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Ethnic Heritage and Perceived Control:
Implications for the College Classroom

by

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ETHNIC HERITAGE AND PERCEIVED CONTROL:
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the University of Manitoba in partial fulfillment of the requirements
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ABSTRACT

Socialization has been implicated by theorists as a mediator of ethnic differences in controllability. Porter's (1965) analysis of ethnic stratification in Canadian society describes a vertical mosaic whereby a hierarchy determines ethnic groups' differential levels. Each ethnic group has its own "control potential" (Porter, p. 73) or control over selection and socialization of its members, depending upon its place in the hierarchy. Groups lower in the mosaic would experience less control, and through socialization, would come to expect less control. Thus, family socialization, combined with differential experience with environmental outcomes link ethnicity and perceived control.

Learned helplessness theory may account for differential expectations of control by ethnic group. According to Seligman (1975), perceptions of uncontrollability are a result of one's influence over environmental outcomes. Given the vertical mosaic hypothesis, ethnic groups who experience less control should in fact come to perceive less control according to the learned helplessness theory. Thus, linking the two theories suggests a causal relationship identifying the possible causes of lower perceived control in certain ethnic groups.

The present study examined differences between ethnic groups in their reactions to uncontrollability. Specifically, it was predicted that ethnic groups would respond differently to exposure to noncontingent

outcomes, that is independence between behaviour and outcomes. If an ethnic group has been exposed infrequently to noncontingent outcomes, members may not react as readily in exhibiting attributions and deficits characteristic of helplessness as those lower in the vertical mosaic who experience noncontingent outcomes more routinely.

Porter conceptualizes the educational system as the mechanism through which vertical mobility and opportunity can be attained. Thus, childrens' experiences within the school may be particularly important for an ethnic group's mobility. Experimental research has found a relationship between teaching behaviours and student achievement outcomes and perceived control (Perry and Dickens, 1984). Instructor expressiveness enhanced student achievement depending upon students' perceived control. For students who perceived they had control over their achievement, the high expressive instructor produced better performance than the low expressive instructor. For students who did not perceive control over academic outcomes, the instructor had no effect. Thus, depending upon a students' perceived control, an instructor may or may not facilitate achievement.

If ethnic stratification creates perceived uncontrollability in certain ethnic children, they may not be sensitive to teaching behaviours, such as expressiveness, that affect achievement. Given the initial hypothesis, that ethnic groups differ in perceived control, a second hypothesis is suggested, that ethnic groups may have differential responsiveness to teaching behaviours.

To test these two hypotheses, subjects from four ethnic groups, Chinese, English, Southern Europeans, and Ukrainians, were recruited from the introductory psychology course at the University of Manitoba. They were first exposed to response-outcome contingency training involving either immediate noncontingent or contingent feedback. An attribution questionnaire was then administered to ascertain subjects' perceived control over the task and causal attributions for their performance. The second phase of the experiment involved a videotaped lecture varying in instructor expressiveness (low/high), followed by an achievement test on the lecture material and an attribution questionnaire regarding test performance, causal attributions and perceived control. The experimental design was a 4 (ethnicity) x 2 (contingency) x 2 (expressiveness) factorial design. Dependent measures included the post-contingency training attribution questionnaire, the achievement test and the post-lecture questionnaire.

Results of the contingency manipulation replicated previous findings: contingency training had a highly significant effect upon attributions, perceived control and affective measures, and actual performance on the aptitude test. Ethnicity significantly affected attributions to ability and effort, as well as aptitude test results. A consistent pattern among the ethnic groups was exhibited throughout the data. Expressiveness was shown to affect all attributions, perceived control and other affective measures, as well as achievement test results. Again, ethnicity significantly affected attributions of ability, feelings of success and other affective measures, and achievement test results. The results imply that ethnic groups may have differential perceptions of

controllability which inturn affect their responsiveness to teaching behaviours. An effective teaching behaviours may be considered culturally relative in that it may not be effective for all ethnic groups, a result that should be considered in the context of the educational system.

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ETHNIC HERITAGE AND PERCEIVED CONTROL: IMPLICATIONS FOR THE COLLEGE CLASSROOM

Introduction

Canada is a multicultural society in which a federal policy (1971) advocates the expression of an ethnic identity within a bilingual framework. Ethnic identity within this context is defined as maintenance of an identity with a distinct ancestral heritage. Porter (1965) has suggested that perceptions of control may result from different cultural orientations through socialization. Specific to Canada's ethnic groups, he proposed that the societal structure of ethnic stratification contributes to these differences in perceived control. This thesis will focus upon the relationship between ethnicity and perceived control.

The concept of perceived control suggests people differ in their attributions of control over outcomes. Two predominating psychological theories attempt to describe perceived control: Rotter's (1966) locus of control paradigm, and Seligman's (1975) response-outcome contingency paradigm. Rotter's theory describes enduring personality-type attributional styles whereby people explain the world consistently as either within their control or uncontrollable. Seligman's paradigm asserts that a person may differ in feelings of control depending upon the particular situation and that person's experiences with controlling outcomes in the past.

If people do differ in their beliefs of controllability, ethnicity may be one factor contributing to such differences. The orientation of different cultures may tend to promote a certain way of viewing the world, either as a place over which one has control, or a place over which one has little control. Incorporating the response-outcome contingency paradigm with Porter's stratification theory, ethnic groups experiencing little control due to their allocation in the societal structure may perceive less control over their lives relative to other groups in the hierarchy. One major question addressed in this thesis is whether ethnic groups differ in their perceived control.

In considering ways to compensate for ethnic groups' lack of control, Porter suggests the educational system as the mechanism by which groups may eventually attain mobility and opportunity. Research on achievement motivation, however, suggests that distinct ethnic differences exist in achievement motivation (Rosen, 1959). If ethnic groups do have differing achievement motivation, compounded by differences in perceived control, the question arises as to whether all ethnic groups are able to benefit equally from the educational system. Given that perceived control has been linked to student outcomes (Perry and Dickens, 1984), perhaps ethnic students may respond differently to the teaching environment if they do prove to differ in perceived control. The second major question addressed in this thesis is whether ethnic students differ in their responsiveness to effective teaching.

Ethnicity and Perceived Control

Psychological perspectives. The concept of perceived control has been the focus of a number of psychological theories, such as Rotter's locus of control theory (1966), Weiner's attribution theory (1971,1979), and Seligman's response-outcome contingency paradigm (1975). Before examining the relationship between ethnicity and controllability it is important to consider the variety of perspectives that exist in the study of perceived control. From this analysis, the most useful theory for studying this relationship will be determined.

The first theory defines perceived control as locus of control (Rotter, 1966). It is a generalized expectation of a relationship between one's actions and the resultant outcomes. If a person determines that he/she has produced an outcome, or that the outcome is contingent upon his/her behaviour or personal characteristics, this as an internal cause. Conversely, if a person decides that the outcome is as a result of luck, chance, fate or powerful others, then it is interpreted as under external control. The theory describes people as either internal, perceiving results as contingent upon themselves and thus controllable, or external, perceiving outcomes as not contingent upon themselves and thus uncontrollable.

A body of research has accumulated which documents differences in locus of control between groups. Studies have shown beliefs about locus of control predict individuals' attitudes, social behaviours and reinforcement sensitivity. Externality positively correlates with defensive and maladaptive levels of aspiration behaviours (Phares, 1957;

Simmons, 1959) and is associated with high scores on the California F-Scale (Holden, 1958). Internality is associated with tubercular patients seeking more information about and understanding their disease (Seeman & Evans, 1963), realistic and cautious betting behaviour (Liverant & Scodel, 1960), and less conformity (Crowne & Liverant, 1963; Odell, 1959).

Cross-cultural studies have focused on whether differences exist in perceived control between ethnic groups. Parsons, Schneider and Hansen (1970) found Danish and American students not significantly different in terms of their overall control orientations, but a further analysis (Parsons & Schneider, 1970) found different patterns of scoring on Rotter's locus of control scale by nationality. Using a much wider cross-cultural sample including European, Far-Eastern, Middle-Eastern, North American and South American subjects, Parsons and Schneider (1974) found significant differences in locus of control orientation by ethnicity. The Japanese were found to be the most external, perceiving less control over outcomes, while East Indians were most internal, feeling greater control over outcomes. For academic outcomes in particular, Israeli, Canadian and East Indian students proved to be most internal, and Italians were most external. While demonstrating ethnic differences in locus of control, these results also point out the variability in perceptions of control depending upon the type of outcome. In other words, rather than the all-encompassing generalization of locus of control as Rotter suggests, it would appear that perceived control depends more upon the particular situational outcome being evaluated.

While cross-cultural studies suggest differences in locus of control between subjects from different countries, other studies have addressed the possibility of differences in locus of control by ethnic group within multi-ethnic societies. Graves (1961) in fact found that Anglos tend to be more internal in their locus of control than either Spanish-Americans or American Indians. Milgram (1971) found no significant differences between blacks and whites in locus of control in the United States. Battle and Rotter (1963), however, found middle-class whites significantly more internal than lower-class blacks. No significant differences were found between middle-class blacks and whites, a result the researchers attribute to socialization of the middle-class blacks to accept middle class norms. Meredith (1976), studying locus of control in Hawaii, found even third-generation Japanese-Americans exhibited a desire for external control characteristic of native-born Japanese. Hsieh, Shybut and Lotsof (1969) discovered contradictory results to those of Meredith studying locus of control in native-born Chinese, Chinese-Americans and Anglo-Americans. Chinese native-born were most external and Anglo-Americans the most internal, with the Chinese-Americans intermediate, suggesting a carry-over effect from the Chinese culture tempered by acculturation to American culture. The researchers concluded: "a cultural orientation may be closely linked with personal belief in internal versus external control" (Hsieh et al., p. 124).

Ethnicity appears to be a factor in differential patterns of locus of control, as shown by some cross-cultural and multi-ethnic studies. The balance of nonsignificant results, however, may suggest caution in interpreting the locus of control findings, however. Despite the fact

that earlier research has shown the construct to relate to personality differences, it must be stressed that the earlier research on locus of control was done on Anglo-Americans. It is quite possible that interpretation of these ethnic findings, based on the Anglo normative sample, is ethnocentric and unable to fully tap other groups' feelings of control or to understand them.

A second theory of perceived control is Weiner's attribution theory (1971) which proposes that people try to explain events that occur in their lives. Basically, an attribution is a cause a person gives to explain why an outcome occurred. In Weiner's earlier theory, attributions were classified along two dimensions in order to identify underlying causes. The locus of causality dimension (internal/external), is similar to Rotter's locus of control dimensions directing the cause as either due to the person and thus internal or due to an outside factor and thus external. The stability dimension (variable/stable) determines the expectation of control over future outcomes, with a variable attribution less likely to affect expectations than a stable attribution which would predict future situational control.

In a study comparing attribution theory to locus of control theory, Weiner, Nierenberg and Goldstein (1976) found that contrary to Rotter's claims, the stability dimension was better able to predict expectations for future achievement than the locus of causality dimension. They concluded that the attributional analysis was a better predictor than the locus of control analysis when actually put to the test. According to attribution theory, a person would thus experience an outcome and then attempt to determine the cause, characterized as either within

one's control (internal) or not (external), and either expected to recur (stable) or not (variable). An example of an internal stable attribution would be ability, whereas an external variable attribution would be luck. Greatest control is perceived when attributions are made to internal, stable factors and least when to external, variable causes.

The applicability of the attributional framework was studied by Weiner, Heckhausen, Meyer and Cook (1972), who found that the locus of control dimension determines affect, or emotional reaction to an outcome while the stability dimension determines expectations. In a further sophistication of his previous paradigm, Weiner (1979) included a third orthogonal dimension of attributions, controllable/ uncontrollable, as an individual decides whether the outcome was in fact within their control. Support for this third dimension was provided by Passer (1977) who used a multidimensional scaling procedure which allowed the underlying judgement dimensions to be found. Two dimensions clearly stood out, a locus dimension and a controllable/uncontrollable dimension. Similarly, Meyer (1978) had subjects rate nine possible causes of outcomes, and a factor analysis produced Weiner's three causal dimensions.

Weiner's attribution theory addresses in more detail the issue of controllability than the locus of control theory. Certainly the validation studies comparing the two approaches would advocate the superiority of attribution theory in its predictive power, with more precision in its explanations and overall reasoning. Whereas the attributional analysis has been applied to classroom settings extensively (Weiner, 1979), little work has been done assessing differences in

attributions of causality by ethnicity. A study conducted by Betancourt & Weiner (1982) did find, in comparing Chilean & Americans' attributions, that the three dimensions of locus, stability and controllability, were rated similarly by the subjects from the two societies. Chileans did, however, perceive stable causes as less stable, controllable causes as less controllable and external causes as more external than Americans. In examining the relations between dimensional ratings and anticipated psychological consequences, logical reasoning proved generalizable across the cultures. The authors speculate, however, that differential values & beliefs specific to a culture affect culture-specific attributional patterns.

The third theory, Seligman's (1975) learned helplessness paradigm, describes relationships between behaviours and outcomes that may be dependent or independent. In this response-outcome contingency approach, a person encounters an event that he/she either perceives as contingent or noncontingent upon his/her behaviour. If the outcome is viewed as noncontingent or independent of one's behaviour, the person will come to expect future noncontingent relationships and three deficits may result: cognitive, motivational and affective. Control is the perception that follows regarding the relationship between one's actions and the resulting outcomes. The helpless individual believes that his/her efforts are ineffective in achieving outcomes, creating expectations of future ineffectiveness and producing the three characteristic deficits. The cognitive deficit involves an inability to perceive contingency between behaviours and outcomes, which produces the affective deficit of apathy and leads to the motivational deficit of decreased attempts to control outcomes.

In a reformulation of helplessness theory, Abramson, Seligman and Teasdale (1978) included attributions as cognitive intermediaries between perceived lack of control over outcomes and expectations for future response-outcome relationships. According to the learned helplessness paradigm, once a person perceives a contingent or noncontingent relationship, he/she will try to understand why this condition exists. Incorporating attribution theory, the explanation for the observed relationship will involve varying dimensions of causality. Similarly, this reformulation utilizes three dimensions, though slightly different from those used by Weiner: whether the result is persistent or occasional, whether it is specific to one situation or all situations, and whether the outcome is due to oneself or to external factors. Those three dimensions, stability, globality and internality determine the expectation of uncontrollability in the future. The more generalizable and long-lasting these attributions, the greater the expectation of uncontrollability. Similarly, the more a person internalizes an outcome perceived as uncontrollable, the greater the emotional reaction. Thus, a perceived noncontingent relationship is cognitively processed to find a cause, which is expressed in attributions, depending upon which the deficits of retarded learning, negative feelings and lowered motivation may occur.

The learned helplessness approach is particularly useful as it suggests a mechanism by which perceived control may be manipulated: by exposing an individual to noncontingent relationships between his/her behaviour and outcomes. The intervening attributions may be measured and possible deficits may be ascertained using later tests and question-

naires. This approach is an improvement over the other two theories in that perceived control may be manipulated. Since response-outcome contingent and noncontingent relationships can be induced directly, causal inferences may be made. Experimental manipulation of perceived control permits direct comparison of experimentally induced conditions with desired dependent variables.

In an overall analysis of the three theories, the locus of control paradigm, attribution theory, and learned helplessness theory, problems with two of the approaches make them less useful for the purposes of the experimental study conducted. Although much research has been done using the locus of control construct, the basic paradigm itself focuses upon personality-type attributional styles whereas the results themselves demonstrate variability by situation. Parsons and Schneider (1974) showed differences in locus of control among ethnic groups and even within the same group, depending upon the domain of the situation. Another difficulty with the locus of control instrument is that the scale itself may be culturally biased. The I-E scale was developed for a white, middle-class American majority-group member. Its focus may not permit a fair interpretation of another culture's orientation, providing only an ethnocentric viewpoint. This should be taken into account when examining the results. The critical comparison in Weiner et al. (1976) pits attribution theory against the locus of control measure and found the latter deficient in predictive power relative to the attribution approach. Thus, empirical support for locus of control theory is inconsistent when compared to others.

The learned helplessness paradigm incorporates the improvements of attribution theory over the locus of control construct, at least in the reformulation, with the added advantage that it permits causal inferences due to the manipulation of response-outcome contingency. Thus, learned helplessness takes attribution theory one step further by actually explaining the mechanism by which attributions function, an issue which Weiner does not address.

It is unfortunate that virtually no research has addressed the issue of ethnic differences in perceived control from a response-outcome contingency perspective. If taken into context with Porter's stratification theory, an integration of sociological and psychological perspectives provide an interesting interpretation of ethnic differences in perceived control. A second advantage of the learned helplessness approach is its applicability to the classroom environment, another focus of this study. In this environment, students presumably differ in their perceived control over academic outcomes, the contingency relationship they perceive between their behaviours and their grades. For example, a response-outcome contingent relationship should exist whereby studying, attending class and note-taking produce higher marks. If no contingency is perceived by a student, the resulting attributions may lead to reduced achievement behaviour. The importance of perceived control for achievement behaviour has been shown by Stipek and Weisz (1981) as they discuss the motivation of perceived control and its resultant effect upon behaviour. In this intensive review article, the authors compare the results linking various control theories to academic achievement. Both locus of control and attributions are shown to affect

achievement behaviour and motivation. Similarly, Frieze (1980) discusses the connection between perceived control and academic performance, presenting convincing evidence of a causal relationship. Thus, the learned helplessness approach, with its manipulability of perceived control, should prove useful in examining the classroom.

In comparing the three approaches to perceived control, the learned helplessness, or response-outcome contingency approach appears to fare best against criticisms levelled against the other two theories. Using this paradigm, ethnic groups may be described as differing in exposure to noncontingent relationships in their lives, which would result in different attributions. This may lead to specific deficits that are empirically testable following the learned helplessness hypothesis. Ethnicity may prove to be a predictor in the incidence and etiology of learned helplessness, and using this paradigm, causal inferences as well as direct measure of results may be made.

Sociological perspectives. A number of sociological theories have been suggested to account for group differences in perceived control. They stress the development of control through differential socialization patterns and view the family as the source of beliefs about control. The purpose of this section will be to examine what exists for ethnic groups in the real world, to describe the relevant theories in sociology, and to decide which theory complements and elaborates upon the psychological theory chosen. These theories include Strodbeck's (1958) mastery theory, Seeman's (1967) theory of alienation, and Porter's (1965) vertical mosaic theory.

Strodtbeck (1958) discusses "mastery", or the belief of personal power, which may lead to perseverance in the face of failure. He suggests this sense of mastery develops within the family. Through feedback received from family members, a child acquires a sense of power over his/her environmental outcomes and learns either to give up or to persevere in the event of failure. For example, if a child is instilled with the belief that he/she can affect outcomes, then when he/she fails, believing it is controllable, he/she will persevere. Conversely, if a child is taught not to expect power over outcomes, more than likely that child will give up in the event of failure simply because of the belief in a lack of personal control. Furthermore, Strodtbeck maintains that differences exist in the acquisition of beliefs of mastery between cultural groups, perpetuated by the family. That is, depending upon the culture, differential beliefs of mastery exist and are passed on through socialization to the next generation.

Seeman's (1967) argument is similar to Strodtbeck's developmental description of perceived control. He suggests that differences in perceived control occur by ethnic groups. A sense of "powerlessness", or a lack of control, is due to feelings of alienation which ethnic groups, minorities within the host society, may tend to feel apart both from the ancestral homeland and within the host country. That is, they have lost contact with the home country, and feel isolated as non-members of the larger society. This sense of alienation is due to socialization which instills these feelings and leads to expectations of powerlessness, or a lack of control. For example, if a parent feels powerless in the larger society, he/she may foster these feelings in the

children, who themselves experience expectations of powerlessness, or lack of control. A symptom of this alienation is a "giving up" similar to the motivational deficit characteristic of learned helplessness. Thus, ethnic groups may be more likely to feel less control over their lives relative to the majority group.

Differences in socialization by ethnicity have been implicated in the development of childrens' expectations of controllability even up to the third generation (Katz, 1967). Katz proposes that minority children lack approval for academic achievements at home, and thus develop at a slower pace than others. For example, if a child is not reinforced for getting a good grade on a test, that child may not try to do well on the next test, knowing reinforcement is not coming in the form of praise. Since these children do not receive reinforcement for academic endeavors from their parents, they remain dependent upon teachers for social approval more than other children. Middle-class majority children receive attention in the home for their achievement and by the time they reach school, reinforcement for achievement has been internalized to the point where they do not require as much teacher approval. Thus, due to differences in family socialization, ethnic students may develop a more external locus for academic achievement.

Whereas the previous theories have focussed upon family socialization alone, Porter's (1965) theory bases these family differences upon society. His theory is based upon Canadian society in which ethnic groups are stratified in their relative positions of power in the society. A causal connection is suggested in which ethnicity may determine an individual's social class which in turn affects that

person's control over his/her life. Describing stratification patterns as a vertical mosaic, Porter's hypothesis proposes that the lower an ethnic group stands in the hierarchy, the less control actually experienced. Individuals may be relegated to a societal position based upon ascribed criteria such as ethnicity, rather than achieved criteria such as performance. Thus, ethnic identity would prove to be a barrier to successful competition in the larger society. Groups lower in the status hierarchy may be expected to develop expectations of uncontrollability congruent with their experiences of lack of power, or noncontingency, using learned helplessness terminology. If they come to expect that their behaviours will have little effect upon their outcomes, since they have so little power, they will base these expectations upon the reality of their experience. Carrying this sociological theory to the individual psychological level, group differences in perceived control should be internalized into an individual's value system.

Support for Porter's position is found in a study by Berry, Kalin and Taylor (1977) which found a hierarchical ordering or acceptance for Canadian ethnic groups: British and French Canadians, followed by those of North European ancestry, then Eastern and Southern European, followed by Oriental, South Asian, West Indian and Native Canadians. In a further analysis, Berry & Kalin (1979), in controlling for own-group evaluations, found the acceptance hierarchy was shared by most groups. Thus stratification of ethnic groups provides an intuitive explanation for ethnic differences in controllability and the hierarchy is empirically validated in research findings.

As previously mentioned, in all of these theories family socialization is implicated in the development of differential feelings of control. Porter's theory describes a reality in which perceptions of lack of control, as a result of social stratification, are internalized and passed on through socialization. His theory extends beyond the others' in that a mechanism for the differences in socialization is actually proposed. If the vertical mosaic holds true, the next generations of those at the bottom should themselves encounter little control over their social development. Porter presents empirical evidence of this perpetuation from the 1930's to the 1960's.

The one problem with the vertical mosaic is that Porter proposed specific ethnic differences. While this permits direct empirical comparison of his proposals, the theory itself is dated by almost twenty years and considerable changes may have occurred. The theory's utility lies in its suggestion of possible ethnic differences within the Canadian perspective and the mechanism within the society which produces these differences. Thus, whereas the vertical mosaic may not be taken literally in its specific status hierarchy twenty years later, its suggestions that differences exist may still be applicable to today's society. Unfortunately, the data Porter used to support his theory is correlational, not causal, and hence further study should employ experimental techniques for a fuller understanding of the relationship between ethnicity and perceived uncontrollability.

Incorporating learned helplessness theory and the ethnic vertical mosaic, perceptions of lack of control may be attributed to noncontingent experiences between behaviour and outcomes for some ethnic groups.

Those groups who experience uncontrollability perceive the noncontingent relationship, make attributions to explain the relationship which lead to expectations of future noncontingent relationships and the deficits of helplessness. Taken together, family socialization, the vertical mosaic and learned helplessness theories provide perspective from which to test the cause-effect relationship between perceptions of uncontrollability, the societal structure, and the perceptions, attributions, expectations and deficits characteristic of helpless individuals. The possibility of a greater sensitivity to uncontrollability among certain ethnic groups allows us to determine its effect upon specific dependent variables: depressed affect, decreased achievement behaviour, and difficulty in perceiving actual control.

Degrees of ethnicity. Isajiw (1981) found a wide range of ethnic identities and their manifestations in studying ethnic retention across generations in Canada. Some groups, such as the Jews, maintained a strong ethnic identity, whereas others such as the Germans, did not retain a strong ethnic identity. Significant differences were found to exist between the generations of various ethnic groups, indicating a progression towards a weaker ethnic identity. These findings suggest that ethnic identity may be measured on a continuum, rather than seen as an absolute. Differential socialization patterns by ethnic group may make the development of ethnic identity more or less important to various ethnic groups. Some may advocate maintaining a strong ethnic identity, while others may not foster a strong ethnic identity in their children.

As ethnic differences in perceived control have been suggested by research findings, it is possible that varying degrees of ethnic identity may also affect perceived control. Children raised with weaker ethnic identities may be socialized to expect greater control, whereas those raised with strong identities may maintain the expectations of controllability characteristic of their ethnic group. For example, Hsieh, Shybut and Lotsof, (1969) studied locus of control in Chinese-born, Chinese-American and Anglo-Americans. As noted, they found Chinese-Americans to be closer to the Anglo-Americans in their internal locus orientation. Studying locus of control in Anglo-Americans, second and third-generation Mexicans, Knight, Kagan, Nelson and Gumbiner (1978) found no significant differences between the two generations of Mexican-Americans, but that the third-generation more closely resembled the internality of the Anglo-Americans. This suggests acculturation to the dominant group as the third-generation also approximated Anglo-Americans in both reading and math achievement while the second generation lagged behind.

Taken together, the strength of identity research suggests that it may have an effect upon perceived control. Given the differential affects of ethnicity upon perceived control proposed, due to society and socialization, it is also possible that the variability in strength of an ethnic identity may show effects upon perceived control. Groups displaying weaker ethnic identities may be considered more assimilated, accorded a higher position in the vertical mosaic and hence have greater perceived control. Conversely, groups with strong ethnic identities may be stratified lower in the hierarchy, experience less control, and hence

perceive less control. It is possible, however, that the opposite may be true: groups with strong ethnic identities may perceive less control and groups with weak identities may perceive greater control. This poses an empirical question.

Ethnicity and Academic Achievement

A second purpose of this thesis is to examine ethnic groups and their performance under differing classroom conditions. Before considering the educational system, however, differences in orientations to achievement by ethnicity should be assessed. When comparisons of performance levels are made, too often an ethnocentric viewpoint is taken by researchers, implying that all people have the same ideals and motivation. Rosen (1959) would certainly suggest that differences exist between ethnic groups in motivation. He suggests that the disparity in rates of vertical mobility by ethnicity in the United States is due, in part, to dissimilar cultural orientations towards achievement. Before arrival in the country, immigrants acquired dissimilar motivations, values and aspirations due to socialization in the homeland. Rosen's argument is essentially that culture-specific socialization continues through to the next generations.

Studying McClelland's (1953) achievement syndrome with its three components, achievement motivation, achievement values and educational aspirations, Rosen examined differences between six ethnic groups: French Canadians, Greeks, Italians, Blacks, Jews and Protestants. Significant ethnic and socioeconomic effects were found for achievement motivation, with French Canadians, Blacks and Italians exhibiting the

least motivation. For achievement value orientations, a significant ethnic effect was found, but not a socioeconomic effect. Italians and French Canadians again had the lowest measure, with Italians believing in little control over their lives and that fate determined success. Finally, for levels of aspirations, different orientations toward education were evident, with Italians and French Canadians displaying the lowest aspirations. Thus, it appears that even before reaching the educational system, children from differing ethnic backgrounds may have been imbued with different standards which they internalize and which fuel their striving for competition. In relation to locus of control, need achievement is intimately connected to expectancy for control, with belief in one's own ability to affect outcomes a necessary prerequisite for the development of the need to achieve (McClelland, Atkinson, Clark, & Lowell, 1953; Atkinson, 1958; Atkinson & Feather, 1966).

If an ethnic group socializes its young to expect less control relative to the majority group, this may interfere with individual attempts to influence outcomes in various social settings. For example, if a child has been told that he/she has little control over school achievement, that child may be less likely to try to influence grades by exhibiting achievement-related behaviours. Even if not explicitly told this for school performance, expectations may generalize from other situations in which the child has been taught that he/she has no control. Also, personal experiences with lack of control, which Porter suggests certain ethnic groups in Canadian society experience, may produce expectations of future uncontrollability and reduce achievement motivation. If members of an ethnic group attempt to become upwardly

mobile through attaining higher education, but were repeatedly refused admission to these institutions, they may perceive their behaviour as ineffective and cease responding.

Expectations of uncontrollability could prove detrimental to some children if they are unable to recognize contingent relationships between their behaviours and academic achievement. Both Stipek and Weisz (1981) and Frieze (1980) stress the motivating property of perceived control and its effect upon behaviour. Perceived control is causally linked to greater achievement behaviour and thus, the relationship between educational attainment and perceived control is a crucial one to assess for ethnic students who may arrive in the system at a distinct disadvantage due to less motivation and perceived uncontrollability.

Since the teacher is an important factor in academic development, study of the teacher's behaviours and their effects upon student outcomes appears to be an important focus. It is the teacher who interacts with students and interprets educational objectives for each of his/her students. As such, the teacher may play a particularly important role for ethnic students. Katz (1967) maintains that the teacher provides the social approval that minority children lack in the home. Consequently, the teacher serves a function for ethnic children which the parents do not fulfill. Teachers' attitudes and expectations may thus be more salient to these students as they seek some approval for intellectual endeavors. In fact, in unpublished findings, Perry (1984) found in studying ethnicity in the college classroom that ethnic differences were significant in evaluations of the instructor.

Differences were found in how English, French, German, Polish, Ukrainian and other ethnic students evaluated instructors, suggesting that instructor behaviours may be evaluated differently by ethnic students. Thus, the effect of the instructor upon ethnic students is an important issue that must be addressed.

Ethnicity and Perceived Control in the College Classroom

Effective teaching behaviours. Research on the effective instructor has determined that a variety of teaching behaviours contribute to effective instruction. Among the effective teaching behaviours, instructor expressiveness has three advantages for further study: McKeachie, Linn, and Mann (1971) and others (e.g., Feldman, 1976) describe it as an important part of effective teaching, it is a behaviour which occurs often in a college classroom, and it has been shown to directly affect student achievement (Abrami, Leventhal & Perry, 1982; Perry, Abrami, & Leventhal, 1979).

Perry et al. (1979) examined the effect of two teaching behaviours, instructor expressiveness and lecture content. By systematically manipulating behaviours, educational outcomes could be precisely attributed to the instructor variables. Instructor expressiveness was characterized as a behavioural composite including eye contact, voice intonation (modulation), physical movement during a lecture, and injections of humour. An actual psychology instructor was trained to vary these elements to the two extremes, thus creating a low and a high expressive instructor. Lecture content was defined as the amount of material covered in a lecture, and was manipulated to create a low

content lecture presenting very little relevant information for a later test on the topic, and high content which presented all of the information required for the test. An instructor expressiveness (low, high) by lecture content (low, high) 2 x 2 matrix was developed: a low expressive/low content instructor, a low expressive/high content instructor, a high expressive/low content instructor, and a high expressive/high content instructor. In a simulated college classroom, the researchers found instructor expressiveness to have a significant effect upon both student achievement and student ratings of the instructor (Abrami et al., 1982). The high expressive instructor received higher student ratings and enhanced student achievement. This result directly related instructor expressiveness to academic achievement as well as student ratings of the instructor.

Instructor expressiveness can affect not only achievement, but also teacher ratings, as shown in the previous study. Greater enthusiasm for an instructor, seen in higher ratings, may affect attention to the lecture and facilitate greater achievement. Expressiveness appears to be an instructor variable that has important ramifications for student outcomes. Teaching behaviours have thus been shown to affect student outcomes, but they may also affect the student in other ways such as in their cognitions and perceived control.

Expressiveness and perceived control. The relationship between teaching behaviours and student outcomes has been discussed and now a possible connection between teaching behaviours and students' perceived control will be examined. It has been suggested that students may arrive at the classroom with differential perceptions of control, and

this section will consider the role of the teacher in affecting students' perceived control.

In an examination of learned helplessness in the college classroom, Perry and Dickens (1984) manipulated both perceived control and instructor expressiveness to determine the effect of the instructor upon perceived control. Subjects were exposed to either a contingent condition, where they answered a test that provided accurate feedback, a noncontingent condition where test answers provided only random feedback, or a no-feedback condition where subjects received no feedback regarding the correctness of their answers. First, subjects were exposed to the contingency manipulation, then they saw a videotaped lecture of either a low expressive or a high expressive instructor, after which they wrote a text on the lecture material and an attribution questionnaire. It was found that noncontingent feedback reduced the achievement enhancing effect of the high expressive instructor so that students' performance was comparable for both the low and high expressive instructors. Whereas instructor expressiveness has been shown to facilitate achievement exposure to noncontingent feedback appeared to interfere with this positive effect (Abrami et al., 1982). Noncontingent feedback not only impaired the ability to benefit from the achievement-enhancing effect of expressiveness, but also self-confidence and perceived control (lack of control). That is, exposure to the noncontingent condition reduced the self-confidence of subjects and decreased their perceived control. The detrimental effects of noncontingent conditions upon achievement and self-confidence were not improved by the high expressive instructor. Thus, the student experi-

encing uncontrollability was not able to take advantage of the positive benefits of an expressive instructor. This implies that helpless individuals may not be facilitated by effective teaching behaviours.

Perry and Dickens, like Dweck and Licht (1980) found that perceptions of uncontrollability impair some aspects of academic development. They suggest that a low expressive instructor, even without the exposure to noncontingent training, can produce feelings of uncontrollability and poorer achievement. Students who approach school with lower perceived control may be particularly disadvantaged if they have low expressive instructors. Thus, teaching behaviours may have differential effects, depending upon students' perceived control.

A number of hypotheses are suggested from the previous research. It was expected that in the present study, results for expressiveness and contingency exposure would replicate those found by Perry and Dickens. First, in noncontingent conditions, subjects should exhibit less perceived control than in contingent conditions, as well as reduced internal locus of control. The two conditions should not, however, differ in their ratings of success.

When instructor expressiveness is considered, the high expressive instructor may facilitate greater achievement, more internal attributions and greater self-confidence in contingent subjects but should affect only more internal attributions in noncontingent subjects. Perry and Dickens conclude that: "Noncontingent training appears to reduce the students ability to benefit from instructional variables during the classroom simulation" (p. 28). In other words, a high expressive

instructor seemed to be unable to alleviate the deficits produced through noncontingent training.

Ethnicity. Little research has been done to examine the relationship between student ethnicity and teaching behaviours, but an integration of the previous findings suggests a plausible relationship. It has been hypothesized that certain ethnic groups may have greater feelings of uncontrollability, which would suggest they are like the noncontingent subjects who display less perceived control. Given that noncontingent subjects are unaffected by instructor expressiveness, and if ethnic subjects are more prone to perceived lack of control, then they may also be unaffected by instructor expressiveness.

For the contingent conditions it was predicted that the ethnic groups will differ in their responsiveness to expressiveness. Those who exhibit the less perceived control will be unable to benefit from the high expressive instructor despite exposure to contingent conditions. The experience of noncontingent outcomes throughout their everyday lives, which one might speculate from Porter's vertical mosaic (1965), will interfere with increased perceived control following contingent feedback. Hence, they will react like subjects exposed to noncontingent feedback who do not increase their achievement or self-confidence with a high expressive instructor. More specifically, it is expected that the Chinese and Southern European subjects, even in contingent conditions, will be unaffected by expressiveness while the English and Ukrainian subjects will be facilitated by expressiveness.

Following noncontingent feedback it was predicted that ethnic differences would arise. The groups with less perceived control initially, the Chinese and Southern Europeans, were expected to be particularly incapacitated by low expressiveness. The English and Ukrainians, however, were not expected to show any differences between expressiveness conditions for the noncontingent condition, following Perry and Dicken's (1983) interaction. The Chinese and Southern Europeans were expected to respond to the low expressive/noncontingent condition with reduced achievement and a less internal locus of causality.

The rationale for suggesting that Chinese and Southern Europeans should initially have less perceived control relative to English and Ukrainians follows the vertical mosaic. According to Porter, the majority groups enjoy higher status and thus more power, which the learned helplessness theory would say is internalized as greater perceived control. The English are certainly a majority group, and there is an acceptance of Ukrainians in Canada due to their relatively long history in the country. Conversely, the Chinese and Southern Europeans have not as long a history in Canada and have thus been allocated a lesser status relative to the other groups, which accrues less power and should result in less perceived control than the English and Ukrainians.

Experimental Design

The present study examined the effects of ethnicity, contingency training, and instructor expressiveness upon student achievement and attributions in a simulated college classroom. The study was performed in the university environment with university students as subjects. The university has certain advantages in that it facilitates motivation to succeed and is an arena for achievement competition. Contingency training (contingent, noncontingent), instructor expressiveness (low, high) and ethnicity (Chinese, English, Southern European, Ukrainian) constituted the 2 x 2 x 4 design of the experiment. The strength of identity was measured on an ethnicity questionnaire. Dependent measures included attributions to ability, effort, luck and task difficulty for the contingency task, as well as affective responses, an achievement test based on the lecture content, and attributions for performance on the achievement test, with affective responses.

METHOD

Subjects

The subjects were 323 male and female introductory psychology students who received course credit for participation. Nine ethnic groups were represented in the sample: Chinese, English, French, German, Greek, Italian, Jewish, Ukrainian and Yugoslavian. For the purposes of the analysis, only Chinese, English, Greek, Italian, Ukrainian and Yugoslavian subjects were used, as the sample sizes of other groups were very small. These ethnic groups were chosen to represent the four distinct groups discussed in Canadian immigration accounts: the British, Anglo-Celts, the Eastern European (Ukrainians), the visible minority Asians (Chinese), and the Southern Europeans (Greek, Italian, Yugoslavian). Preliminary analyses were done to determine whether a larger group, Southern European, could be formed from the Italian, Greek and Yugoslavian groups, and analyses on all dependent measures showed only two significant ethnic effects among thirty dependent measures. Consequently, 301 subjects were included in the analyses after the French, German and Jewish subjects were removed due to insufficient group size: 60 Chinese, 98 English, 33 Southern Europeans, and 110 Ukrainians.

The sample was composed of approximately 60 percent females and 40 percent males, with 80 percent the sample speaking English as a first

language. Among the Chinese, 68 percent of the sample spoke Chinese as a first language, 99 percent of the English spoke English as a first language, 21 percent of Southern Europeans spoke their native tongue as a first language, and only 8 percent of Ukrainians spoke Ukrainian as a first language. Almost all (98%) of Chinese subjects claimed the same ethnicity as both parents. Of the English, 88 percent had the same ethnic identity as both parents. In the Southern European sample, percent of the fathers had the same ethnicity as subjects, and 79 percent of mothers had the same ethnicity. Ukrainian subjects had the same ethnicity as 91 percent of their fathers and 72 percent of their mothers.

As for ethnic identification, 77 percent of the Chinese felt that they had a strong ethnic identity and 78 percent thought their identity was important to them. Forty-nine percent of the English felt they had a strong ethnic identity, and 53 percent felt this identity important. Among Southern Europeans, 52 percent had a strong ethnic identity and 63 percent felt this identity important. Of the Ukrainian subjects, 61 percent claimed a strong ethnic identity and 64 percent felt this identity was an important one.

Materials

Sign-up booklets. Sign-up booklets were specially-designed to ensure the participation of a variety of ethnic groups. Four different booklets were used, each directed at an ethnic heritage group. Instructions on the booklet covers specified subjects from certain ethnic heritages: one Chinese, another English, a third calling for

Italian and the fourth Ukrainian. This procedure was designed to provide a more representative sample of ethnicities across experimental conditions than would a nonspecific procedure. Instructions on booklets provided for either male or female subjects and four variations of "persons whose ancestry is _____ (Chinese, English, Italian, Ukrainian)". Thus, each of the four versions has one of the aforementioned groups as its target population.

Contingency task. Typically, response-outcome contingency relationships have been manipulated using various types of cognitive tasks. Perry and Dickens (1981, 1983) utilized a fifty-item verbal aptitude test as their contingency manipulation. This test is similar to the Miller's Analogies test and Graduate Record examination in format and consists of three sections: verbal analogies, quantitative questions and sentence completions. Using this format, Dickens, Perry and Turcotte (1981) found length of noncontingent exposure, varying from 25 to 50 to 75 questions, caused significant differences in perceived control. Across all lengths, noncontingent subjects felt less control over their test performance relative to contingent subjects. On the basis of this study, the medium-length, 50-item test was chosen as it provided maximal exposure to the manipulation procedure without excessive participation time.

Multiple-choice answer sheets were specially-designed for this contingency manipulation procedure, providing four alternatives for each question. Feedback is provided as to whether the alternative chosen was correct or incorrect. The feedback remains invisible until a special marker is used to expose selected answers. Thus, immediate feedback as

to the correctness of an answer is achieved after each question is answered.

Contingent and noncontingent versions of the answer sheet were developed. Accurate feedback is provided on the contingent sheet with a "c" properly placed as the result for a correct answer and an "x" for the three other incorrect alternatives. On the noncontingent answer sheets however, the feedback is not accurate. Half of the questions were randomly chosen to be correct and the other half incorrect. The "correct" questions have a "c" as the feedback for all of the four alternatives, while the "incorrect" questions have an "x" as the feedback for all four alternatives. This is characterized as a fifty percent positive reinforcement condition. In other words, for some questions subjects receive a "correct" response irrespective of the actual correctness of their answer. For other questions, an "incorrect" response is received irrespective of the correctness of the answer.

The use of the multiple-choice, verbal aptitude test using a group-administered procedure was chosen due its close representation of the classroom test. Perry and Dickens (1984) found the contingency manipulation produced a very large effect upon perceived control. Noncontingent subjects reported less perceived control than contingent subjects and took much less responsibility for their performance. Whereas contingent subjects attributed their performance to internal factors, noncontingent subjects showed a less internal locus. Taken together, these results suggest the verbal aptitude test effectively manipulates perceived contingencies and controllability.

In this study, however, a multi-ethnic population was used, which may preclude the aforementioned procedure. The verbal aptitude test manipulation may prove an unfair disadvantage for subjects without English as a first language. It may prove an inherent frustration even before the contingency manipulation takes effect. As this procedure has typically been used on subjects with English as a first language only, its effect upon non-English is unknown. Consequently, the Ravens Progressive Matrices was considered as a possible alternative as it is a more culture and language-free instrument. The contingency manipulation would thus be achieved using a modification of the Ravens, rather than the verbal aptitude test to counteract possible inequalities due to different language backgrounds.

The Ravens Progressive Matrices is composed of 60 picture-puzzles each puzzle has a piece missing and six to eight alternatives displayed below to match the pattern in the puzzles. There are five sections of twelve puzzles each graduated in difficulty from the easiest at the beginning of a set to the most difficult on the twelfth. Each of the sections is also graduated in difficulty from the first to the fifth. The test is structured so that the first question is easier than the final question of the previous section. One puzzle is presented per page.

Although the verbal aptitude test has been validated as a contingency manipulation for English-speaking college students, the Ravens Progressive Matrices has never been used to manipulate perceived control. Consequently, a pilot study was undertaken to compare the contingency manipulation effects of the Ravens to the verbal test. The pilot study

involved a contingency (contingent, noncontingent) by test (Ravens, verbal) by language (English, non-English) factorial design. Subjects were solicited with either English as a first language, or those who had spoken English for five years or less. Eight experimental groups were employed: two groups writing the verbal test in either contingent or noncontingent conditions, and two similar groups writing the modified Ravens nonverbal test in either contingent or noncontingent conditions. The nonverbal contingency manipulation was accomplished similarly to the verbal test: multiple-choice answer sheets were provided with six to eight alternatives per puzzle, each alternative providing feedback as to whether the choice was correct (c) or incorrect (x). Feedback was invisible until a special marker was used to expose the feedback, similar to Perry and Dickens' (1984) procedure.

The progressive nature of the Ravens test and differences in difficulty levels of questions was seen as possibly a confounding variable. If simple questions were marked wrong, as in the noncontingent manipulation, subjects may become suspicious. The verbal test had been specially-constructed so that items were of comparable difficulty. To approximate this condition, three judges chose 46 of the 60 Ravens questions as equal in difficulty. These questions were then randomly distributed to eliminate any progressive nature and possible response sets due to similar patterns in successive questions. Thus, the new instrument was constructed solely for the purpose of a response-outcome contingency manipulation and does not require validation as an instrument measuring intelligence.

Subjects were randomly assigned to conditions and required to take the contingency manipulation, to answer a post-contingency questionnaire and finally to answer a funnel-type post-experimental questionnaire. On the contingency task questionnaire, attributions were made to the control felt over test performance (1=no control, 10=total control), how successful subjects felt about the test result (1=unsuccessful, 10=successful), attributions of the extent ability, effort, test difficulty and luck determined their performance (1= not at all, 10=totally), and affective measures of confidence, helplessness, competence and other emotions measured along ten-point scales. The post-experimental questionnaire determined how the subjects felt about the test (1=not good at all, 10=good), to what they attributed this feeling (their ability, the test, the experimenter, the answer sheet), and if English had been spoken for five years or less. Finally, a funnel-type procedure was employed to determine subjects' beliefs about the purpose of the test and their suspiciousness. This was followed by a complete debriefing to end the 65 minute experimental session.

Two versions of the answer sheet were constructed for the nonverbal test to provide for either contingent or noncontingent feedback. The contingent answer sheet contained accurate feedback as to the correctness of response alternatives, while the noncontingent answer sheet provided 50 percent reinforcement similar to that on the noncontingent verbal answer sheet. Noncontingent questions were randomly selected and assigned to contain either all correct feedback (all c's) or all incorrect feedback (all x's). The verbal answer sheets were those previously used by Perry and Dickens (1984) to manipulate perceived control.

As the procedure used by Perry and Dickens used English-only subjects, this comparative analysis of the pilot data (Bollman, 1984) will include only English subjects. The purpose of the procedure is to manipulate perceived control, and an analysis of variance (ANOVA) of contingency training (contingent, noncontingent) by test (verbal, nonverbal) shows contingency to have a significant effect upon perceived control, $F(1,119)=8.10$, $p<.01$. Examining Table 1, it is evident that subjects exposed to noncontingent feedback feel less in control than those in the contingent condition. A significant contingency by test interaction, $F(1,119)=6.21$, $p<.01$, however, qualifies this effect: a Bonferroni multiple comparison with 6 comparisons at $\alpha = .05$ and with a critical t -value of 2.68 found that only for the nonverbal test does the effect of contingency upon perceived control exist ($t(119)=3.75$). For perceived success, the ANOVA reveals an interaction between contingency and test type, $F(1,119)=9.12$, $p<.01$ (see table 2). A Bonferroni t-test was computed for the six comparisons with a critical t -value=2.68 and $\alpha .05$. The only significant comparison was between the verbal and nonverbal tests in the contingent condition ($t=3.78$), whereby the nonverbal test subjects felt more successful than the verbal test subjects. Affective reactions to test performance for how encouraged/discouraged, how proud/ashamed and how helpless/confident subjects revealed significant interaction effects for contingency by test, $F(1,119)=7.16$, $p<.01$, $F(1,119) = 10.70$, $p<.001$, and $F(1,119)=5.21$, $p<.01$ respectively.

Multiple analyses of variance and discriminant function analysis were performed on the attribution profile made up of ability, effort, test

Table 1: Means and standard deviations for pilot study contingency task measures

	<u>Verbal Task</u>				<u>Nonverbal Task</u>			
	<u>Contingent</u>		<u>Noncontingent</u>		<u>Contingent</u>		<u>Noncontingent</u>	
	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>
<u>Perceived Control</u>								
M	5.48	4.50	5.32	6.25	6.29	6.10	3.87	3.42
SD	2.23	2.32	2.37	1.54	2.53	3.21	2.90	2.68
<u>Perceived Success</u>								
M	4.26	3.00	5.32	5.50	6.29	6.70	5.03	3.75
SD	2.42	2.09	2.15	1.45	2.05	2.87	2.24	2.01
<u>Ability determined</u>								
M	4.84	2.96	4.70	4.80	5.69	5.74	3.54	4.32
SD	2.74	1.97	2.54	1.85	1.83	2.26	2.12	2.34
<u>Effort determined</u>								
M	5.16	3.43	4.88	5.35	6.09	5.61	3.91	5.14
SD	1.80	1.83	2.44	1.69	2.06	2.81	2.34	2.32
<u>Difficulty determined</u>								
M	5.91	4.78	5.30	5.30	5.26	4.32	4.71	3.45
SD	2.18	2.58	2.44	1.26	2.09	2.49	2.54	2.09
<u>Luck determined</u>								
M	2.16	2.00	2.91	4.00	1.77	1.22	2.17	1.95
SD	1.82	1.73	2.13	2.03	1.70	1.51	2.37	1.76

Table 1: Means and standard deviations for pilot study contingency task measures

	<u>Verbal Task</u>				<u>Nonverbal Task</u>			
	<u>Contingent</u>		<u>Noncontingent</u>		<u>Contingent</u>		<u>Noncontingent</u>	
	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>
<u>Feel</u>								
<u>(proud/ashamed)</u>								
M	4.29	3.50	5.48	5.67	6.13	6.60	4.70	3.92
SD	2.25	1.57	2.03	1.23	2.06	2.67	2.52	1.88
<u>Motivated</u>								
<u>(motivated/unmotivated)</u>								
M	5.42	4.67	5.23	6.50	5.87	5.10	5.03	5.50
SD	2.14	2.61	2.54	1.62	2.46	3.51	2.39	1.24
<u>Competence</u>								
<u>(competent/incompetent)</u>								
M	5.52	5.33	6.06	5.92	6.13	5.70	5.10	3.67
SD	1.93	2.19	1.67	2.19	2.80	2.79	2.72	1.97
<u>Helpless</u>								
<u>(helpless/confident)</u>								
M	5.48	5.67	6.35	6.58	6.16	5.70	5.13	5.42
SD	1.93	1.83	1.80	1.31	2.81	3.47	2.54	2.43
<u>Encouraged</u>								
<u>(encouraged/discouraged)</u>								
M	4.39	4.42	5.03	6.75	5.97	7.10	4.57	4.92
SD	2.06	2.07	1.80	1.48	2.32	2.56	2.27	2.15

Table 1: Means and standard deviations for pilot study contingency task measures

	<u>Verbal Task</u>				<u>Nonverbal Task</u>			
	<u>Contingent</u>		<u>Noncontingent</u>		<u>Contingent</u>		<u>Noncontingent</u>	
	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>	<u>Eng</u>	<u>Noneng</u>
<u>Ability</u>								
M	5.13	4.83	6.58	5.83	6.81	7.50	5.50	4.00
SD	2.47	2.04	1.59	1.95	1.92	2.07	2.78	2.56
<u>Effort</u>								
M	6.10	5.58	6.48	7.67	6.35	4.30	7.20	6.25
SD	2.40	1.83	2.53	1.30	2.63	3.83	2.34	3.14
<u>Difficulty</u>								
M	5.84	6.50	5.97	6.50	4.68	3.90	6.00	4.83
SD	2.18	1.62	1.91	1.31	1.81	2.13	1.62	1.95
<u>Aptitude test score</u>								
M	37.16	33.75	38.74	31.08	47.29	51.00	47.17	44.33
SD	8.81	4.31	8.74	7.20	8.79	6.46	7.29	11.97
n	31	12	31	12	31	10	30	12

Table 2: ANOVAS for pilot study task measures (English only)

	<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Perceived Control</u>					
	Contingency	51.36	1	51.36	8.10**
	Test	3.24	1	3.24	0.57
	Contingency x Test	39.34	1	39.34	6.21**
	Error	754.37	119	6.34	
<u>Perceived Success</u>					
	Contingency	0.07	1	0.07	0.01
	Test	26.02	1	26.02	5.28
	Contingency x Test	44.95	1	44.95	9.12**
	Error	586.32	119	4.93	
<u>Feel (Proud/ashamed)</u>					
	Contingency	0.43	1	0.43	0.09
	Test	8.55	1	8.55	1.73
	Contingency x Test	52.86	1	52.86	10.70***
	Error	587.91	119	4.94	
<u>Motivated (motivated/unmotivated)</u>					
	Contingency	8.17	1	8.17	1.44
	Test	0.52	1	0.52	0.09
	Contingency x Test	3.19	1	3.19	0.56
	Error	677.42	119	5.69	
<u>Competence (competent/incompetent)</u>					
	Contingency	1.78	1	1.78	0.33
	Test	0.95	1	0.95	0.18
	Contingency x Test	19.12	1	19.12	3.52
	Error	645.80	119	5.43	

Table 2: ANOVAS for pilot study task measures (English only)

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Helpless</u>				
(helpless/confident)				
Contingency	0.19	1	0.19	0.04
Test	2.28	1	2.28	0.43
Contingency x Test	27.71	1	27.71	5.21
Error	632.50	119	5.32	
<u>Encouraged</u>				
(encouraged/discouraged)				
Contingency	4.39	1	4.39	0.98
Test	9.56	1	9.56	2.13
Contingency x Test	32.18	1	32.18	7.26***
Error	534.66	119	4.49	
<u>Ability</u>				
Contingency	0.16	1	0.16	0.03
Test	2.74	1	2.74	0.55
Contingency x Test	58.47	1	58.47	11.73***
Error	593.37	119	4.99	
<u>Effort</u>				
Contingency	11.67	1	11.67	1.90
Test	7.29	1	7.29	1.19
Contingency x Test	1.61	1	1.61	0.26
Error	730.35	119	6.14	
<u>Difficult</u>				
Contingency	16.20	1	16.20	4.52
Test	9.80	1	9.80	2.74
Contingency x Test	10.95	1	10.95	3.06
Error	425.94	119	3.58	

Table 2: ANOVAS for pilot study task measures (English only)

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Aptitude test score</u>				
Contingency	16.32	1	16.32	0.23
Test	2645.83	1	2645.83	37.13***
Contingency x Test	22.32	1	22.32	0.31
Error	8478.68	119	71.25	

**p .01

***p .001

difficulty and luck. A significant contingency effect was revealed, $F(4,128)=3.98$, $p<.01$, and the discriminant function analysis demonstrated a function composed of strong loadings on ability and effort, the internal attributions, and luck an external attribution. Structure correlations and z-weights were shown to be: ability, .349 (.709); effort, .624 (.807); task difficulty, .133 (.355); luck, -.493 (-.410). Group centroids for contingent (5.12) and noncontingent (3.60) show contingent subjects to base their attributions more on the internal attributions and the noncontingent subjects to attribute more to luck, less to internal attributions relative to the contingent group.

The results of the pilot study indicate that the nonverbal instrument does effectively manipulate perceived control. The criteria used to assess the effectiveness of the nonverbal instrument are those cited by Perry and Dickens (1983) as the results of contingency manipulation: noncontingent subjects feel less in control, no success effect arises so that both groups feel as successful, and contingent subjects reveal a more internal locus attributional pattern than noncontingent subjects. Thus, the nonverbal instrument passes the control requirement. As for success, no significant success effect resulted, which does agree with Perry and Dickens' findings: differences between the two groups should not be due to feelings of success, but due to feelings of uncontrollability independent of the effect of reinforcement. The final criterion was the more internal attribution profile of contingent subjects, which both texts showed. Thus, overall the nonverbal test proved to be as successful as the instrument employed by Perry and Dickens at contingency manipulation based upon the criteria used by the authors to assess

their own instruments. The added advantage of the nonverbal instrument is that since language is not used as the medium for presentation, it may be more fair for people without English as a first language. Based on these results, the nonverbal task was used in the major study.

Videotaped lectures. Two colour videotaped lectures on the topic repression were used. They differed systematically in the degree of expressiveness (low, high) exhibited. Instructor expressiveness was manipulated by varying instructor's voice inflection and eye contact, physical movement, and humour, with the low and high expressiveness representing the two extremes of these behaviours. This manipulation has been validated (Abrami, Leventhal & Perry, 1982; Dickens, Perry & Turcotte, 1981; Perry, Abrami & Leventhal, 1979; Perry & Dickens, 1983) in that students consistently rate the high expressive instructor more favourably than the low expressive instructor. Perry et al. (1979) also showed the high expressive instructor to facilitate higher achievement, a result found in Abrami et al.'s (1982) meta-analysis as well. This result is qualified by a contingency by expressiveness interaction discussed in Perry and Dickens. High lecture content videotapes were chosen to provide maximum achievement potential, as Abrami et al. found the content or amount of information presented in the lecture had a substantial impact upon student achievement.

Dependent measures. Dependent measures included the contingency task attribution questionnaire (Appendix B), an achievement test and a post-lecture attribution questionnaire, an achievement test and a post-lecture attribution questionnaire. The contingency task questionnaire was the same as that used in the pilot study described earlier

with attributions made to the control felt over test performance, how successful subjects felt about the test result, attributions of the extent ability, effort, task difficulty and luck determined test performance, and affective measures of confidence/helplessness, pride/shame, encouraged/discouraged, motivated/unmotivated and competent/incompetent, all measured on ten-point scales.

The achievement test was a multiple-choice test of lecture content from the videotape to determine retention, attention to and comprehension of the material. Answers were recorded on a computer-scored answer sheet. No feedback as to the correctness of responses was given. The post-lecture attribution questionnaire involved the same ten-point questions used in the contingency task questionnaire, but with an emphasis on the achievement test. A question asking how much achievement performance could be attributed to the instructor (1=not at all, 10=entirely) was also included. See Appendix C for this questionnaire.

Ethnicity questionnaire. After the experimental manipulations and dependent measures were completed, an ethnicity questionnaire was written. Inclusion of this measure at the end of the session was designed to prevent response bias, experimental hypothesis-learning and any more suspiciousness than may have already been triggered by the sign-up procedure. Subjects were not accustomed to being asked their ancestral heritage in signing up for an experiment. Normally, they simply place their names and phone numbers in the sign-up booklet which usually specifies English as a first language and sometimes a specific gender. Administration of this questionnaire after the experiment reduces the likelihood that subjects would correctly perceive ethnicity

as the independent variable and respond with ethnicity particularly salient in their minds, trying to validate a hypothesis.

The ethnicity questionnaire determined ethnicity, generation as a Canadian, and followed by other questions rated on ten-point scales questioning certain aspects of identity retention and other demographic factors. As well as own ethnic identity, parents' ethnic identities were determined. Strength of the ethnic identity and its importance were questioned, as well as questions about language fluency and usage. Maintenance of ethnic traditions and the likelihood of intermarriage were tapped, as well as parents' educational attainment and occupations. At the beginning of the questionnaire, the instructions stressed that subjects were free not to answer questions they found objectionable, that the information was anonymous and would be held in strictest confidence. See Appendix D for this questionnaire.

Procedure

The experiment consisted of four parts: the contingency task and related aptitude questionnaire, the lecture presentation on videotape and achievement test with post-lecture questionnaire, the ethnicity questionnaire, and finally an extensive debriefing. Contingent and noncontingent subjects both participated in all phases of the study, as did all ethnic groups.

Subjects were solicited using the sign-up booklets that identified only session date and time, and were thus subjects were self-assigned to conditions. which were randomly assigned to session times. Upon

arrival at the experimental room, subjects were instructed that the purpose of the experiment was to study the university environment in order to generate improvements in the educational system. This explanation was designed to elicit the attention and interest in the outcome of the experiment. They were then given the contingency task manipulation, with the test described as an aptitude intelligence measure, which took approximately 30 minutes. The aptitude test attribution questionnaire followed completion of the contingency manipulation task.

In the second phase of the experiment, contingent and noncontingent subjects watched the coloured videotape of either a low or a high expressive instructor, which was followed by the achievement test on the lecture material and then the post-lecture questionnaire regarding test performance. Finally, after this was completed, the ethnicity questionnaire was written, and the session finished with a debriefing and question period. It is important to note that the subjects' names were required on all materials to heighten the salience of achievement performance on all measures. In the debriefing, however, it was fully explained that names would not be used and the purpose of this procedure was described.

Analysis

For the attribution questionnaire following the contingency manipulation task, a composite was developed, forming an attribution profile. Previous work by Perry and Dickens (1984) has shown an internal locus profile of the four attributions is formed via discriminant analysis.

Consequently, multivariate analysis of variance (MANOVA) was performed comparing the ethnic groups and contingency groups on the attributional composite. The attribution profile consisted of the responses to how much ability, effort, task difficulty and luck determined the performance. Other measures in the questionnaire were treated with analysis of variance (ANOVA).

The post-lecture attribution questionnaire was analyzed similarly to the contingency questionnaire: MANOVA on the attribution profile, followed by ANOVAs on other measures including the achievement test score. After the multivariate tests on the attributions had been completed, discriminant analyses were performed on the contingency by expressiveness interaction, forming group centroids which were later tested in multiple comparisons using Bonferroni t -tests using Dunn's (1961) critical values of the multiple comparison test. This procedure was used following Harris' (1975) contention that the Bonferroni is a more powerful tool than the Scheffe t -test, with advantage that both control for level of Type I error across multiple comparisons. The purpose of these comparisons was to reveal whether Perry and Dickens' contingency by expressiveness interaction is consistent for all groups.

RESULTS

Experimental Design

This experiment involved a two-phase procedure: the contingency task manipulation and the classroom simulation. The contingency task phase used the nonverbal manipulation of perceived control based on the results of the pilot study. The task phase involved a contingency training (contingent, noncontingent) by ethnicity (Chinese, English, Southern European, Ukrainian) 2 x 4 factorial design with dependent measures including attributions for test performance as well as performance and affective measures. In examining these measures, the effects for the English-only will be examined first to determine whether Perry and Dickens' contingency task results were replicated. Then, an overall analysis of contingency effects for the whole sample will be considered, followed by an examination of the ethnicity hypothesis, that is, differences in perceived control by ethnicity.

The classroom simulation phase involved a contingency training (contingent, noncontingent) by ethnicity (Chinese, Southern European, Ukrainian) by instructor expressiveness (low, high) 2 x 4 x 2 factorial design, with dependent measures including: post-lecture achievement test performance: attributions for the achievement test, and affective measures similar to those on the contingency questionnaire. The achievement test was based on the lecture material. The ethnicity

hypothesis of possible ethnic differences in response to expressiveness will be studied.

In the reporting of results, for the contingency training task the .01 level of significance was adopted, as the purpose of this section was for a stringent test of the contingency manipulation. For reporting of any ethnic effects, it was important that clear differences be evident. Since the nonverbal procedure is a new manipulation, it was felt that this test should be conservative. For post-lecture results, however, as the effectiveness of the expressiveness manipulation has been clearly articulated (Abrami et al, 1982; Dickens et al, 1981; Perry et al, 1979; Perry & Dickens, 1983; Perry & Dickens, 1984) and documented, it was felt that the .05 level of significance would be sufficient to test for ethnic effects. Typically, the strength of the expressiveness variable has tended to dominate in comparison with the effects of other independent variables.

Preliminary analyses on the strength of ethnicity variable revealed only sporadic, weak results. One-way analyses of variance of strength of ethnic identity for all dependent variables in both phases of the study revealed no significant effects. A reanalysis including the strength variable with ethnicity and contingency in the contingency task results still showed no significant effects or interactions. For the post-lecture results, however, again though strength never proved to be a significant main effect, it did interact with ethnicity and expressiveness to affect how much ability people assess themselves to have for the test, $F(3,269)=4.01, p<.01$. Similarly, when asked how discouraged/encouraged they felt by the test result, strength had two significant

interactions: ethnicity by strength, $F(3,269)=3.93$, $p<.01$, and contingency by expressiveness by strength, $F(3,269)=7.43$, $p<.01$. Though these interactions are interesting, the lack of other results makes the inclusion of the variable in further analyses far less compelling, and thus this variable was omitted from later analyses.

Contingency Task

English-only replication. The purpose of the contingency manipulation was to affect perceived control. Nonverbal contingency analyses with the English population, with the means and standard deviation shown in Table 3, indicate a highly significant effect of contingency training upon perceived control, $F(1,96)=37.67$, $p<.001$, and perceived success, $F(1,96)=11.54$, $p<.001$, with contingent subjects feeling more in control and more successful. ANOVA results are shown in Table 4.

Multivariate and discriminant analyses were performed on the attribution profile of how much ability, effort, task difficulty and luck determined test performance. For these English subjects, the MANOVA results for the attribution profile show a contingency training effect, $F(4,93)=7.76$, $p<.001$, which was probed with a discriminant function analysis, with the results shown in Table 5. Structure correlations and z-weights of the attributions were: ability, .715(.558); effort, .638(.432); task difficulty, -.039(-.283); luck, -.595(-.527). As for previous results, the contingent subjects' centroid (3.82) showed a more internal locus than the noncontingent subjects' centroid (1.36). Contingent subjects attribute more to ability and effort, and less to luck than noncontingent subjects. As

Table 3: Means and standard deviations for nonverbal contingency task measures
(English-only)

	Contingent	Noncontingent
<u>Perceived Control</u>		
M	7.05	4.30
SD	1.72	2.70
<u>Perceived Success</u>		
M	5.73	4.23
SD	2.08	2.27
<u>Ability determined</u>		
M	5.73	3.84
SD	2.26	2.34
<u>Effort determined</u>		
M	6.25	4.63
SD	2.15	2.29
<u>Difficulty determined</u>		
M	5.27	5.37
SD	2.14	2.30
<u>Luck determined</u>		
M	1.11	2.40
SD	1.61	2.17

Table 3: Means and standard deviations for nonverbal contingency task measures
(English-only)

	Contingent	Noncontingent
<u>Feel</u> (Proud/ashamed)		
M	5.84	4.93
SD	1.88	1.72
<u>Motivated</u> (motivated/unmotivated)		
M	6.16	4.56
SD	2.09	1.92
<u>Competence</u> (competent/incompetent)		
M	6.29	5.58
SD	2.11	1.76
<u>Helpless</u> (helpless/confident)		
M	6.40	5.00
SD	2.13	2.05
<u>Encouraged</u> (encouraged/discouraged)		
M	5.80	4.35
SD	2.28	1.95

Table 3: Means and standard deviations for nonverbal contingency task measures
(English-only)

	Contingent	Noncontingent
<u>Ability</u>		
M	6.69	6.09
SD	1.69	2.15
<u>Effort</u>		
M	7.25	6.84
SD	1.70	1.36
<u>Difficult</u>		
M	3.89	4.65
SD	1.99	2.17
<u>Expected success</u>		
M	6.07	5.81
SD	1.91	1.91
<u>Aptitude test score</u>		
M	39.13	37.26
SD	5.94	7.52
<hr/>		
n	55	43

Table 4: ANOVAS for nonverbal contingency task measures (English-only)

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Perceived Control</u>				
Contingency	182.80	1	182.80	37.67***
Error	465.91	96	4.85	
<u>Perceived Success</u>				
Contingency	53.92	1	53.92	11.54***
Error	448.58	96	4.67	
<u>Feel (helpless/confident)</u>				
Contingency	19.81	1	19.81	6.05
Error	314.32	96	3.27	
<u>Motivated (motivated/unmotivated)</u>				
Contingency	62.20	1	62.20	15.31***
Error	390.13	96	4.06	
<u>Competence (competent/incompetent)</u>				
Contingency	12.15	1	12.15	3.14
Error	371.81	96	3.87	
<u>Helpless (helpless/confident)</u>				
Contingency	47.30	1	47.30	10.78***
Error	421.20	96	4.39	
<u>Encouraged (encouraged/discouraged)</u>				
Contingency	50.82	1	50.82	11.07***
Error	440.57	96	4.59	

Table 4: ANOVAS for nonverbal contingency task measures (English-only)

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Ability</u>				
Contingency	8.63	1	8.63	2.38
Error	347.37	96	3.62	
<u>Effort</u>				
Contingency	4.20	1	4.20	1.72
Error	234.30	96	2.44	
<u>Difficult</u>				
Contingency	13.95	1	13.95	3.26
Error	411.11	96	4.28	
<u>Expected success</u>				
Contingency	1.62	1	1.62	0.44
Error	350.22	96	3.65	
<u>Aptitude test score</u>				
Contingency	84.52	1	84.52	1.89
Error	4282.30	96	44.61	

**p .01
***p .001

Table 5: MANOVA, means and discriminant function analyses of contingency task attributions (English only)

	<u>Means</u>	
	Contingent	Noncontingent
Ability	5.73	3.84
Effort	6.25	4.63
Task difficulty	5.27	5.37
Luck	1.11	2.40
n	55	43

MANOVA

Source

Contingency $F(4,93) = 7.76^{***}, p < .001$

Discriminant Analysis

<u>Attribution Profile</u>	<u>z-weights</u>	<u>structure correlations</u>
Ability	.558	.715
Effort	.432	.638
Task difficulty	-.283	-.039
Luck	-.527	-.595

Group Centroids

Contingent	3.82
Noncontingent	1.36

inspection of results for English subjects showed a replication of previous research results, we will now examine the results including all subjects.

General contingency effects. A contingency training (contingent, noncontingent) by ethnicity (Chinese, English, Southern European, Ukrainian) ANOVA was performed on the perceived control and perceived success measures, with the success measure included to assess whether reinforcement differences between contingent and noncontingent subjects were confounding the contingency manipulation. The means and standard deviations of perceived control and success for the entire sample are presented in Table 6. Analysis of variance results reveal contingent subjects feel more in control than noncontingent subjects, $F(1,293)=72.90$, $p<.001$. For the perceived success measure, contingency training was again significant, $F(1,293)=31.33$, $p<.001$, with contingent subjects feeling more successful. ANOVAS for these measures are shown in Table 7.

Multivariate and discriminant analyses of the attribution profile showed a significant contingency training effect. $F(4,290)=11.98$, $p<.001$, and in the discriminant function (Table 8), the structure correlations and z-weights were: ability, .724 (.516); effort, .688(.498); task difficulty, -.019(-.280); luck, -.579(-.481). The contingent group centroid (3.89), compared to the noncontingent group centroid (2.02) revealed that the contingent subjects have a more

Table 6: Means and standard deviations for contingency task measures

	<u>Contingent</u>				<u>Noncontingent</u>			
	<u>Chine</u>	<u>Eng</u>	<u>S Eur</u>	<u>Ukr</u>	<u>Chine</u>	<u>Eng</u>	<u>S Eur</u>	<u>Ukr</u>
<u>Perceived Control</u>								
M	6.45	7.05	6.28	7.27	4.45	4.30	4.73	3.81
SD	1.96	1.72	1.99	1.55	2.10	2.70	2.37	2.83
<u>Perceived Success</u>								
M	5.61	5.73	4.78	6.16	4.24	4.23	3.93	3.98
SD	2.09	2.08	2.41	1.43	2.26	2.27	1.53	2.10
<u>Ability determined</u>								
M	6.19	5.73	4.72	6.27	4.76	3.84	4.93	3.83
SD	1.51	2.26	2.19	1.77	2.06	2.34	2.05	2.45
<u>effort determined</u>								
M	6.16	6.25	5.78	6.39	4.90	4.63	5.20	4.69
SD	1.68	2.15	2.18	2.29	1.52	2.29	1.66	2.18
<u>Difficulty determined</u>								
M	5.03	5.27	4.89	5.29	4.93	5.37	5.47	4.86
SD	2.15	2.14	2.40	2.29	1.85	2.30	1.88	2.26
<u>Luck determined</u>								
M	2.03	1.11	1.28	1.25	2.69	2.40	2.00	2.76
SD	1.89	1.61	2.16	1.67	1.98	2.17	1.51	2.53

Table 6: Means and standard deviations for contingency task measures

	Contingent				Noncontingent			
	Chine	Eng	S Eur	Ukr	Chine	Eng	S Eur	Ukr
<u>Feel</u> (Proud/ashamed)								
M	5.65	5.84	5.00	6.29	4.45	4.93	3.87	4.29
SD	1.99	1.87	2.03	1.42	2.18	1.72	1.68	2.04
<u>Motivated</u> (motivated/unmotivated)								
M	5.71	6.16	4.22	5.90	4.59	4.56	5.00	5.00
SD	2.18	2.09	2.78	2.23	1.86	1.92	1.60	2.36
<u>Competence</u> (competent/incompetent)								
M	5.81	6.29	6.06	6.88	5.41	5.58	5.47	5.58
SD	2.01	2.11	2.13	1.70	1.76	1.76	1.25	2.00
<u>Helpless</u> (helpless/confident)								
M	6.32	6.40	6.28	6.94	4.97	5.00	4.40	5.02
SD	1.70	2.13	2.11	1.74	1.82	2.05	1.64	2.33
<u>Encouraged</u> (encouraged/discouraged)								
M	6.10	5.80	5.06	6.27	4.31	4.35	3.87	3.69
SD	1.92	2.28	2.24	2.07	2.19	1.95	1.51	2.47

Table 6: Means and standard deviations for contingency task measures

	<u>Contingent</u>				<u>Noncontingent</u>			
	<u>Chine</u>	<u>Eng</u>	<u>S Eur</u>	<u>Ukr</u>	<u>Chine</u>	<u>Eng</u>	<u>S Eur</u>	<u>Ukr</u>
<u>Ability</u>								
M	6.52	6.69	6.50	7.00	5.10	6.09	5.47	6.19
SD	1.39	1.69	1.62	1.00	1.50	2.15	1.81	1.88
<u>Effort</u>								
M	6.13	7.25	6.17	6.80	6.38	6.84	6.20	7.34
SD	2.22	1.70	2.09	1.58	1.74	1.36	1.74	1.65
<u>Difficult</u>								
M	4.06	3.80	4.22	4.25	4.55	4.65	5.20	4.98
SD	1.95	1.99	2.21	1.75	1.72	2.17	1.61	1.92
<u>Expected success</u>								
M	5.45	6.07	5.44	6.08	4.76	5.81	5.87	5.41
SD	2.00	1.91	1.92	1.80	2.01	1.91	0.92	2.08
<u>Aptitude test score</u>								
M	36.87	39.13	36.67	40.04	32.41	37.26	37.27	36.15
SD	8.86	5.94	7.51	4.96	10.36	7.52	5.56	6.99
n	31	55	18	51	29	43	15	59

Table 7: ANOVAS for contingency task measures

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Perceived Control				
Ethnic	2.20	3	0.73	0.15
Contingency	356.90	1	356.90	72.90***
Ethnicity x Contin	34.04	3	11.35	2.32
Error	1434.41	293	4.90	
Perceived Success				
Ethnic	13.18	3	4.39	1.06
Contingency	129.71	1	129.71	31.33***
Ethnicity x Contin	14.56	3	4.85	1.17
Error	1213.02	293	4.14	
Feel Proud/ashamed				
Ethnic	24.65	3	8.22	2.36
Contingency	102.95	1	102.95	29.60***
Ethnicity x Contin	17.13	3	5.71	1.64
Error	1019.01	293	3.48	
Motivated (motivated/unmotivated)				
Ethnic	19.48	3	6.49	1.39
Contingency	30.49	1	30.49	6.53***
Ethnicity x Contin	35.19	3	11.73	2.51
Error	1369.17	293	4.67	
Competence (competent/incompetent)				
Ethnic	16.62	3	5.54	1.54
Contingency	33.65	1	33.65	9.34***
Ethnicity x Contin	9.86	3	3.29	0.91
Error	1056.06	293	3.60	
Helpless (helpless/confident)				
Ethnic	12.19	3	4.06	1.01
Contingency	161.15	1	161.15	40.02***
Ethnicity x Contin	5.26	3	1.75	0.44
Error	1179.96	293	4.03	

Table 7: ANOVAS for contingency task measures

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Encouraged</u>				
Ethnic	12.55	3	4.18	0.89
Contingency	183.87	1	183.87	39.30***
Ethnicity x Contin	21.83	3	7.28	1.55
Error	1370.83	293	4.68	
<u>Ability</u>				
Ethnic	27.90	3	9.30	3.35
Contingency	55.74	1	55.74	20.09***
Ethnic x Contin	6.48	3	2.16	0.78
Error	812.99	293	2.77	
<u>Effort</u>				
Ethnic	44.20	3	14.73	4.99**
Contingency	0.60	1	0.60	0.20
Ethnicity x Contin	11.99	3	4.00	1.35
Error	864.77	293	2.95	
<u>Difficult</u>				
Ethnic	9.65	3	3.22	0.86
Contingency	32.67	1	32.67	8.75***
Ethnicity x Contin	1.40	3	0.47	0.12
Error	1094.34	293	3.73	
<u>Expected success</u>				
Ethnic	26.92	3	8.97	2.46
Contingency	5.40	1	5.40	1.48
Ethnicity x Contin	9.28	3	3.09	0.85
Error	1069.31	293	3.65	
<u>Aptitude test score</u>				
Ethnic	572.95	3	190.98	3.71**
Contingency	346.33	1	346.33	6.72**
Ethnicity x Contin	188.59	3	62.86	1.22
Error	15103.30	293	51.55	

**p < .01

***p < .001

Table 8: MANOVA, means and discriminant function analyses of contingency task attributions

	<u>Means</u>	
	Contingent	Noncontingent
Ability	5.72	4.33
Effort	6.14	4.85
Task difficulty	5.12	5.16
Luck	1.42	2.46
n	153	146

MANOVA

Source

Contingency $F(4,290) = 11.98^{***}, p < .001$

Discriminant Analysis

<u>Attribution Profile</u>	<u>z-weights</u>	<u>structure correlations</u>
Ability	.516	.724
Effort	.498	.688
Task difficulty	-.280	-.019
Luck	-.481	-.579

Group Centroids

Contingent	3.89
Noncontingent	2.02

internal locus orientation characteristic of this function, whereas noncontingent subjects appear less internal in their attributions. Contingent subjects tend to rate ability and effort, internal attributions, as greater determinants of their performance and luck as contributing less to their performance than noncontingent subjects. See Table 8 for these results.

Affective measures showed a consistent effect of contingency, with contingent subjects feeling more proud, $F(1,293)=29.60$, $p<.001$, motivated, $F(1,293)=6.53$, $p<.001$, competent, $F(1,293)=9.34$, $p<.001$, confident, $F(1,293)=40.02$, $p<.001$, and encouraged, $F(1,293)=39.30$, $p<.001$.

Ethnic hypothesis. For the perceived control measure, ethnicity and the interaction between ethnicity and contingency training had no effect upon perceived control, as seen in Table 7. Similarly, the perceived success measure showed neither significant ethnic nor interaction effects with contingency.

Multivariate analyses on the attribution profile showed no significant ethnicity or contingency training by ethnicity interaction effects. When asked how much effort they felt they expended on the test, an ethnic effect was significant, $F(3,293)=4.99$, $p<.01$: English and Ukrainian subjects felt they had tried harder than the Chinese and Southern Europeans reported. The actual test scores showed a signifi-

cant ethnic effect, $F(3,293)=3.71$, $p<.01$. Multiple t-tests, with critical t -value of 2.64 for 6 comparisons using an $\alpha=.05$ level, 1-tailed procedure, proved the Chinese to have performed more poorly than either Ukrainians ($t=2.98$) or English ($t=2.99$).

The hypothesis had been that the ethnic groups would react differently to perceived uncontrollability, meaning the noncontingent feedback. Consequently, multiple comparisons using the Bonferroni t -test procedure were completed on the significant results of a set of ANOVAs done on just noncontingent conditions only. For the amount of effort a subject felt he/she had expended on the noncontingent task, ethnicity was significant, $F(3,142)=3.49$, $p<.017$, and subsequent comparisons with four comparisons and a critical t -value of 2.58, $\alpha=.05$, found a significant difference between Ukrainians and Chinese ($t(86)=2.65$). Ukrainians felt they had expended more effort in this condition. All other analyses proved nonsignificant for ethnicity.

College Classroom Simulation

After the videotaped lecture, subjects completed an achievement test on the lecture material, followed by a questionnaire including attributions for test performance, perceived control and success, as well as affective measures. The questionnaire format was almost identical to that for the contingency questionnaire (see Appendix C).

Achievement. The means for post-lecture measures are shown in Table 9. By examining the means and analysis of variance results in Table 10, it is evident that subjects in the high expressive condition perform

better on the achievement test, $F(1,285)=37.64$, $p<.001$. The main effect of contingency and all interactions were nonsignificant. An ethnicity effect proved significant, $F(3,285)=13.67$, $p<.001$. Probing the ethnicity effect upon achievement, Bonferroni multiple comparisons were performed with a one-tailed level $\alpha=.05$ for 6 comparisons with a critical t -value of 2.64. Chinese performed significantly more poorly than English ($t=5.88$) and Ukrainians ($t=5.19$). Southern Europeans performed significantly more poorly than the English subjects ($t=2.86$).

Testing the facilitating effect of expressiveness upon achievement, each contingency group within each of the ethnic groups resulted in eight (2 x 4) low versus high expressiveness comparisons. One-tailed Bonferroni t -tests were computed for the eight comparisons with a critical t -value of 2.74 at $\alpha=.05$. For the Chinese, neither the contingent nor the noncontingent conditions were facilitated by the high expressive instructor. English subjects' performance improved significantly with the high expressive instructor in the contingent condition only ($t=2.79$), whereas Southern Europeans' achievement was enhanced only by high expressiveness in the noncontingent condition ($t=3.57$). Just as for the Chinese, the Ukrainians' achievement was not significantly affected by expressiveness in either contingency training condition. These analyses are shown in Table 11.

For perceived success, expressiveness had a significant effect, $F(1,285)=39.63$ $p<.001$, as subjects in the high expressive condition felt more successful. An ethnicity effect was found $F(3,285)=4.11$, $p<.01$, as seen in Table 10. Further multiple comparisons using the Bonferroni procedure were conducted, with a 1-tailed critical value of 2.74 for six

Table 9: Means and standard deviations for post-lecture measures

	Low Expressive								High Expressive							
	Contingent				Noncontingent				Contingent				Noncontingent			
	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR
Perceived Control																
M	5.87	5.00	6.00	5.48	3.86	6.00	6.00	4.93	6.25	6.97	4.13	7.27	5.40	6.26	6.86	6.14
SD	1.36	2.35	2.16	2.10	2.98	2.06	2.56	2.13	2.14	1.71	2.17	1.64	1.92	2.16	1.21	2.29
Perceived Success																
M	3.27	3.22	3.40	4.16	3.14	4.79	4.13	3.93	4.75	6.06	5.38	5.88	4.07	5.47	6.57	5.00
SD	2.02	1.93	2.37	1.97	1.66	2.06	2.59	2.39	2.14	1.54	2.00	1.93	1.91	2.22	1.27	2.02
Ability determined																
M	5.53	4.74	4.80	5.20	4.14	4.83	4.88	4.77	5.94	6.19	5.13	6.35	4.80	6.47	7.14	5.24
SD	1.88	2.67	2.49	2.14	2.38	2.35	2.80	2.30	1.81	1.86	1.55	2.08	2.46	2.25	1.21	2.28
Effort determined																
M	5.87	5.74	7.30	5.88	3.86	6.00	5.50	5.43	6.38	6.75	5.63	6.65	5.27	6.68	6.43	6.34
SD	1.85	2.20	1.25	2.32	2.35	2.02	2.51	2.08	1.89	1.50	1.30	1.57	2.12	1.49	1.90	1.99
Difficulty determined																
M	6.33	6.48	6.10	6.16	6.14	6.08	5.75	5.90	6.50	6.66	6.00	6.77	5.73	6.11	6.43	6.14
SD	2.19	2.43	2.13	1.86	2.14	1.91	2.17	2.02	1.71	1.79	1.31	1.53	2.31	1.97	1.27	1.96
Luck determined																
M	4.40	4.74	4.20	4.76	3.29	3.96	3.50	4.67	4.75	3.28	3.50	3.50	5.27	3.53	3.71	3.38
SD	2.13	2.75	3.22	2.30	2.49	2.40	2.07	2.56	2.05	1.80	2.93	2.30	2.49	2.61	1.60	2.09

Table 9: Means and standard deviations for post-lecture measures

	Low Expressive								High Expressive							
	Contingent				Noncontingent				Contingent				Noncontingent			
	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR
Feel (Proud/ashamed)																
M	4.47	4.17	4.80	4.40	3.14	4.96	4.25	4.57	4.69	5.34	5.25	5.92	4.40	5.74	6.14	5.28
SD	1.81	1.75	1.03	1.35	1.66	1.88	2.19	1.81	2.15	1.58	1.98	1.79	1.59	1.82	1.21	1.56
Motivated (motivated/unmotivated)																
M	4.87	4.04	2.90	2.92	2.50	3.63	2.75	3.40	5.69	5.06	5.00	5.65	5.00	5.26	4.86	5.03
SD	2.26	2.51	2.64	1.93	1.22	2.18	2.60	2.46	2.06	2.37	2.07	2.04	2.54	1.91	1.35	2.37
Competence (competent/incompetent)																
M	4.60	4.78	4.90	5.32	4.07	5.63	4.50	5.33	5.50	5.84	6.00	6.46	5.47	6.42	6.71	6.31
SD	1.50	2.24	2.02	1.70	1.90	2.10	2.33	2.02	2.07	1.95	1.31	1.61	2.00	1.39	1.11	1.29
Helpless (helpless/confident)																
M	4.93	4.52	4.50	5.28	3.50	5.63	4.00	4.63	5.31	5.69	5.25	6.08	5.27	5.89	5.86	5.86
SD	1.39	2.37	2.01	1.54	1.95	2.08	2.20	1.87	2.15	2.07	2.60	1.83	1.87	1.66	1.35	1.87
Encouraged (encouraged/discouraged)																
M	4.87	4.00	3.80	4.48	3.50	4.63	2.25	4.37	5.19	5.22	5.63	5.65	5.47	5.84	5.43	5.48
SD	2.26	2.00	1.99	1.19	1.65	2.02	2.05	1.50	1.97	1.75	2.13	1.83	1.68	1.61	1.27	2.13

Table 9: Means and standard deviations for post-lecture measures

	Low Expressive								High Expressive							
	Contingent				Noncontingent				Contingent				Noncontingent			
	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR	CH	ENG	SEUR	UKR
<u>Ability</u>																
M	5.27	5.43	5.40	6.36	4.07	6.42	4.75	5.40	5.56	6.75	6.00	6.85	5.27	7.00	7.00	6.11
SD	2.34	2.02	1.78	1.66	2.02	1.72	2.38	2.34	1.90	1.67	1.69	1.16	2.12	1.15	1.29	2.00
<u>Effort</u>																
M	6.53	5.78	5.30	5.12	4.57	5.38	5.63	4.73	6.75	6.75	6.38	6.77	5.33	7.05	7.71	6.80
SD	1.96	2.30	2.67	2.11	2.41	2.55	2.62	2.27	1.53	1.98	1.41	1.92	2.64	1.51	0.76	2.11
<u>Difficult</u>																
M	6.87	6.74	5.80	6.48	7.00	6.00	5.88	6.07	5.94	6.50	5.88	6.15	5.80	6.53	6.43	5.90
SD	1.73	1.68	2.30	1.29	1.52	2.02	2.80	2.07	2.02	1.70	0.83	1.62	1.66	1.58	1.27	2.00
<u>Teacher</u>																
M	6.27	5.70	6.10	6.80	4.36	5.58	4.75	6.47	5.63	5.94	3.75	5.73	5.40	6.58	5.71	4.51
SD	2.02	3.14	2.96	2.57	2.76	2.70	2.96	2.80	2.19	2.21	2.55	2.20	2.23	1.95	2.56	2.40
<u>Achievement test score</u>																
M	14.33	16.57	13.10	16.68	11.00	17.00	11.25	16.03	15.75	20.06	18.25	19.00	14.13	19.37	19.71	18.8
SD	3.29	3.30	5.47	5.34	5.79	4.20	7.29	4.57	4.70	3.30	3.20	5.89	3.31	4.84	4.61	4.20
n	15	23	10	25	14	24	8	30	16	32	8	26	15	19	7	29

Table 10: ANOVAS for post-lecture task measures

	<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Perceived Control</u>					
	Ethnic	21.00	3	7.00	1.61
	Expressiveness	35.00	1	35.00	8.05**
	Contingency	2.12	1	2.12	0.49
	Ethnic x Expressiveness	25.40	3	8.47	1.95
	Ethnic x Contingency	53.54	3	17.85	4.10**
	Expressiveness x Contingency	2.38	1	2.38	0.55
	Ethnic x Express x Contin	38.77	3	12.92	2.97*
	Error	1239.10	285	4.35	
<u>Perceived Success</u>					
	Ethnic	50.01	3	16.67	4.11**
	Expressiveness	160.72	1	160.72	39.63***
	Contingency	0.91	1	0.91	0.22
	Ethnic x Expressiveness	7.06	3	2.35	0.58
	Ethnic x Contingency	24.07	3	8.02	1.98
	Expressiveness x Contingency	7.87	1	7.87	1.94
	Ethnic x Express x Contin	13.92	3	4.64	1.14
	Error	1155.81	285	4.06	
<u>Feel (Proud/ashamed)</u>					
	Ethnic	37.23	3	12.41	4.22**
	Expressiveness	59.53	1	59.53	20.24***
	Contingency	0.30	1	0.30	0.10
	Ethnic x Expressiveness	1.64	3	0.55	0.19
	Ethnic x Contingency	19.59	3	6.53	2.22
	Expressiveness x Contingency	1.51	1	1.51	0.51
	Ethnic x Express x Contin	13.61	3	4.54	1.54
	Error	838.11	285	2.94	
<u>Motivated (motivated/unmotivated)</u>					
	Ethnic	11.99	3	4.00	0.81
	Expressiveness	196.95	1	196.95	39.81***
	Contingency	12.76	1	12.76	2.58
	Ethnic x Expressiveness	10.33	3	3.44	0.70
	Ethnic x Contingency	24.51	3	8.17	1.65

Table 10: ANOVAS for post-lecture measures

	<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Motivated</u>					
(cont'd)	Expressiveness x Contingency	1.35	1	1.35	0.27
	Ethnic x Express x Contn	20.76	3	6.92	1.40
	Error	1409.96	285	4.95	
<u>Competence</u>					
(competent/incompetent)	Ethnic	36.05	3	12.02	3.43*
	Expressiveness	85.43	1	85.43	24.35***
	Contingency	0.99	1	0.99	0.28
	Ethnic x Expressiveness	3.29	3	1.10	0.31
	Ethnic x Contingency	11.50	3	3.83	1.09
	Expressiveness x Contingency	1.29	1	1.29	0.37
	Ethnic x Express x Contn	3.93	3	1.31	0.37
	Error	999.75	285	3.51	
<u>Helpless</u>					
(helpless/confident)	Ethnic	26.83	3	8.94	2.38
	Expressiveness	62.74	1	62.74	16.73***
	Contingency	0.79	1	0.79	0.21
	Ethnic x Expressiveness	2.61	3	0.87	0.23
	Ethnic x Contingency	22.80	3	7.60	2.03
	Expressiveness x Contingency	3.83	1	3.83	1.02
	Ethnic x Express x Contn	14.32	3	4.77	1.27
	Error	1068.99	285	3.75	
<u>Encouraged</u>					
(encouraged/discouraged)	Ethnic	14.04	3	4.68	1.41
	Expressiveness	134.28	1	134.28	40.45***
	Contingency	3.25	1	3.25	0.98
	Ethnic x Expressiveness	12.88	3	4.29	1.29
	Ethnic x Contingency	20.13	3	6.71	2.02
	Expressiveness x Contingency	8.04	1	8.04	2.42
	Ethnic x Express x Contn	9.98	3	3.33	1.00
	Error	946.05	285	3.32	

Table 10: ANOVAS for post-lecture task measures

	<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Ability</u>					
	Ethnic	75.66	3	25.22	7.32***
	Expressiveness	52.28	1	52.28	15.16***
	Contingency	2.21	1	2.21	0.64
	Ethnic x Expressiveness	4.41	3	1.47	0.43
	Ethnic x Contingency	31.66	3	10.55	3.06*
	Expressiveness x Contingency	4.12	1	4.12	1.19
	Ethnic x Express x Contn	11.26	3	3.75	1.09
	Error	982.60	285	3.45	
<u>Effort</u>					
	Ethnic	11.75	3	3.92	0.86
	Expressiveness	103.81	1	103.81	22.80***
	Contingency	4.15	1	4.15	0.91
	Ethnic x Expressiveness	19.36	3	6.45	1.42
	Ethnic x Contingency	41.35	3	13.78	3.03*
	Expressiveness x Contingency	7.03	1	7.03	1.54
	Ethnic x Express x Contn	0.52	3	0.17	0.04
	Error	1297.83	285	4.55	
<u>Difficult</u>					
	Ethnic	7.85	3	2.62	0.81
	Expressiveness	2.72	1	2.72	0.84
	Contingency	0.54	1	0.54	0.17
	Ethnic x Expressiveness	16.14	3	5.38	1.66
	Ethnic x Contingency	3.81	3	1.27	0.39
	Expressiveness x Contingency	1.19	1	1.19	0.37
	Ethnic x Express x Contn	2.71	3	0.90	0.28
	Error	921.49	285	3.23	

Table 10: ANOVAS for post-lecture task measures

	<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
<u>Teacher</u>					
	Ethnic	27.36	3	9.12	1.44
	Expressiveness	6.76	1	6.76	1.07
	Contingency	5.67	1	5.67	0.89
	Ethnic x Expressiveness	62.22	3	20.74	3.27*
	Ethnic x Contingency	24.25	3	8.08	1.28
	Expressiveness x Contingency	22.70	1	22.70	3.58
	Ethnic x Express x Contin	33.07	3	11.02	1.74
	Error	1805.65	285	6.34	
<u>Achievement test score</u>					
	Ethnic	860.49	3	286.83	13.67***
	Expressiveness	789.82	1	789.82	37.67***
	Contingency	38.26	1	38.26	1.82
	Ethnic x Expressiveness	130.43	3	43.48	2.07
	Ethnic x Contingency	59.23	3	19.74	0.94
	Expressiveness x Contingency	17.81	1	17.81	0.85
	Ethnic x Express x Contin	37.30	3	12.43	0.59
	Error	5979.89	285	20.98	

*p .05
**p .01
***p .001

Table 11: Multiple comparisons of effect of expressiveness by contingency for all ethnic groups on achievement

		Low Expressive	High Expressive
Chinese	Contingent	14.33 (15)	15.75 (16)
	Noncontingent	11.00 (14)	14.13 (15)
English	Contingent	16.57 (23)	20.06 (32)
	Noncontingent	17.00 (24)	19.37 (19)
S European	Contingent	13.10 (10)	18.25 (8)
	Noncontingent	11.25 (8)	19.71 (7)
Ukrainian	Contingent	16.68 (25)	19.00 (26)
	Noncontingent	16.03 (30)	18.83 (29)

$$MS_{\text{error}} = 20.982$$

$$N = 301$$

2.74 = critical $t_{df(285)}$, $p = .05$, 1-tailed, 8 comparisons

<u>Chinese</u>		<u>Southern European</u>	
Contingent	$t = \frac{14.33 - 15.75}{\sqrt{20.982(1/15+1/16)}} = -0.86$	Contingent	$t = \frac{13.10 - 18.25}{\sqrt{20.982(1/10+1/8)}} = -2.37$
Noncontingent	$t = \frac{11.00 - 14.13}{\sqrt{20.982(1/14+1/15)}} = -1.84$	Noncontingent	$t = \frac{11.25 - 19.71}{\sqrt{20.982(1/8+1/7)}} = -3.57^*$
<u>English</u>		<u>Ukrainian</u>	
Contingent	$t = \frac{16.57 - 20.06}{\sqrt{20.982(1/23+1/32)}} = -2.79^*$	Contingent	$t = \frac{16.68 - 19.00}{\sqrt{20.982(1/25+1/26)}} = -1.81$
Noncontingent	$t = \frac{17.00 - 19.37}{\sqrt{20.982(1/24+1/19)}} = -1.45$	Noncontingent	$t = \frac{16.03 - 18.83}{\sqrt{20.982(1/30+1/29)}} = -2.35$

comparisons. Chinese felt significantly less successful than both English ($t=3.19$) and Ukrainians ($t=2.86$). Neither the contingency variable nor any interactions were significant.

When asked how much ability they felt they had for the test, high expressiveness subjects felt they had more ability, $F(1,285)=15.16$, $p<.001$. Neither contingency nor any interactions proved significant. Ethnicity proved significant $F(3,285)=7.32$, $p<.001$. Probing this effect with multiple comparisons using the Bonferroni procedure with a 1-tailed t -value for six comparisons of 2.64 at $\alpha=.05$, Chinese were found to rate themselves as having less ability for the test than either English ($t=4.43$) or Ukrainians ($t=3.83$).

Perceived control. The ANOVA on perceived control revealed a significant effect of expressiveness, $F(1,285)=8.05$, $p<.01$, with subjects in high expressiveness conditions feeling greater perceived control. Neither contingency nor ethnicity had significant main effects, but their interaction proved significant, $F(3,285)=4.10$, $p<.01$. Further examination with multiple comparisons using a critical value of 3.09 for the 24 comparisons at $\alpha=.05$, all of the conditions were examined. In the high expressive contingent condition, Southern Europeans felt significantly less in control than either Ukrainians ($t=4.02$) or English ($t=3.72$). No other comparisons proved significant in other conditions.

Attribution profile. Multivariate analyses of variance and discriminant function analyses were performed on the attribution profile of how much ability, effort, task difficulty and luck determined test perform-

ance. As shown in Table 12, expressiveness had a main effect, $F(4,282)=3.66$, $p<.01$, but none of the other variables had a main effect or interaction that reached significance. Examining the profile with discriminant analysis, the structure correlations and z-weights were: ability, .949 (.880); effort, .590 (.286); task difficulty, .176 (-.181); luck, -.275 (-.104). The group centroids showed that high expressiveness subjects (5.45) exhibit a more internal locus than low expressiveness subjects (4.36), similar to that found for contingency in the previous set of results.

Affective measures were also influenced by the expressiveness variable, with high expressive subjects feeling more proud, $F(3,285)=20.24$, $p<.001$, more motivated, $F(3,285)=39.81$, $p<.001$, more competent, $F(3,285)=24.35$, $p<.001$, more confident, $F(3,285)=16.73$, and more encouraged, $F(3,285)=40.45$, $p=.001$, than low expressive subjects. Neither contingency nor any interactions were significant.

For how proud/ashamed a person feels, ethnicity proved significant, $F(3,285)=4.22$, $p<.01$. Multiple comparison Bonferroni tests for six comparisons with a critical t -value of 2.64 showed Chinese to feel more ashamed overall than both English ($t=3.10$) and Ukrainians ($t=3.14$). For how competent people felt, ethnicity proved significant, $F(3,285)=3.43$, $p<.05$, and a multiple comparison using a critical t -value of 2.64 for six comparisons showed Chinese to feel significantly less competent overall than Ukrainians ($t=3.05$).

Table 12: MANOVA, means and discriminant function analyses of post-lecture test attributions

		<u>Means</u>	
		Low Expressive	High Expressive
Ability		4.86	5.91
Effort		5.70	6.27
Task difficulty		6.12	6.29
Luck		4.19	3.86
n		149	152

MANOVA

Source

Expressiveness $F(4,282) = 3.66^{**}, p < .01$

Discriminant Analysis

<u>Attribution Profile</u>	<u>z-weights</u>	<u>structure correlations</u>
Ability	.880	.949
Effort	.286	.590
Task difficulty	-.181	.176
Luck	-.104	-.275

Group Centroids

High Expressive	5.45
Low Expressive	4.36

Synopsis

In summary, for the post-contingency measures, contingency had a consistent effect upon attributions, affect and achievement: contingent subjects made more internal attributions, felt more in control and more successful, and did better. These results were true both for the English-only replication and for the overall analysis. Ethnicity had little effect upon post-contingency measures except for how much effort subjects expended and actual aptitude test score. English and Ukrainians reported expending more effort than either Chinese or Southern Europeans, and the Chinese actually performed significantly more poorly than either the English or Ukrainians.

For post-lecture measures, expressiveness had a consistent effect, with high expressive subjects feeling better, more in control, performing better, and making more internal attributions. Contingency had virtually no residual effects upon post-lecture measures, but ethnicity had consistent effects, with Chinese feeling least successful, least in control, and performing poorest relative to the English and Ukrainians. Expressiveness had differential effects, depending upon the contingency condition, as Chinese were unable to benefit from the enhancing effect of high expressiveness upon their achievement in either contingency condition. English subjects' achievement was facilitated by high expressiveness in the contingent condition, but not in the noncontingent condition. Southern Europeans' achievement was enhanced in noncontingent conditions by high expressiveness, while Ukrainians did not benefit

from high expressiveness effects on their achievement in either contingency condition.

DISCUSSION

Summary

Two questions were addressed in this investigation: whether ethnic differences exist in perceived control and whether ethnic groups are differentially receptive to the effects of teaching effectiveness. According to Porter's vertical mosaic, ethnic groups develop different beliefs of perceived control by socialization and direct experience. The learned helplessness paradigm provides a mechanism for testing this assertion by directly manipulating perceived control using response-outcome contingency relationships. Following Porter's reasoning, if ethnic groups do have lesser expectations of controllability, they should be differentially susceptible to a manipulation of perceived control. The results of the contingency manipulation do not show ethnic differences in perceived control, however, only in aptitude test score, and the amount of effort subjects felt they expended on the aptitude test.

In the second hypothesis, it was questioned as to how ethnic groups manage to adapt in the educational system. Whereas Porter (1965) conceptualized the educational system as the equalizer, where all have the opportunity for mobility, it was thought that differential perceived control could pose a problem. Perry and Dickens (1984) have shown that teaching behaviours affect students differently depending upon their perceived control, suggesting that if ethnic groups do differ in

perceived control, they may differ in receptivity to an instructor. Results suggest that ethnic groups do differ in their responses to instructor expressiveness, the teaching behaviour.

Another important result of this study is the development and validation of a new method of contingency manipulation that may be better suited to multi-ethnic populations than the previously used verbal instruments. The pilot study showed the new nonverbal task to be as effective at manipulating perceived control as the verbal task. This new instrument may prove an advantage for further research into perceived control with multi-ethnic populations.

Contingency Task

Consistent contingency effects appeared in attributions, affective responses, and performance during the contingency manipulation phase. The purpose of this task was to influence perceived control, which it did aptly with contingent subjects feeling more in control. Interestingly, ethnicity did not significantly affect perceived control, suggesting that ethnic differences in perceived control do not exist.

Perceived success, another criterion other than perceived control used by Perry and Dickens to assess the effectiveness of the contingency manipulation, did show contingency effects. Contingent subjects felt more successful, which is counter to the expected result. The reasoning is that the effect of manipulation of perceived control should be unaffected by amount of reinforcement. In other words, if subjects feel they are less successful in the noncontingent condition, that may affect

their subsequent responses, not feelings of uncontrollability. Perhaps this success effect is not surprising, however, if one examines the pilot study results shown in Table 1, which compares aptitude test scores between the verbal and nonverbal test for both contingent and noncontingent conditions. Whereas the scores for the verbal test range from means of 62% to 77% (there were 50 questions), the means for the nonverbal test range from 88% and up, suggesting a ceiling effect. Perhaps the nonverbal test is not difficult enough, consequently in noncontingent conditions, subjects feel badly getting a low score since they felt it was easy. However, this would also suggest that subjects in the nonverbal test condition would tend to be suspicious for noncontingency, but the pilot test employed funnel-type post-experimental questionnaires, finding few suspicious subjects. Thus, according to the criterion for a contingency manipulation task, the results suggest that a confound exists between perceived control and amount of reinforcement.

Attributions for test performance showed the characteristic internal locus for contingent subjects, as seen in Perry and Dickens. Ethnicity did not have a significant effect for attributions. Contingent subjects felt better about themselves affectively overall than noncontingent subjects. Again, no ethnic effects appeared in the analysis

English and Ukrainian subjects felt they had tried harder than the Chinese and Southern European subjects, despite the fact that difficulty was perceived similarly for all groups. The Chinese and Southern European subjects did not find the test more difficult than the other groups, but still tended to feel they had not tried hard enough.

Aptitude test scores were affected both by contingency and showed a significant ethnic effect. Overall, Chinese subjects scored more poorly than either English or Ukrainian subjects. Their attributions and affective responses did not, however, reflect any differences from the other groups in the contingency task phase. They only report that they did not expend as much effort.

The purpose of this phase of the experiment was to determine whether ethnic groups differed in perceived control. Cross-cultural and multi-cultural research has documented ethnic differences in perceived control (Meredith, 1976; Parsons & Schneider, 1970; Parsons & Schneider, 1974; Hsieh et al., 1969), and the present results do not corroborate these findings. Separate analyses were done on both contingent and noncontingent conditions also, after the overall analysis, in order to see if the groups react differently specific to a contingency condition. Again, however, ethnicity did not prove any more significant for any variables in the contingent or noncontingent conditions than overall.

Overall, the Ukrainians, English, and Southern Europeans, as well as Chinese appear to respond in similar ways. The Chinese, however, do perform more poorly on the aptitude test, showing no reaction to this result in their attributions or affective responses. They do not appear to be affected by their poorer result at all. All groups responded similarly to the contingency manipulation, exhibiting the characteristic attributional, affective responses. As for the motivational deficit, however, the English, Chinese, and Ukrainian subjects were debilitated by their exposure to noncontingency, whereas the Southern Europeans' aptitude scores were unaffected by the contingency manipulation. Thus,

whereas the other three displayed the effect of noncontingency upon their performance, Southern Europeans appear unaffected on this measure.

Incorporating these results into Porter's ideas about the vertical mosaic, they would suggest that ethnic groups do not differ in their experience of control over their lives and in their socialization. Speculating on the lack of contingency effect upon performance for the Southern Europeans, however, one might suggest that they are used to noncontingency in their lives but have learned to deal with it successfully and do not display helplessness. In Canadian society, if ethnic groups are stratified, which affects their relative control over their lives, they would experience differences in perceived control. No such differences appear, however, which questions the applicability of the vertical mosaic for contemporary society. Perhaps the lack of ethnic effects may be due to the subject population, however, as all are university students and, one may argue, a more homogeneous sample of people actually reach the university level. A more cautious conclusion would thus be that while the vertical mosaic may exist in the outside society, it may not be found in the university environment.

Classroom Simulation

Basically, it was expected that ethnic differences in perceived control would result in differential responsiveness to instructor expressiveness. No ethnic effects for perceived control were found in the first phase of the experiment, however. Differences in perceived control, as well as poorer achievement motivation (Stipek & Weisz, 1981), affect achievement striving, and it has been proposed that ethnic

students differ in motivation to achieve (Rosen, 1959). If ethnic differences in perceived control were shown in the contingency manipulation phase, it would be expected that students would also differ in their response to the instructor in the second phase of the experiment.

The effect of the instructor upon student achievement and motivation cannot be ignored, as Perry et al. (1979) showed manipulation of instructor expressiveness affected both achievement and attributions. A highly expressive instructor can facilitate higher achievement and more internal attributions, as Perry and Dickens (1984) document. One problem arises, however, as this effect is qualified by an interaction with contingency. In other words, if subjects have been exposed to noncontingency, the facilitating effects do not work, and subjects are unable to benefit from the expressive instructor.

When the results were examined, achievement was affected by expressiveness with high expressiveness facilitating higher overall performance. A significant ethnic effect showed the English to perform significantly better than both the Chinese and the Southern Europeans, and the Ukrainians to perform better than the Southern Europeans. Examining each ethnic group, in both contingency conditions, as seen in Table 11, the English subjects followed the contingency by expressiveness interaction documented by Perry and Dickens: under contingent conditions only, the high expressive instructor facilitates performance. Differential effects are seen for the other ethnic groups, however, as for both Ukrainians and Chinese, expressiveness does not facilitate performance in either contingency condition. For Southern Europeans, only in noncontingent conditions does the expressiveness effect work to enhance achievement.

Whereas results for English are replicated, the other results show distinct ethnic differences in response to instructor variability. The Southern Europeans are sensitive to the expressiveness variable and take advantage of it when they have been exposed to noncontingency. As suggested in the discussion that their achievement is not affected as a result of exposure to noncontingency, the Southern Europeans seem able to take advantage of resources when exposed to noncontingency. Again, one might speculate that they have adapted to coping with the noncontingency they experience in their lives. The results for the Chinese and Ukrainians raise the question of whether there are universally effective teaching behaviours for all cultures, for the highly expressive instructor did not enhance performance for either group.

Perceived control was affected by expressiveness, with the high expressive instructor producing feelings of greater control. The contingency by ethnicity interaction, which proved significant, revealed an interesting result: Southern Europeans felt less in control than either Ukrainians or English in high expressive contingent conditions. This result has implications for the cognitive consistency theory of Watson and Bauml (1967) in which the authors contend that individuals experiencing incongruent situations become anxious, which affects their performance. Whereas the other groups expect and receive contingency, perhaps the Southern Europeans are unaccustomed to experiencing two beneficial conditions, of both contingent relationships and an effective instructor. They react by feeling out of control as there is an incongruity with their experience.

The results show Chinese subjects feel they have less ability for the test, which may be realistic, as the achievement test is a verbal one based on a verbal lecture and perhaps the Chinese subjects were not comfortably fluent in English. Similarly, they felt more ashamed of their score and less competent but this result was irrespective of contingency condition, and is thus not a result of perceived control manipulation.

It appears that ethnic groups have differential sensitivity to expressiveness, sometimes depending upon contingency. For instance, neither Chinese nor Ukrainian subjects were affected by expressiveness to facilitate their achievement in either contingency condition. Southern Europeans, however, were able to benefit from the high expressive instructor in only the noncontingent condition. This diversity of results suggests that an effective teaching behaviour may have little effect, depending upon the ethnic group.

Perry and Dickens' results showed an expressiveness by contingency interaction must be qualified as dependent upon ethnicity, as it occurred for English, but not for Chinese, Southern Europeans, or Ukrainians. Expressiveness is effective for the Southern Europeans' achievement in noncontingent conditions, where expressiveness is not expected to have an effect, following the interaction effect.

Perhaps the greater natural expressiveness of Southern Europeans makes this variable salient to them in noncontingent conditions. Conversely, the tendency to display less expression may explain the unresponsiveness of Chinese to this variable. The English, as already

mentioned, approximate previous findings, and Ukrainians follow the unresponsiveness of the Chinese. Considering the potency of the expressiveness variable as it affects all responses, the persistence of an ethnic effect is striking, for the effect of contingency, a potent factor in the contingency results, has been lost. Most times, the effects of any other independent variable are lost due to the power of the expressiveness manipulation, so the strength of the ethnicity differences cannot be ignored.

Implications

First of all, the contingency manipulation results do not point to any differential sensitivity to controllability of the four ethnic groups. This would suggest that they do not differ in perceived control, as all respond in a characteristic manner to the perceived control manipulation. The one result that does stand out is the lack of effect of the noncontingent exposure upon Southern Europeans' performance. As suggested, this could be a clue to habitual experience with noncontingency and an automatic coping strategy.

Given the post-lecture results, the question was whether those with less perceived control would be able to benefit from an effective instructor.. Since no groups differed in perceived control based on post-contingency measures, no differences by ethnicity should be evident. The results revealed some differences by ethnic group in response to expressiveness, however. Not all responded with the characteristic expressiveness by contingency interaction, in fact neither the Chinese nor the Ukrainians respond at all to the enhanced

effectiveness of an expressive instructor, as the means shown in Table 9 reveal the former perform uniformly poorly and the latter uniformly well.

It has been noted that university students are a relatively homogeneous group, and by the time they reach that level of education, individual differences, for the most part, will have been eliminated. This study shows, however, the potency of ethnicity in beliefs and reaction to education. It suggests that in a multicultural country, such as Canada, differences between ethnic groups should be considered and taken into account in the classroom. The result of testing perceived control differences suggests that differences may not be very great, but that the Southern Europeans have had experience with noncontingency and have learned to cope with the condition successfully. Perhaps the vertical mosaic does not exist in terms of perceived control, but ethnicity should certainly be considered a potent variable when applied to the classroom.

Within the educational system, ethnicity may have an effect upon responsiveness to effective teaching behaviours as defined by our culture. Whereas the English appear to benefit from expressiveness when they are in control, the Southern Europeans appear to benefit when they are experiencing noncontingency. Perhaps this has implications for adaptiveness to aversive conditions, for neither the Chinese nor the Ukrainians appear able to take advantage of this supposedly effective condition.

These findings suggest that ethnic differences in perceived control may not exist or are more subtle in a university population. Also, within the educational system, care should be taken to ascertain the effects of the instructor upon ethnic groups. Perhaps the behaviours we ethnocentrically consider beneficial are in actual fact detrimental or ineffective for some ethnic groups. Care should also be taken in our evaluation of perceived control, for what our culture considers adaptive may not be for another culture.

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Appendix A
SET A

A 1



