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ABSTRACT

The concept of an individual's perception of control was applied to the classroom performance of university students. The initial approach was to use a laboratory simulation of a university classroom to explore the following: (1) whether it is possible to induce feelings of helplessness in a university classroom; (2) effects that feelings of helplessness might have on student achievement and attributions; and (3) effects that teacher's behavior might have on students who are feeling helpless. The experiments revealed that students' perception of control and certain teaching behaviors affected student outcomes. Sometimes teaching behaviors reduced students' bad feelings about perceived lack of control. A second research phase focused on students' perception of control in actual classroom situations. A questionnaire measured students' responsibility for their academic achievement, their attributions about success and failures, and certain classroom behaviors. Most students felt they had control of their academic performance; however, up to 10 percent had perceptions of little or no control. The latter group spent less time studying, attended fewer classes, and felt it was not important to do well academically. Questionnaire items and response data are included. (SW)

Perceived Control in the College Classroom: The Impact of Student and Teacher Characteristics

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Running Head: Perceived Control

Abstract

An individual's perception of control or lack of control has been shown to influence many types of behaviors (e.g., emotional development, feelings of well being in the aged, academic achievement). Our research has applied the concept of perceived control to the classroom performance of university students in two different phases. The initial focus begain in the laboratory with the development of a classroom manipulation of perceived control and the study of the effects of exposure to control/no control on students in a simulated classroom. In this phase different teaching behaviors and student characteristics were also examined. The second phase focused on students' perception of control in actual classroom situations. A questionnaire was developed which measured student's responsibility for their academic achievement, their attributions about success and failures, and certain classroom behaviors. The general findings of the laboratory research were that students' perception of control and certain teaching behaviors affected student outcomes. Sometimes the teaching behaviors would interact with perceived control to alleviate the debilitating effects of perceived lack of control. In the field study, most students felt they had control of their academic performance, however up to ten percent had perceptions of little or no control. This latter group spent less time studying, attended fewer classes and felt it was not important to do well academically.

Perceived Control in the College Classroom: The Impact of Student and Teacher Characteristics

Recent interest has developed toward the concept of control in the educational system. One approach has focused on the relationship between a person's belief in his/her control over environmental events and educational outcomes. For example, Weiner (1979) postulates a connection between perceived control and causal attributions. He states that students explain their academic successes and failures in terms of controllable causes (i.e., effort) or uncontrollable causes (i.e., ability). The relationship between perceived control and educational outcomes is gaining considerable empirical and theoretical support (e.g., Covington & Omelich, 1981; Frieze, 1980; Stipek & Weisz, 1981; Weiner, 1979).

Dweck and her colleagues (Diener & Dweck, 1978, 1980; Dweck & Bush, 1976; Dweck & Licht, 1980; Dweck & Reppucci, 1973) have examined the issue of controllability in the grade school classroom in terms of learned helplessness theory. According to Seligman (1975), helplessness occurs when a person learns that the occurrence of reinforcement or escape from an aversive event is independent of his/her behavior, a relationship referred to as response/outcome noncontingency. The person develops expectancies that there is no relationship between his/her responses and outcomes, which in turn interfere with learning in new situations. Dweck argues that children who attribute past failures to uncontrollable outcomes, such as ability or luck, do not persist in the presence of failure (helpless students), however, children who attribute their failures to controllable causes such as effort, will persist and will not be debilitated by failure outcomes (mastery students). The purpose of this chapter is to extend the application of perceived control and learned helplessness to include the university and college classrooms. Before discussing our research, a brief overview of learned helplessness will be presented.

Overview of Learned Helplessness

Definition

The original theory of human learned helplessness (Seligman, 1975) and the more recent reformulated theories of human helplessness (Abramson, Seligman, & Teasdale, 1978; Miller & Norman, 1979; Roth, 1980) were developed as models of reactive depression. Learned helplessness is defined as the generalized interference in learning which results from exposure to noncontingent or uncontrollable outcomes. An example of a contingent relationship would be smiling at people. When you smile at people, most smile back. Suppose you continue to smile at people, but only occasionally do they smile back at you and in no predictable fashion. The smiles of the other people are no longer contingent on your smiling at them. This would be a noncontingent relationship and you would no longer expect people to respond when you smile. In other words, when people are exposed to uncontrollable events or noncontingent outcomes they develop a generalized expectation that there is no relationship between their responses and outcomes. These expectations of no control interfere with learning new response/outcome relationships. General feelings of apathy and negative self attitudes about competency and performance also develop. Thus, perceived lack of control produces a negative feelings in people which affect their performance, their motivation and their self-esteem.

Various Applications

Seligman (1975) has argued that the theory of human helplessness is also useful for the understanding of a variety of other psychological problems. Researchers have applied learned helplessness to such diverse areas as architectural structure (Baum & Valins, 1979; Rodin, 1976), aging (Langer & Rodin, 1976; Schulz, 1980) and intellectual achievement (Dweck & Goetz, 1978; Dweck & Licht, 1980). Baum and Valins (1979) have examined the influence of architectural

structure of college dorms on the students' affective and behavioral responses. They compared students residing in the traditional corridor design with students living in suite-design dormitories. Students residing in the long corridor design experienced more stress and felt more crowded than students living in smaller suites. Rodin (1976) has suggested that when people live in crowded conditions they develop a feeling of being at the mercy of their environment and thus perceive they cannot control the contingency between their responses and outcomes. Baum and Valins reported that students living in the long corridor dormitories who felt crowded also avoided social interactions and had greater feelings of no control over their living environment.

Learned helplessness has also been applied to elderly people's behavior in geriatric care institutions (Schulz, 1980). Langer and Rodin (1976) found that when elderly people were given some degree of control over their daily routine, their physical and psychological well being improved. Two groups of elderly residents in an institution for the aged heard a talk emphasizing either their responsibility for themselves or the staff's responsibility for them as patients. The first group (personal responsibility) received plants they could look after while the second group (staff responsibility) were given plants that were tended by staff. Langer and Rodin reported that the responsibility-induced group became more active and alert and felt happier than did the staff responsibility group. In a conceptually similar experiment, Schulz (1976) manipulated the amount of control institutionalized aged had or the visits they received from college undergraduates. One group had complete control over the duration and frequency of the visits. A second group was told when and how long the visits would be but had no control over them. A third group was visited on a random basis. There was a positive effect of control on the general well-being of the elderly. There was a tendency for those people with control to

live longer, be more alert and active, and feel better about themselves than those who had no control over their routine.

Finally, Dweck and her associates have studied learned helplessness and intellectual achievement in school-age children (e.g., Diener & Dweck, 1978; DWeck, 1975; Dweck & Reppucci, 1973). A consistent finding from Dweck's research was that there are two distinct differences in children's reactions to failure outcomes. For some children, effort was increased, concentration intensified, performance was enhanced, and strategies used became more sophisticated. These chldren were labelled mastery-oriented. For other children the effect was reversed, their efforts decreased, strategies and performance deteriorated sharply. Dweck labelled these children as helpless. These two groups of children were equal in ability and intelligence, but differed in their cognitions about their successes and failures. Only children who interpreted their failures as uncontrollable manifested the cognitive and motivational deficits of helplessness. The helpless children tended to dwell on the present (the failure situation) and the negative aspects of their outcomes plus sought to escape the situation. Verbalizations by these children implied they had either forgotten their prior successes or considered them to be unimportant. On the other hand, mastery-oriented children focused on the future and the positive aspects of their outcomes and pursued solution-relevant strategies. Statements by mastery-oriented students indicated that their successes remained very salient to them and reminded them of their capabilities (Diener & Dweck, 1978). These three examples demonstrate that learned helplessness is useful for explaining various kinds of behaviors and situations.

Application to the University Classroom

Response/outcome relationships may be useful constructs for understanding

control in a variety of classroom settings. Certain student behaviors are necessary for academic success, such as class attendance, studying, asking questions, persistence at an assignment, etc. Absence of these behaviors often leads to failure. Contingent relationships would be those in which a given student behavior produces an expected outcome: attending class and studying leads to success, while not attending class or not studying results in failure. For both success and failure, the outcomes are contingent upon student behavior. Noncontingent relationships would be those in which a student's behavior has little predictable or reliable effect on the outcomes. For example, taking notes, studying, or attending classes may or may not produce success, and their absence may or may not produce failure. In this case, success or failure outcomes are noncontingent upon student behaviors.

Thus, students who have had contingent classroom experiences may perceive that they have control over positive and negative classroom outcomes, and are responsible for their academic performance. On the other hand, students with histories of noncontingent experiences may perceive that they have little control over classroom outcomes and their academic performances. They may be more bored, apathetic, and passive due to expectations that they have little influence over classroom developments. Students may have experienced different response/outcome relationships in different subject areas. For example, student A may feel she is very much in control of her successes and failures in the area of mathematics, but feels helpless when it comes time to write an English essay. It is expected then, that there will be a wide range of student contingency relationships for any given course or subject area.

The teacher is also an important component of the university classroom. Under normal classroom conditions, teacher-student interactions are a significant part of the educational process. Accordingly, contingent and noncontingent

students will come in contact with a varity of teaching behaviors. It seems likely that contingent and noncontingent students may respond differently to various teaching behaviors. For example, a disorganized instructor may cause a noncontingent student to feel more out of control, while a contingent student may work harder to organize better notes or transfer to another instructor. Consequently instructor teaching behaviors may interact with student contingency experiences to influence student behaviors. Certain teaching behaviors may increase the deleterious effects of noncontingent response/outcome relationships while other behaviors may remediate the deficits. A noncontingent student may learn less from a disorganized instructor than a contingent student would. Or, a noncontingent student may be more motivated by a high experessive instructor than by a low expressive instructor. But, a contingent student may be unaffected by differences in instructor expressiveness.

In the conceptualization of learned helplessness in the classroom, it is assumed that, students will differ in their experiences of response/outcome relationships, and that in general, teachers do have some impact on students. Based on these assumptions, we were interested in the effects of student contingency training and teaching behaviors on student achievement and student attributions. To investigate these effects both laboratory and field research were conducted.

Laboratory Research Program

Research Questions

The initial approach was to use a laboratory simulation of a university classroom to study the effects of perceived control on student behaviors. We asked three research questions. First, is it possible to induce feelings of helplessness in a unviersity classroom? Second, what effects if any will feelings of helplessness have on student achievement and attributions? Third, when a student is feeling

helpless what effects if any will the teacher's behavior have on the student? To answer the first question, we developed an aptitude test with which we could manipulate the contingency of the feedback. A simulated university classroom was used to answer the second two research questions.

The aptitude test is composed of three sections, each section having a different type of question. The first section contains verbal analogies questions, the second section is composed of quantitative problems, and section three contains sentence completion problems. All three types of questions are presented in a multiple choice format with four alternatives per question. The test is identical for the contingent and noncontingent groups; however, the contingency of the feedback is manipulated with two types of answer sheets. Immediate feedback about each alternative in the form of a "c" (correct response) or an "x" (incorrect response) is printed invisibly on the answer sheet using a spirit chemical carbon. Marking over an alternative with a special yellow pen reveals the answer and informs the student if the choice is correct or incorrect.

On the contingent answer sheets the correct alternative for each question is marked with a "c", and the incorrect alternatives is marked with an "x". Students in the contingent group uncover a "c" only when they have chosen the correct alternative. The total number of correct answers these students receive depends on thier ability to select the correct response. In contrast, on the non-contingent answer sheets certain questions have all the alternatives marked with a "c" and the remaining questions have all the alternatives marked with an "x". Therefore, the number of correct answers that students in the noncontingent group receive is determined by the answer sheet and not by their ability.

Basic Paradigm

The basic design of the research we have conducted is outlined in Figure 1.

There are two phases to the design of the experiments, the contingency manipulation

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Insert Figure 1 about here

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and the lecture presentation. Before participating students are informed that the experiment focuses on the teaching process and that they will write an aptitude test (contingency task), view a videotaped lecture, and write an exam based on the lecture. Subjects are assigned to one of three contingency conditions: contingent, noncontingent, no feedback. All subjects write the aptitude test. The contingent and noncontingent subjects receive immediate feedback about the correctness of their responses on the aptitude test but the no feedback subjects receive no information about their performance. Student attributions about aptitude test performance are measured at the end of the test.

The second phase of the experiment is the lecture presentation in which the instructor teaching behaviors are introduced. All subjects view one of a number of videotaped lectures which vary systematically on instructor expressiveness and sometimes lecture content. The educational seduction literature (e.g., Abrami, Leventhal, & Perry, 1982; Perry, Leventhal, & Abrami, 1979; Williams & Ware, 1976, 1977) has shown that lecture content and instructor expressiveness have an effect on student achievement and student ratings. High expressiveness and high content produce higher achievement and higher ratings compared to low expressiveness and low content. Expressiveness was manipulated by varying the voice inflection, physical movement, eye contact, and the humor of the instructor. These characteristics were maximized for the high expressive condition and minimized for the low expressive condition. The high content lecture was prepared from actual lecture notes, and the low content lecture was prepared by

systematically eliminating some of the teaching points such that script logic and coherence were maintained. After viewing the lecture, students completed an achievement test and attribution questionnaire.

Results - Phase 1 (Contingency Manipulation)

In discussing the results, data from four of our more recent laboratory studies are presented. An outline of the variables manipulated in each study are presented in Table 1. Note that contingency training and instructor expressiveness are common to all four studies. The dependent measures that are listed in Figure 1 were used in all four studies.

Insert Table 1 about here

To determine if the aptitude test was a successful manipulation of contingency, six attributions measured immediately after the aptitude test were analyzed. Students rated: (a) how much control they had over their success and failure, (b) how successful they felt, (c) how much their ability determined their aptitude test performance, (d) how much their effort determined their test performance, (e) how much the test difficulty determined their performance, and (f) how much luck determined their aptitute test performance. The contingency manipulation was designed to influence students' feelings of control over their aptitude test performance. If the manipulation were effective, student attributions of control should vary with the contingency group (i.e., noncontingent, contingent, no feedback) and should be independent of actual success on the task. Therefore, the perceived control and success questions were initially examined.

The contingency group means for these two questions across all four

studies are presented in Table 2. In each study, there was a significant effect of contingency on the control attribution, but not on the success

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Insert Table 2 about here

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attribution. Compared to noncontingent students, contingent and no feedback students perceived they had more control over their aptitude test performance. However, there were no significant differences between any of the groups for ratings of success. These results indicate that the contingency task was effective in manipulating students' perceived control over their aptitude test performance. The contingency task influenced students' attributions of control without affecting their attributions of success. Although the non-contingent students felt they had less control than the contingent or no feedback subjects, it was not due to perceived lack of success since all groups felt equally successful.

After determining that the contingency manipulation was successful, we were interested in the cognitive effects of the contingency task. Students' causal ascriptions about their performance were examined by constructing an attribution profile using students' responses to the four remaining attribution measures: ability, effort, task difficulty, and luck. The attribution profile was analyzed with a multivariate analysis of variance (MANOVA) followed by a discriminant function analysis on the significant effects. In phase one there were sometimes other variables in the design of the study besides the contingency training variable. For example, student incentive was also manipulated in study 1 (See Figure 1). Across all four studies, only the contingency main effect was significant. None of the other variables were significant as a main effect or interaction (e.g., student incentive;

incentive x contingency).

Table 3 presents the results of the discriminant function analysis which

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Insert Table 3 about here

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was used to examine the significant contingency effects. The discriminant functions provide information on how the attributions are interrelated and how the profile as a whole accounts for group separation among the three contingency groups (noncontingent, contingent, no feedback). The numbers of the upper half of Table 3 are structure correlations which indicate how much each attribution is correlated to the discriminant function. These are similar to factor loadings in factor analysis. The greater the correlation, the more the attribution is related to the function, or carries the same information as the function. Structure correlations are useful for identifying the kind of information which discriminates between groups (Klecka, 1981). The correlations are fairly consistent across the four studies, and we interpreted the function to indicate a mastery-orientation or an internal locus. High loadings on the internal attributions of ability and effort, plus an emphasis on the difficulty of the aptitude test suggest feelings of succeeding at a difficult task, i.e., mastery.

The numbers in the lower half of Table 3 are the group centroids. Centroids can be thought of as "multivariate means" of the attributional profile for the three contingency groups. That is, larger centroids are associated with a greater mastery orientation. In all four studies students in the contingent and no feedback groups had greater feelings of mastery than the noncontingent students. For example, in study 1 the structure correlations for ability and effort were .87 and .81 respectively, and

.66 for task difficulty which agrees with the mastery-orientation interpretation. The centroid for the noncontingent group was 2.11 which is significantly lower than the centroids for the contingent (3.40) and no feedback (3.67) groups indicating the noncontingent group had significantly lower feelings of mastery. Dweck has often used a mastery-helpless dichotomy in her research on intellectual achievement (e.g., Diener & Sweck, 1978; Dweck & Reppucci, 1973), so based on this and the results of the analyses we concluded that it was possible to induce feelings of uncontrollability in a university classroom.

Results-Phase 2 (Classroom simulation)

The next research questions of interest were, (a) what effects if any will feelings of helplessness have on student achievement and attributions, and (b) when a student is feeling out of control what effects if any will the teacher's behavior have on the student? To answer these questions we simulated a university classroom in the laboratory. A half-hour videotaped lecture was presented to students using a large screen (2.2 m diagonal) color projector. After viewing the lecture, students wrote an achievement test based on the lecture content and completed an attribution question.

The achievement test was composed of 30 multiple-choice items which assessed retention and conceptual understanding. The attribution questionnaire consisted of two attribution profiles. The first profile included the same four attributions used for the contingency task: ability, effort, test difficulty, luck. Students rated the extent to which each factor determined their post-lecture achievement performance (1=not at all, 9=entirely). The second attribution profile measured students' responsibility for their test performance and their emoitional reaction. On the two items students

indicated the degree to which they themselves (self) and the teacher influenced their test performance (1=not at all, 9=entirely). The next two items were 9-point bipolar scales which assessed students' emotional reaction to the test (1=incompetent, 9=competent; 1=helpless, 9=confident). The results for the achievement test are presented first followed by the two attribution profiles.

Student achievement. An analysis of variance was used to examine the effects on achievement of contingency, instructor expressiveness and additional variable (depending on the study) across the four studies. Table 4 presents the significant findings of the ANOVAs on the achievement score for all four studies. Contingency had a significant effect on student achievement in

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Insert Table 4 about here

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three of the four studies (main effect: study 1, $F=6.3$; study 2, $F=3.27$; interaction with expressiveness: study 4, $F=3.72$). In all cases, students exposed to the noncontingent task and having lower perceptions of control, performed more poorly on the achievement test than students experiencing the contingent task. These results show that experimentally induced perceptions of control can influence student performance.

Table 4 also indicates that the teacher behavior of expressiveness had a consistent and large effect on student achievement. Students viewing the high expresive instructor always scored higher than students in the low expressive lecture. The values of omega squared range from .03 to .15, indicating that instructor expressiveness can account for up to 15 percent of the achievement variance.

In study 1, the student variable of incentive also influenced achievement

and interacted with contingency and expressiveness. The findings showed that instructor expressiveness affected student achievement differently depending on students' perceptions of control and their incentive level. Instructor expressiveness improved achievement for contingent students when their incnetive was low, but not when incentive was high. For noncontingent students, their achievement improved only when the instructor was highly expressive and student incentive was high. It was concluded that students perceptions of control, or their contingency training history will affect performance. Teacher behaviors, such as expressiveness, may help alleviate some of the negative consequences of perceived control under some classroom conditions (i.e., when student incentive is high).

Attribution profiles. The two attribution profiles were examined to determine the effects of the expressiveness and contingnecy on students' causal ascriptions about their achievement test performance (profile one) and students' emotional reactions to the test (profile two). Both sets of attributions were analyzed with a multivariate analysis of varaince. A discriminate function analysis was used to further examine significnat multivariate results.

Instructor expressiveness significantly affected both profiles across all studies. Neither contingency nor any of the other variables displayed any consistent effects on the two profiles. The significant expressiveness multivariate effects were followed by discriminant analysis. The results for profile one are presented in table 5 and the second profile reslts are found in table 6.

Insert Tables 5 and 6 about here

The numbers in the upper portion of table 5 and 7 are the structure correlations of each attributions measure with the discriminant function. It is evident from the correlations in table 5 that expressiveness is influencing students internal attributions. The discriminant function is characterized by high positive loadings on ability and effort in study 1 and 4, combined with negative loadings on the external dimension of luck. Similar to the attribution profile following the aptitude contingency task (see Table 3), this attribution profile also suggests an internal mastery orientation.

The higher the group centroids, the higher the feelings of mastery. The bottom half of Table 5 displays the centroids for the low and high expressive groups. In all cases, high expressive students had a greater internal mastery orientation than low expressive students. Thus, students took more personal responsibility (internal locus) for their achievement outcomes when the instructor lectured in a highly expressive fashion.

As with profile one, expressiveness was the only variable to influence the second profile. Expressiveness had a significant multivariate effect on attribution profile two in three of the four studies. The structure correlations and group centroids from the discriminant function analysis are presented in Table 5. In studies one and two there are high loadings on students feelings of confidence and competency coupled with moderate loadings on the teacher dimension. Thus, the functions in these two studies are characterized by externalized confidence, or feelings of competency attributable to the instructor. The high expressive instructor is producing

greater feelings of competency in the students than the low expressive instructor. In the third study, the function can be described as feelings of self-confidence rather than externalized competency. Again high expressive students are reporting greater self confidence than low expressive students.

Summarizing the classroom simulation results, contingency had a consistent effect on student achievement, but had little effect on student attributions. Noncontingent students always scored lower than contingent or no feedback students on the achievement test. The contingency manipulation was potent enough to influence student performance after the lecture. The teacher behavior of expressiveness had a strong impact on all the post-lecture measures--achievement and the two attribution profiles. Students exposed to the high expressive instructor performed better on the achievement test and felt more competent and took more personal responsibility for their performance.

In answer to the second two research questions, we concluded that when a student is feeling out of control, these feelings of helplessness will affect his/her performance but have less influence on the students's causal ascriptions about the performance. Students feeling helpless performed more poorly than students feeling more in control. Generally, the teacher had a large impact on how well the student performed and their cognitive attributions about their performance. When students had lower perceptions of control, a highly expressive instructor was able to improve their performance when student incentive to perform was high.

The laboratory findings showed that in a controlled classroom environment it was possible to manipulate students' perception of control. As well, in this environment both the students' perceived control and the manipulated teaching behavior of expressiveness affected student outcomes.

Thus, in a laboratory classroom perceptions of control have a significant influence. But, will the results be the same in actual university classrooms? To try to answer this question a field study was conducted.

Field Research Program

The purpose of the field research program was to measure students' subjective perceptions of controllability and determine the relationship between perceived control and certain classroom behaviors and attributions. After pilot testing two earlier versions on approximately 500 first year and upper level students, a final version of the questionnaire was devised.

Questionnaire Format

The questionnaire was divided into three major sections: (a) a subjective measure of perceived control, (b) attributions concerning various classroom outcomes, and (c) students' reported classroom behaviors and cognitions. The subjective measure of control was based on the Intellectual Achievement Responsibility (IAR) developed by Crandall, Kotkovsky, and Crandall (1965). The original IAR was designed for use with children from grade school to grade 12 to assess their locus of control for achievement situations. The scale used in the field research was a form of the IAR adapted by B. Weiner for use with university students.

Attributions were measured by asking students to respond to four classroom settings which varied systematically according to outcome (good, bad), and specificity (specific, general). For each setting, the students were asked to rate the contribution of four causes to their performance: ability, effort, examination difficulty, luck (1=did not determine, 5= totally determined). The four attributions, ability, effort, exam difficulty and luck are the most common attributional causes used in learned

helplessness and perceived control research.

The third section contained five categories of behaviors and cognitions. Students reported: (a) their classroom behaviors (interest in course, class attendance, study time); (b) their perception of control of university academic achievement; (c) whether it was important to do well in their psychology course and all their courses in general, (d) their expected achievement and achievement performance (expected grade, expected g.p.a., past g.p.a.), and (e) feelings about the course and professor (taking more psychology courses, professor ratings).

Method

The survey was conducted in the beginning of the fall semester. The majority of the 583 students were in their first year (83%) and were 18 to 19 years of age (76%). Sixty percent of the sample were female and almost all students were attending university full time (96%). All students received experimental credit for research participation when they responded to the questionnaire. Before participating, students were informed that the questionnaire was part of an on-going research program investigating teaching effectiveness, and that only questions concerning their opinions and attitudes about courses they had taken would be asked. The questionnaire contained 73 items and students took approximately 30 minutes to answer them. Students completed the modified IAR first, next responded to the four attributional situations, then answered the questions about courses, classroom behaviors, etc.

Results

To analyze the results of the questionnaire, student gender (male, female) and student IAR scores (low, high) were used as the independent

variables. A high IAR score indicated the student was more internal than a student having a low IAR score. The first set of dependent measures of interest were the four attributional situations. Because each student had made attributions concerning all four situations, a repeated measures design was used to analyze the data. A gender (male, female) by IAR (low, high) by outcome (good, bad) by specificity (specific, general) repeated measures multivariate analysis of variance was computed on the four attributions--ability, effort, exam difficulty, luck. Gender and IAR scores were between groups factors and outcome and specificity were repeated factors.

The significant effects were a main effects for IAR $F(4,576)=6.22$, outcome $F(4,576)=163.13$, and specificity $F(4,576)=11.50$. Each significant effect was followed by a discrimination function analysis. The results are presented in Table 7. Examining the IAR results

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Insert Table 7 about here

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firts, the function is characterized by an internal locus orientation. The two external attributions have negative loadings; task difficulty with a large loading, and luck with a moderate loading. Effort, an internal attribution, has a high positive loading. Higher scores on the function mean a more internal locus. The high IAR group has a larger centroid than the low IAR group indicating students with higher IAR scores have a more internal orientation which is consistent with the theoretical IAR construct.

The discriminant function for the significant outcome effect is also characterized by an internal locus. There are high positive weightings on both ability and effort with a moderate negative weighting on task difficulty. The group centroids show that students made more internal attributions for

good outcomes than for bad outcomes. When students did well in a course they took personal responsibility for the outcome. For the specificity effect, the function suggest an external orientation. The highest loadings are on task difficulty and luck, the two external attributions. According to the group centroids, students tend to take a more external orientations, that is, take less personal responsibility for all previous university outcomes compared to outcomes in their psychology course.

The second group of dependent measures analyzed was the section of questions about courses, classroom behaviors, perceived control, and academic expectation and performance. The 12 questions were analyzed using an IAR (low, high) by sex (male, female) analysis of variance. The results for the analysis are listed in Table 8.

Insert Table 8 about here

IAR had a significant effect on two of the three classroom behaviors. High IAR students reported that they spent more time studying and had a greater interest in their psychology course than did low IAR students. Sex also significantly influenced the same two behaviors. Females studied longer and had greater interest in their course than males. There were no differences between males and females or high and low IAR groups on the percentage of classes they attended.

Students' perception of control was significantly affected by both sex and IAR. Males felt more in control of their university academic achievement than females. High IAR students reported greater feelings of control than low IAR students. This result combined with the multivariate effect of IAR on the attribution provide evidence for the construct validity

of the concept of intellectual achievement responsibility. IAR did not significantly affect any of the other measures. There were significant differences between males and females on how important it was to do well in their psychology course, their reported grade point average, their expectation of taking another psychology course, and whether they felt their professor's teaching ability would influence their decision to enroll in the course. Females reported that it was more important to do well, reported a higher g.p.a., felt they would be likely to take more psychology courses, and that their psychology professor's teaching ability would influence their decision to take the course.

Summarizing the results of the second set of analyses, there were significant sex and IAR effects on two of the three classroom behaviors, and on the control dimension. Sex also influenced four of the other classroom and course measures.

Conclusions

The research program described in this chapter involved two separate approaches. The first approach was a series of laboratory studies where more strict experimental control was possible. Under these conditions, we determined if it were possible to manipulate students' perception of control, what effects their perceived control had on performance, attributions, and emotions, and if the instructor had any effect on the student outcomes or influenced the effects of perceived control. After drawing conclusions based on the laboratory results, the next approach was to apply the findings to actual university classrooms.

The contingency task used in the laboratory was an effective manipulation of perceived control. The manipulation produced a large effect on students' attribution of control without affecting their attributions of success

consistently across all four studies. The noncontingent students perceived they had less control than the contingent or no feedback students, but it was not due to feelings of success since all groups felt equally successful. Another consistent finding was the contingency effects on the attribution profile. In all cases, contingent and no feedback studetns were more mastery oriented than noncontingent students.

Another important point is that the contingency manipulation used in the laboratory experiments represents a major change from the typical procedures in most human helplessness research. First, the experimental task used to manipulate response/outcome contingencies was designed to approximate more closely testing conditions in actual classrooms. The contingency task was a group administered multiple-choice test rather than individually administered discrimination or concept formation problems. Second, a video-taped lecture was interposed between the contingency task and the performance measures. The lecture was necessary for the classroom simulation, but it represents an addition which is different from the standard procedure of administering the testing phase immediately after the contingency manipulation. Despite these differences, the procedure was an effective manipulation of contingency.

A brief exposure to contingency training using the aptitude test had immediate effects on students' perceived control and causal attributions. These effects were sufficiently strong to influence subsequent performance in a simulated college classroom as evident from the post-lecture results. In three of the four studies, contingency influenced achievement test scores either as a main effect or interaction. Noncontingent students consistently performed more poorly. Thus, perceptions of little or no control may impair some aspects of a student's academic development. They may not be able to

benefit from other positive aspects of the classroom environment such as an effective instructor or additional incentive to do well. The brief exposure to noncontingent outcomes did not have an effect on student attributions or emotional reactions to achievement performance. It may be that the limited exposure was not enough to affect cognitions. More prolonged experience with noncontingent outcomes, such as in a real classroom, may have a greater influence on cognitions.

The teaching behavior of expressiveness had a large impact on all the post-lecture measures: performance, attributions, and emotions. The more expressive instructor produced better performance, more internal responsibility for outcomes, and greater feelings of confidence and competency. On the other hand, students exposed to the low expressive instructor performed more poorly, felt more incompetent and less confident and took much less personal responsibility for their performance. This latter description is very similar to a description of a helpless person. Thus, an ineffective instructor lecturing in a low expressive fashion may be producing feelings of helplessness in students regardless of their prior contingency training. On the positive side, sometimes a highly expressive instructor may alleviate some of the negative consequences of noncontingent outcomes, especially in combination with student variables such as incentive.

From the results of the four laboratory studies, we concluded that it is possible to produce feelings of no control or helplessness in an university classroom, and that the concept of perceived control may help understand the student learning process. In future studies of perceived control in the university classroom, researchers must focus not only on the student's contingency training history, but also on the instructor as well. Note that the only teaching behavior examined in the studies was instructor expressive-

ness. The influence of the teacher on students' perceptions of control may or may not generalize to other teaching behaviors.

Upon concluding that perceived control was a useful concept for the university classroom, we examined student behaviors and perceptions in actual university classes. The IAR was used as the measure of students' perceived control. The results of the field study revealed that perceptions of control were related to attributions about course outcomes and affected some classroom behaviors. Similar to the attributions measured immediately after the contingency task, students with higher perceptions of control made more internal attributions and thus took greater responsibility for their academic outcomes. This consistency between the laboratory and field study results suggests a definite relationship between percieved control and cognitive attributions. The perceptions students have about their control or lack of control over their achievement influence what they think were the causes for their successes and failures. The lack of effects on the post-lecture attributions may, therefore, be due to the limited experience with noncontingent outcomes. The brief exposure may not have produced strong perceptions of lack of control, so that, the interposed influence of the instructor had a greater impact.

There were no measures of performance in the field study, so that the relationship between perceived control and performance could not be assessed. Because the main purpose of the field research was to attempt to identify contingent and noncontingent students from many different sections and courses of psychology, the logistics of developing a common performance measure were prohibitive. Students reported their expected grade in the course, but there were no differences between low and high IAR students in their expected grade.

Other results from the classroom research deserve mention. One, the outcome of the attributional situation had a large effect on the attributions students made. Using a multivariate analogue of eta-squared, it was determined that the valance of the outcome (good, bad), accounted for 53% of the variance of the set of attributions. The results were consistent with other attributional research which has shown that students accept personal responsibility for good outcomes but not for bad outcomes (e.g., Frieze, 1980). In this study, students had a much greater internal orientation for outcomes in which they did well.

Other interesting findings were the effects gender had on some of the classroom measures. Female students reported that they studied longer, had more interest in psychology, reported a higher g.p.a., and felt it was more important to do well in their psychology course than the male students, yet female students felt they had less control over their academic outcomes than males. These results suggests that although women students exhibit more of the behaviors necessary to succeed in university courses than men, they feel more helpless about their actual performance. This is somewhat consistent with Dweck's findings on sex differences in learned helplessness. She has shown that girls tend to be more helpless than boys in elementary school achievement situations. Girls are more apt to condemn their abilities when they encounter problems and show decreased persistence or impaired performance, plus they have lower expectancies for success than boys (Dweck & Licht, 1980).

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Table 1: Laboratory Studies to be Discussed

Study 1: Perry & Dickens (1982)

Independent Variables: Contingency Training (contingent, non-contingent, no feedback)
Student Incentive (low incentive, high incentive)
Instructor Expressiveness (low expressiveness, high expressiveness)

Study 2: Dickens, Perry & Turcotte (1981)

Independent Variables: Contingency Training (contingent, noncontingent, no feedback)
Test Length (short, medium, long)
Instructor Expressiveness (low expressive, high expressive)

Study 3: Somers, Perry & Dickens (1982)

Independent Variables: Contingency History (contingent, noncontingent)
Contingency Training (contingent, non-contingent, no feedback)
Instructor Expressiveness (low expressive, high expressive)

Study 4: Magnusson & Perry (1982)

Independent Variables: Contingency Training (contingent, noncontingent)
Instructor Expressiveness (low expressive, high expressive)

Table 2: Control and Success Means for Contingency Groups Across 4 Studies

Control

	Study 1	Study 2	Study 3	Study 4 Time 1	Study 4 Time 2
Contingent	6.15	6.17	6.52	6.26	5.58
Noncontingent	2.86	4.48	3.51	3.78	3.36
No Feedback	6.13	5.39	5.85	--	--

Success

Contingent	5.40	5.47	5.23	5.41	6.15
Noncontingent	4.45	5.05	4.92	5.03	5.09
No Feedback	4.99	4.66	5.21	--	--

Questions:

How much control did you have over your success and failures on the aptitude test?

very little control 1 2 3 4 5 6 7 8 9 10 Completely Under my control

How successful did you feel at the end of the test?

Not at all Successful 1 2 3 4 5 6 7 8 9 10 Very Successful

Table 3: CONTINGENCY Multivariate Results for Post-contingency Attribution profile Across 4 Studies

	Study 1	Study 2	Study 3	Study 4 Time 1	Study 4 Time 2
Attributions					
Ability	.87	.61	.83	.90	.95
Effort	.81	.71	.65	.79	.91
Task Difficulty	.66	.86	.90	.83	.69
Luck	.25	.29	.00	.27	.08
Group Centroids					
Contingent	3.40	3.57	3.23	3.04	2.78
Noncontingent	2.11	3.06	2.66	2.02	1.61
No Feedback	3.67	3.75	3.08	--	--

Questions

How much did your ABILITY determine your performance on this test?

How much did your EFFORT to solve the questions determine your performance on the aptitude test?

How much did the DIFFICULTY of the test determine your performance on the test?

How much did LUCK determine your performance on the aptitude test?

Not at all 1 2 3 4 5 6 7 8 9 10 Entirely

Table 4: Results of ANOVAs on Achievement Scores Across 4 Studies

	Study 1	Study 2	Study 3	Study 4
Source				
Contingency (C)	F=6.30 ω^2=.04	F=3.27 ω^2=.01	--	--
Expressiveness (E)	F=22.69 ω^2=.06	F=43.18 ω^2=.09	F=38.80 ω^2=.15	F=4.70 ω^2=.03
C x E	--	--	--	F=3.72 ω^2=.02
Other Variables	(Incentive) F=10.70 ω^2=.03	(Test Length)	(Cont. History)	--
C x Other	--	--	--	
E x Other	--	--	--	
C x E X Other	F=5.03 ω^2=.03	--	--	

Table 5: EXPRESSIVENESS Multivariate Results for Attribution Profile (Ability, Effort, T. Difficulty, Luck)

	Study 1	Study 2	Study 3	Study 4 (Time 1)
Attributions				
Ability	.61	.74	.94	.96
Effort	.58	.44	.36	.62
Task Difficulty	.29	.38	.09	.60
Luck	-.82	-.80	-.33	-.25
Group Centroids				
Low Expressive	.62	.35	1.17	1.53
High Expressive	1.17	1.04	2.04	2.15

Questions

How much did your ABILITY determine your performance on the achievement test?

How much did your EFFORT to solve the questions determine your performance on the test?

How much did the DIFFICULTY of the achievement test determine your performance on the test?

How much did LUCK determine your achievement test performance?

Not at All 1 2 3 4 5 6 7 8 9 10 Entirely

Table 6: EXPRESSIVENESS Multivariate Results for Attribution Profile 2 (Self, Teacher, Comp /Incomp, Helpless/Confident)

	Study 1	Study 2	Study 3	Study 4 (Time 1)
Attributions				
Self	.21	.22	.53	Not Significant
Teacher	.45	.48	-.30	
Competent/Incompetent	-.51	-.63	.33	
Helpless/Confident	.96	.84	.86	
Group Centroids				
Low Expressive	1.61	1.65	1.76	--
High Expressive	1.96	2.63	2.48	--

Questions

Considering yourself and the teacher, how much did YOU determine your achievement test performance?

Considering yourself and the teacher, how much did the TEACHER determine your performance on the achievement test?

Not at all 1 2 3 4 5 6 7 8 9 Entirely

How did you feel about your performance on the achievement test?

Competent 1 2 3 4 5 6 7 8 9 Incompetent

Helpless 1 2 3 4 5 6 7 8 9 Confident

Table 7

Discriminant Function Analysis of Significnat Multivariate Effects

Effect: IAR	Multivariate F = 6.22	
Attribution	Structure Correlation	Group Centroids
Ability	.08	High IAR .37
Effort	.63	Low IAR .15
Task Difficulty	-.73	
Luck	-.39	
Effect: OUTCOME	**Multivariate F = 163.13**	
Attribution	Structure Correlation	Group Centroids
Ability	.87	Good 3.94
Effort	.65	Bad 2.86
Task Difficulty	-.35	
Luck	.17	
Effect: SPECIFICITY	**Multivariate F = 11.50**	
Attribution	Structure Correlation	Group Centroids
Ability	.33	
Effort	.43	Specific 8.38
Task Difficulty	.64	General 8.67

Table 8

Sex by IAR Analysis of Variance on classroom measures

	IAR	Sex	IAX x Sex
Study Time	F=7.46 H > L	F=22.98 F > M	-
% Class Attended	-	-	-
Interest in Course	F=5.25 H > L	F=8.16 F > M	-
Perceived Control	F=6.90 H > L	F=6.20 M > L	-
Importance Specific	-	F=4.23	-
Importance General	-	-	-
Expected Grade	-	-	-
Expected G.P.A.	-	-	-
Past G.P.A.	-	F=18.82 F > M	-
Take more Psych Courses	-	F=11.87	-
Teacher Rating	-	-	-
Prof Influence Enrollment	-	F=22.14 F > M	-

Figure 1: Basic Design and Analysis for Laboratory Research

Phase 1: Contingency Training

Contingent	Noncontingent	No Feedback

Measures: Attributions about Aptitude test

1. Control, Success Attributions
   Analysis: Univariate ANOVAs on Control & Success
2. Attribution profile (Ability, Effort, Task Difficulty Luck)
   Analysis: MANOVA on profile
   Follow-up significant effects with Discriminant Function Analysis

Phase 2: Classroom Lecture Presentation

	Low Expressiveness		High Expressiveness	
	Low	High	Low	High
Contingent				
Noncontingent				
No Feedback				

Measures: 1. Achievement test score
Analysis: Univariate ANOVA

2. Attributions about Achievement test
   Profile 1 (Ability, Effort, Task Difficulty, Luck)
   Profile 2 (Self, Teacher, Competent (Incompetent, Helpless/Confident)
   Analysis: MANOVA on each profile separately Follow-up with Discriminant Function Analysis