

Subgroup Differences in School Achievement and Opportunity Perception

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The present study focuses on Asian minority students in the United States, looking into variables related to the educational career orientations. Among those are perception of limited opportunity, preferred choice of major, and filial duty beliefs. On the question tapping the level of education students thought they would actually attain, Asians scored the highest and whites the lowest. Also, Asians had the highest grade point averages and Blacks the lowest. Asians tended to choose majors that are quantitatively oriented, while avoiding majors that require some degree of self-expression, communication in oral or written forms, and interpersonal skills. This tendency is consistent with their elevated quantitative scores relative to their lower verbal scores. Asians had the highest perception of limited opportunity, probably because of the language or cultural barriers and discriminatory obstacles they experience in the host society. The opportunity perception interacted with aspiration to influence expectation. Further regression analyses revealed that the correspondence between aspiration and expectation was the highest for those with a moderate level of perception of limited opportunity and the lowest for those with high such perception. Results were discussed in relation to the recent changes in the educational policy for Asians and frustrations they might experience due to the discrepancy between aspiration and perceived opportunities.

In the last several years, the children of Asian immigrants in the United States have been getting much attention from educators, politicians, and the general public for their academic excellence. Asian students are the fastestgrowing minority group in higher education in America (*Newseek on Campus*, 1984). They have carved out a reputation for hard work and academic excellence as illustrated in the following examples.

Time magazine reports that in 1983, Asian-Americans claimed 12 of the top 40 spots in the Westinghouse Science Talent Search (*Time*, 1983). Year after year, they outscore other racial groups on the math portion of the Scholastic Aptitude Tests. In 1981, the national norm for math on the SATs was 467, but in California, 68% of Japanese-born students and 66% of Korean-born students scored over 600 (*Time*, 1982). According to the Chicago Tribune (1986, June, 23rd), 11% of the Harvard's, 18.6% of the Cal Tech's (California Institute of Technology), 8.7% of Princeton's freshman class and 20% of the Columbia's engineering freshman class in 1985 were Asian. Considering that the proportion of Asians in the U.S. population is only 1.6%, these percentages are rather striking.

Asian-Americans' achievements are considered particularly remarkable given their history in the United States. Asian immigration had begun in the late 19th century. However, until World War II, most Asian immigrants were male workers, who came with the purpose of making their fortune and returning to their homelands. They often left their families back home. Thus only in the past four decades has a sizable Asian-American family structure been created in the U.S.

Although some scientists look into probable differences in the genotype between Asian and American babies in order to explain the academic success of the Orientals, most scientists rate nurture over nature as the critical factor. That is, what parents do for their children as they grow up is considered to be more important than the genes that are transmitted. For example, a series of on-going investigations by Harold Stevenson (*Newsweek On Campus*, 1984) and his research team looked at the effect of parental upbringing on Asian and American childrens' academic achievement.

Generally, people on this "nurture" side believe that the success of

Asian-Americans is rooted in a traditional reverence for learning in the Asian culture and the fierce support of family. Sociologist William Liu (*Time*, 1982), for instance, stresses the importance of cultural conditioning. According to Liu, in the Confucian ethic, which permeates the cultures of China, Korea, and Japan, children believe that scholastic achievement is the only way of repaying the infinite debt to their parents, of showing filial piety.

On the other hand, some researchers contend that the Asian-Americans' high educational aspiration and push for excellence merely repeats the behavior of other immigrants (e.g., the Jewish) who saw education as the road for acceptance. Here, the emphasis on education is seen as a major avenue for upward mobility. In fact, most Asians believe academic credentials are passports to high occupation, social status, and economic rewards. In a survey of three generations of Japanese immigrants, Levine and Montero (1973) indicated that Japanese educational attainment significantly accounted for occupational achievement, suggesting the role of education in socioeconomic mobility among minority groups. The authors suggested that well-educated groups tended toward assimilation into the mainstream of American life. This makes sense since upward mobility would mean that ethnic minorities have greater contact with Caucasians in business and social affairs. On the other hand, those less educated were found to focus their sights more within their ethnic community.

From the foregoing discussion, both available research and anecdotal information seem to suggest functional effects of educational attainment on upward mobility and assimilation into the American society for Asian immigrants. It is also evident that Asian-Americans generally have high educational aspirations and that the pressure for educational success for them is high. A survey report of Korean immigrants in the Philadelphia area confirms this point. According to the survey, respondents reported their second most important reason for coming to America was for the better education of their children (*The Joong Ang Daily News*, Chicago Edition, 1982)

The whole issue has policy implications. As illustrated earlier, Asians

are over-represented in the finest American institutions of higher education. That over-representation has serious impacts on education policies in the U.S. Because of that over-representation, Asians are no longer included in many affirmative action programs. Some universities have adopted policies that reduce Asian representation(See Sue, 1985) . For example, some universities have altered admission criteria so that now more weight is given to the English or verbal portion of tests(e.g. SAT -Scholastic Aptitude Test ; GRE-Graduate Record Examinations) . Such a policy change in admission standards would have a major adverse impact on those who have limited English proficiency. Asians typically score high on quantitative and low on verbal portions of those tests. As Sue posits, if other ethnic groups, such as Blacks and Hispanics who also show low verbal scores, are protected by affirmative action programs, the only ethnic group adversely affected will be Asian Americans. Consequently, people who faught for affirmative action for all ethnic groups are confornted with a dilemma. Besides, such a policy change that reduces the access of Asians to certain universities may have a chilling effect on their educational aspirations.

Academic performance expectations and behavior have been intriguing subjects to the author. Also, the societal atmosphere-its interests in Asian -Americans' educational achievement and related policy development -precipitated the author into studying these subjects. The present research looks into subgroup differences in variables related to the educational career orientations among high school students. Among those are various attribution indeces, achievement motivation, aspiration, perception of opportunity, preferred choice of major, and filial duty beliefs.

Ethnic differences in locus of control, attribution, and achievement motivation

Studies report that cognitive system pertinent to achievement motive may be learned differently by ethnic and social groups(Coleman et al., 1966 ; Katz, 1967) . In a national survey, Coleman et al. found that black students as opposed to white students had a lower sense of personal control. Similarly Strickland(1972) suggested that black students act in a

more chance-oriented or risky fashion than whites, as if their expectancy for future success is only minimally related to their past behaviors.

Friend and Neale(1972) reinterpreted the Coleman report saying that black students have not learned to attribute success to internal factors or do not consider these factors to be important in accounting for success. Arguing that it is possible for a person to claim high ability but to believe that his/her ability was not crucial for his/her performance on a particular task, Friend and Neale employed two methods of assessing attributions : the children's perceptions of both how much ability and effort they demonstrated, and of the relative importance of each of the factors in mediating their performance. Their findings show that both black and white students attributed equally low ability and effort to themselves given failure and equally high ability and effort given success.

In contrast, when evaluations of the importance of ability and effort were considered, white children rated internal factors as more important, especially following failure feedback. Blacks were found to place less importance on internal factors than whites although they perceived their ability and effort levels to equal to those of white children. The above findings confirm Katz's(1969) suggestion that blacks do not develop the cognitive structures that support the efficacy of effort, which implies that blacks may be less perceptive of the covariation between effort and achievement.

Although there have been numerous studies on attribution in relation to achievement motivation, studies involving Asian-American minority children are very scarce. In a cross-cultural study on attribution with Japanese and American adolescents, Americans attributed significantly greater responsibilities for a negative outcome than for a positive outcome, whereas Japanese students attributed about the same amount of responsibility for positive and negative outcomes(Shaw & Iwawaki, 1972).

Ethnic difference in aspiration

The pattern of low achievement motivation of black children documented in studies(Baughman & Dahlstrom, 1968 ; Coleman et al., 1966 ; Pettigrew, 1964) seems to contradict findings on their educational

aspirations. Several researchers (Baughman & Dahlstrom, 1968 ; Book et al., 1974 ; Guggenheim, 1969) reported that black children showed significantly greater discrepancies than white children between their expectations for achievement and their actual achievement.

Katz (1969) attempted to explain this discrepancy in terms of socializing agents of academic motivation. He argued that black parents have higher educational aspirations (which are in the nature of "wishful fantasies") for their children but they devote little effort to their childrens' educational needs (e.g., help with homework).

A number of studies examined how parental aspirations might influence their children. Parental stress on education (Bordua, 1960), parental advice (Simpson, 1962), parental expectations (Sewell & Shah, 1968), parental encouragements (Marjoribanks, 1985 ; Rehberg & Westby, 1967), and parental hopes (Goodale & Hall, 1976) are related to the adolescents' aspirations. Sewell & Shah (1968) found a generational continuity : children of parents with a high educational attainment were found to have higher aspirations than children whose parents had a lower educational attainment.

Greenstorm (1975) argued that mere membership in an ethnic group can influence the individual's level of aspiration. Kitano (1969) suggested, following comparisons of Japanese-Americans and Mexican-Americans in school achievement, that even though both ethnic groups place a primary emphasis on the family solidarity, the particular interpretation of other values such as the instrumental value of education, produces culturally -based differences in academic achievement. Taken as a whole, ethnicity seems to strongly affect achievement motivation and educational aspirations, making some ethnic groups more educationally mobile than others.

There have not been many studies on the perception of limited opportunity, a concept originated in the work of Landis and Scarpitti (1965) on delinquency. One study which incorporated this construct in the context of academic performance was located (Epps, 1969). Epps found a negative relationship between the perception of limited opportunity and school performance. This construct will be more closely examined in the

present study.

Research Hypotheses

1. Parents' encouragements and students' educational aspiration will be positively related, when controlling for parents' education.

2. There will be no significant relationship between parents' occupation and aspiration, when controlling for parents' education. It is believed that parents with higher educational attainments tend to hold more prestigious occupations and also tend to more frequently encourage their children to go beyond high school than do less well educated parents. Thus, when the impact of parents' education is removed, parents' occupation will no longer make a unique contribution to childrens' aspiration.

3. Parents' encouragements and children's beliefs in filial duty will be positively related, when controlling for sex and ethnicity. It is believed that parents' aspirations and expectations for their children's education will get conveyed to their children through their encouragement, which will then strengthen children's feelings toward filial duty.

4. The relationship between aspiration and expectation will be greater for internals than for externals, suggesting an interaction effect between attribution and aspiration on the determination of expectation. Since having an internal orientation means believing in personal control over events, those with an internal tendency will tend to have higher expectations for future outcomes relative to their aspiration than those who tend toward an external orientation.

5. The perception of limited opportunity will mediate the relationship between aspiration and expectation. The relationship will be greater among those with low awareness of limited opportunity, suggesting an interaction effect between awareness of limited opportunity and aspiration on the prediction of expectation. In other words, those who believe their life chances are highly limited will tend to have low expectations relative to their level of aspirations.

6. There will be a positive relationship between achievement motivation and the internal versus external locus of control, when controlling for sex and ethnicity. In other words, high need achievers will

tend toward an internal orientation in their causal judgments. This result would support previous findings (e.g. Bar-tal & Frieze, 1977 ; Weiner & Kukla, 1970 ; Weiner & Potepan, 1970).

7. Asians will tend toward choosing majors which are more quantitatively oriented rather than majors that require elaborated verbal skills. This tendency will reflect their elevated quantitative scores relative to their verbal scores.

8. Minority children will be more perceptive of limited opportunities than Caucasian-Americans, because they are more likely than Caucasians to experience discriminatory obstacles as well as language and cultural barriers.

9. Asians will have stronger filial duty beliefs than any other ethnic groups, reflecting high reverence for education and for parents, which is embedded in the Asian culture.

10. Minorities will report a higher value for college education than Caucasian-Americans, suggesting a functional value of education in assimilation to the mainstream in the society shared among the minority students.

METHOD

Respondents

Subjects were 381 high school students solicited from the Chicago metropolitan area, 181 were identified as females and 189 males. They ranged from tenth to twelfth grades. The reason for choosing these grades were that they are close to making an important decision about their educational career. Subjects were of various ethnic backgrounds : 23% Asians, 12% Blacks, 23% Hispanics, 29% Whites, 6% Middle-Easterners, and 7% others.

Instrument

The questionnaire included six sections. The first two sections consisted of questions that were attribution-related. The third section dealt with

achievement motivation. The fourth section included questions that tapped in individuals' perception of opportunity structure in the society. The fifth and final section consisted of various subscales, such as rating of attribution factors for their importance in determining performance, family and demographic variables, etc.

Procedure

In groups, subjects were given a brief instruction as to the purpose of the study and how to answer questions. Filling out the questionnaire took approximately 40 minutes. When the session was over, subjects were probed for questions and fully debriefed.

RESULTS

Hypotheses were tested, employing various analytic techniques, including Chi-square tests, analyses of variance, Tukey tests of multiple comparisons, partial correlations, multiple regressions, etc.

Hypothesis 1. As shown in Table 1, parents' encouragement is positively related to the total aspiration (aspiration and expectation combined), aspiration, and expectation. When the effects of sex, ethnicity, and parents' education were removed using a partial correlation, the correlation coefficients did not decrease, thus supporting the hypothesis. In general, it seems that father's encouragement is slightly more influential ($r = .19$) than mother's encouragements ($r = .12$) for the realistic academic career expectation. But for the idealistic academic career orientation (aspiration), mother's encouragement and father's encouragement had similar influences.

Hypothesis 2. Table 2 shows that controlling for sex and ethnicity did not change the correlations much, but when the effects of parents' education were partialled out, the correlation coefficients decreased from .12 to .03 for the total aspiration, from .70 to $-.01$ for aspirations, and

<Table 1> Zero-order and Partial Correlations : Parents' Encouragements and Children's Aspiration

	ZERO ORDER	CONTROL SEX	CONTROL ETHNICITY	CONTROL EDUCATIN
BOTH PARENTS				
	* **			
TASPRTN	.17(.001)	.17(.001)	.17(.001)	.17(.003)
ASPRTN	.12(.023)	.12(.021)	.12(.023)	.11(.042)
EXPCTN	.17(.001)	.17(.001)	.17(.002)	.17(.003)
FATHER'S				
TASPRTN	.18(.001)	.18(.001)	.17(.001)	.16(.006)
ASPRTN	.10(.060)	.10(.059)	.10(.056)	.08(.143)
EXPCTN	.19(.000)	.19(.000)	.19(.001)	.18(.002)
MOTHER'S				
TASPRTN	.15(.004)	.15(.004)	.15(.004)	.15(.008)
ASPRTN	.13(.017)	.15(.013)	.15(.018)	.15(.026)
EXPCTN	.12(.019)	.13(.019)	.13(.018)	.12(.029)

Note : TASPRTN : academic aspiration and expectation combined

ASPRTN : academic aspirations

EXPCTN : : academic expectations

*correlation coefficient

**significance level

from .13 to .04 for expectations. These results support the hypothesis. It seems that parents' occupation level makes very little independent contribution to the dependent variable.

Hypothesis 3. Table 3 reveals that all three correlations of filial duty beliefs with parents' encouragements remained significant when sex and ethnicity were controlled, thus lending support for the hypothesis. Generally, results indicate that the degree of parents' encouragements for children's education is positively related to children's feelings that their school achievement is important to their parents and that they owe it to their family to do well in school.

Hypothesis 4. In order to test the interaction effect between aspiration and attribution on the prediction of expectation, two scores were combined : the total scores on the Intellectual Achievement Responsibility Scale and on the control belief scale. Using this composite score

⟨Table 2⟩ Zero-order and partial Correlations : Parents' Occupation and Children's Aspiration

	ZERO ORDER	CONTROL SEX	CONTROL ETHNICITY	CONTROL EDUCATION
BOTH PARENTS				
	* **			
TASPRTN	.12 (.045)	.12 (.047)	.12 (.047)	.03 (.642)
ASPRTN	.07 (.244)	.07 (.254)	.07 (.237)	-.01 (.860)
EXPCTN	.13 (.040)	.13 (.041)	.12 (.045)	.04 (.514)
FATHER'S				
TASPRTN	.14 (.033)	.14 (.038)	.14 (.037)	.05 (.471)
ASPRTN	.10 (.130)	.09 (.151)	.10 (.120)	.01 (.828)
EXPCTN	.13 (.055)	.13 (.056)	.12 (.069)	.05 (.479)
MOTHER'S				
TASPRTN	.05 (.495)	.05 (.515)	.05 (.479)	-.05 (.550)
ASPRTN	.006 (.936)	.002 (.975)	.004 (.954)	-.08 (.292)
EXPCTN	.06 (.418)	.06 (.420)	.07 (.378)	-.04 (.645)

Note : TASPRTN : academic aspiration and expectation combined

ASPRTN : academic aspiration

EXPCTN : : academic expectation

*correlation coefficient

**significance

⟨Table 3⟩ Correlations between Parents' Encouragements and Children's Filial Duty Belief

	ZERO ORDER	CONTROL SEX	CONTROL ETHNICITY	CONTROL BOTH
	* **			
PAENCRG	.29 (.000)	.29 (.000)	.28 (.000)	.28 (.000)
FAENCRG	.26 (.000)	.26 (.000)	.26 (.000)	.26 (.000)
MOENCRG	.24 (.000)	.24 (.000)	.24 (.000)	.24 (.000)

Note : PAENCRG : father and mother's encouragements combined

FAENCRG : father's encouragements

MOENCRG : mother's encouragements

*correlation coefficient

**significance

(ATTRIB), a series of multiple regression analyses were performed. First, expectation(EXPCTN) was regressed on attribution(ATTRIB) and aspiration(ASPRTN) ; then EXPCTN was regressed on ATTRIB, ASPRTN, and a multiplicative term of ATTRIB* ASPRTN. Whether the addition of the multiplicative term in the regression significantly increased the size of R square was examined. The results show that the interaction term was insignificant in accounting for variance in academic expectation, thus the hypothesis was not accepted.

Hypothesis 5. The test of this hypothesis was performed also by employing multiple regression analyses. First, expectation(EXPCTN) was regressed on aspiration(ASPRTN) and the perception of limited opportunity(TALO) ; second, EXPCTN was regressed on ASPRTN, TALO, and the multiplicative term of ASPRTN* TALO, and then the increase in R square that is due to the addition of the multiplicative term was examined.

As shown in Table 4, the interaction term resulted in a significant increase in R square. Once the interaction was found significant, the next step was to examine the nature of the interaction. First, cases were dichotomized into high TALO and low TALO groups using median split so that two groups would have approximately same percentage of cases.

⟨Table 4⟩ Regression of Academic Expectation on Aspiration, Limited Opportunity Beliefs, (and Interaction)

WITHOUT THE INTERACTION TERM								
STEP	VARIABLE	MR	RSQ	SIG	RSQCH	SIGCH	BETA IN	CORR
1	ASPRTN	.5358	.29	.000	.2871	.000	.5358	.5358
2	TALO	.5478	.30	.000	.0130	.010	-.1151	-.1857
WITH THE INTERACTION TERM								
STEP	VARIABLE	MR	RSQ	SIG	RSQCH	SIGCH	BETA IN	CORR
1	ASPRTN	.5358	.29	.000	.2871	.000	.5358	.5358
2	INTASAL	.5503	.30	.000	.0157	.005	-.1613	.2395
2	TALO	.5507	.30	.000	.0005	.626	.0762	-.1857

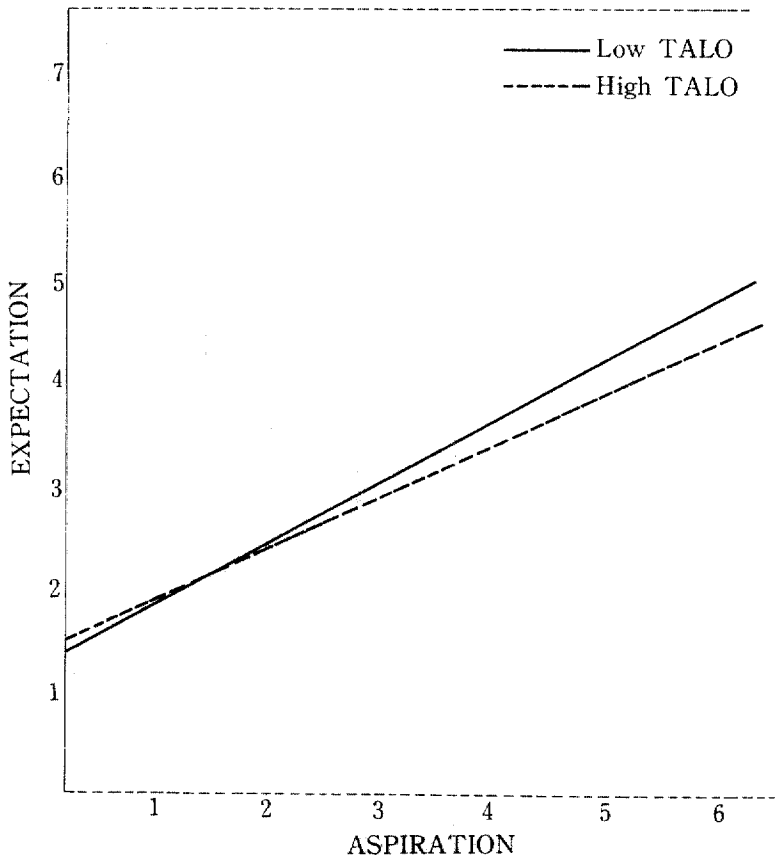
Note : ASPRTN : academic aspiration

TALO : awareness of limited opportunity

INTASAL : multiplicative term of aspiration and TALO

Next, separate regression equations were obtained for the high and low TALO groups. For the low perception of limited opportunity group, the equation was $Y_2 = 1.3306 + .58363X$. For the high TALO group, it was $Y_2 = 1.3896 + .5187X$. The point of intersection was calculated using a formula : $(a_1 - a_2) / (b_1 - b_2) = .9087$. This intersection does not fall within the range of expectation the author is interested in (which is 1 to 6), and thus the interaction is determined to be ordinal. Plotting the regression lines followed next (see Figure 1).

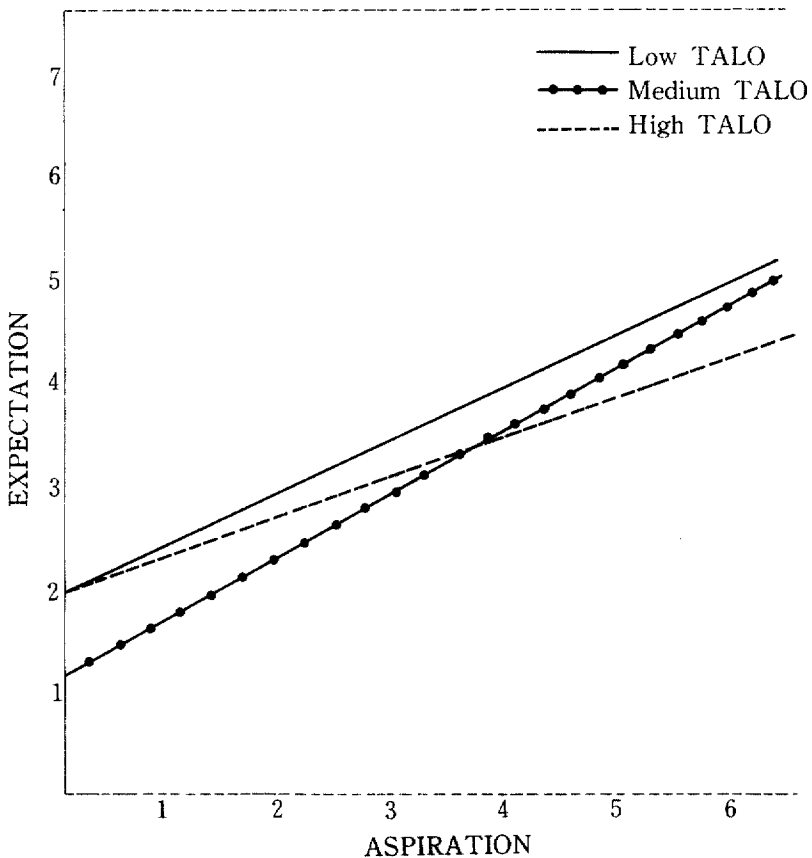
According to Figure 1, it seems that for those whose aspirations are low, the level of perception of limited opportunity does not make much



[Fig 1] Interaction between Aspiration and Limited Opportunity Beliefs : TALO Dichotomized

differences in the prediction of expectation. But for students whose aspirations are high, their level of perception of limited opportunity comes to play a role by interacting with their aspirations. The separate regression equations and Figure 1 reveal that the correspondence between aspiration and expectation is greater for people who report less awareness of limited opportunity.

It was of interest to see the form of this interaction when the cases were trichotomized into low, medium, and high awareness of limited opportunity groups. Cumulative percentages of cases for TALO were used to split the cases into three groups and then three multiple regression analyses were performed in order to get separate equations for each group.



[Fig 2] Interaction between Aspiration and Limited Opportunity Beliefs : TALO Trichotomized

The equations were $y_1=1.629847+.553517x$ for the low TALO group ; $Y_2=1.115862+.599007x$ for the medium TALO group ; $Y_3=1.651080+.447662x$ for the high TALO group.

The point of intersections for the three equations were obtained by following the same procedure described earlier. It turned out that the intersections for the low and medium TALO groups(11.30) and for the low and high TALO groups(15.60) fall outside the range of interest but the intersection for the medium and high TALO groups, which is 3.76, falls within the range, proving a disordinal interaction. As evident in Figure 2, the relationship between aspiration and expectation is the strongest for the medium TALO group, intermediate for the low TALO group, and the weakest for the high TALO group.

Taken together, these results support the hypothesis that one's beliefs in limited opportunity mediate the relationship between his/her academic aspiration and expectation and that the relationship is higher for the persons who believe they have a better chance in the society than for those who believe they have highly limited opportunities in the society. Further analysis reveal more interesting findings. That is, it is better to have a moderate perception of limited opportunity than to have high or very low perception of limited opportunity.

Hypothesis 6. Table 5 shows the results of partial correlation analyses. Generally, high need achievers have a tendency toward making internal causal attributions, and this tendency is the strongest when making causal judgments for things that matter personally($r=.25$) and the weakest for judgment about general ideological matters($r=.08$). Furthermore, these tendencies hold up when gender and ethnicity were controlled.

Hypothesis 7. In order to test this hypothesis, college majors that require quantitative skills and do not require elaborated verbal and interpersonal skills were grouped together, consisting majors such as physical or natural sciences, math, computer, engineering, medicine, and nursing. On the other hand, majors that require high verbal and interpersonal skills were grouped together, consisting majors such as arts and humanities, history, social science, law, and business. For convenience the first group is referred as "hard majors" and the second

<Table 5> Achievement Motivation and Attribution

	ZERO ORDER	CONTROL SEX	CONTROL ETHNICITY	CONTROL BOTH
	* **			
TIAR	.13(.014)	.12(.018)	.13(.013)	.13(.016)
TCNTRL	.15(.004)	.14(.006)	.14(.009)	.13(.014)
PCNTRL	.27(.000)	.25(.000)	.27(.000)	.25(.000)
IDCNTRL	.09(.083)	.10(.069)	.08(.141)	.08(.132)
ATTRIB	.17(.001)	.17(.001)	.17(.001)	.16(.002)

Note : TIAR : Intellectual Achievement Responsibility scale

TCNTRAL : internal vs. external control beliefs

PCNTRAL : personal control beliefs

IDCNTRAL : general ideological control beliefs

ATTRIB : TIAR and TCNTRL standardized and combined

*correlation coefficient

**significant level

group is referred as "soft majors".

Next, a chi-square test of statistical significance was employed in order to determine whether Asians actually choose "hard majors" more so than whites do. Also, ethnic differences were examined by controlling for sex effects. Table 6, 7, and 8 report the results of these chi-square analyses. It is evident that Asians do choose majors that require quantitative skills more frequently than majors that require verbal or interpersonal skills. Hispanics reveal a weaker tendency in the preference for "hard major" over "soft major" On the other hand, blacks and whites tend to choose majors that require verbal or interpersonal skills more frequently than majors that are quantitatively oriented. These ethnic differences are still evident when controlling for sex effects, with one exception for Hispanic females who do not show tendency toward choosing "hard majors". For Hispanic females, sex differences override ethnic differences. According to Table 9, females tend to choose "soft major" more than "hard majors" and the reverse pattern is evident for males. However, this sex difference is not present among Asian females (Table 8) for whom ethnic differences override sex differences.

⟨Table 6⟩ Chi-square for Major Choice by Ethnicity

	ASIANS	BLACKS	HISPANICS	WHITES
	OBS(EXP)	OBS(EXP)	OBS(EXP)	OBS(EXP)
BOTH SEXES				
SOFT MAJORS	24(36.9)	26(20.5)	28(29.7)	48(38.9)
HARD MAJORS	48(35.1)	14(19.5)	30(28.3)	28(37.1)
	CHI SQUARE = 16.80		df = 3	p < .0001

Note : SOFT MAJORS : arts, humanities, English, history, social science, law, & business.

HARD MAJORS : physical science, math, computer, engineering, medicine, & nursing.

OBS : observed frequencies

EXP : expected frequencies

⟨Table 7⟩ Chi-square for Major Choice by Ethnicity : Males

	ASIANS	BLACKS	HISPANICS	WHITES
	OBS(EXP)	OBS(EXP)	OBS(EXP)	OBS(EXP)
SOFT MAJORS	11(16.4)	15(10.2)	11(12.9)	15(12.4)
HARD MAJORS	26(20.6)	8(12.8)	18(16.1)	13(15.6)
	CHI - SQUARE = 8.71		df = 3	p < .03

Note : SOFT MAJORS : arts, humanities, English, history, social science, law, & business.

HARD MAJORS : physical science, math, computer, engineering, medicine, & nursing.

OBS : observed frequencies

EXP : expected frequencies

Hypothesis 8. Analysis of variance (Table 10) with independent variables of ethnicity and sex and the dependent variable of the limited opportunity perception reveals a significant ethnic main effect ($F=8.934$, $df=3$, $p=.0001$). Next, multiple comparisons were performed using

⟨Table 8⟩ Chi-square for Major Choice by Ethnicity : Females

	ASIANS	BLACKS	HISPANICS	WHITES
	OBS(EXP)	OBS(EXP)	OBS(EXP)	OBS(EXP)
SOFT MAJORS	12(18.5)	11(9.8)	16(15.6)	32(27.1)
HARD MAJORS	20(13.5)	6(7.2)	11(11.4)	15(19.9)
	CHI - SQUARE = 7.80		df = 3	p < .05

Note : SOFT MAJORS : arts, humanities, English, history, social science, law, & business.

HARD MAJORS : physical science, math, computer, engineering, medicine, & nursing.

OBS : observed frequencies

EXP : expected frequencies

⟨Table 9⟩ Chi-square for Major Choic by Sex

	MALES	FEMALES
	OBS(EXP)	OBS(EXP)
SOFT MAJORS	56(66)	79(69)
HARD MAJORS	76(66)	59(69)
	CHI-SQUARE=5.35	df=1
		p<.02

Note : SOFT MAJORS : arts, humanities, English, history, social science, & business.

HARD MAJORS : physical science, math, computer, engineering, medicine, & nursing.

OBS : observed frequencies

EXP : expected frequencies

Tukey procedures in order to pinpoint which ethnic groups differ on the dependent variable. The results show (Table 11) that differences lie between Asian and White groups, Asian and Black groups, and Hispanic and White groups. There is not a significant difference between Blacks and Whites according to Tukey tests, although Blacks have a slightly higher mean score than Whites. Asians have the highest perception of

<Table 10> ANOVA : Limited Opportunity Perception by Sex and Ethnicity

SOURCE	SS	DF	MS	F	prob.
MAIN EFFECTS	543.311	4	135.828	7.355	.000
SEX	22.226	1	22.226	1.204	.273
ETHNIC	494.937	3	164.979	8.934	.000
2-WAY INTERACTION					
SEX BY ETHNIC	21.031	3	7.010	0.380	.768
EXPLAINED	564.342	7	80.620	4.366	.000
RESIDUAL	5835.692	316	18.467		
TOTAL	6400.034	323	19.814		

<Table 11> Tukey-HSD Test : Ethnic Differences in Awareness of Limited Opportunity

GROUP	N	MEAN	SD	SE	GROUPS DIFFER			
					1	2	3	4
1. ASIAN	89	15.43	4.28	.45		*		*
2. BLACK	47	12.96	3.86	.56				
3. HISPANIC	87	14.63	4.72	.51				*
4. WHITE	112	12.52	4.15	.39				

p < .05

limited opportunity, Hispanics rank the second highest, Blacks the third, and Whites have the lowest perception. These results support the hypothesis at least partially.

Hypothesis 9. ANOVA results (Table 12) show a significant ethnic effect

<Table 12> ANOVA : Filial Duty Beliefs by sex and Ethnicity

SOURCE	SS	DF	MS	F	prob.
MAIN EFFECTS	10.264	4	2.566	3.210	.013
SEX	.344	1	.344	.431	.512
ETHNICITY	9.240	3	3.080	3.852	.010
2-WAY INTERACTION					
SEX BY ETHNIC	2.766	3	.922	1.153	.328
EXPLAINED	13.030	7	1.861	2.328	.025
RESIDUAL	252.650	316	.800		
TOTAL	265.680	323	.823		

<Table 13> Tukey-HSD Test : Ethnic Differences in Filial Duty Beliefs

Group	N	MEAN	SO	SE	GROUPS DIFFER			
					1	2	3	4
1. ASIAN	89	3.99	.82	.09				*
2. BLACK	47	4.04	.86	.12				*
3. HISPANIC	87	3.94	.94	.10				*
4. WHITE	112	3.60	.91	.09				

p<.05

on the belief in filial duty ($F=3.582$, $df=3$, $p=.010$). Further, Tukey multiple comparisons (Table 13) show the differences are significant between the White and Hispanic groups, the White and Asian, and the White and Black groups. Examination of the means in the Table 13 reveal that Blacks have the highest beliefs in filial duty, Asians the second, Hispanics the third, and Whites have the lowest beliefs in filial duty. Although Blacks have a slightly higher mean than Asians, it should be noted the result of Tukey tests did not reveal significant differences between the two groups.

Hypothesis 10. Analysis of variance results (Table 14) confirm the hypothesis with a significant ethnic main effect ($F=8.263$, $df=3$, $p=.000$). Further, Tukey procedures were employed to find where the differences lie (Table 15). The results show that Whites and Hispanics differ from each other, Whites and Asians differ, and also Whites and Blacks differ in their beliefs regarding the importance of college education. According to Table

<Table 14> ANOVA : Importance of College by Sex and Ethnicity

SOURCE	SS	DF	MS	F	prob.
MAIN EFFECTS	60.955	4	15.239	6.198	.000
SEX	1.151	1	1.151	.468	.494
ETHNIC	60.955	3	20.318	8.263	.000
2-WAY INTERACTION					
SEX BY ETHNIC	.672	3	.224	.091	.965
EXPLAINED	61.626	7	8.804	3.581	.001
RESIDUAL	772.063	314	2.459		
TOTAL	833.689	321	2.597		

<Table 15> Tukey-HSD Test : Ethnic Differences in Perceived Importance of College

GROUP	N	MEAN	SD	SE	GROUPS DIFFER			
					1	2	3	4
1. ASIAN	89	6.36	1.1989	.1271				*
2. BLACK	45	6.42	.9167	.1367				*
3. HISPANIC	87	6.09	1.5222	.1632				*
4. WHITE	112	5.40	1.9703	.1862				

p < .05

15, minority groups perceive a college education as more important than Caucasian-American students do.

DISCUSSION

Academic aspirations and achievement

Although males had slightly higher aspirations and expectations than females, the differences were not statistically meaningful. Ethnic differences emerged more strongly in the more realistic educational career orientation than in the ideal aspect of the educational career orientation. On the question tapping the level of educational attainment students thought they will actually attain, Asians scored the highest, Hispanics the second, Blacks the third, and the Whites the lowest. Overall, this study did not corroborate previous observations of significantly higher aspirations among males than females and among Blacks than Whites (Baughman & Dahlstrom, 1968 ; Boocock, 1972 ; Brook et al., 1974 ; Gist & Bennett, 1963 ; Hindelang, 1970 ; Lott & Lott & Lott, 1963 ; Moerk, 1974 ; Sewell et al., 1957 ; Sewell & Shah, 1968).

Significant ethnic differences existed in all of the four achievement measures in the present study. First, on the grade point average, Asians had the highest score, Whites had the second highest score, Hispanics the third, and Blacks had the lowest grade point average. On the math subtest of TAP (Test of Achievement and Proficiency, a standardized performance test used in the state of Illinois), Asians scored the highest, Whites the second, Hispanics the third, and Blacks the lowest. On the

English portion of TAP, Whites had the highest score, Blacks the second, Hispanics the third, and Asians had the lowest score. These findings corroborate previous reports on high quantitative skills and generally lowered verbal performance among Asian-American students (Sue, 1985 ; Sue & Frank, 1973 ; Watanabe, 1973). According to Sue and Frank, the tendency toward an elevated quantitative score among Asian-American children may reflect a compensatory mode of expression.

It was of interest to see whether these achievement patterns were reflected in the choice of majors among Asian students. In the present study, Asian expressed greater interests in studying physical science, math, computer science, engineering, nursing and medicine, and expressed considerably less interests in social science, arts, humanities, business, and law. These findings imply that Asians tend to avoid majors that require some degree of self-expression, communication in oral or written form, and interpersonal skills. Majors they are attached to rely more on individual activities than on verbal interactions. This tendency is certainly consistent with their elevated quantitative skills relative to their lower verbal skills.

Family backgrounds

Asian parents had the highest level of educational attainment and Hispanic parents had the lowest educational attainment. The findings on the highest educational level among Asian parents were consistent with previous reports. For example, in the 1980 census data, one-third of all Asian-Americans aged 25 and over had attended college for four or more years, compared with 17.1% of Caucasians and 8.4% of Blacks.

It was of interest to see whether father or mother played a more dominant role in children's educational aspirations and expectations. The pattern in the parental dominance was more obvious among Asian and White families but less so in Black and Hispanic families. In Asian families, the father had more influence than the mother, whereas the reverse pattern was found in white families.

Regarding parents' encouragement for children, Asians had the most encouragement from their fathers and whites had the lowest, whereas

there were no significant ethnic effects in mother's encouragement. Parents' encouragement was most influential for white children's aspirations($r=.27$), the second most influential for Black children($r=.22$), the third for Asians($r=.18$), and the least for Hispanics($r=.07$).

Achievement motivation

Males tended to have a significantly higher level of achievement motivation than females. However, there were no ethnic differences. When the associations of achievement motivation with aspiration were examined for each ethnic group, it was the highest for Hispanics($r=.27$) and somewhat negative for Blacks($r=-.08$).

Although achievement motivation was only slightly related to school performance, when the association was examined for each ethnic group, achievement motivation was most strongly related to Hispanic students' performance($r=.29$), the second for Blacks($r=.22$), the third for Whites ($r=.14$), and a slightly negative association was found with Asians($r=-.06$). In view of these findings, it seems that ethnicity interacts with achievement motivation to differentially affect adolescents' educational aspirations and performance.

Filial duty beliefs and Value of college education

Blacks, Asians, and Hispanics had significantly stronger beliefs in filial duty than Whites. These beliefs were related to aspirations more strongly among Blacks($r=.43$) than Asians($r=.23$), Hispanics($r=.10$), or Whites ($r=.09$). The filial duty beliefs affected school performance among Hispanics($r=.26$) and Asians($r=.17$), but not among Black or White adolescents.

It seemed reasonable to assume that parents' encouragement would affect filial duty beliefs. The findings validated this assumption and also revealed that this might be more true for the Asian group than for any other ethnic groups. Parental encouragement was related to filial duty beliefs at the highest degree among Asians($r=.39$), the second highest among Hispanics ($r=.27$), the third among Whites($r=.20$), the lowest among Blacks($r=.18$). High reverence for scholarship and for the elderly are embedded in

the Confucian ideology and this may explain the strong association between parental encouragement and the filial duty beliefs among Asian adolescents.

As to the importance of college perception, Blacks and Asians held the strongest belief, whereas Whites held the weakest perception. However, this perception affected Whites' level of aspiration more strongly ($r=.57$), compared to other ethnic groups. This perception also affected school performance in all ethnic groups. Although there were no sex differences in the perception of the importance of college or in the level of aspiration, the perception affected aspirations more strongly among females ($r=.56$) than among males ($r=.33$). It seems that among males, aspirations were guided by factors other than the perception of the importance of college more than among females. It was assumed that one of these factors would be the perception regarding life chance in the society, a topic which the next discussion focuses on.

Awareness of limited opportunity and Internality

Asians had the highest perception of limited opportunity and Whites the lowest. This finding indicates that minority children perceived their life chances being limited more so than White children did, probably because of the language or cultural barriers and discriminatory obstacles they experience in the host society. The impact of the limited opportunity perception on aspiration was greater for males ($r=-.27$) than for females ($r=-.09$), although its impact on school performance was similar for both sexes. Considering that there were no sex differences in the level of aspiration or in the perception of limited opportunity, it seems that aspirations were guided by the opportunity perception more so for males than for females.

It was interesting to see that ethnic differences in attribution depended partly on the kind of attribution factors referring to. Regarding the EFFORT factor, there were no ethnic differences. However, on the ABILITY factor, Asians considered ability being important in school performance more so than Whites (the second), Blacks (the third), or Hispanics (the fourth) did. Whites thought of the DETERMINATION

factor most importantly and Asians thought the least of this factor for school performance.

When the relationship of internality with aspiration was examined, it varied depending on ethnicity. For instance, internality was related to Blacks' aspiration most positively ($r=.32$), Hispanics the second ($r=.21$), Asians the third ($r=.10$), and it affected whites' aspiration negatively ($r=-.11$). Again, internality was associated to the aspirations of males more strongly ($r=.21$) than of females ($r=.0002$).

Hispanics' performance was most strongly influenced by the internality factor ($r=.26$), Blacks the second ($r=.17$), and Asians' and Whites' performance was not related to the internality factor. Similarly, internality had a positive influence on performance among males ($r=.20$), but its influence on females' performance was slightly negative ($r=-.06$).

FINAL COMMENTS

The final few words concern the findings on minority students. In the present study, Asian, Black, and Hispanic students had slightly higher level of aspirations than Caucasian students. These minority youth also perceived their life chances more limited than White students did. In view of these results, rising aspirations of these minority adolescents would often result in subsequent frustrations. Teachers and school counselors need to help these adolescents to make realistic decisions about their educational career and to cope with their frustrations. They should also assure these students that the discrepancy between their goals and opportunity is one of the challenges in life rather than a forbidding factor.

Also, educational policy makers should be cognizant of that implementing policy changes in order to reduce the admission of Asian students in higher education ignores the fact that Asian students often have superior academic records that enable them to enter fine universities in high numbers. That kind of policy would have severe adverse effect on Asian students' educational aspirations.

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학업성취도와 기회지각

김 양 회

본 연구는 미국에 살고 있는 동양계 소수 학생들에게 초점을 맞추어, 그들의 교육 문제와 관련되는 변인들—대학에서의 전공선택, 부모와 가족에 대한 의무감, 사회의 기회제공에 대한 지각 등—을 고찰하였다.

동양계 학생들은 흑인, 멕시코, 백인들에 비해, 장차 가장 높은 교육을 받게 되리라고 믿었으며, 학교 평점도 가장 높았다. 희망하는 대학의 전공분야를 보면, 동양계 학생들은 문학·법률등과 같은 언어적 기술을 요하는 분야보다 혼자 독립적으로 할 수 있으며, 계산 등을 요구하는 전공을 택하는 경향이 높았다. 이런 경향은 동양계 학생들의 높은 수학성과 상대적으로 낮은 영어성적을 반영하는 것으로 추정된다.

또한, 동양계 학생들은 다른 인종 집단에 비해, 사회에서의 기회제공이 매우 제약되어 있는 것으로 생각하며, 이는 그들이 미국 사회에서 겪는 언어·문화적 장애와 차별등에 기인하는 것으로 추측된다. 중다회귀분석 결과에 의하면, 사회의 기회제공이 어느정도 제약되었다고 믿는 학생 집단에서 향학열과 기대감사이의 상응도가 가장 높았으며, 기회가 극히 제한되어 있다고 믿는 학생집단에서 가장 낮았다. 이러한 결과들을 동양계 학생들의 좌절과 최근 미국에서 일어나는 교육정책의 변화와 관련지어 논의하였다.