions (Spielberger, 1965).

Even theories of choice which do make an attempt to include O variables as theoretical parameters do not always take account of the subjects' conscious goals. For instance, both Edwards (1954c) and Atkinson (1957) use (subjective and/or objective) "probability of success" as a major intervening variable; but probability of success is an evaluative term not a motivational one. It describes how S evaluates the situation, not what he will do about it.¹² The way in which the person will use such information depends upon his goals. Atkinson includes need for achievement as a motivational parameter in his model, but it is a motive of which the individual is not conscious (McClelland, Atkinson, Clark, and Lowell, 1953), and its relationship to conscious goals has not been clearly delineated as yet.

If we are to develop truly general theories of choice behavior it would seem worthwhile to devote more attention to the effect of conscious motives on what the individual does.

Footnotes

1. This research was supported by Contract Nonr 4792(00) between the Office of Naval Research and the American Institutes for Research. The opinions expressed do not necessarily represent those of the Department of the Navy. The authors would like to thank Dr. Roy Freedle for his criticisms of a draft of this paper.
2. Ryan uses the term "task" in the earlier article to refer to what is meant by "intention."
3. Copies of the complete instructions and rating scales for this study may be obtained from the senior author by writing to the American Institutes for Research, 8555 Sixteenth Street, Silver Spring, Maryland.
4. A second dependent variable was the subject's mean subjective probability of solving the words on each block correctly, but since the results using this measure were substantially the same as those using the word length measure, the results for the former are omitted here.
5. Subjects whose goals and plans both changed in the easy direction or who changed in the easy direction on one and showed no change on the other were both classified as "change towards easier" subjects.
6. Subjects whose goals, plans and intentions all changed in the easy direction or who changed in the easy direction on two of the three measures and showed no change on the remaining measure were both classified as "change towards easier" subjects.
7. See footnote 3.
8. In the previous study the 15 AIR employee raters had given the "personal achievement" goal a rating equivalent to 4 ("fairly hard"). It was felt that these subjects (12 of whom had M.A.'s or Ph.D.'s) might have been more oriented toward hard tasks than the student population at large, thus this goal was

given a rating of 3 here.

9. Two independent raters made the goal difficulty ratings for each subject's goal protocol for block II, and the plan difficulty ratings for the plan protocols for both blocks as well. The correlations between raters were .95, .87, and .75 for the block I plans, block II goals, and block II plans, respectively. The ratings used in the analysis were the means of the two raters' scores. In the 13 cases (out of 210) where no rating could be made by either rater (due to lack of clarity of the subject's description) subjects were assigned ratings as follows: for the block I plans, the median plan score of all subjects in that subject's goal condition; for block II goals, the median goal score of all subjects; and for block II plans, the median plan score of all subjects with the same goal as that subject had. In the 37 cases (out of 210) where one rater could make a rating and the other could not, the subject was assigned the rating that was made.

10. Footnote 4 applies to this experiment as well.

11. A recent attempt by Verplanck (1962) to demonstrate that intentions could be conditioned in the same manner as behavior seems to have been exposed as an artifact of methodology by Dulary and O'Connell (1963).

12. The senior author has shown previously (Locke, 1964, 1965) that Atkinson's theory for predicting level of performance from properties of the situation (i.e., probability of success) does not seem entirely adequate as it makes what appear to be invalid general assumptions about the way in which S will react to different probabilities of success.

References

- Atkinson, J. W. Motivational determinants of risk-taking behavior. Psychological Review, 1957, 64, 359-372.
- Dulany, D. E., Jr. The place of hypotheses and intentions: an analysis of verbal control in verbal conditioning. In C. W. Eriksen (Ed.) Behavior and awareness, Durham, N. C.: Duke Univ. Press, 1962, 102-129.
- Dulany, D. E., Jr., and O'Connell, D. C. Does partial reinforcement dissociate verbal rules and the behavior they might be presumed to control? Journal of Verbal Learning and Verbal Behavior, 1963, 2, 361-372.
- Edwards, W. Probability preferences among bets with differing expected values. American Journal of Psychology, 1954, 67, 56-67 (a).
- Edwards, W. The reliability of probability preferences. American Journal of Psychology, 1954, 67, 68-95 (b).
- Edwards, W. The theory of decision-making. Psychological Bulletin, 1954, 51, 380-417 (c).
- Feather, N. T. Subjective probability and decision under uncertainty. Psychological Review, 1959, 66, 150-164.
- Locke, E. A. The relationship of intentions to motivation and affect. Unpublished Ph.D. Dissertation, Cornell University, 1964.
- Locke, E. A. The relationship of intentions to level of performance. Journal of Applied Psychology, 1965, (in press).
- McClelland, D. C., Atkinson, J. W., Clark, R. A. and Lowell, E. L. The achievement motive. New York: Appleton-Century-Crofts, 1953.
- Miller, G. A., Galanter, E., and Pribram, K. H. Plans and the structure of behavior. New York: Henry Holt, 1960.
- Ryan, T. A. Drives, tasks, and the initiation of behavior. American Journal of Psychology, 1958, 71, 74-93.

- Ryan, T. A. Chapter I: Explaining behavior; Chapter II: Explanatory concepts; Chapter V: Experiments on intention, task, and set; Chapter VI: Intentional learning; Chapter VII: Unintentional learning. Cornell University, Dept. of Psychology, (unpublished mimeos), 1965.
- Spielberger, C. D. Theoretical and epistemological issues in verbal conditioning. In S. Rosenberg (Ed.) Directions in psycholinguistics, 1965 (mimeo draft).
- Spielberger, C. D., Bernstein, I. H., and Ratliff, R. G. The information and incentive value of reinforcement in verbal conditioning. Journal of Experimental Psychology, 1965, (in press).
- Verplanck, W. S. Unaware of where's awareness: some verbal operants-notates, monents, and notants. In C. W. Eriksen (Ed.) Behavior and awareness, Durham, N. C.: Duke University Press, 1962, 130-158.

Table 1
Correlations between Goal, Plan and Intention Difficulty Scores
for Raw and Change Scores
(averaged across Trial Blocks or pairs of Trial Blocks)

Correlation of	Scores	
	Raw	Change
Goals and Plans	.31	.21
Goals and Intentions	.33	.32
Plans and Intentions	.69**	.52*

*
p < .05

**
p < .01

Table 2

Correlations between Goal, Plan and Intention Difficulty Scores
and Mean Word Length Choice for Raw and Change Scores
(averaged across Trial Blocks or pairs of Trial Blocks)

Correlation of Mean Word Length Choice with:	Scores	
	Raw	Change
Goals	.13	.38
Plans	.60**	.43*
Intentions	.77**	.78**

* p < .05

** p < .01

Table 3
t-ratios for Mean Changes in Goals, Plans, Intentions
and Mean Word Length Choice

t-ratio for change in:	Change from Experimental Block:		
	I-II	II-III	I-III
Goals	3.95**	1.03	4.17**
Plans	1.31	1.05	2.35*
Intentions	3.34**	3.34**	5.30**
Word Length Choice	3.98**	3.03**	5.11**

* p < .05 ** p < .01

Table 4

t-ratios for Mean Changes on Word Length Choice for Subjects

Classified by Direction of Change in

Goals, Plans and Intentions

Subjects Classified according to Direction of Change in:	Block I-II				Block II-III				Block I-III			
	Subjects:				Subjects:				Subjects:			
	Change tds.		All		Change tds.		All		Change tds.		All	
	Easier		Others		Easier		Others		Easier		Others	
	t	n ^a	t	n	t	n	t	n	t	n	t	n
Goals	3.59	15	2.14	7	3.33	10	1.42	12	5.42	16	1.32	6
Goals and Plans	3.61	15	1.79	7	4.14	10	0.83	12	6.32	17	0.29	5
Goals, Plans and Intentions	4.73	11	1.50	11	4.28	9	0.91	13	7.74	15	0.04	7

^a number of subjects

Table 5
Correlations between Goal, Plan and Intention Difficulty Scores
for Raw and Change Scores (Blocks I and II)

Correlation of:	Scores		
	Block I	Block II	Change (I-II)
Goals and Plans	.88**	.83**	.84**
Goals and Intentions	.73**	.67**	.76**
Plans and Intentions	.86**	.79**	.88**

**
p < .01

Table 6
Correlations between Goal, Plan and Intention Difficulty Scores
and Mean Word Length Choice for Raw and Change Scores
(Blocks I and II)

Correlation of Mean Word Length Choice with:	Scores		
	Block I	Block II	Change (I-II)
Goals	.67**	.67**	.72**
Plans	.80**	.81**	.80**
Intentions	.88**	.81**	.88**

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p < .01

FIGURE 1
MEAN CHANGE IN WORD LENGTH CHOICE AS A FUNCTION OF CHANGE
IN TOTAL GOAL & PLAN & INTENTION DIFFICULTY SCORES
(POSITIVE SCORES INDICATE CHANGE IN THE "EASY" DIRECTION)
(Experiment II, Blocks I-II)

