ETHNIC DIFFERENCES IN THE RELATIVE EFFECTIVENESS
OF INCENTIVES

by

CATHERINE ANN CAMERON

B.A., The University of British Columbia, 1960

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
Master of Arts
in the Department
of
Psychology

We accept this thesis as conforming to the
required standard

THE UNIVERSITY OF BRITISH COLUMBIA
April, 1964
Abstract

An experiment was performed to test the hypothesis that the performance of B.C. Indian children for non-material incentives would be inferior to their performance on the same task for material incentives. The reverse was expected to be true of middle-class white Canadian children. Working-class white children were expected to be intermediate.

Sixty-six male Ss from 6 to 13 years were given fifty trials on a discrimination task. They were reinforced either by candy or by a light flash. Middle-class Ss were significantly superior to Indian and working-class Ss under non-material but not under material conditions. There was, however, no significant difference between Indians and working-class whites.

Other measures included TAT stories scored for achievement and an immediate-delayed reward choice. Each of these discriminated middle-class white Ss from the other two groups, but did not discriminate between Indian and working-class children. Middle-class Ss were much more likely to show achievement imagery and to choose a larger, delayed reward.

Reservations about making generalizations from the results of this sample were discussed; refinements in the procedures were proposed; and behavioral contrasts between the three subcultural groups were described with the view of presenting suggestions for further research in this area.
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the Head of my Department or by his representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Psychology

The University of British Columbia, Vancouver 8, Canada

Date April 21, 1964
Acknowledgement

I am grateful to my advisor, Dr. T.F. Storm, for his extensive guidance throughout this project, and to Dr. W.K. Caird for his helpful suggestions and careful reading of the manuscript. Without the most willing cooperation of the principals and staffs of Southlands Elementary School and Immaculate Conception School, and the enthusiastic participation of the boys in my sample, this study could never have been successfully completed.

I should like to acknowledge the kind assistance, flexibility, and understanding of Dr. E.I. Signori and of my family throughout all my university work. My gratitude for the steadfast support of my husband and my boys cannot be overstated.
Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Procedure</td>
<td>8</td>
</tr>
<tr>
<td>Results</td>
<td>17</td>
</tr>
<tr>
<td>Discussion</td>
<td>22</td>
</tr>
<tr>
<td>Summary and specific conclusions</td>
<td>28</td>
</tr>
<tr>
<td>Bibliography</td>
<td>30</td>
</tr>
</tbody>
</table>
Introduction

Recent work on the achievement motive has suggested that the strength of this motive differs significantly from one society to another and even from group to group within a society (McClelland, Atkinson, Clark, and Lowell, 1953; Rosen, 1958; McClelland, 1961). McClelland (1961) has suggested that differences in the economic development of societies can be related in part to differences in achievement motivation. Achievement motivation has been related to risk-taking behavior, to preference for easy or difficult tasks, and to differences in performance under task-oriented or achievement-arousing instructions (Atkinson, 1958).

Rosen (1959) found differences between ethnic, religious, and socioeconomic groups within American society in the achievement motive as measured in projective responses. Terrell, Durkin, and Wiesley (1959) found differences between children from different social classes in the relative effectiveness of incentives more or less related to achievement. Middle-class children did better in a discrimination learning task for non-material (symbolic, achievement-related) rewards than for material rewards (candy). The reverse was true of lower-class children. Finally, Mischel (1961a) has shown that the projective measure of the achievement motive is significantly related to a preference for larger, delayed rewards over small, but immediate ones.

The studies summarized suggest the existence of an "achievement syndrome" including a number of specific behavioral traits which are characteristic of western European and North American middle-class culture and which are particularly well adapted to
the social, economic, and educational systems of western culture. This syndrome is expressed particularly in the ability of an individual to work for rather abstract rewards which suggest to him an evaluation of the quality of his performance, and to work toward long-range rather than immediate goals. Rosen (1958, p.508) has described this general observation in the following terms:

"Middle-class children are more likely to be taught not only to believe in success, but also to be willing to take those steps that make achievement possible; in short, to embrace the achievement value system which states that given the willingness to work hard, plan and make the proper sacrifices, an individual should be able to manipulate his environment so as to ensure eventual success."

Such minority groups as the North American Indian in Canada (Hawthorn, Belshaw and Jamieson, 1958), the Negro in the United States (Myrdal, 1962), and the Maori in New Zealand (Ausubel, 1960) as they are gradually integrating with the cultural majorities, are showing evidence of being incapable, at least initially, of competing in terms of the larger cultures. Their progress in school is slow and their average academic attainment is comparatively low. Related to this is the fact that members of these groups form a disproportionate amount of the labour pool, and therefore they are in an insecure position economically as well as socially and academically. Hawthorn et al (1958, pp.303-04) say of B.C. Indians, for example:

"In some Indian communities, generally among the remoter ones, the person who has never attended school lives without suffering much disadvantage, since all the common occupations of the region are open to him. In the majority of communities, however, schooling opens a possibility, perhaps a slim one, of other occupations, better paying or more stable. In seeking such occupations, or in ordinary business dealings, or in the relationship of sociable interchange, the illiterate or the person of little schooling is at a disadvantage."
Assuming that the future integration of the Indian with the White economy and society is linked with such jobs and relationships, retardation and truncation of schooling create a barrier."

It would seem profitable, then, to investigate the effect of motivation on the performance of these Indians in comparison with the performance of the members of the majority culture with whom they will increasingly be competing.

Basic achievement orientation, according to McClelland and his associates is learned relatively early in life (McClelland, 1958), in the home particularly and in the school to some extent. Child-rearing practices, parental example, the motivational orientation of teachers, and the reward system of the schools and other socializing agencies should correlate with the type of goals for which the individual will ultimately strive and the type of behavior which he will exhibit in his strivings. Concerning these formative influences, Bandura and Walters (1963, pp.166-74) suggest,

"Self-control is... exhibited in the postponement of culturally approved immediate reinforcements in favour of some potentially more rewarding long-term goals. Professional status can often be achieved only through long hours of arduous study and training; similarly, the attainment of some valued possession, such as a home, may entail the sacrifice of many day-to-day pleasures.... The influence of modeling is most clearly apparent in those societies in which the majority of adults consistently display self-denying or self-indulgent behavior. In societies in which denial or indulgence is a cultural norm, the children have little opportunity to observe any other patterns of behavior and consequently are forced to model themselves after the prevalent self-control patterns.... The transmission of self-indulgent patterns may be associated with a low level of technology and a precarious economic and social life which persist in spite of contact with more provident social groups."

Members of some minority groups, in particular the non-white minorities mentioned above which occupy a low position socioeco-
nomically, have different forces brought to bear upon their child­hood behavior and, consequently, have different sources of moti­vation, different behavioral patterns toward goals, and different goals from those of their white middle-class counterparts.

Many of the hypotheses concerning cultural variations in motivation and performance lend themselves to experimental invest­igation. McClelland et al. (1953) suggest that fantasy productions yield an index of an individual's need for achievement (n Achievement). They define this need in terms of "affect in connection with evaluated performance". The suggestion is that an individu­al who has learned to compete to certain "standards of excellence", as defined by McClelland, will reveal the degree of his need to do so in his interpretation and restructuring of such ambiguous sti­mulii as are found in Murray's Thematic Apperception Test (TAT) cards (Murray, 1943). Some measure of standardization has been attained in the use of these and other tools with the intention of obtaining a quantitative measure of an individual's, or of a group of individuals', need for achievement (Atkinson, 1958). The use of this type of procedure would seem to be of value in a cross-cultural study of motivation in the context of a comparative index of tendencies to participate in achievement oriented behav­iors.

Terrell and his colleagues present a considerable body of experimental findings concerning the differential effectiveness of various types of incentive (Terrell, 1958; Terrell and Kennedy, 1957), and it has been suggested (Terrell, Durkin and Wissley, 1959) that middle-class children in a simple problem-solving
situation will perform best for a non-material (i.e. a light flash) rather than a material (candy) reward. The reverse is true of lower class children. These investigators (1959, p.271) have pointed out that:

"There is evidence to indicate that parents of middle-class children place a greater emphasis on learning for learning's sake than do parents of lower-class children. It would appear that the most important feature in the learning of middle-class Ss is merely some indication that they are progressing. However, the presence of a material incentive is very important to lower-class Ss."

These findings, if substantiated with the lower-class in minority groups, and if they can be generalized to school situations, may provide evidence to suggest that schools, while appealing satisfactorily to the motivational complexes of middle-class children in their grading and promotional systems, are not designed to elicit performance of a high quality from the majority of children from lower-class white groups or non-white minority groups.

In connection with performance toward delayed as contrasted with immediate gratification, Mischel (1958, 1961a, 1961b, 1962), in his studies of West Indian school children, has suggested relationships between socioeconomic level, n Achievement score, and choice of immediate vs. delayed rewards, along with other pertinent variables. Here is Mischel's (1961a, p.544) interpretation of the findings:

"Liking to work for its own sake is generally assumed to be a basic ingredient of the high n Achievement pattern. Presumably, persons high in n Achievement have learned to like to work, and they have learned this in part as a response to demands to forgo immediate gratification in favour of long-term goals. That is, they have learned to tolerate waiting periods and in the course of such socialization have built up a general readiness to delay when it is demanded by conditions or people. Consequently, when persons high in n
Achievement are given choices between immediate, smaller rewards and delayed, larger ones, the balance between the negative valence of waiting and the positive valence of a delayed larger reward is weighted in favour of the latter because the former is relatively minor for them."

He reports that children from higher socioeconomic homes tend both to score higher on several indices of level of aspiration and to choose more often a larger delayed over a smaller immediate reward (in his experiments, different sizes of candy bar) than do children of lower socioeconomic backgrounds.

The present study is designed as a preliminary investigation of differences in these three aspects of the "achievement syndrome" between Indian and white children in B.C. It is hoped that this will provide suggestions and predictions for further, more extensive experimental studies concerning the motivation and performance of British Columbia Indians. Since such authorities as Hawthorn et al (1958) have suggested that the behavior and motivational patterns of B.C. Indians are those characteristic of lower economic groups in general, both middle-class and lower-class children are included. Indians are expected to differ most from middle-class whites, and less, if at all, from lower-class whites.

This study, then, was designed to test the following specific hypotheses:

1. White Canadian children from white-collar families will perform more successfully in a simple problem-solving task for a non-material than for a material incentive, whereas Canadian Indian children will perform more successfully for a material than for a non-material incentive. White Canadian children from blue-collar homes will be intermediate.
2. White collar children are more likely to tell more achievement-related stories in response to projective stimuli than are Indian or blue-collar children. White Canadian children from blue-collar homes will be intermediate.

3. White-collar children will more often choose a larger delayed reward than an immediate but smaller one, and Indian children will more frequently choose a smaller immediate reward in preference to a larger delayed reward. Blue-collar children will again be intermediate.
Subjects

Indian Ss were drawn from the elementary school population of the Musqueam reserve. All male children from this reserve attending either Southlands Elementary School (a public school administered by the Vancouver, British Columbia, School Board) or Immaculate Conception School (a Roman Catholic private school) were tested. There were twelve boys in Southlands School whose ages ranged from 7 years, 2 months to 13 years, and ten boys in Immaculate Conception School ranging in age from 6 years, 10 months to 13 years, 6 months.

The white males in the two schools were divided into two groups: those whose fathers held "white-collar" jobs, and those whose fathers held "blue-collar" or manual labouring jobs. For each Indian S in each of four age groups, one white boy was selected randomly from the same age group in each of the four populations defined by fathers' occupation and school. In this way, white-collar and blue-collar groups were approximately matched to the Indian group in terms of age and public or private school attendance.

No attempt was made to match the groups in intelligence or school achievement. One reason for this was the practical difficulty. Indian children are well behind white children of the same age, and a white group matched to them in either intelligence test performance or school achievement would have been unrepresentative of the white population of these schools as a whole. If only those Indian children had been used whose achievement matched that of
the white children of the same age, the numbers available for
testing would have been too small to permit a reasonable chance
of finding significant differences. There was also a more theo­
retical reason for ignoring these differences. It is part of the
rationale for the programme of research of which this study is a
preliminary step that differences in school achievement particu­
larly, and probably differences in standard test performance as
well, are partly due to differences in motivation of the type to
be manipulated in this study.

Ethnic and occupational groups

As a result of the selection procedure, three groups of
twenty-two boys were obtained. Differences between these three
groups were the major concern of this study. The expected differ­
ences are assumed to result from the differences in social back­
ground typical of Indian, middle and lower-class whites. Some
description of these differences is therefore desirable, although
a thorough ethnographic and sociological account is beyond the
scope of the present investigation. Generalizations made here are
intended to summarize personal observations, reports from school
and health authorities; they are impressionistic, but do seem to
coincide with many statements in Hawthorn et al (1958) concerning
B.C. Indians in general, their family life, finances, and their
children's school attendance.

The Indian children belong to the Musqueam band of the Coast
Salish Indians. The Musqueam reserve is situated to the southwest
of the predominantly middle-class residential district of Vancouver
in which the white population of the two schools lives. The re-
serve is bounded on the south by the Fraser River, and some of
its alluvial land is leased out by the Indians to farmers, who
are primarily Orientals, and some to golf and country clubs. The
area is essentially rural. Houses are small: few have more than
two bedrooms; they are either unfinished or partially finished and
unkempt, and probably of little financial value. The homes inside
are also unfinished, but most have a television set and several
household appliances.

The white children attending these two schools live in an
area on the outskirts of southwestern Vancouver. Dwellings are
either large, older middle-class homes or smaller, more modern
residences, all in good repair with well-kept yards. The average
home has two to four bedrooms. The area includes several golf
and country clubs and riding schools.

The Musqueam $s$ in this sample have an average of about seven
siblings each. The white-collar $s$s have an average number of sib-
lings close to three, and with the blue-collar children, this ave-
rage is closer to four.

Occupational variations among the three groups are extensive.
The division of white children into white-collar and blue-collar
groups was an attempt to control social class in comparing ethnic
groups. The blue-collar group was intended to be similar to the
Indian group in social class status, at least in respect to fathers' occupation. This aim was only partially achieved. While the In-
dian fathers fish, log, are mechanics on boats, or do various lab-
oring jobs, the majority of them are, at one time or another during
each year, unemployed, for varying periods of time. The blue-collar fathers are mechanics, plumbers, carpenters, bus and truck drivers, or fishermen. They probably have significantly higher average incomes than the Indian fathers, and more regular employment, although we cannot present evidence for this. Differences in fathers' occupation, then, will not be ruled out of the explanation for any differences between the blue-collar and Indian children. The white-collar fathers of this sample are such professionals as engineers, teachers, lawyers, chartered accountants, etc., and businessmen, e.g., a furniture store owner, real estate agents, and an investment analyst.

Experimental procedure

Each S was taken individually, during regular school time, from his classroom to the experimental room which was, in Southlands School proper, a large, rather bare men's staff-room. In Southlands Annex, where the primary grade children are housed, the office of the public health nurse was used; and at Immaculate Conception School, the small school library. While attempting not to appear forbidding, E kept communication to a minimum. She explained simply that she had "some things" that she wanted S to do, including a "game" she wanted him to play.

S was seated before a table on which was placed vertically a large (3' by 5') board. In the middle of the board, and side by side, were two small shuttered windows (3½" by 3½") which E could open and close from behind the board. Below each window was a knob which S was instructed to pull to signify his choices during
the game. Above and between the windows was a small red light which E could flash on from behind the board, and below and between the knobs projected a piece of \( \frac{1}{4} \)" copper pipe through which candies were dispensed. Behind each window were placed fifty cards, each containing a different design of variously coloured and shaped small pieces of construction paper and stars. Each time the windows were opened, two different cards were presented, one of which always contained four green stars in its design. Choice of the card with four green stars on it constituted a "correct" guess which was rewarded either by a light flash or by a candy. The window in which the "correct" card appeared each time was randomly designated.

Children from each of the three subcultural groups were randomly assigned to one of two experimental conditions. Ss in the Material reward group (Mat) received the following instructions:

"This is a guessing game. I want you to choose one of these two pictures and pull the knob below the one you choose, and then I will show you two more and you are to do the same thing. One picture will be right each time and one will be wrong. If you pull the right knob a candy will drop in this container for you; if you pull the wrong one nothing will happen. Remember, you are to choose one of the two pictures and pull the knob below the one you choose. See how many times you can guess right."

Each child was asked to pull each knob several times and was then presented with a pair of practice cards, E saying:

"Let's practice with these."

If S hesitated, pulled both knobs, or in any way indicated that he did not understand the instructions, they were completely repeated with:

"Listen now, I'll tell you the rules again."
When each child showed that he understood the requirements, E proceeded with the first trial, saying:

"Go ahead and choose one of these pictures."

After each correct response a candy was dropped into the pipe from behind the board, through which it fell into a plastic container in front of the child. No instructions were given about taking the candies out of the container and no S attempted to do so. Fifty trials were given.

Ss in the Non-Material reward group (Non-Mat) were given the same instructions except for the sentence beginning, "If you pull the right knob...." Instead, they were told:

"If you pull the right knob, this light will flash; if you pull the wrong one, nothing will happen."

Communication between S and E was kept to a minimum during this task. E scored each choice of each subject while manipulating the choice cards and dispensing the rewards behind the board. When the trials were completed E said:

"That's good; we're done now. Can you tell me why you chose the pictures you did?"

If S indicated that he did not know, he was shown the first pair of cards again and asked:

"Show me which one is right."

If S indicated correctly, he was asked:

"Why is it right?"

and if he chose incorrectly he was told:

"No, this is the right one; can you tell me why?"
Projective testing

E then proceeded directly to the second phase of the experiment, walking around to the front of the board, pulling up a chair to the left of S and placing Thematic Apperception Test card 1BM in front of him saying:

"Now I would like you to make up some stories for me. I have some pictures here and I want you to tell me a story about each one. Make the stories as exciting as you can. You can make up any kind of a story that you want. Tell me what is happening in each picture, what happened before, and what is going to happen later. This is the first picture. Tell me a story about it. Make it as interesting as you can."

If S hesitated for very long, or said he didn't know how, the following prompts were used:

1. "What's happening in the picture?"
2. "Who is the person (people)?"
3. "What has been happening before?"
4. "What is being thought (wanted)?"
5. "What will happen?" or "What will be done?"

When S indicated that he had finished with the first card, he was shown TAT card 8BM with the instruction:

"Will you tell me a story about this picture now?"

The same prompts (as above) were used when necessary. TAT card 13B was similarly presented. In this part of the experiment E tried to change the atmosphere somewhat and encouraged the subjects to talk quite freely.

These stories were scored simply for the presence or absence of achievement related material. The criteria were those used by McClelland et al (1953):

"The scorer must first decide whether or not the story contains any reference to an achievement goal.... By achievement goal is meant success in competition with some standard
of excellence. That is, the goal of some individual in the story is to be successful in terms of competition with some standard of excellence. The individual may fail to achieve this goal, but the concern over competition with a standard of excellence still enables one to identify the goal sought as an achievement goal. This, then, is our generic definition of an Achievement." (pp.110–11)

Preference for immediate or delayed reward

When S finished the third TAT card, E said:

"That's all there is. Thank you very much. I would like to give you a chocolate bar for helping me /holding out a 10¢ and a 25¢ chocolate bar in each hand/. I don't have enough of these /indicating the large candy bar/ with me today, so you can either get this one /indicating the smaller bar/ right now, today, or, if you want, you can wait for one like this /indicating the large bar/ which I will bring back next /'Monday', or mentioning the day one week from the present/".

After a choice was made by S a great deal of emphasis was placed on the following:

"I must ask you to promise that you won't tell anyone what we have been doing here until I have finished with all the children. I will be coming back here every day for about two weeks and if anyone knows before they come in here what he is going to be doing, the whole thing will be spoiled. After I have finished, you can tell anyone you like about it, but until then it is very important that you help me keep it a secret. Will you promise not to tell anyone? (You can tell your parents what we have done but ask them to keep the secret too!)

S was then told that E would keep his candies with her until after school when he could come and pick them up. The candies were put in a paper bag and labelled in S's presence. If S was a member of the Non-Mat reward group, he was told:

"I also have some of these for you."

He was shown the candies which the Mat reward Ss received, and a few were put in a bag for him. This was done so that if comparisons were made between Ss, Non-Mat Ss would not feel unfairly dealt
with, and thus would not feel inclined to "spoil" the "game" for E. If S had chosen a large chocolate bar, he was reminded that he was to pick it up in a week's time.

A session lasted approximately twenty-five minutes, on the average, with considerable variation between children, the older white-collar children taking the longest time, and the younger Indian children the shortest. The younger children usually took longer to do the problem-solving task and the older children took longer telling the projective stories.
Results

Results of the learning task will be presented first, followed by the analyses of achievement and reward choice data. Since there was no evidence of a correlation between performance and age, age is ignored in these analyses.

A two-way analysis of variance was calculated for each of the five blocks of ten trials in order to test the effects of subcultural group (white-collar, blue-collar and Indian) and of incentive condition (material and non-material rewards). In the first four blocks of trials, there was no significant between-groups variation. The analysis of the fifth block of trials is presented in Table 1. As the table shows, the effect of subculture is significant at the .05 level. There is no significant main effect of incentive condition alone. The interaction between subculture and incentive condition is significant at the .05 level.

Table 1

Analysis of variance for fifth block of trials

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>29.302</td>
<td>2</td>
<td>14.651</td>
<td>4.337 ♠</td>
</tr>
<tr>
<td>Condition</td>
<td>2.561</td>
<td>1</td>
<td>2.561</td>
<td>0.758 ♠</td>
</tr>
<tr>
<td>Interaction: group x condition</td>
<td>22.937</td>
<td>2</td>
<td>11.469</td>
<td>3.395 ♠</td>
</tr>
<tr>
<td>Within groups</td>
<td>202.660</td>
<td>60</td>
<td>3.378</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>257.460</td>
<td>65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

♦ indicates significance at better than .05 level

Comparison of the means of the subcultural groups in the last ten trials shows that the white-collar Ss had higher scores than either the Indian or blue-collar Ss. The mean of the white-collar
Ss is significantly greater than both that of the blue-collar Ss (t = 2.41, df = 42, p < .025) and that of the Indian Ss (t = 2.27, df = 42, p < .025). Indian and blue-collar means are not significantly different from each other (t = 0.59).

In order to assess the nature of the interaction between subcultural group and incentive condition, comparisons were made between subcultural group means under the same incentive condition. The means and standard deviations are reported in Table 2, and the comparisons in Table 3. As the latter table shows, the differences between the mean of white-collar Ss and the means of the other two groups reaches statistical significance only in the non-material incentive condition.

Table 2

Means and standard deviations of six experimental groups, fifth block of trials

<table>
<thead>
<tr>
<th>Group</th>
<th>X</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-collar material</td>
<td>6.55</td>
<td>2.35</td>
</tr>
<tr>
<td>White-collar non-material</td>
<td>7.82</td>
<td>1.64</td>
</tr>
<tr>
<td>Blue-collar material</td>
<td>6.27</td>
<td>1.21</td>
</tr>
<tr>
<td>Blue-collar non-material</td>
<td>5.00</td>
<td>2.41</td>
</tr>
<tr>
<td>Indian material</td>
<td>5.55</td>
<td>1.36</td>
</tr>
<tr>
<td>Indian non-material</td>
<td>5.36</td>
<td>0.88</td>
</tr>
</tbody>
</table>

Table 3

Comparisons of the differences between means of the six experimental groups, fifth block of trials

<table>
<thead>
<tr>
<th>Reward condition</th>
<th>Subcultural groups compared†</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>White-collar vs. blue-collar</td>
<td>0.335</td>
</tr>
<tr>
<td>Material</td>
<td>White-collar vs. Indian</td>
<td>0.000</td>
</tr>
<tr>
<td>Material</td>
<td>Blue-collar vs. Indian</td>
<td>0.484</td>
</tr>
</tbody>
</table>
| Non-material     | White-collar vs. blue-collar | 3.055| ★★
| Non-material     | White-collar vs. Indian      | 4.126| ★★
| Non-material     | Blue-collar vs. Indian       | 0.443|

† df for each group is 20
★★ Indicates significance at better than .01 level
Summarizing these analyses, then, there is a significant tendency for white-collar children to perform better after forty trials than either Indian or blue-collar children, regardless of incentive condition. The superiority of the white-collar children's performance is much more marked, however, under non-material incentives. White-collar children performed better for non-material than material incentives, although this difference is not statistically significant ($t = 1.402, df = 21, p < .10$). Both blue-collar and Indian children performed better for material than for non-material incentives. The difference between incentive conditions was not significant for the blue-collar Ss ($t = 1.487, df = 21, p < .10$), but it was significant for the Indian group ($t = 2.307, df = 21, p < .025$).

Evidence of learning can be obtained by a comparison of the means for each group in the first ten trials with its mean in the last ten trials. These comparisons are presented in Table 4. There is significant evidence of learning for all groups except blue-collar and Indian groups working for non-material incentives. This result indicates again the ineffectiveness of the non-material incentives for these children.

Table 4

Comparisons of the differences in performance of each of the experimental groups between first and last block of trials

<table>
<thead>
<tr>
<th>Reward condition</th>
<th>Subcultural group</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>White-collar</td>
<td>2.514 *</td>
</tr>
<tr>
<td>Material</td>
<td>Blue-collar</td>
<td>3.498 **</td>
</tr>
<tr>
<td>Material</td>
<td>Indian</td>
<td>1.916 *</td>
</tr>
<tr>
<td>Non-material</td>
<td>White-collar</td>
<td>3.186 **</td>
</tr>
<tr>
<td>Non-material</td>
<td>Blue-collar</td>
<td>0.599</td>
</tr>
<tr>
<td>Non-material</td>
<td>Indian</td>
<td>0.863</td>
</tr>
</tbody>
</table>

* df for each group is 10
* indicates significance at better than .05 level
** indicates significance at better than .01 level
Achievement and reward choice

Stories for achievement were typed on separate sheets and given a code number. They were rated independently by two scorers for presence (AI) or absence (UI) of achievement imagery, using McClelland's criteria (1953). Neither of the scorers knew the group origin of the stories. Since the second two cards used in this experiment were not included in McClelland's standardization, and since achievement imagery in response to these cards was very rare, these stories were not included in the analysis.

On the remaining stories, those given in response to TAT card IBM, there was disagreement between scorers on only one of sixty-six stories. These scores were considered sufficiently reliable, therefore, to be used in group comparisons. There was no significant relationship between achievement imagery and either length of story told or reward condition in the problem-solving task, so these variables were ignored in subsequent analyses.

The AI and UI totals for each subcultural group are reported in Table 5 and chi-squares of the differences between social groups in scored achievement imagery are included in Table 6. Differences were very significant between the white-collar and blue-collar, and the white-collar and Indian groups, the white-collar group obtaining more AI scores than either of the other two groups.

<table>
<thead>
<tr>
<th>Group</th>
<th># scoring AI</th>
<th># scoring UI</th>
<th># choosing DelR</th>
<th># choosing ImR</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-collar</td>
<td>16</td>
<td>6</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Blue-collar</td>
<td>6</td>
<td>16</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Indian</td>
<td>6</td>
<td>16</td>
<td>5</td>
<td>17</td>
</tr>
</tbody>
</table>
Table 6
Comparisons of frequency of achievement imagery and reward choices between subcultural groups

<table>
<thead>
<tr>
<th>Groups compared</th>
<th>Achievement imagery $\chi^2$</th>
<th>Reward choice $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-collar vs. Blue-collar</td>
<td>10.54 $\dagger\dagger$</td>
<td>7.76 $\dagger$</td>
</tr>
<tr>
<td>White-collar vs. Indian</td>
<td>10.54 $\dagger\dagger$</td>
<td>15.40 $\dagger\dagger$</td>
</tr>
<tr>
<td>Blue-collar vs. Indian</td>
<td>0.00</td>
<td>1.68</td>
</tr>
</tbody>
</table>

$\dagger$ df for each comparison is 1
$\dagger\dagger$ indicates significance at better than .01 level

The reward choices of each of the subcultural groups are shown in Table 5. There is no relationship between reward condition in the problem-task and reward-choice. The comparison of the choices of each subcultural group shows (Table 6) that the white-collar $S$s were significantly more likely to choose the large, delayed reward than were the other two groups of subjects. Indian $S$s chose the most immediate rewards.
Discussion

In the problem task, Indian Ss performed significantly better for material than for non-material rewards. A similar trend was observed with blue-collar Ss, and the reverse trend (i.e. better performance for non-material than for material incentives) with white-collar Ss. The original hypothesis was thus confirmed.

Similarly, white-collar Ss told more stories rated as containing achievement imagery than did the boys in the other two subcultural groups. They were more likely to choose the larger, delayed rewards than were the Ss in the other social groups. Indian Ss, again according to prediction, were most likely to choose immediate, smaller rewards and they obtained the least number of AI scores on the TAT procedure. Blue-collar Ss scored significantly fewer AI ratings and were less likely to choose delayed rewards than were the white-collar Ss. Their reward choices, in accordance with the hypothesis, were intermediate between the white-collar and Indian groups. Their achievement imagery totals were, however, the same as those of the Indian group.

It is rather surprising, in view of the failure to equate fathers' occupation (and living standard) between Indian and white blue-collar groups, that there is no significant difference between them either in response to incentives (though the direction of the differences was appropriate) or in achievement content of fantasy. Thus the results suggest that, while the two groups may be different in many respects, they are similar in that neither shares the specifically middle-class achievement syndrome. With the exception of the failure to find a significant difference between Indians and
blue-collar whites, however, the initial hypotheses were confirmed.

There are, however some limitations of this study which should be mentioned. It should be remembered that the Indians in this sample are not representative of other Indians in British Columbia. The reserve on which they live is not only virtually surrounded by an urban middle-class residential district, but is also the closest reserve to the largest city in the province. The contrast in socioeconomic status between whites and Indians in the school population sampled here is probably more extreme than it would be in the more rural areas where the majority of Indians lives.

Also, the measures used here are crude. The range of types of incentive to which our "material — non-material" dichotomy can be applied awaits further investigation. The promotional system of schools could, for example, be referred to as being largely "non-material", but here, as in any actual behavioral situation, an interaction of various types of incentive is operative. In addition, such gradations of incentive value as those reported by Zigler and Kanzer (1961) indicate the oversimplification of our two incentive conditions. They found that of verbal reinforcers, "praise" is more effective with lower-class children, and knowledge of "correctness" with middle-class Ss. Finally, the pertinence of the differential effectiveness of various incentives, both with certain age groups of Ss and with the specific type of performance required, must be considered.

Beyond refinements of incentive conditions in the task situation, investigation of the suitability of the task itself is in order. Since this was an experiment concerning incentive values,
it is likely that the difficulty of the task itself was a hindrance to the demonstration of the differential effects of the incentives themselves. The absolute level of performance in the last ten trials, although there was significant evidence of learning in all but two subgroups, was not very great. The task's difficulty for the majority of the Ss probably introduced cognitive as well as motivational factors in the results. There was possibly a confounding of differences between groups in means of approaching the task, i.e. in mediating responses. For example, it is not known whether the Indian and blue-collar Ss realized it was more than a guessing game, or whether they had had practice in using hypotheses to search systematically for solutions. Bruner (1964) suggests that differences of this kind are important sources of subcultural differences. Such factors as these might account for the overall better performance of white-collar Ss, but not for the interaction effect, for significant interaction was obtained in spite of characteristics of the task that might have obscured it. However, a task which is a purer measure of motivation, one that involves little use of words and well-learned types of responses such as that used by Storm, Porsolt and Anthony (1964) might produce clearer evidence of the effects of motivation on performance.

The ability to delay gratification may be confounded with the desire of the S either to remain as inconspicuous as possible, or to establish further contact with E. The Ss' personal histories concerning the advisability of trusting or not trusting an adult's word in this type of situation may also be a factor. The effects of the sex and ethnic group membership of E, and the Ss' famili-
arity with E, need investigation as well. Once these problems are solved, a clearer estimate may be made of what the ability to delay gratification for one week indicates in reference to long-term involvement in goal-oriented behaviors. Attempts in this direction are being made by Mischel (1962).

The relationship between, on the one hand, the ability to work toward non-material rewards, the production of achievement fantasy and the delay of gratification; and, on the other hand, school performance, and both educational and occupational aspirations of these three Canadian subcultural groups would be of interest in future research of this type.

Keeping in mind certain reservations both about the sample and about the measures used here, we can say that these findings of the differential effectiveness of two classes of incentives with three subcultural groups, and the ability to differentiate between the three groups in terms of their achievement fantasy productions and their reward choices, indicate that refinements of these types of procedure would result in increased support of the hypothesis.

In general, Ss were enthusiastic about the problem task. This enthusiasm may be attributable partly to the task, partly to the rewards, and partly to the fact that the boys were missing some school work. The task took approximately five minutes for most subjects. Some older white Ss displayed embarrassment concerning the candy rewards, and may expressed interest in the mechanics of the experimental board. It will be remembered that E attempted to keep communication with the Ss to a minimum through this first part
of the experiment. This was often difficult with the white Ss, particularly those in the white-collar group. In contrast, Indian Ss seldom initiated discussion and did not tell E if instructions were unclear to them. This, however, probably does not mean that Indian performance was of a lower level because they could not understand the instructions, since they performed well compared with the white Ss when material incentives were employed.

The lack of approach to E, the shyness of the Indian children, would seem to indicate an anxiety concerning white adults. This factor could have affected their performance. Indian Ss also worked more slowly at the task than did most white Ss.

A contrast between white and Indian Ss in verbal facility was also noted. Many Indian children well into the intermediate grades did not speak in complete sentences. It does not seem likely that these children exhibit a problem in bilingualism. Dr. Wayne Suttles, of the University of Nevada, who has worked extensively with the Musqueam Indians, was of considerable help on this point. In personal communications concerning the home lives and languages spoken by the Indian Ss in this sample, he says that few of the parents and fewer children on this reserve speak Musqueam, or any other Salish dialect. Since the educational level of the parents is low, few children probably hear any language spoken well at home. This contrast in verbal ease between whites and Indians is undoubtedly highly magnified in the classroom, where school success and verbal ability are so closely allied.

Instead of verbal responses to E, Indians displayed considerable evidence of emotional expressiveness. This was seen, for
instance, in their reaching for a chocolate bar rather than indicating their choice verbally, and in their responding to a question with a smile rather than a "yes". It was also observed that in their TAT stories Indian children often mentioned "having" or "getting" friends. An investigation using a measure such as Heyns, Veroff, and Atkinson's Affiliation protocol (1958) might prove fruitful, in view of Ausubel's report (1960) discussing the striving of Maoris for secondary rather than for primary status.

All subjects seemed to accept the reward choice in a matter-of-fact manner. The fact that there was a considerable difference in size between the two chocolate bars probably helped to accentuate the effectiveness of this device.

In conclusion, while recognizing the limitations of this study, one can state that there was confirmation of the original predictions and consistency of results in all three measures. The differences between the three subcultural groups are in keeping with the hypotheses, the white-collar children performing better for non-material incentives than the other two groups, exhibiting more achievement imagery and choosing more delayed rewards. Indian children performed better for material incentives in the task situation, exhibited less achievement fantasy, and chose more immediate rewards. Blue-collar children, on the whole, were intermediate. The findings justify further exploration.
Summary and Specific Conclusions

This study was designed to investigate motivational differences in children of three Canadian subcultural groups. The total population of elementary school age Musqueam Indian boys (N=22) was paired for age with equal numbers of white-collar and blue-collar boys attending the same schools. The age-range of this sample was seven to thirteen years.

Three tasks were presented to each S. For the first task, half of each of the subcultural groups was assigned at random to a material reward group, and the other half to a non-material reward group. The material reward group received a candy and the non-material reward group a light flash for each correct response. The successful solution of the problem was expected to be in part a function of subcultural group membership and incentive condition. It was predicted that white-collar Ss would perform better for non-material than for material rewards. Indian children were expected to perform better for material than for non-material rewards. It was predicted that blue-collar Ss would perform at an intermediate level.

Analysis of performance on the last ten trials showed a significant interaction of the two variables, subcultural group membership and incentive condition. Indian Ss, as predicted, performed significantly better for material than for non-material rewards. The same trend, approaching significance, was noted with blue-collar Ss. White-collar Ss performed significantly better than the other two groups of Ss for non-material incentives, and the trend for them to perform better for non-material than for
material rewards approached significance.

All subjects were presented with the same n Achievement and reward choice situations. In the first of these, they were asked to tell a story about each of three TAT cards. In the latter they were to choose between getting a large chocolate bar in a week's time, or a small one immediately. It was predicted that white-collar Ss would be more likely to tell stories containing achievement imagery and to choose more larger, delayed rewards. Indian children were expected to tell fewer achievement imagery stories and to choose the most immediate rewards. Blue-collar Ss were expected to be intermediate on both of these measures.

On TAT card IBM, the story productions yielded differences between subcultural groups generally in the predicted manner. White-collar children related significantly more stories scored as containing achievement imagery than did the other two groups. The expected difference between blue-collar and Indian Ss was not obtained. In the reward choice situation, white-collar Ss were significantly more likely to choose larger, delayed rewards than were the other two groups, and Indian Ss were more likely to choose smaller, immediate rewards. Blue-collar Ss were intermediate.

Observations of behavioral differences between the subcultural groups were reported in relation to each experimental task. Limitations of the generality of the findings were discussed, and refinements in the procedures were suggested. The confirmation of predictions and the consistency of results on all three procedures suggest that further exploration in this area might be rewarding.
Bibliography


