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## ATTRIBUTIONS FOR SUCCESS AND FAILURE IN MATHEMATICS: A COMPARATIVE STUDY OF CATHOLIC AND PUBLIC SCHOOL STUDENTS

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*The documented higher performance of minority students in Catholic versus public schools raises questions about motivational factors that may underlie the impact of parochial education. This study examines attributions for success and failure and their relationship to mathematics achievement in a sample of African American, Latino, and Caucasian fifth- and sixth-grade public and Catholic school students. Results showed that relative to their public school peers minority students in Catholic schools endorsed attributions that were more adaptive for learning. Specifically: 1) Latino and African American Catholic school students were less likely to attribute success in mathematics to external factors, 2) Latino Catholic school students were more likely to attribute success to ability, and 3) African American Catholic school students were less likely to attribute failure to external factors. Further, for Latino students, Catholic but not public school membership was positively associated with mathematics achievement. Results are discussed in the context of school culture.*

In recent years, Catholic high schools have provided a fertile environment for the study of high achievement of poor and minority students. An extensive body of literature documents that across the ways in which pre- and post-secondary academic achievement can be measured (e.g., grade point average, SAT scores, high school completion, college acceptance), poor African American and Latino students in Catholic high schools outperform their peers in public and secular private high schools (Bryk, Lee, & Holland, 1993; Coleman & Hoffer, 1987; Keith & Page, 1985; Marsh, 1991).



This area of research has not been without controversy. The intensely debated issue of self-selection (Goldberger & Cain, 1982; McPartland & McDill, 1982; Salganik & Karweit, 1982) has highlighted the degree to which it is problematic to speak definitively about causality. It is difficult to disentangle the effects of Catholic school philosophy from home background characteristics, such as parental educational socialization practices. In other words, parents who choose Catholic schools may have an approach to educational socialization that fosters more adaptive beliefs about learning.

Notwithstanding this point of contention, it is particularly interesting that higher outcomes are realized despite what is considered to be "quite ordinary" teaching (Bryk et al., 1993), little attention to cultural discontinuities, the development of ethnic and racial identity, and a significant lack of resources relative to public schools (Bryk et al., 1993; Delpit, 1996; Foster, 1996). This begs the question: If the higher achievement of minority students in Catholic schools is not related to innovative teaching strategies guided by contemporary educational reforms, nor by sensitivity to ethnic and racial differences, nor by monies to support technology, professional development of teachers, differentiated curricula, and extra-curricular programs, what factors do account for the differences in achievement?

Recent research suggests that in Catholic high schools, aspects of teaching philosophy, curriculum, and school organization appear to be offsetting the educational disadvantage ordinarily associated with poverty and minority status (Bryk et al., 1993; Coleman, Hoffer, & Kilgore, 1982; Hill, Foster & Gendler, 1990; Keith & Page, 1985; Lee & Bryk, 1988; Marsh, 1991). For example, the overarching teaching philosophy of Catholic schools is one in which principals and teachers adhere to a doctrine of excellence, emphasizing that, "all students can learn regardless of their personal or family circumstances or the pathology of their environment" (Shields, 1996, p. 80). Faculty, who are increasingly lay individuals, have been described as "mission oriented" teachers who instill the values of hard work, sacrifice, and discipline as a means to overcome prejudice and discrimination (Bryk et al., 1993; Irvine, 1996). Teachers stress the importance of actively communicating the message that students need to struggle against negative peer pressure and related environmental distractions, such as the availability of drugs (Polite, 1996).

This philosophy is reflected through an organizational structure in which schools operate as problem-solving communities and adhere to a clearly articulated mission in which preparation for college is a priority, and where faculty consider themselves accountable to those whom they serve—children and their parents (Hill et al., 1990). The tenets of this philosophy are demonstrated in the advancement of one central curriculum in which all students are expected to learn (Gamoran, 1987). A less differentiated curriculum appears to demand the successful completion of more rigorous coursework relative to that offered in public schools (Keith & Page, 1985; Lee & Bryk, 1988).



How might these characteristics exert their influence on student outcomes? It is conceivable that the overall philosophy, as echoed in school organization and curriculum, may foster beliefs about achievement that are adaptive for learning. In this regard, attributions for success and failure offer a fruitful area of inquiry. Attributions are critical in student performance; they have been shown to be better predictors of school achievement than actual IQ or achievement test scores (Dweck & Bempechat, 1983). For example, research has consistently shown that high achievement is positively correlated with the tendency to attribute success to ability (Bempechat & Drago-Severson, 1999; Bempechat, Nakkula, Wu, & Ginsburg, 1996; Marsh, 1984; Marsh, Cairns, Relich, Barnes, & Debus, 1984; Weiner, 1994).

Unfortunately, as Graham (1988) has noted, there is very little information on attributions for success and failure in poor African American, Latino, and Asian American students. While early work on locus of control tends to indicate that minority students adhered to maladaptive beliefs about their abilities (Willig, Harnisch, Hill, & Maehr, 1983), this work most often inappropriately compared poor minority students to middle-class Caucasian students. Such comparisons are inherently unfair, as they tend to ignore substantive differences between social class. More recently, researchers have demonstrated that African American students are no more likely than their White counterparts to display maladaptive motivational tendencies (Graham, 1994), and that African American children are no more likely than Latino and Anglo children to attribute success and failure to external sources.

In the context of higher achievement of minority students in Catholic schools, it is instructive to ask: Are these students more likely than their public school peers to adhere to adaptive attributions for success and failure? And in what way might this make a difference in their school performance?

The purpose of this study was to explore differences in attributions for success and failure among fifth- and sixth-grade African American, Latino, and Caucasian students in both Catholic and public schools, thus addressing the paucity of data on elementary school students in parochial schools. We make no assumptions, however, about the degree to which findings that hold for Catholic high school students may also hold for Catholic elementary school students. We focused specifically on the degree to which the relationship between attributions and academic achievement in mathematics outcomes may be different for minority students in various types of schools. The unique contribution of this research lies in its focus on comparisons of students in the same ethnic groups across two educationally different contexts.



## METHOD

### PARTICIPANTS

Since all testing was done in English, students in English as a Second Language programs (ESL) or Limited English Proficient (LEP) students were not included in the study. Thus, language did not present a problem for the participants. The students were enrolled in public ( $n = 7$ ) or Catholic ( $n = 4$ ) schools in the urban Boston area. Race and ethnicity were determined by information provided by the students. Social class was determined by the location of schools. Only schools drawing from the same low-income neighborhoods were included in the study. Average per capita income by ethnic groups was as follows: \$6,180 for Latinos, \$8,690 for African Americans, \$6,130 for Indochinese, and \$13,695 for Caucasians (U.S. Government, 1990). Written permission was obtained from parents through permission slips sent home. The response rate was approximately 75%.

Our sample was composed of 514 low-income Caucasian ( $n=280$ ), African American ( $n=71$ ), and Latino, Puerto Rican, and Latin American ( $n=163$ ) students. Catholic ( $n=164$ ) and public ( $n=350$ ) school students participated. Of the students enrolled in Catholic schools, approximately 95% of the Caucasians, 32% of the African Americans, and 83% of the Latinos were Catholic. As can be seen from Table 1, approximately one third of the children were enrolled in Catholic, and two thirds in public schools. There were approximately equal numbers of fifth- and sixth-graders in the sample.

**Table 1**  
**Sample Characteristics by Ethnic Group**

	Caucasian	African American	Latino
Gender			
Male	120 (42.9)*	25 (35.2)	70 (42.9)
Female	160 (57.1)	46 (64.8)	93 (57.1)
School			
Public	180 (64.3)	47 (66.2)	123 (75.5)
Catholic	100 (35.7)	24 (33.8)	40 (24.5)
Grade			
5	141 (50.4)	36 (50.7)	82 (50.3)
6	139 (49.6)	35 (49.3)	81 (49.7)
Age			
10	80 (28.6)	19 (26.8)	32 (19.6)
11	115 (41.1)	22 (31.0)	73 (44.8)
12	74 (26.4)	25 (35.2)	46 (28.2)
13	11 (3.9)	4 (5.6)	12 (7.4)
14		1 (1.4)	

Note: \* Percentages appear in parentheses.



## INSTRUMENTS

### Sydney Attribution Scale (SAS)

The mathematics portion of the SAS was used to assess children's attributions for success and failure in mathematics (Marsh et al., 1984). These 11 SAS items describe brief academic scenarios and ask children to attribute the outcome of each to ability, effort, or external factors on a five-point scale. This yields six subscales: Success-Ability ( $\alpha = .78$  for the present sample), Success-Effort ( $\alpha = .55$ ), Success-External ( $\alpha = .52$ ), Failure-Ability ( $\alpha = .79$ ), Failure-Effort ( $\alpha = .57$ ), and Failure-External ( $\alpha = .34$ ). As Marsh and his colleagues demonstrate, this scale is a psychometric improvement on both ipsitive techniques, such as those used by Stevenson and his colleagues (Stevenson, Chen, & Lee, 1993), and on the forced-choice Intellectual Achievement Responsibility Scale (Crandall, Katkovsky, & Crandall, 1965). It also distinguishes orthogonally between ability, effort, and external attributions for success versus failure. Children's responses were scored according to the procedure used by Marsh et al. (1984), in which scale scores were determined by averaging the responses to items in each scale.

### Wide Range Achievement Test (Mathematics, Level I)

This widely used mathematics achievement test is a timed 10-minute assessment of mathematics skills (Jastak & Wilkinson, 1984). It provides a rough indication of mathematics achievement, conventionally defined, and was chosen in order to avoid the difficulties associated with comparing mathematics grades across teachers and schools (Newman & Stevenson, 1990). As is required for comparison across age groups, raw scores for the Wide Range Achievement Test (WRAT) were converted to standard scores, which ranged from 46-117.

## PROCEDURE

The instruments were group-administered during class time. In order to minimize social desirability bias, the research assistants (RAs) emphasized that there were no right or wrong answers for any of the questions, and that parents and teachers would not know the children's responses. The RA read aloud the instructions and the first three items of the SAS. The children continued at their own pace, and were instructed to stop at the end of the questionnaire and wait for further instructions. The WRAT, which the children did not know they would be taking, was then administered. This procedure lasted approximately 25-30 minutes.

## STATISTICAL ANALYSES

We systematically fit a taxonomy of nested multiple regression models to predict our outcome variables (attributions for success and failure, and math-



ematics achievement). We first built a baseline control model, in which we identified the control variables as age and gender. We examined the influence of each of these control variables individually and as a group. We tested the impact of individual variables, controlling for all other predictors in the model, by calculating the t-statistic and p-value for the individual predictor. We tested the impact of groups of predictors using the Delta R2 test. We also examined possible two-way interactions between the control variables. That is, before removing a control variable from our baseline control model, we tested possible interactions between that variable and the other predictors in the model.

We then similarly examined the impact of the question variables (SAS subscales), testing the added impact on explained variance through the t-statistic and p-value for variables entered individually and the Delta R2 test for variables entered in groups. Evidence of multicollinearity among these predictors was estimated using Tolerance statistics; none was found. We also examined two-way interactions between the question variables themselves and the question and control variables. The latter were very important in revealing the differential effect of predictors, depending on gender and ethnicity.

Finally, we conducted a sensitivity analysis on the final model, in which we examined the HAT and Cook's D statistics. This revealed that no observations were exerting an individual influence on the final fitted model. Standardized residuals were also examined, and there were no indications that the assumptions of linear regression had been violated.

## RESULTS

### DEMOGRAPHICS

A summary of univariate statistics for each ethnic group by school type is presented in Tables 2 through 4.

**Table 2**

#### **Univariate Statistics on Subscales of the Sydney Attribution Scale (SAS) and the WRAT Mathematics Scores for Caucasian Students**

Measure	Caucasian			Catholic			Public		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
<b>SAS</b>									
Success-Ability	263	3.54	0.96	101	3.40	0.68	180	3.52	0.70
Success-Effort	260	3.91	0.65	101	3.69	0.74	180	3.84	0.77
Success-External	261	2.79	0.81	99	2.84	0.56	180	2.73	0.55
Failure-Ability	263	2.25	0.94	99	2.67	0.55	180	2.65	0.53
Failure-Effort	262	2.72	0.74	101	3.41	0.68	180	3.13	0.63
Failure-External	267	2.82	0.66	101	3.34	0.67	180	3.35	0.67
WRAT Math	280	19.93	6.30	101	19.37	9.65	180	20.70	6.63



**Table 3****Univariate Statistics on Subscales of the Sydney Attribution Scale(SAS) and the WRAT Mathematics Scores for African American Students**

Measure	African American			Catholic			Public		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
<b>SAS</b>									
Success-Ability	66	3.63	0.95	25	3.54	0.71	47	3.55	0.71
Success-Effort	65	3.90	0.78	25	3.63	0.73	47	3.90	0.78
Success-External	63	2.92	0.82	25	2.50	0.50	47	2.97	0.59
Failure-Ability	59	2.05	0.77	25	2.14	0.43	47	2.53	0.50
Failure-Effort	59	2.52	0.75	25	2.59	0.52	47	3.10	0.62
Failure-External	60	2.73	0.71	25	2.80	0.56	47	3.36	0.67
WRAT Math	71	16.82	5.19	25	19.92	16.9	47	16.91	5.75

**Table 4****Univariate Statistics on Subscales of the Sydney Attribution Scale (SAS) and the WRAT Mathematics Scores for Latino Students**

Measure	N	Latino		N	Catholic		N	Public	
		Mean	SD		Mean	SD		Mean	SD
<b>SAS</b>									
Success-Ability	153	3.12	1.02	40	3.56	0.71	123	3.16	0.63
Success-Effort	153	3.89	0.72	40	3.77	0.75	123	3.80	0.76
Success-External	155	2.78	0.85	40	2.56	0.51	123	2.79	0.56
Failure-Ability	153	2.30	0.88	40	2.59	0.52	123	2.80	0.56
Failure-Effort	153	2.90	0.78	40	3.35	0.67	123	3.45	0.69
Failure-External	152	2.75	0.68	40	3.12	0.62	123	3.72	0.65
WRAT Math	162	17.23	5.36	40	18.40	3.73	123	16.85	5.75

**SCHOOL DIFFERENCES IN ATTRIBUTIONS FOR SUCCESS AND FAILURE**

On average, Latino students in Catholic schools had a stronger belief that success is due to ability than their peers in public schools ( $t = 2.53, p < .01$ ) (see Table 5). Interestingly, in public schools, Latino students were less likely to believe that success was due to ability than either Caucasian or African American students. However, in Catholic schools, Latino students were *more* likely than other students to believe that success was due to ability.



**Table 5**

**Parameter Estimates and R<sup>2</sup> Statistic for a Nested Taxonomy of Fitted Multiple Regression Models in Which Children's Ability Attributions for Success (Success-Ability) are Predicted by the Main Effects of School and Ethnicity and Two-Way Interactions Between School, Ethnicity, and the Control Variables**

Predictor	Model		
	Control	Main Effects	Interactions
Intercept	1.11~	.955	1.12~
Control Predictors			
Age	-.054	-.037	-.047
Gender	.033	.024	.029
Question Predictors			
Catholic		.099	-.099
African American		.082	.014
Latino		-.219*	-.377**
Control-Question Interactions			
African American* Catholic			.212
Latino* Catholic			.612**
R <sup>2</sup> Statistic	.002	.018	.033
Error df	418	415	413

~ p<.10 \* p<.05 \*\* p<.01 \*\*\* p<.001

Both Latino and African American students in Catholic schools had, on average, less of a tendency to attribute success to external factors than their public school peers (Latino:  $t = -2.67$ ,  $p < .008$ ; African American:  $t = -2.38$ ,  $p < .02$ ) (see Table 6). The opposite was true for Caucasian students. That is, Caucasian students in public schools were less likely to attribute success to external factors than their Catholic school peers.

**Table 6**

**Parameter Estimates and R<sup>2</sup> Statistic for a Nested Taxonomy of Fitted Multiple Regression Models in Which Children's External Attributions for Success (Success-External) are Predicted by the Main Effects of School and Ethnicity and Two-Way Interactions Between School, Ethnicity, and the Control Variables**

Predictor	Model		
	Control	Main Effects	Interactions
Intercept	-1.03*	-1.048*	-1.308*
Control Predictors			
Age	.083~	.083~	1.01*
Gender	-.204**	-.201*	-.222**



Question Predictors			
Catholic		.011	.245*
African American		.145	.364**
Latino		-.048	.084
Control-Question Interactions			
African American* Catholic			-.729**
Latino* Catholic			-.486**
R <sup>2</sup> Statistic	.019	.024	.048
Error df	418	415	413

~ p<.10 \* p<.05 \*\* p<.01 \*\*\* p<.001

Finally, on average, African American students in Catholic schools had less of a tendency to believe that failure is due to external factors than their public school peers ( $t = -2.57, p < .01$ ) (Table 7). Across the two types of schools there were no differences between Caucasian and Latino students' tendencies to believe that failure is due to external factors.

**Table 7**

**Parameter Estimates and R<sup>2</sup> Statistic for a Nested Taxonomy of Fitted Multiple Regression Models in Which Children's Failure Attributions for External Factors (Failure/External) are Predicted by the Main Effects of School and Ethnicity and Two-Way Interactions Between School, Ethnicity, and the Control Variables**

Predictor	Model		
	Control	Main Effects	Interactions
Intercept	-.045**	-1.058**	-1.230**
Control Predictors			
Age	.076*	.082*	.094*
Gender	-.005	-.009	-.026
Question Predictors			
Catholic		-.015	.090
African American		-.081	-.042
Latino		-.098	.305**
Control-Question Interactions			
African American* Catholic			-.571**
Latino* Catholic			-.198
R <sup>2</sup> Statistic	.010	.014	.014
Error df	418	415	413

~ p<.10 \* p<.05 \*\* p<.01 \*\*\* p<.001



## PREDICTING MATHEMATICS ACHIEVEMENT

The findings from the final fitted model are presented in Table 8.

**Table 8**

**Parameter Estimates and R<sup>2</sup> Statistic for a Nested Taxonomy of Fitted Multiple Regression Models in Which Children's Mathematics Achievement is Predicted by the Main Effects of Ethnicity and Attributions and Two-Way Interactions Between Ethnicity, Attributions, and the Control Variables**

Predictor	Model		
	Control	Main Effects	Final
Intercept	3.35***	3.20***	3.291***
Control Predictors			
Age	-.039*	-.025	-.029~
Gender	-.072*	-.095**	-.093**
Question Predictors			
Catholic		-.017	-.086*
African American		-.133**	-.306~
Latino		-.142***	-.460***
Success-Ability		.021	-.018
Success-External		-.048**	-.044*
Failure-Ability		-.050**	-.056**
Control-Question Interactions			
African American* Success-Ability			.047
Latino* Success-Ability			.075*
African American* Catholic			.002
Latino* Catholic			.218**
R2 Statistic	.027	.13	.16
Error df	418	412	408

~ p<.10 \* p<.05 \*\* p<.01 \*\*\* p<.001

### Gender

The model shows a main effect for gender, indicating that, controlling for all other factors, girls outperformed boys on the mathematics test. Interactions between gender and school type and gender and ethnicity were examined; none were found.

### Ethnicity

The model shows a main effect for ethnicity, indicating that, controlling for all other factors, Latino students scored significantly lower on the mathematics test than Caucasian students.



### School Type

There was no main effect for school type (Catholic versus public). However, a significant interaction occurred between ethnicity and school type. That is, for Latino students, Catholic school attendance was associated with higher mathematics scores ( $t = 2.90, p < .004$ ). This relationship was not found for the other ethnic groups.

### Attributions

Two main effects were found for Success-External and Failure-Ability. Specifically, higher levels of attributing success to external factors were associated with lower mathematics scores, as were higher levels of attributing failure to lack of ability (Success-External:  $t = .018, p < .02$ ; Failure-Ability:  $t = .018, p < .002$ ). A two-way interaction emerged between attributions (Success-Ability) and ethnicity. For Latino students, higher levels of attributing success to ability were associated with higher mathematics scores ( $t = 2.27, p < .02$ ). There was no such interaction for the other ethnic groups.

## DISCUSSION

The most remarkable finding of this study is that, relative to their public school peers, minority students in Catholic elementary schools have beliefs about their success and failure that are more adaptive for learning. These beliefs—that *success is due to ability* (Latino students), that *success is not due to external factors* (Latino and African American students), and that *failure is not due to external factors* (African American students)—suggest that these Catholic school students attribute their performance to factors that are *internal* (Weiner, 1994). These attributions demonstrate an adaptive approach to learning since they focus students inward on a factor, such as effort, that are stable and within their control. Ability is widely perceived by students to be an uncontrollable factor (Weiner, 1994). At the same time, ability attributions for success are strongly associated with higher achievement, perhaps because students may need to believe they have ability in order to justify exerting effort in a given academic domain (Stipek, Gralinski, & Heidi, 1991).

For the ethnic minority students in our sample, their Catholic schools may encourage them to assume more personal responsibility for their intellectual development. This notion is consistent with the communal ethos of Catholic schools that stresses individual accountability and personal responsibility (Shields, 1996). Teachers of minority students in Catholic schools report feeling a special obligation to push their children to reach beyond their intellectual potential through hard work and individual effort (Polite, 1996). In addition to cultivating strong habits of mind, teachers also encourage students to resist negative peer pressures, including those against academic achievement (York, 1996).



Recent work has noted that, relative to teachers in middle income Catholic schools, those in low income and predominantly minority Catholic schools report that they have much higher expectations for their students and believe more strongly that their students value learning (York, 1996). In this connection, research has shown that the greatest benefits of Catholic schooling accrue to the poorest students, who are most often of African American and Latino origin (Bryk et al., 1993).

It could be that, in their deliberate attention to students' academic, spiritual, and personal growth (Bryk et al., 1993), teachers in Catholic high schools may provide motivational feedback of the sort that fosters the development of adaptive beliefs (Dweck, Davidson, Nelson, & Enna, 1978). If this is the case, we believe that this kind of motivational support would likely be present in the Catholic elementary school as well.

While this notion is speculative, we have gathered preliminary evidence that suggests that this may be the case. In an interview study, fifth- through seventh-grade minority students in an urban Catholic school spoke about how their teachers communicate their academic expectations (Bempechat, Boulay, & Jimenez, 2001). One teacher was well known throughout the school for his unique way of keeping students focused on the task at hand. When he perceived his students to be distracted, he would ask, "Paper or plastic?" According to his students, this often repeated mantra was his way of letting them know that poor achievement would inevitably lead to a job in which they would spend their days asking shoppers if they preferred to have their groceries packed in paper or plastic bags.

Why is it that Caucasian students in Catholic schools did not adhere to more adaptive attributions relative to their peers in public schools? In this study, the Caucasian students in *both* types of schools had similar and relatively adaptive attributions. This is akin to a ceiling effect, where students, for whatever reasons, already adhere to adaptive beliefs about success and failure. While we did not collect data specifically about home and peer influences, these are clearly other factors that contribute to students' achievement beliefs.

With regard to mathematics achievement, while Latino students overall had the lowest mathematics scores, this difference was attenuated by Catholic school membership. In other words, for Latino students, there was an achievement advantage associated with going to a Catholic school. Yet, the African American Catholic school students in our sample did not achieve higher mathematics scores relative to their public school peers. It is unclear why we did not find an academic advantage for these students. It is important to note that our measure of mathematics achievement was based on one test, albeit widely used, of computational skills and may not have been sensitive enough to detect small but important differences in mathematics achievement. In contrast, research derived from the ongoing *High School and Beyond*



study, on which much of the Catholic high school research is based, makes use of a composite measure of mathematics that includes grade point average (GPA), SAT scores, and test scores for abstract and logical thinking skills, in addition to computational skills (Bryk et al., 1993). It could be that a more comprehensive mathematics measure, perhaps in combination with a larger sample of African American students, may have revealed the expected performance difference between African American students in public and Catholic schools.

These findings, in conjunction with what we know about the "minority gap" in Catholic as compared to public high schools (Bryk et al., 1993), suggest a potential, untested mechanism by which the achievement gap narrows. Previous research has demonstrated that as students advance through grade levels in both school types, the achievement gap between minority and Caucasian students narrows in Catholic, but widens in public high schools. The present study demonstrates that there is a difference in achievement beliefs between minority students in both types of schools. While it is beyond the scope of this study to demonstrate that the minority gap may be partly due to differences in achievement beliefs, it might be a fruitful avenue for future research to examine the relationship between changes in beliefs and actual achievement.

Of course, our findings do not speak to the issue of causality. It could very well be that Catholic schools foster adaptive beliefs about schooling and learning. Alternatively, because of self-selection, children in Catholic schools may arrive with adaptive achievement beliefs already in place, perhaps fostered by educational socialization practices in the home. We argue, however, that decreasing school enrollments have affected all schools; Catholic schools have had to market their own benefits in order to fulfill enrollment goals (Bempechat & Boulay, 2001). It seems more reasonable that a combination of school and family factors contribute to the fostering of adaptive achievement beliefs.

To conclude, we propose that, for minority students, there may be a motivational advantage associated with Catholic school membership. Specifically, we have highlighted ways in which the Catholic school environment may promote adaptive attributions about success and failure. In addition to the critical role that attributions play in student achievement, it would be interesting to consider other motivational factors in learning that have a direct impact on achievement behavior. For example, drawing from the research on children's beliefs about intelligence (Bempechat, London, & Dweck, 1991), it would be intriguing to show that minority students in Catholic schools are more likely than their public school peers to believe that intelligence is a malleable quality, as opposed to a static trait. Relatedly, it would also be important to ask: Are minority students in Catholic schools more resilient to learned helplessness than their public school peers (Nicholls, 1989)?



Future research in this area must seek deeper understandings of how individual teachers, students, and parents make sense of their Catholic school experiences. Qualitative studies focusing on how individuals perceive Catholic schooling would enhance our knowledge of the ways in which these schools exert their influences and how such influences are experienced (Bean, Eichelberger, Lazar, Morris, & Reed, 2000). For example, how do teachers think about aspects of their teaching that encourage students to acquire adaptive beliefs about learning? How do individual minority students speak about the relationship between education and opportunity in our society? For instance, it would be very provocative to learn that, as a group, African American students in Catholic, but not public schools, speak more often about the essential tie between a strong education and a successful future. Qualitative research studies would allow us to better understand how students, teachers, and parents make sense of this relationship.

Further, open-ended in-depth interviews with parents, teachers, and students about various elements of the academic experience might reveal that what teachers feel to be essential elements in their practice differs from what parents or students perceive to be essential elements. Additionally, we expect that perspectives would vary greatly within each of these groups. For example, what matters the most to African American students, and the ways in which they talk about *how* it matters are likely to differ.

Indeed, detailed research on these and related questions would yield a much greater understanding of how minority students benefit from Catholic schooling. For example, employing qualitative methods will allow us to shed much needed light on the issue of self-selection. In so doing, we will develop a deeper understanding of how parents and children conceptualize their choice of Catholic school, and what teachers think about why parents make these choices. This is but one of many issues that could be more fully addressed through qualitative methodologies. Such advances in our field would help us to assist all children to reach their intellectual potential.

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