Gifted Child Quarterly
54(3) 189–208

DOI: 10.1177/0016986210369256
http://gcq.sagepub.com
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The Efficacy of Academic Acceleration for Gifted Minority Students

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Abstract

This study supported the use of acceleration for gifted minority students in math. The gifted minority students in this study viewed taking accelerated math courses as exciting and beneficial for preparation for high school and college and particularly liked the challenges they encountered while taking advanced classes. They enjoyed working ahead and having a "leg up" in school and were infused with a special feeling of being gifted and talented in taking accelerated math. Ethnicity was not a major factor for teachers' support for acceleration. The teachers believed that acceleration provides necessary challenges for students, makes them committed to schoolwork, and enhances their academic achievement. No negative peer pressure resulting from academic acceleration was found, though the teachers were more certain than the students about the existence of negative peer culture for gifted minority students.

Keywords

academic acceleration, gifted minority students, Project EXCITE, peer pressure

Introduction

Many researchers propose acceleration as a viable means of curricular and instructional differentiation for gifted students (Kulik & Kulik, 1991; Southern, Jones, & Stanley, 1993; VanTassel-Baska, 1992). Yet schools and educators generally use acceleration very conservatively or not at all (Colangelo, Assouline, & Gross, 2004), particularly with gifted low-income or minority students who are underrepresented in many gifted programs (Bernal, 2002; Ford, Harris, Tyson, & Trotman, 2002; Grantham, 2003; Lee, Matthews, & Olszewski-Kubilius, 2008; Morris, 2002; Worrell, 2007; Wyner, Bridgeland, & Diiulio, 2007). Almost none of the research on acceleration to date has been conducted with low-income or minority students exclusively or with samples containing large numbers of these students in contrast to substantial studies on acceleration involving nonminority students (Colangelo et al., 2004; Gross, 2003; Janos & Robinson, 1985; Muratori, Colangelo, & Assouline, 2003; Rogers, 1991, 2002; Rogers & Span, 1993; Sayler & Lupkowski, 1992; Swiatek, 1993, 2002).

Academic Outcomes of Acceleration

A considerable amount of empirical evidence has revealed positive academic outcomes of acceleration. Research, including several meta-analyses (e.g., Kulik, 1992; Kulik & Kulik, 1992; Rogers, 1991, 2002; Rogers & Span, 1993), showed that accelerated students of elementary and secondary levels performed as well as older nonaccelerated students of comparable ability or outperformed same aged, nonaccelerated peers on standardized achievement tests by nearly 1 year. Studies (e.g., the Study of Mathematically Precocious Youth [SMPY]) of talent search participants who took off-level tests (e.g., SAT) as seventh or eighth grade students revealed that accelerated students who skipped grades had higher GPAs, received more national and state awards in high school, attended more selective colleges, and pursued higher professional degrees after college than nonaccelerated students of comparable ability (Benbow, Lubinski, & Suchy, 1996; Brody & Benbow, 1987; Colangelo et al., 2004; Gross & van Vliet, 2005; Sayler & Lupkowski, 1992; Swiatek, 1993, 2002).

Similarly, high academic achievement was found for a group of adolescents who were radically accelerated to enter college almost 4 years earlier than normal college students (Janos & Robinson, 1985). The GPAs of the radical accelerants were higher than college students at large and comparable with those of National Merit Scholars at the university. In another study of students who entered college a year early, the early entrants had significantly higher GPAs in their first

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semester of college compared with freshmen who entered at the regular time (Muratori et al., 2003).

Profoundly gifted students (IQ 160 and more) who were accelerated via various and multiple means, including early entrance to formal schooling, grade skipping, subject acceleration, and/or placement in pullout enrichment programs, showed superior academic performances on cognitive (e.g., SAT) and achievement subtests (e.g., the Cooperative Achievement Test, the Leicester Number Test, the Nottingham Number Test, the Neale Analysis of Reading) in reading and mathematics (Gross, 2003). Teachers reported that students who had entered school early performed as well as or better than students who entered at the typical age in kindergarten or the second grade (Gagné & Gagnier, 2004).

Students' perceptions of academic acceleration are also positive. Gifted students in the SMPY were generally satisfied with their choices to accelerate (e.g., skipping grades or content acceleration), wished they had accelerated more, and viewed acceleration as beneficial, particularly for general academic progress, increased interest in learning, better acceptance of their abilities, and relationships with peers (Benbow et al., 1996). In a follow-up study of talent search students who had skipped grades, accelerated students described acceleration as an optimal way to improve their education and prepare for adulthood (Charlton, Marolf, & Stanley, 1994, 2002).

Psychosocial Outcomes of Acceleration

Few psychosocial disadvantages of acceleration have been documented although nonacademic aspects of acceleration have not been studied as extensively as educational ones (Neihart, 2007). Studies involving school-aged students have generally shown that acceleration, particularly grade skipping and early entrance to school/college, did not result in social and emotional difficulties including difficulties making friends with older students (for summaries, see Benbow et al., 1996; Colangelo et al., 2004; Gross & van Vliet, 2005; Ingersoll & Cornell, 1995; Neihart, 2007; Rogers, 2002).

Empirical research supports the positive psychosocial effects of academic acceleration. A follow-up study of 5,000 top performing students (ranked within the top 1 percentile on SAT-Math or SAT-Verbal) who participated in the SMPY in the seventh or eighth grade found that the majority of the students reported that acceleration, such as content (subject-matter) acceleration and/or grade skipping, helped them to accept and acknowledge their abilities, facilitated positive relationships with peers of comparable abilities, and increased their self-confidence (Benbow et al., 1996). Brody and Benbow (1987) surveyed two cohorts of the SMPY students and placed them into four groups according to the level of academic acceleration they experienced in high school. Accelerative strategies reported by the students included grade skipping, early college entrance (for Group 1), taking Advanced Placement (AP) exams or college courses (for Group 2), subject matter acceleration and taking special classes or tutoring (for Group 3), and no accelerative experiences in high school (for Group 4). Results showed no statistically significant differences overall among these four groups of students on measures of self-esteem, locus of control (e.g., ability to control the direction of their lives), self-control, self-confidence, and personal adjustment (on the Adjective Check List). The only statistically significant difference was found between Group 1 and Group 2 students in that Group 1 students, who had the most radical accelerative strategies, were less conservative than Group 2 students on the Cattell Personality Questionnaire.

Among profoundly gifted (IQ 160+) students aged 6 to 16 years, students who were accelerated in several subjects and skipped multiple grades built warm friendships with older peers, whereas students who never skipped grades or skipped only one grade reported more peer rejections and had lower social and general self-esteem (Gross, 1992, 2003). For many gifted accelerants, placement with intellectual peers also significantly alleviated peer pressure for underachievement (see Gross & van Vliet, 2005).

Similarly, early college entrants formed intimate and fulfilling relationships with upperclassmen who were 2 to 3 years older (Janos et al., 1988). Ingersoll and Cornell's (1995) study revealed no signs of social maladjustment or disinterest for 22 female early college entrants compared with 18 regular-aged college students who attended the same liberal arts college for women. Results showed no differences between these two groups of students in their ratings on measures of social conformity, social confidence, participation in college social activities, or solitary activities (e.g., studying or pursuing hobbies alone). The regular college students did perceive more social support than the early entrants, and the accelerants reported less satisfaction overall with social lives (e.g., complained about fewer social outlets or opportunities to meet others) than the regular students.

Perceptions of radical accelerants who entered college several years ahead of same-age peers regarding their social development were also positive. The accelerated students believed that early entrance to college helped them mature earlier, socialize better with intellectual peers and adults (Muratori et al., 2003; Noble, Arndt, Nicholson, Sletten, & Zamora, 1998/1999), and build positive attitudes toward school in general (Gross, 1992, 2003).

Acceleration and Gifted Minority Students

Generally, acceleration has been viewed and found to be beneficial for gifted students with mainly White and Asian samples, but related literature lacks the perspectives of minority students. Achievement gaps between minority and nonminority students in the United States have remained steady over the past few decades especially at the highest levels of ability (Education Week, 2007; Miller, 2004; Robinson, 2003; U.S. Department of Education, National Center for Education Statistics, 2006). For example, in 2003, the U.S. Department

of Education reported that 39% of Caucasian students scored at the proficient or advanced level on the fourth grade NAEP assessments in reading compared with 14% of Hispanic and 12% of African American students (Education Week, 2007). Miller (2004) also documented that among the 2000 college-bound seniors, 16% of African American and Hispanic college-bound seniors were far less likely to obtain high scores (higher than 700) on college entrance exams (SAT-Math and SAT-Reading) compared with Caucasian and Asian students and were far less likely to take AP courses in high school and to score well enough on AP exams to earn college credit. All these indicators make African American and Hispanic students less attractive candidates to selective colleges and programs of study. Thus, there is a need to identify and serve gifted minority students with research-supported best practices such as accelerative programs.

Although limited, the research evidence suggests that acceleration is a viable program option for gifted minority students. Olszewski-Kubilius and colleagues (Olszewski-Kubilius, 2006, 2007; Olszewski-Kubilius, Lee, Ngoi, & Ngoi, 2004) reported that gifted minority students who participated in a multiyear program that provided enrichment and advanced curricula to prepare students to be accelerated in math during middle school was successful. The program resulted in a large increase in the number of minority students who entered high school already having completed Algebra I or Algebra II and geometry. In a recent follow-up interview with these minority students, Lee, Olszewski-Kubilius, and Peternel (2009) found that the students perceived that the accelerative program was instrumental in preparing them for placement in honor-level math and science in high school, which they believed was the best feature of the program as well as the primary reason why students and parents recommended it to others.

Project Synergy was similarly designed to provide an enrichment and advanced curriculum aimed to prepare young economically disadvantaged minority kindergarteners for subsequent placement in school gifted programs (see Borland & Wright, 1994). The program employed classroom observations and teacher nominations to identify participants, gave students multicultural curriculum-based enrichment activities in a 5-week summer program, and assessed achievement via standardized tests. Five students from the first cohort were admitted to a school for gifted students following 1 year of the summer intervention and consistently obtained positive evaluations from teachers in the school subsequently. The Project Synergy students demonstrated significant improvements in their academic performance as evidenced by scores on achievement tests after 1 or 2 years of participation in the summer program.

Psychosocial Issues for Gifted Minority Students

Any discussion of programming for gifted minority students must consider the factors that uniquely affect the participation and success of students in accelerated and advanced programs, such as stereotype threat, viewing academic achievement as acting White, and the concept of "fewness," which is the idea that only small percentages of students from minority groups (e.g., African Americans, Hispanics, or Native Americans) are in advanced or accelerated classes (Miller, 2004). Steele and Aronson (1995) define stereotype threats as negative perceptions of a group that become salient as self-characteristic and evaluative threats and affect academic performance (also see Steele, 1997). An example is a decline in the performance of African American college students compared with White students on a reading and verbal reasoning test when they were told the test was being used to assess their intellectual abilities.

Ogbu (1992) has proposed the idea that fear of rejection from peers who perceive academic success as "acting White" tends to discourage involuntary minority (e.g., African American, early Mexican American) students from participating in programs that would highlight their academic achievement. Too many gifted minority students adapt an "oppositional cultural attitude" and succumb to the perception that success in schooling and placement in gifted or advanced educational programs is a "sell out" to the mainstream White culture and has social disadvantages including isolation and rejection by other minority peers (Irving & Hudley, 2009). Research has shown that minority students who have held these views strongly have lower levels of academic achievement (Irving & Hudley, 2009).

Minority students' reluctance to be placed in advanced or accelerated programs where they often find themselves as one of only a few minority students surrounded by White and Asian students has also been cited as a factor mitigating against their high achievement and participation in gifted programs (Ford, 1996; Ford, Howard, Harris, & Tyson, 2000; Morris, 2002; Tatum, 1997). Miller (2004) documented that the condition of fewness is found early in elementary school and continues through all levels of schooling including the faculties of institutions of higher education. This situation has been found to affect the academic performance of minority students on tests such as the SAT and affect their grades, enrollment in advanced classes, and attendance at selective colleges.

Summary

Acceleration leads to a number of positive academic and affective outcomes for gifted students. Positive perceptions of students about their accelerative experiences are documented as well as those of parents who have their gifted children accelerated (see Noble, Childers, & Vaughan, 2008, for parents' perceptions). Yet all these findings are derived overwhelmingly from nonminority students, and thus, it is unknown how minority students perceive the opportunity to accelerate, and if and how acceleration affects their educational attainments. Research on minority students and their

perceptions and experiences with acceleration warrants further investigation.

The Purpose of This Study

Understanding acceleration from the perspectives of multiple parties, including service providers (e.g., teachers) as well as recipients (e.g., students), can help educators to apply accelerative strategies more effectively, especially for underserved gifted students including minority and/or low-income students. This study is an in-depth qualitative investigation of the perceptions and experiences of academically talented minority students and their teachers, including classroom teachers, about an accelerative program in math. A group of students was selected from a larger group of students who were participating in Project EXCITE, an accelerative program designed to help elementary to middle school aged gifted minority students prepare for advanced tracks in high school.

By using interviews with Project EXCITE students and teachers, the purpose of this study was to provide comprehensive understanding of "how and what" need to be considered in making and applying acceleration effectively for minority students who have potential but fewer opportunities to fulfill their talents in math and science. This study explored beliefs and attitudes toward acceleration, perceived obstacles and facilitators, and perceptions of the impact of acceleration on students' academic and social lives. Specifically, the following questions were addressed: Did gifted minority students and teachers have negative or positive views of acceleration? Were concerns about the effects of acceleration on social status more or less salient for this population given its racial minority status? Did minority students experience negative peer relationships or peer pressure following acceleration in math? How did students with varying levels of success with acceleration feel about the experience? Did teachers perceive these students as viable candidates for acceleration, and what criteria did they use to make their judgments? What factors impeded or facilitated successful acceleration?

Method

Participants

This study involved 30 students in Grades 4 through 9 and seven teachers. All the students had participated for 1 to 6 years in Project EXCITE, a collaborative program of Northwestern University through its Center for Talent Development (CTD) and Evanston high school district 202 and elementary school district 65 where a large number of students of diverse ethnicity (47% Caucasian, 37% African American, 10% Latino, 3% Asian, and 3% multiracial) were enrolled. Project EXCITE was launched to identify academically talented minority students in Grade 3 and to develop their interests and talents in math and science by offering various types of academic supports including tutoring, supplemental afterschool classes, and weekend and summer classes. The program aimed to enable minority students to enter high school in grade 9 accelerated at least 1 year in math and ready for honor-level courses in science.

Third grade students from racial minority groups (i.e., African American or Hispanic) are eligible for Project EXCITE if they demonstrate potential for high achievement. Students must be identified as academically talented through nomination by elementary schools using their own selective procedures; high performances on state-level, criterion-referenced tests (e.g., "meets" or "exceeds" standards on a subtest for Illinois Standards Achievement Tests) or on standardized norm-referenced tests (e.g., 80th percentile or above on a reading or math subtest of the Iowa Tests of Basic Skills); and recommendation by schoolteachers for work habits, achievement, ability, and interest.

From grades 3 through 9, Project EXCITE students spend 445 hours taking math and/or science courses required for the program. These courses include after school, weekend, and summer classes. Classes consist of either Project EXCITE students only or both EXCITE and other high achieving students from local schools and communities (e.g., summer and Saturday classes). Activities in the program focus on academic enrichment and individualized support for students, and all of them supplement rather than supplant the regular school activities and vary by grade levels. Project EXCITE staff monitor, supervise, and help students with their academic activities and progress. The program staff comprises a coordinator from CTD; 10 advisory board members from local schools, Northwestern University, and school districts; five school liaisons (teachers); four to eight high school and elementary school teachers; two parent coordinators; and one translator for Hispanic families (see Lee et al., 2009, for detailed description about the program).

Based on teacher or parent nominations and performance on the Naglieri Nonverbal Ability Test, the Iowa Tests of Basic Skills, or the Illinois Standards Achievement Test, 30 students in this study had previously qualified for Project EXCITE by demonstrating their potential for academic achievement in math and science. Males outnumbered females (58.8% vs. 41.2%) in this project. The majority (70.6%) of the study participants were African American, followed by multiracial (17.6%) and Hispanic/Latino (11.8%), and these percentages are comparable with the ethnic composition of the total number of students in the EXCITE program (80% African Americans and 20% Latinos).

The student participants consisted of two cohorts: students who were accelerated in math and students who had not yet been accelerated in math. First, 17 students in Grades 6 through 9 made up the accelerated group. They were accelerated in math by 1 or 2 years. The subject acceleration

Table 1. Students' Acceleration in Math

Student	Grade	First Advanced Math (Grade)	Second Advanced Math (Grade)	Third Advanced Math (Grade)	Group
A1	6	Pre-Algebra I (6)			Successfully accelerated
A2	7	Pre-Algebra I (6)	Honors Algebra (7)		Successfully accelerated
A3	7	Pre-Algebra I (5)	Pre-Algebra I (6)	Honors Algebra (7)	Unsuccessfully accelerated
A4	7	Pre-Algebra I (5)	Pre-Algebra I (6)	Honors Algebra (7)	Unsuccessfully accelerated
A5	7	Honors Algebra (7)			Successfully accelerated
A6	8	Honors Algebra (7)	Honors Algebra (8)		Unsuccessfully accelerated
A7	8	Algebra (8)			Successfully accelerated
A8	8	Pre-Algebra I (8)			Successfully accelerated
A9	8	Algebra (8)			Successfully accelerated
A10	8	Algebra (8)			Successfully accelerated
A11	8	Algebra (8)			Successfully accelerated
A12	9	Honors Algebra (7)	Honors Algebra (8)	Honors Geometry (9)	Unsuccessfully accelerated
A13	9	Honors Algebra (7)	Honors Algebra (8)	Honors Geometry (9)	Unsuccessfully accelerated
A14	9	Algebra (8)	Geometry (9)		Successfully accelerated
A15	9	Algebra (8)	Geometry (9)		Successfully accelerated
A16	9	Algebra (8)	Geometry (9)		Successfully accelerated
A17	9	Algebra (8)	Geometry (9)		Successfully accelerated
P1	4	—	—	—	Pre-accelerated
P2	5	—	—	—	Pre-accelerated
P3	5	—	—	—	Pre-accelerated
P4	5	—	—	—	Pre-accelerated
P5	6	—	—	—	Pre-accelerated
P6	6	—	—	—	Pre-accelerated
P7	6	—	—	—	Pre-accelerated
P8	6	—	—	—	Pre-accelerated
P9	6	—	—	—	Pre-accelerated
P10	6	—	—	—	Pre-accelerated
P11	6	—	—	—	Pre-accelerated
P12	6	—	—	—	Pre-accelerated
P13	6	—	—	—	Pre-accelerated

occurred between fifth and eighth grade based on their scores on standardized achievement tests, final course grades, and teacher recommendations. The majority of the accelerated students took their first advanced math course in grade 8 ($n = 9$, 53.0%; grade 7, $n = 4$, 23.6%; grade 6, $n = 2$, 11.8%; grade 5, $n = 2$, 11.8%). The accelerated group was segmented into two levels: successfully accelerated versus unsuccessfully accelerated. The successfully accelerated group included 12 students who performed well, earning As or Bs in their advanced math courses. The unsuccessfully accelerated group consisted of five students who were accelerated, but based on performance (C+ or below), had to repeat the course. Second, 13 students comprised the pre-accelerated students. The pre-accelerated students were in grades 4 through 6 and had not been accelerated in math at the time of the interview (at the beginning of their new academic year) because of their ages but would be considered for acceleration within 1 or 2 years. See Table 1 for information about students' acceleration.

All seven teachers had previously taught math or science classes in their respective schools and were knowledgeable about Project EXCITE. Four of them were teaching math or science courses and three were administrators at the time of the interview. Five were Caucasian/White and two were African American. None of them had personal relationships with the students involved in this study or were informed of the actual names of the students or their identities (see Table 2).

Data Collection and Analysis

Semistructured interviews were the primary data for this study. From July to November in 2007, a 45- to 60-minute interview was conducted with the students and teachers by the CTD research director and/or Project EXCITE program coordinator. Student interviews took place at the CTD conference room, whereas teachers were interviewed at their workplaces.

Table 2. Participants

Students	Accelerated	Pre-Accelerated
Gender		
Male	11	5
Female	6	8
Grade		
4	—	1
5	—	3
6	1	9
7	4	—
8	6	—
9	6	—
Ethnicity		
African American	12	9
Multiracial	2	2
Hispanic	3	2
Teachers	**Total**	
Gender		
Male	2	
Female	5	
Ethnicity		
Caucasian	5	
African American	2	
Current occupation		
High school teacher (math, physics)	2	
Elementary school teacher	1	
Middle school teacher (math)	1	
Elementary school principal	1	
Associate director at CTD	1	
Curriculum coordinator for math and gifted in the school district	1	

Note. CTD = Center for Talent Development, Northwestern University.

Interview questions focused on interviewees' perceptions of advanced math and/or accelerated placement in general, students' experiences with and performances in accelerated classes, and peer relationships following acceleration. A list of the interview questions is presented in the appendix.

Interviews were tape-recorded and transcribed verbatim following interviewees' consent. Pseudonyms (e.g., A1 to A17 for students in the accelerated group and P1 to P17 for students in the pre-accelerated group) were used to protect each participant's identity. Interview transcripts were analyzed from November 2007 to February 2008, using the three-way coding procedure consisting of open, axial, and selecting coding (Glaser & Strauss, 1967; Strauss, 1987; Strauss & Corbin, 1990). Open coding is the initial step of coding that aims to scrutinize original responses from every participant. In this study, all interview transcripts were read line by line by the Center's research director to find common subcategories across interviews. Axial coding is the second process, the purpose of which is to explore relationships between the (sub)categories and to create overarching categories. Several overarching categories, such as academic confidence, self-image as a smart student, help with college entrance and higher education, and concerns about advanced classes, were generated from the responses of the students and teachers through the process of axial coding. Selective coding is the next and final process, which connects main categories and concepts more systematically to each other and finally produces a core theme for the qualitative data. Examples of the core themes from the interview data were perceptions of advanced math, peer relationships, parent support, factors leading to success in advanced math, and performance in advanced math. See Table 3 for examples of the coding procedure and Table 4 for those of subcategories and major themes created from the data.

For data triangulation, three staff members from CTD's research department, including its research director, reviewed all the interview transcripts to ensure the validity and consistency of the collected data. Also, member checks were used to ensure if results from the transcripts were plausible.

Results

Accelerated Students

Perceptions of Advanced Math. For the accelerated students, including both successfully accelerated students and unsuccessfully accelerated students, advanced math courses were not generally perceived as difficult. The majority of the accelerated students said that advanced math was "easy" ($n = 7$) or "just right for them" ($n = 6$), whereas two students, one successfully accelerated and the other unsuccessfully accelerated, said the classes were "quite challenging."

When asked to compare their first and second accelerated classes, the students were more likely to feel that their second class was slightly more difficult than their first one. Detailed responses for each course were "okay or just right for me" (first class = 5, second class = 3), "easy" (first class = 5, second class = 2), and "difficult" (first class = 5, second class = 5). Increased daily homework and frequent tests were the two main reasons for five students who felt overwhelmed with their second classes. One student who was unsuccessfully accelerated described his pre-algebra class in grade 5 as a "completely new experience" and found the first accelerated class more challenging than the subsequent math class. It is likely that the first experience with an acceleration class taught the students a great deal about how to study and got them used to increased workloads and higher expectations. Also, the students continued to receive tutoring and other assistance during the courses, thereby giving them additional support.

Overwhelmingly ($n = 13$), academic challenges outside of their comfort zone were identified as the most positive aspect of the accelerated math courses. The students revealed that these challenges helped them by reducing boredom as well as they learned more, felt excited about math, and liked being

Table 3. Examples of Three-Way Coding Procedures

Original Responses (Level I Codes)	Subcategories (Level II Codes)	Major Themes (Level III Codes)
Accelerated students		
"In some ways, I didn't think I was that good in science. That's why I chose advanced science this summer to build up on science. I didn't expect myself to do that well in that class. It built my self-esteem about taking science classes and doing well."	Academic confidence	Benefits of taking advanced math
"I think the students in advanced math class really felt confident in themselves just like I did when I got my grade and figured out how good I did in those classes. Because those were classes that you take in high school!"	Academic confidence	
"First of all, I was the only African American in that [Pre-Algebra II] class, which first intimidated me. I was thinking what was the reason for that . . . Sometimes, if there were really smart kids in the class, you would think about them, and you could be really smart like them. You could all be at the same level, and I felt good about that."	Self-image as a smart student	
Pre-accelerated students		
"Advanced math will be a difficult challenge, but it helps you a lot. It will help me in the long run because then you'll be ahead of your class and you won't be slow and you won't be having to stress out and trying to catch up with all the other kids."	Difficult and challenging	Perceptions/expectations of taking advanced math
	Ahead in the class	
"It's pretty cool to take advanced math because I get a little bit farther ahead in math and otherwise the class would be boring."	Ahead in math	
	Not boring	
Teachers		
"Absolutely, minority students have told me about being double minority. They've told me that they don't want to be smart because it's acting White."	Double minority	Academic acceleration and peer pressure
	Acting White	
"Like no matter what you do, there is a certain level of discomfort when you are clearly the only female in the room."	Discomfort	
	Minority	
"There were gaps in learning that interfered with their progress in work, and emotionally they were not ready; they were not ready for the challenge and the amount of work the accelerated class offered. They just were not used to having answers right away and having to work with something more responsibly."	Gaps	
	Emotionally not ready	
	Not ready for challenge	

ahead of others in math. Representative comments included the following: "I prefer challenging classes because if I am dealing with easy stuff, I could pass it, and I won't learn anything;" "I have to study very hard. Like I'll look the problem over a couple of times, and get it afterwards;" "I am not excited about taking easy classes. All you have to do is just basically show up and turn in your homework, while advanced classes make you smarter;" "Advanced classes make me different in the class. We can talk about different concepts and can take different cases ahead of time."

Enhanced motivation and confidence were other effects, according to six of the accelerated students of the challenging classes. For example, A12 liked being challenged in the class because he felt motivation to work harder and better prepare for high school. Although he repeated honors algebra, he said that he enjoyed every moment of the intellectual challenges he faced while taking the course. Another student (A4) said that she loved the challenge of the class because she liked to "push herself hard" so that she could be better in math. For A9 and A6, increased confidence in their abilities following the challenging work was a major benefit of the accelerated class. None of the accelerated students, including the five students who were unsuccessfully accelerated, were unhappy with their accelerated math classes. All of them said that they could not think of any particular reasons for not taking more similarly challenging courses. One student (A11) commented that he did not like having to review what he had already learned the previous year at the beginning

Table 4. Subcategories and Major Themes Generated From Three-Way Coding Procedures

Subcategories and Major Themes	Students		Teachers
	Accelerated	Pre-Accelerated	
Perceptions/expectations of advanced math	X	X	
Preparation and study skills	X	X	
Help with advanced math	X	X	
Performance in advanced math	X		
Peer pressure/relationships	X		X
Benefits of taking advanced math	X		
Academic confidence	X		
Self-image as a smart student	X		
Help with college entrance and higher education	X		
Other benefits	X		
Suggestions to pre-accelerated students	X		
Parents' and teachers' expectations	X		
Challenging aspects of advanced math			
Perceptions of advanced math/advanced placement			X
Reasons for support of advanced math			
Concerns about advanced math			
Perceptions of success			
Parent support			
Factors contributing to success in advanced classes			X

Note. "X" indicates the availability of data generating these subcategories and/or themes. Questions asked of accelerated students, pre-accelerated students, and teachers were not identical, and thus, the categories and themes created from the coding procedure were mostly different for each of these groups of participants.

of his eighth grade advanced math class, but otherwise, he was happy to have the academic challenges of the accelerated class.

Preparation and Study Skills. The successfully and unsuccessfully accelerated students were different in terms of their perceptions of readiness for accelerated math. Most (n = 8) of the successfully accelerated students noted that they felt ready to take advanced math at the time they first enrolled in it. Only two students said "no" when asked if they were ready for their accelerated class. In contrast, all the unsuccessfully accelerated students said they did not feel ready to take advanced math courses at the time they were placed in either pre-algebra in grade 5 (n = 2) or honors algebra in grade 7 (n = 3). Three of the unsuccessfully accelerated students said that they were disappointed about being in the same class for 2 years but felt better eventually because retaking the class enabled them to feel more comfortable and confident with the subject area. Comments such as "It [retaking the class] definitely helped and was reinforcing everything that I was not sure of. I feel way better," "I can do much better," and "now I am pretty awesome, exceptional!" reflected their positive feelings, particularly increased confidence, after taking the class twice. One ninth grader (A12) who retook honors algebra in grade 8 said,

> I was kind of happy and excited that I was re-taking honors algebra because it would be a little bit easier and I could understand it better. I really didn't understand some of the things last year. It [retaking] helped me get through it and helped me do better.

In terms of hours spent studying, all the accelerated students (including both successfully and unsuccessfully accelerated students) but one (who said he studied equally hard in every class) noted that they had to study more for the accelerated math classes. A8's comment on pre-algebra I compared with regular math classes was one example: "Studied really hard, harder, and a lot longer for pre-algebra I."

The majority (n = 13) of the accelerated students said that they did not have any specific new study skills they used in the advanced math class but that they studied for tests and quizzes on a daily basis and worked hard on daily homework and assignments. No differences were found for study skills reported by the successfully accelerated students versus the unsuccessfully accelerated students. Five students commented that they studied alone using their own notes and books. "Like to feel isolated when focusing on work" was the reason given by one of the students for working alone. Four students mentioned taking notes, reviewing, asking questions, and peer-group study as study skills that they used for the advanced math class. A12's following comment is representative:

> I have to work harder and stay with what was happening. What I should've done earlier was that I got myself

> more organized. That really helped me, so I knew where my study tools were each time. When I went to class, I had everything; I made flashcards sometimes, I would just go through the book and read each section, I take notes on post-its and find out what section I had to read. Basically I had to read notes and worked very hard. In my class, I had two really good friends in my class who had been friends since kindergarten. We had a free period in class, and we just took that time to study together.

Other comments were "taking notes that were needed and went over them," "taking flashcards and quizzed with friends," and "reminding myself to ask more questions in the class."

A3 took pre-algebra twice in both fifth and sixth grades. He admitted that he failed it the first time because of his poor study skills. Using strategies such as going over old tests and reviewing notes helped him to do better when he repeated the class.

Help With Advanced Math. The successfully accelerated students gained support and help for advanced math from different sources including teachers, family members, and friends. For eight accelerated students, including A5 who looked to his teachers for help to get "right" answers for problems in algebra, classroom teachers were identified as the most helpful. A5 and four other students also relied on siblings for help with advanced math. A1 asked his gifted brother, who also participated in Project EXCITE, for help and explained their mutual support: "He could help on stuff that I didn't really get, and I could help him back." His older brother, A11, acknowledged that his brother was his primary help for studying for tests and quizzes in algebra. There was another student who sought her older brother's help when she had trouble with pre-algebra I and honors algebra. "He [brother] is very good at math and now taking calculus as a sophomore." Parents (the mother for two students and the father for two students) were another resource for four of the successful accelerants.

Five successfully accelerated students looked toward classmates when they needed help in their accelerated math class. Particularly, the question-and-answer method of studying with friends was a key support for four of the students. For example, A2 said that she studied with a group of friends who took the same accelerated math although she rarely hung out with them on a regular basis in or outside of school.

Among the unsuccessfully accelerated students, tutoring programs offered through Project EXCITE ($n = 2$), teachers ($n = 2$), and parents ($n = 2$) were identified as sources of help and support. For two students, tutoring in Project EXCITE was the most helpful when they repeated pre-algebra I (for A3) and honors algebra (for A13). Both said that the undergraduate tutors helped them understand advanced mathematical concepts (A3) and taught at least one new thing to them each session (A13). A12 identified his teacher as being the most helpful: "He helped us learn advanced concepts a little better and helped us make connections among them." He also mentioned his parents as another resource. His parents established rules about finishing homework and helped him work through his frustration while retaking honors algebra. He said,

> After the test in the first year, I was kind of sad. And they [parents] are like "it's okay not everybody is good at everything, so just re-take it and do well and then you will get into the class."

Parents were also referred to as the main help for another student; A4's parents made sure that she finished all her homework, got everything right, and more important, did not make her feel bad about retaking pre-algebra I. Other sources of help were the accelerated math and science classes in the CTD Saturday and summer programs.

Performance in Advanced Math. Twelve of the 17 accelerants revealed their grades in their first or second classes during the interview. Self-reported grades were A ($n = 4$), B or C ($n = 8$). Seven students said that they were satisfied with their grades and three said that they were not. Grades reported by the school district were not that different from the grades reported by the students. There were three As, seven Bs, five Cs, and two Ds documented for these accelerated students in their latest accelerated courses in math. Both A15 and A14 believed that they should have gotten better grades; A15 expected to get all As but received a B in algebra; A14 said that he should have studied harder and gotten a better grade. Distractions and ineffective study skills were the two reasons given by A8 for getting a C in pre-algebra I. "I could have done better and will get an A in honors algebra." Among the unsuccessfully accelerated students, two reported their grades for the courses they repeated as As and Bs.

Peer Relationships. Less than half ($n = 6$) of the accelerated students noted that they made new friends in their advanced classes. Three students said that they already knew most of their classmates in their advanced math class. Only one student spent time with new friends after the class thanks to a common interest in math. The rest of the students socialized with "regular" friends whom they had known for years in and outside the school.

Having close friends in the class did not make a difference in terms of students' willingness to take advanced math. Only three students stated that this made any kind of difference, and six students said, "It does not matter." A17 and A14 were hoping to have close friends in advanced math so that they could study with others with whom they felt more comfortable. A16 was aware that close friends in the class could distract him from his work. A8 was hoping not to have more than three friends in the class because it would divert him from studying. "They [close friends] will make a whole bunch of jokes to make you laugh. It will be very annoying and distracting."

Most of the students, 13 out of 17, regardless of how successfully they performed in the class, did not perceive negative peer pressure against studying or achievement, nor peer competition while taking advanced math courses. Two students said that they would just concentrate on what they were doing and ignore their friends' requests to socialize that they could not accept. For the rest of the students, friends were seen as supportive.

Two students, one successfully accelerated and the other unsuccessfully accelerated, did comment on peer pressure or competition with peers in their advanced math classes. A8 said, "Some of the seventh graders in my class are trying to outperform a lot of eighth graders. I feel a lot of competition in my class." He also sensed jealousy from his friends regarding his accelerated class. Nonetheless, he said, "I could and should be strong in dealing with demands from friends." A6 noticed a little bit of peer competition, and similar to A8's experience, she ascribed it to mixed grade levels within her class. She said,

> If you do worse than the seventh graders, either you want to make fun of the seventh graders or you will just be a little embarrassed. You also want to work hard so that you don't look bad next to them.

Benefits of Taking Advanced Math. Generally, both successfully and unsuccessfully accelerated students were happy that they were ahead of others in math and believed that being accelerated would help them be better prepared for high school and college. Particularly, placement in (honors) algebra preceded by the successful completion of pre-algebra enabled the students to become more confident in themselves and in their academic abilities.

Academic confidence. The accelerated math courses helped eight of the accelerants strengthen their academic confidence. The students said that after completing the classes successfully they felt more comfortable and confident in higher level courses and were more interested in taking other advanced classes. Three of them admitted that they did not expect to do as well as they did and their success in the class was a pleasant and affirming surprise. Comments from A4 and A8 were the following:

> In some ways, I didn't think I was that good in science. That's why I chose advanced science this summer to build up on science. I didn't expect myself to do that well in that class. It built my self-esteem about taking science classes and doing well. (A4)

> I think the students in advanced math class really felt confident in themselves just like I did when I got my grade and figured out how good I did in those classes. Because those were classes that you take in high school! (A8)

The majority ($n = 14$) of the students believed that taking advanced math would help them do better across all academic subject areas. Reasons included enhanced confidence obtained from practice within challenging courses ($n = 7$), connections to mathematical terms and formulations ($n = 5$), and better study skills ($n = 2$). A13 said that "math is everywhere," so he is more confident in terms of his ability to succeed overall. A15 commented that her advanced math class enabled her to work harder and better in other subjects besides math. A12 anticipated a good start and better grades in high school compared with same-age peers because of her accelerated math experience.

Self-image as a smart student. Another positive outcome was a stronger self-image as a gifted and smart student. Good grades obtained in the advanced class enabled eight accelerated students to view themselves as smart as or smarter than other classmates. A12 said, "Yes, I could say that I am smart. It makes me feel good that I'm accelerating in the math program, and I am doing good. I'm gonna try to keep doing good when I get to geometry next year." A12's comment reflected how he viewed his friends and himself in the advanced class:

> I felt like it's kinda cool to be in the class because kids were extremely smart, and yeah, I'm part of the group. I felt pretty good that I'm really smart now. Being in advance math shows I am really smart.

Friends' comments about their acceleration in math and having like-minded intellectual peers in the accelerated class also reinforced their image as smart students.

> Friends say that I am smart. Yes, because some of my friends are not going to be in the same math class . . . I am surprised that they're not going to take the same math class as me, but I was ahead of them up until last year in math. They think that we were the same when we were in middle school, but it's sort of different because I was and am in a higher math class. (A15)

> First of all, I was the only African American in that [pre-algebra II] class, which first intimidated me. I was thinking what was the reason for that . . . Sometimes, if there were really smart kids in the class, you would think about them, and you could be really smart like them. You could all be at the same level, and I felt good about that. (A12)

Help with college entrance and higher education. Two students believed that taking advanced math would lead to having stronger college applications and eventually enhance their college admissions. A14 believed that she would be a more attractive college applicant because of taking her advanced classes. She also said that taking honors and AP math courses continuously in middle and high schools would bring her

good grades in college math. A17 was proud of being ahead in math compared with classmates and explained how she viewed the benefit of taking geometry for her college application. She said,

> I am in geometry and most of freshmen are in algebra [which] makes me happy in that I am in the higher educational range than most of the average freshmen. I can get into higher math classes throughout my high school years, instead of just being with the regular math classes all my high school life. I think it's going to help me because I get into higher and higher math classes, in my senior year, and thus, I'll have a really, really impressive math class to put on my college forms. So, it will help me get into colleges.

Other perceived benefits. The experience of being accelerated in math reminded A16 of the importance of hard work and resilience. Even though he was very upset when he got poor grades in his advanced math class, he then pushed himself to work harder: "You gotta get up and keep trying, always try your hardest, never give up." Other benefits, according to the students, were working harder, having higher expectations for high school, and gaining critical thinking skills.

Pre-Accelerated Students

Perceptions of Advanced Math. The majority ($n = 10$) of the pre-accelerated students believed that advanced math would be more difficult than regular math classes, and no one expected it to be easier. Although they were expecting substantial challenges from the accelerated class, all students, except one, noted that they would feel (very) good about being ahead of others by being accelerated. Eight students said that they like challenges because they make them "excited, happy, fun, and inspired to learn more in the class." P6's comment was: "It's pretty cool to take advanced math because I get a little bit farther ahead in math and otherwise the class would be boring." P7 admitted that she did not want to go to school because she gets bored. She stressed that she needs "real work" and "technology such as computer" to get excited, and thus, she expected that advanced math would be a good thing for her. P4 described herself as "really, really good at math" and noted that she would like to take advanced classes because she can learn from a class where students ask thought-provoking questions and stimulate each other. P13 said,

> Advanced math will be a difficult challenge, but it helps you a lot. It will help me in the long run because then you'll be ahead of your class and you won't be slow and you won't be having to stress out and trying to catch up with all the other kids.

Five of the pre-accelerated students expressed that being accelerated would likely give them enhanced academic confidence and reinforce that they are talented. P5 commented that advanced classes would make him feel special because he would be one of only a few students taking higher courses. P10 made a similar comment that she would be proud of herself because advanced placement would prove that she is smart and works hard. Another student (P11) said that he would be really excited to take higher level courses because being ahead of others would remind him of his superior intellectual ability. He said, "I already know that I would be doing really well in advanced classes."

To be able to help friends with math was perceived by two of the students as a benefit of the advanced class. P1 said, "It makes me feel really important because I get to know lots of things that my friends don't know. If they don't know anything, I could help them with and advance them in their stuff."

Despite these positive comments and the good experiences anticipated by most students, five students expressed concerns about being in an advanced class. P12 said, "Sometimes, worried. Just being next to all the smart kids like myself would make me nervous." P6 and P2 said that they were concerned about being different from others in the class who could be more advanced than themselves. P2 explained, "Feeling weird because they [students] are going to be much more different than I used to have in class."

Most ($n = 13$) of the students projected that they would do well. Except one student who had "no idea," all the pre-accelerated students responded that they would get at least a B in advanced math, and six were confident about earning an A.

Preparation and Study Skills. Ten of the 13 pre-accelerated students mentioned their readiness for advanced math. Eight students said that they felt ready for the class and cited the following reasons: smart ($n = 5$), hard work ($n = 2$), and great interest in math ($n = 1$). Two students were wary and said, "We'll see" or "a little bit ready."

All the pre-accelerants said that they would study more, harder, and intensively if they took advanced math because it would be much more challenging than what they were used to. P3 mentioned that he would stop watching TV to gain more study time and double his efforts in the class. P1 said that she would study really hard in the advanced math class because she does not want to "flunk any of her grades." As a fourth grade student, she already worried about grades and college applications: "Because grades [in advanced math] go on my permanent record, and colleges will look it over. I want to go to a good college, and it is very important for me."

Studying differently was also referred to by many ($n = 10$) of the pre-accelerated students in anticipation of the advanced class. P7 stated that he usually looked over the study sheets given by teachers or created his own in preparing for regular math but he would study differently for advanced math with friends of his own ability. He noted that his everyday math

class was really easy, which discouraged him from putting much effort into it.

The majority ($n = 10$) of the students said that they would go over tests and quizzes and practice on their own to prepare for their advanced math class. Comments were: "Practice differently, I would try doing more advanced problems to see if I can solve them" and "I would probably take 15 minutes to test and quiz myself. Or I could ask my mom or family for some help to make sure that I really understand what I did."

P11 was one of the three pre-accelerants who said he would not change his study skills for advanced math even though he would spend more time studying. He reviewed notes and made questions to practice for the regular class and would do the same for the advanced class. "Just a little more reviews and questions for advanced math" was his explanation. P13 was not sure if she needed different techniques for the higher level class, but she said that she would apply the same methods, such as "practice on her own and follow up with parents to have extra questions for further practice," strategies she believed had contributed to her success in the past. Overall, the students had good study strategies in mind to help them in the accelerated class.

Help With Advanced Math. For future accelerated math classes, Project EXCITE staff ($n = 10$), teachers ($n = 5$), friends ($n = 3$), and parents ($n = 1$) were identified as potential sources of assistance. Among the students who referred to Project EXCITE, two students pointed out the hands-on activities, field trips, and group work as helpful in preparing for accelerated classes. Three students said that learning new content and strategies and experiencing challenges from the EXCITE program would enable them to succeed in future courses. P12 described Project EXCITE as an "asset" for his future coursework. P9 expected to maintain good grades in high school because of Project EXCITE, which helped him get better grades over the 2-year period in the program. For P1, Project EXCITE enhanced her interest in math and enabled her to develop better study skills for math and science, which she had not acquired in school. She said that she would apply those skills in the accelerated math class.

For eight pre-accelerants, either teachers or friends were identified as their primary support for success in their future accelerated math classes. P13 referred to her parents and teachers as the support she would rely on because both were always supportive of her accomplishments and more importantly, believed in her. P3 identified teachers, who always listened to her, as the most critical resources for her. Reasons for viewing friends as supports were that friends could challenge each other via questions and answers ($n = 3$).

Parent and Teacher Expectations. All the pre-accelerated students assumed that their parents were and would be very excited, proud, and supportive of their placement in advanced math. Reasons consisted of parents' belief in their ability ($n = 7$), parents' desire for better preparation for higher education and future career ($n = 3$), and parents' hope for them to be intellectually stimulated ($n = 2$).

P12 said that his parents were very proud of him for taking an advanced class next year: "They think I can pass anything if I just put my mind to it." Two other students in sixth grade (P10 and P8) were confident that their parents would be excited about their accelerated class because they believe that their child is smart. P4 felt that her parents were very proud of her for enrolling in advanced math next year, which made her feel good about herself as well. She said,

> They are really proud that I am going to get into bigger and better things. They think that it is going to be a really good thing for me like achieving things faster. They said that I am lucky to have advanced classes.

P4 said that she did not want to take advanced math next year because it seemed too difficult. It was her father who wanted her to take higher level math and convinced her to do so. She explained, "My dad told me that my teachers want me to do it and they think I can do it. He thinks I should try it."

Overwhelmingly, the 10 pre-accelerated students did not perceive a lot of support from their teachers to accelerate. Only three students recollected that they learned about the accelerated math class from their teachers or felt that their teachers were truly supportive of them being in the higher-level class. P9 said, "They try to encourage me to be in advanced math classes, saying that I need to keep it up because they know I can. They actually think I could do better than where I am in." Other comments related to teachers' support were "very proud of me," "really surprised that I would be in the advanced class," and "felt that I am smart."

Challenging Aspects of Advanced Math. Overwhelmingly, the pre-accelerated students perceived that taking accelerated math classes would be more challenging than any other course they had taken. A large number ($n = 10$) of students identified advanced content and greater effort as the two main challenges of taking accelerated math. Other perceived challenging factors were teachers' expectations for higher achievement and competition with or comparisons to gifted peers. P13 said, "Teachers expect a lot of me, want me to try my best, and sometimes I feel pressure from that and get upset. Like people are expecting the best from you, so you get frustrated." P12 said that he would be nervous in the class by "just being next to all the smart kids" like himself.

None of the students mentioned that the absence of close friends in the class would be a negative aspect of the accelerated course. All the pre-accelerated students said that taking accelerated math would not affect their relationships with friends outside of the classroom because friends were always supportive and understood differences in academic abilities. "Good job, keep up the good work" was what P2 received from his friends when he told them that he had to leave to

participate in Project EXCITE. Except for one student, whose best friend was in Project EXCITE, all the students said they usually socialized with friends whom they have known since childhood and did not make many new good friends through the EXCITE program.

Teachers' Perspectives

Perceptions of Academic Acceleration. All seven teachers supported acceleration in general, particularly for academically gifted students. They said that acceleration is appropriate for students because it provides the challenges necessary for academic talent development. However, they made it clear that the way acceleration is implemented must vary by individual. RB said that gifted students must not have to sit through drills and skills tests but need positive reinforcements, commensurate with their abilities. She elaborated, "I think everybody should be pushed to do as much as they can and to excel in all content areas. I wouldn't narrow it just to math or just to minority students."

MV described himself as a big believer in acceleration. He stressed that students get bored without challenges in school and recollected his own high school where no AP courses were offered. He said, "I don't want that to happen to any of my students, certainly. My friends and I got bored all the time at school." TM believed that acceleration should be carefully orchestrated and applied for students across subject areas based on the maturity level of the students. She recommended that acceleration must be considered "purposefully" based on students' developmental readiness.

JB pointed out that acceleration is an essential part of any quality math program because it sustains students' interests. He noted that the level of instruction must be matched to students' academic readiness and that the teachers need to maintain students' interest in learning and advance them further with appropriate educational stimulation. PM supported acceleration in math but was wary of applying acceleration in every subject. She asserted that acceleration could not be effective across all academic areas because of the nature of the subject matter.

SF was most cautious in applying acceleration. She expressed her concern about what she called "over-acceleration," a large discrepancy between students' academic and developmental readiness and their actual grade levels that results in poor social and emotional development. She explained:

> One of the challenges we face is over-acceleration of kids, and this really happens at middle school when we're placing children in honors algebra in grade 7. Children who are enrolled in honors algebra in grade 7 have a very accelerated high school track, and frequently, their emotional stability is really not ready for the rigor of calculus classes at a very young age. Their social and emotional development makes it difficult for them to maintain the accelerated pace.

Although reluctant to use acceleration for students at the middle school level, SF described herself as a "great fan of accelerating elementary school students just for math."

Social and Emotional Aspects of Students and Academic Acceleration. SF was not the only teacher who expressed concerns about social and emotional development and academic acceleration. All the other teachers agreed that social and emotional readiness must be assessed on a case-by-case basis in terms of making a decision about acceleration. TM agreed with SF that acceleration might hinder students' social and emotional well-being, but supported academic acceleration as a good strategy overall: "But do these kids still need to be accelerated? Yes, but you have to be creative and rethink of how you're going to accelerate them."

MV was more positive in terms of social and emotional development related to acceleration. He believed that acceleration would benefit students by making them excited and motivated:

> The students I've worked with, socially, I haven't seen any real difficulties. Those types of students tend to be motivated anyhow. If they have been bored, they tend to be excited by acceleration, and there's an additional motivation, like finally I can do what I'd like to do, what I'm capable of doing.

JB was also less concerned about social and emotional issues than academic misplacement in school. He believed that appropriate academic placement is more crucial than social and emotional development because the latter "can be worked out nicely" if teachers understand their roles as educators and are able to solve social and emotional issues that students face with older students in accelerated classes. His support for academic acceleration was strong: "It's much better for students to have people they can mathematically communicate with and who are on the same intellectual level."

Academic Acceleration and Peer Pressure. PM was the only teacher who denied any peer pressure existed (e.g., viewing achievement as "acting White") for her minority students in the accelerated math class, whereas the rest of the teachers perceived it as a problem for minority students. PM mentioned that the most successful students she taught were minority students who bonded with teachers who supported them and were indifferent to being one of the few minority students in the class. TM echoed PM, recalling her own experience of being a minority student in the accelerated class:

> I was in AP classes and BC calculus and was the only African American student in there. But I'm going to tell you something; when I was in Mr. B's class, I knew

> he loved and cared about me. I could tell he wanted me to be successful. He was just there to facilitate.

MV said that he could list many cases where minority students experienced isolation in a class where most of the students were White. He noticed that minority students were aware of their differences from the majority of the students and were conscious of standing out in the crowd. SM agreed that gifted minority students had to deal with the stigmatization of being a double minority—racial minority and gifted, following their accelerated placement in math: "Absolutely, minority students have told me about being double minority. They've told me that they don't want to be smart because it's acting White." She also mentioned the impact of one's peer group: "There are some who are depending on their social group. If peer groups are not in their class, then many times, they've been accused of acting White or being White." She recalled one gifted minority student who always ranked at the top of the class and never succumbed to negative peer pressure. She said that "his personality" enabled him to transcend all academic levels and racial barriers and was the key to his success.

JB did not observe peer pressure in his own teaching class but admitted that negative peer pressure for gifted minority students was a real possibility. He compared being a minority student in the accelerated class with being the only female in the class: "Like no matter what you do, there is a certain level of discomfort when you are clearly the only female in the room."

Factors Contributing to Success in Academic Acceleration. The teachers referenced several factors as crucial for successful acceleration, including good study skills or habits, hard work, interest in subject area, and passion for learning. For example, PM identified organization and higher level thinking skills as essential for successful acceleration. She also referred to motivation, positive support at home, and the ability to enjoy math as most needed by gifted minority students in preparation for accelerated placement in math.

MV and SF stressed mastery in reading for successful acceleration. MV noted that students were not able to demonstrate their advanced knowledge in math because of their lack of fundamental reading comprehension skills. For JB, perseverance, confidence, and patience were the three most important attributes contributing to successful performance in accelerated classes.

Readiness for advanced coursework was the key element for SM. She said that students need to be emotionally ready, mature, and responsible for their own learning. She illustrated this by citing several cases where her students dropped out of honors algebra.

> There were gaps in learning that interfered with their progress in work, and emotionally they were not ready; they were not ready for the challenge and the amount of work the accelerated class offered. They just were not used to having answers right away and having to work with something more responsibly.

Summary and Discussion

Overall, the findings of this study supported the use of acceleration for minority students with mathematical talent. Like many majority students in accelerated classes, the minority students viewed taking accelerated math courses as exciting, beneficial, and challenging and liked working ahead and having a "leg up" compared with other students. It was striking that many of the students felt bored at school; they were looking for challenges that made them excited and stimulated and that also put them ahead of others in high school. These were the primary reasons for seeking academic acceleration and the favorite aspects of being in the accelerated math courses.

Both accelerated and pre-accelerated students were steadfast in their belief that advanced placement in math would enable them to do better in high school and better prepare for college admissions. Acceleration in math infused them with a special feeling of being talented and smart and stimulated their academic motivation and confidence. They were very favorable toward academic acceleration because not only did they experience positive outcomes from acceleration but also became more confident about their ability. For many accelerated students, the presence of like-minded intellectual peers in the advanced class also strengthened a positive self-image about themselves.

The majority of the accelerated students, particularly the successfully accelerated students, felt ready for advanced math when they first took the class. In contrast, all five students who failed in the accelerated class did not feel ready for accelerated math at the time they were placed in it. This was the major and only difference found between the successfully and unsuccessfully accelerated students throughout the interviews. It is interesting to contemplate whether students' perceived readiness should be used as a major factor in determining whether to accelerate a student or not. Some students may be overly fearful and lacking in confidence and they might actually do well in an accelerated placement. Other students may be very reliable judges of their likelihood to succeed in an accelerated class. An interesting issue is whether lack of readiness induces low self-confidence or low self-confidence induces debilitating anxiety and lack of effort. However, retaking the same course did not unduly discourage the unsuccessfully accelerated students from pursuing further academic challenges and, importantly, did not leave lasting negative feelings or consequences for acceleration as a result of repeating the course. Moreover, some of the students reported that they finally obtained satisfactory grades (As or Bs) after retaking the classes. Reasons may be tied to the fact that these students were still ahead of others

in school despite experiencing failure and had the support of parents, teachers, and Project EXCITE staff to continue excelling and achieving. Accelerated placement in middle school was a head start for them, and they were positive that they would eventually succeed by repeating the course. They focused on gradual improvements in their learning rather than a single achievement.

Special learning strategies or new study skills were not identified among the majority of the accelerated students because they appeared to already have a wide range of study skills in their repertoire although we do not have evidence that they used them effectively or consistently. No differences were found between the successful and unsuccessful accelerants; both said they studied hard for tests and plodded away at their daily homework. For pre-accelerated students, Project EXCITE was identified as a major source of help in preparing for future higher level courses and acceleration. The Project EXCITE activities consist of a wide array of enrichment and accelerative classes and involve mostly minority students of comparable abilities. Hence, participation in Project EXCITE was perceived as good preparation for the students who were getting ready for acceleration in math in school (Lee et al., 2009; Olszewski-Kubilius, 2003).

Teachers did not believe that acceleration was particularly needed for minority students, nor aware that minority students are underserved in accelerated classes. They did not believe that there were any special qualifications or considerations needed regarding using acceleration with minority students. They supported acceleration in general, and their support was based on their own experiences with teaching and observations that acceleration excites learners and enhances their academic achievement if they are capable and willing to work hard. The teachers stressed the need to be cautious and consider students' readiness, particularly their social and emotional maturity and mastery in reading. Concerns about the discrepancy between students' readiness for the cognitive versus the social demands of accelerative programs have been noted in studies about acceleration (Cornell, Callahan, & Loyd, 1991; Gagné & Gagnier, 2004; Muratori et al., 2003; Stanley, 1991). The results of the study are similar to others, which found that teachers were wary and cautious about acceleration for gifted students and unaware that this practice is underutilized with gifted students.

An important issue that warrants further examination is negative peer pressure and competition. The existence of negative peer pressure for high achieving minority students was endorsed by most of the teachers but was not a strong theme emerging from either group. The majority of the students showed strength and resilience to resist the temptations from peers to put social activities before schoolwork. None of the students spoke of discomfort in the accelerated class as a result of peers or being one of a small group of minority students in the class (see Ford, 1996; Ford et al., 2000; Miller, 2004; Morris, 2002; Tatum, 1997). Apparently, the students and teachers were somewhat dissimilar in their views on this matter although the teachers were primarily speaking about their fears and possible negative effects from peers, whereas the students based their comments on their actual experiences in accelerated classes, which were overwhelmingly positive.

Researchers (Banks, 1999; Ford, 1996; Ford et al., 2002; Ford & Grantham, 2003; Hanushek & Rivkin, 2006; Irvine & York, 1995; Milner, Tenore, & Laughter, 2008) call for teachers to present multicultural content and be knowledgeable of how culture affects learning. Particularly, they point to the negative effects on achievement because of lower academic expectations of teachers for students of color and by misconceptions about minority students' abilities. The teachers in this study did not show signs of unequal expectations of students according to ethnicity, but they were certainly aware of and outspoken about negative peer pressure and its consequences as experienced by minority students in their classes based on their own teaching experience with minority and nonminority students for many years. For students, it is possible that Project EXCITE activities, which sought to create a supportive peer network specifically, had affected their perceptions regarding negative peer pressure and buttressed or inoculated them against it.

In conclusion, this study provides a foothold for understanding the use of academic acceleration with gifted minority students. Although the students were only accelerated in a single subject area, their accelerative experiences in math were consistently positive. Solid preparation for academic acceleration by means of a preparatory educational program, such as Project EXCITE, likely enhances a positive result.

Limitations and Future Research

Major limitations of this study lie in convenient sampling. Students were all Project EXCITE students who volunteered to participate in this study. The focus of the interviews was on academic acceleration. However, the students who agreed to be interviewed may have been those who had the most positive experiences in Project EXCITE. Therefore, the students' favorable experiences with Project EXCITE might have been somewhat skewed. Research on the long-term effects of acceleration via a follow-up study would be helpful.

Another limitation is the uneven sample size, particularly for students who were successfully accelerated versus those who were not. Given that Project EXCITE participants were selected based on their performance and interest in math, few EXCITE students were unsuccessfully accelerated. Future research needs to also include students with varying levels of success of acceleration as this study did.

Future research should examine whether programs such as Project EXCITE and specifically in-school accelerated classes have long-term, sustained effects in terms of courses, particularly advanced courses, creating positive attitudes, self-perceptions, or expectations for achievement. For

example, do programs such as Project EXCITE protect students from underachievement later on and will negative peer influences become more prominent in high school? Also, research is needed to see if the current group of preaccelerants does in fact successfully accelerate during middle school.

Appendix

List of Interview Questions

I. For Successfully Accelerated Students
1. Perception of Class
   (a) What math class did you take last year?
   (b) Was the class too easy for you, just about right, or too hard?
   (c) What did you like about your math class?
   (d) What were the things you did not like about your math class?
2. Preparation/Study Skills
   (a) Did you feel prepared to be in your math class? Did you think you were as prepared, less prepared, or better prepared than other students in the class?
   (b) Did you study more, less, or about the same for this class than you did for other math classes you have taken?
   (c) Did you have to study differently for your math class? How?
   (d) Did you study with others (e.g., parents, brother, sister, teachers, friends) for this math class? How did you study with them?
   (e) What did you do when you needed help in your math class?
3. Grades/More Advanced Classes
   (a) Were you happy with your grades in your math class? Why/Why not?
   (b) How do you feel about taking more (advanced) math classes in the future?
4. Relationships with Peers
   (a) Tell me about your friends in your math class.
   (b) Did you know them before taking this math class? Were these kids you were friends with just in school and/or outside of school?
   (c) How many new friends did you make from your math class? Did you hang out with them after school?
   (d) Did you like the other kids in your math class? Were they like you or different from you? How?
   (e) Does it matter to you if your friends are in your math class? Does it help you do better if your friends are in the same math class?
   (f) What did your friends who were not in the math class say to you about your math class? What did they say to you about your being in the math class?
   (g) In your math class, whom did you ask about how they did on homework or tests? Why?
5. Relationships with EXCITE Peers
   (a) Tell me about your friends in Project EXCITE.
   (b) Were they similar or different from your friends in school and/or church? How?
   (c) Did you know them before Project EXCITE? Were these kids you were friends with just in Project EXCITE? Did you hang out with them after class in Project EXCITE?
   (d) How many new friends did you make from Project EXCITE?
   (e) Did you like kids in Project EXCITE? Why?
   (f) What did your friends who were not in Project EXCITE say to you about the kids in Project EXCITE? What did they say to you about your being in Project EXCITE?
   (g) In Project EXCITE, whom did you ask about how they did on homework or tests? Why?
6. Relationships with Teachers
   (a) Did you get along with your teacher in your math class? How?
   (b) Was your teacher helpful in the math class? How?
   (c) Think about your grade in your class. Do you think the teacher expected you to get that grade—or expected you to do better or worse—or get a higher or lower grade?
   (d) Would you like to have this teacher again for math?
   (e) Did you feel that the teacher cared about you and how you did in the class?
7. Family Support
   (a) Did your parents help you while you took the math class? How?
   (b) Think about your grade that you got in your math class. Were your parents happy with your grade? Were they surprised by it? Were they disappointed with it? How did you know that?
   (c) If you get in another (advanced) math class next year, what grades will your parents expect from you? A, B, or C? Why?
8. CTD Classes Versus Math Class
   (a) How do the classes you have taken at Northwestern compare to your school classes? How does it compare to your math class at school?

(continued)

Appendix (continued)

(b) How do the other students in your CTD classes compare to the students in your school classes?

9. Identity
   (a) After being in the math class, do you think that you can do better in other subjects in school? Why?
   (b) Does being in the math class change the way you think about yourself? If so, how?
10. Recommendation
   (a) Would you recommend taking the math class to your friends? What would you say to them about the class? What advice would you give them? What would you say to them about how to do well in the class?

II. For Less Successfully Accelerated Students

1. Experiences with the Math Class
   (a) What math class did you take last year?
   (b) How was the math class? Was it easy for you or too hard?
   (c) What did you do when you needed help in your math class?
   (d) How was your teacher in the math class? Did you get along with her/him? Was your teacher helpful? Did you feel that your teacher cared about you in the class?
   (e) Did you like kids in your math class? Did you get along with them?
2. Feelings about Unsuccessful Acceleration
   (a) You were placed in an advanced math class and then you were put back into a regular math class. How did you feel about that? How did it make you feel to be put back into a regular class?
   (b) Why did you think you were not so successful in the (advanced) math class?
3. Suggestion
   (a) What do you think might have helped you do better in the math class?
   (b) What advice would you give another student who is going to be accelerated?

III. For Pre-Accelerated Students

1. Perception of Class
   (a) How does it make you feel about yourself to be taking an advanced math class? How does it make you feel to be ahead of other kids in math?
   (b) How do you think you are going to do in the (advanced) math class? Do you expect it to be more difficult, the same, or less difficult than your previous math classes?
   (c) What grade do you think you can get in the math class? A, B, or C? Why?
2. Preparation
   (a) Do you think you have to study more for the math class? Why?
   (b) Do you think you will study differently for the class? How?
3. Parent Support
   (a) What do your parents say to you about being in the (advanced) math class?
   (b) What grade do you think your parents want you to get in the math class? A, B, or C?
4. Teacher Support
   (a) Do your teachers say anything to you about being in the (advanced) math class? If so, what?
5. Peer Support
   (a) Do you have friends who will be in the (advanced) math class with you?
   (b) Have your friends said anything to you about being in the advanced math class?
   (c) Are you concerned that you will not be with your friends in the math class? Why?
   (d) Are you concerned about being ahead in math? Why?

IV. For Teachers

1. Accelerated Students
   (a) Describe your general feelings about your students who were accelerated in math.
   (b) What are the changes found among the students who were accelerated in math?
   (c) Are there differences between students who are accelerated in math and students who are not accelerated at all?
2. Parents of Accelerated Students
   (a) Describe your general feelings about the parents of accelerated students.
3. Factors Contributing to Successful Acceleration
   (a) What are the crucial factors contributing to successful acceleration in math?
4. Project EXCITE Students and Parents
   (a) Describe your experience with Project EXCITE students in advanced math classes. Were they well prepared for the advanced math class? Were they similar to the other students in the advanced math class? If so, how? Were they different from the other students in the advanced math class? If so, how?

(continued)

Appendix (continued)

(b) What skills or attributes do you think the Project EXCITE students need to be successful in advanced math classes?
(c) Tell me about your experience with the parents of Project EXCITE students. Were they similar to the other parents in the advanced math class? If so, how? Were they different from the other students in the advanced math class? If so, how?

5. Suggestion
   (a) What advice would you give parents about having their children in an advanced math class?
   (b) What advice would you give other teachers/educators about improving the advanced math class?

Declaration of Conflicting Interests

The author(s) declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article:

This research was funded by a grant from the Institute for Research and Policy on Acceleration (IRPA) at the Belin-Blank Center for Gifted Education Talent Development at the University of Iowa.

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