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ABSTRACT

A follow-up study of the high school classes of 1997, 1998, and 1999 found Minnesota education faced peak enrollment numbers of 72,000-74,000, but numbers were projected to level off and decrease. Although graduating classes would remain predominantly white for the foreseeable future, the state was moving toward greater racial diversity, with students of color projected to reach 19 percent by 2008. The proportion of male and female students was expected to remain almost evenly divided. Females demonstrated considerably higher educational attainment. Family earnings were positively correlated with educational attainment and labor force participation. A majority of parents reported involvement in children's learning. Students showed a strong interest in experiential learning and rated teaching quality above average to excellent. Virtually all students participated in at least one work- or service-based learning experience. In the three years of the follow-up study, the proportion of Minnesota seniors who planned to work after graduating continued to rise. The almost universal aspiration (of 96 percent) was to attend college, but fewer than 30 percent actually did. While career aspirations were highly diverse, males and females tended to cluster around a few key fields, including teaching (most popular for females) and engineering (most popular for males). A majority of students rated goal setting as the most critical skill for meeting their fall plans. (The report also contains 51 figures, an overview of the study system, and research methodology.) (YLB)

A Digest of Information Based on the Education Experiences of the Minnesota High School Classes of 1997-199

The Minnesota High School Follow-Up Survey

TREND REPORT

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TREND REPORT

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Minnesota High School

FOLLOW UP TREND REPORT

Minnesota High School Follow-up Trend Report: Reflections on the Senior Classes of 1997, 98

BACKGROUND

This trend report marks the fourth study produced under Minnesota's restructured follow-up system. The findings presented in this report take stock of the first three years of data and, at various points, compare and contrast our research with similar national data. This report is designed to help build a stronger context for the Follow-up study, as it relates to student educational and career paths and Minnesota's economic future.

This report is organized around six areas of inquiry:

* Student Demographics, Family Background and Support
* High School Experience and Student Involvement
* Lifework Development
* Post-Secondary Plans and Aspirations
* Career Aspirations
* Putting Knowledge and Skills to Work

The Follow-up study is longitudinal, and the seniors from all three graduating classes who participated in our baseline study will be surveyed again three and six years after graduation. We can consider the issues in this report as a foundation to help understand student outcomes later in life. Readers of this report should consider the information presented in terms of its immediate implications and with an eye toward emergent issues likely to have a bearing on Minnesota's economic future over the course of the next decade.

As with our prior studies, the data presented is primarily based on student (and parent) perceptions and opinions about their educational experiences and future plans. This study draws on a number of state and national references to help put student and parent responses into perspective. These other sources include: the Current Population Survey, ACT test-taker data, Census population estimates and decennial Census data, federal financial aid reports and National Center of Education statistics (NCES) longitudinal study data including data from the High School and Beyond and National Longitudinal Study – Class of '88.

SECTION ONE

STUDENT DEMOGRAPHICS, FAMILY BACKGROUND AND SUPPORT

Students educational abilities, experiences, motivations, and choices are shaped not only by the schools they attend, but also to a great extent by their demographic, socioeconomic background, family composition and community environment. The first section of the report briefly examines recent trends in student demographics and social background and their relationship to parental support and aspirations.

Student Population Growth

Minnesota education is currently facing peak enrollment numbers (Figure One) unseen since the baby-boom cohorts entered high school during the early sixties and seventies. Based on most recent census projections, however, those numbers are expected to level off within the next few years and then begin a slow decrease. For individual schools and districts, trends in enrollment growth vary considerably with generally larger increases expected in the Twin Cities metropolitan area and comparatively slower growth or decreases in enrollment in outlying areas of the state.

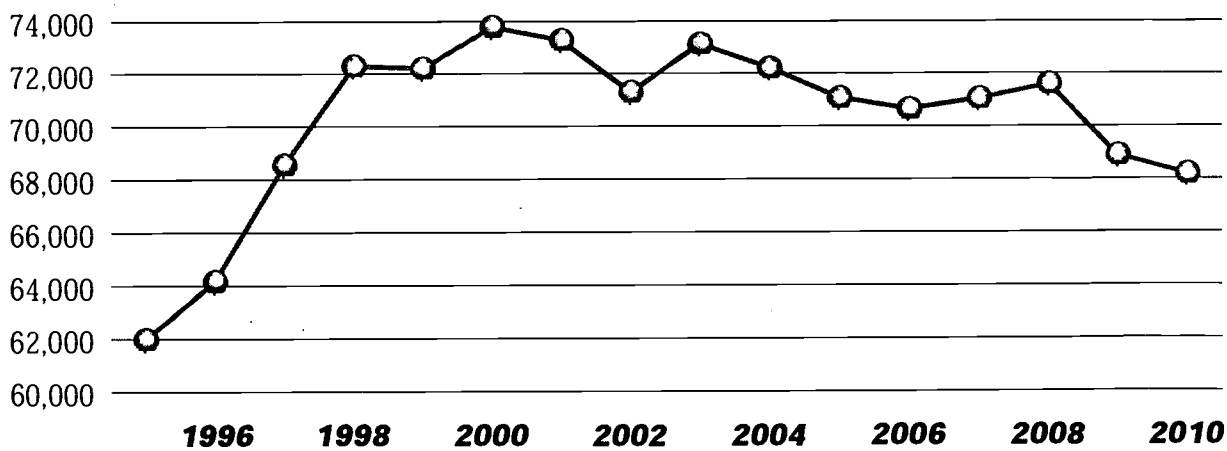
There are important implications that accompany a smaller student population – particularly relating to future economic opportunities. Following high school, a smaller graduating class has historically meant less competition for entry into both the labor market and college. A smaller number of students is also associated with an enhanced ability by the state and individual districts to more effectively plan for and accommodate the changing educational needs of an increasingly diverse student body.

Student Ethnic Background

While Minnesota s high school graduating classes will remain predominantly white for the foreseeable future, the state as a whole is moving towards greater racial diversity. For the Class of 97 (Figure Two) – the first cohort of students to participate in our study – about 11 percent were students of color. By the year 2008, that proportion is expected to

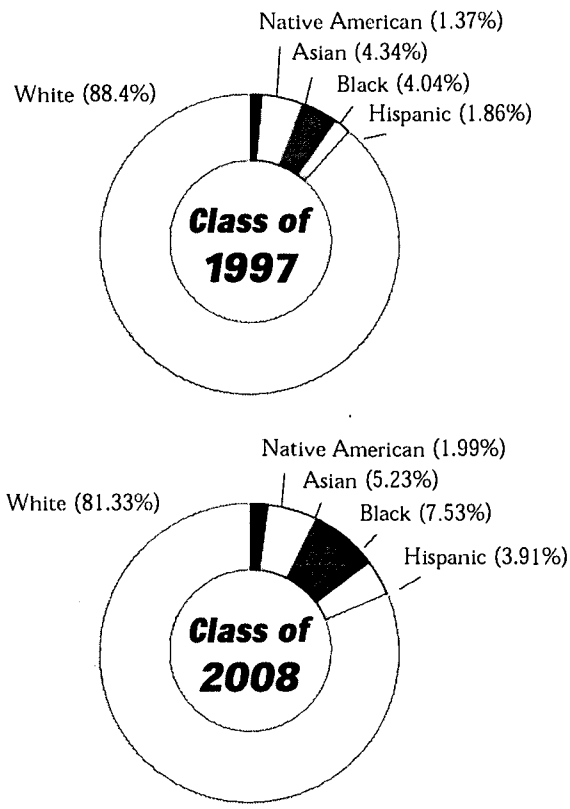
Source: US Dept. of Census Population Projections; US Dept. of Census 1990 PUMS; Human Capital Research Custom Tabulation

Figure 1



Source: Minnesota Dept. of Children, Families & Learning

Figure 2



Distribution of Enrollment for the Senior Class of 1997 and Projected Distribution for Senior Class of 2008

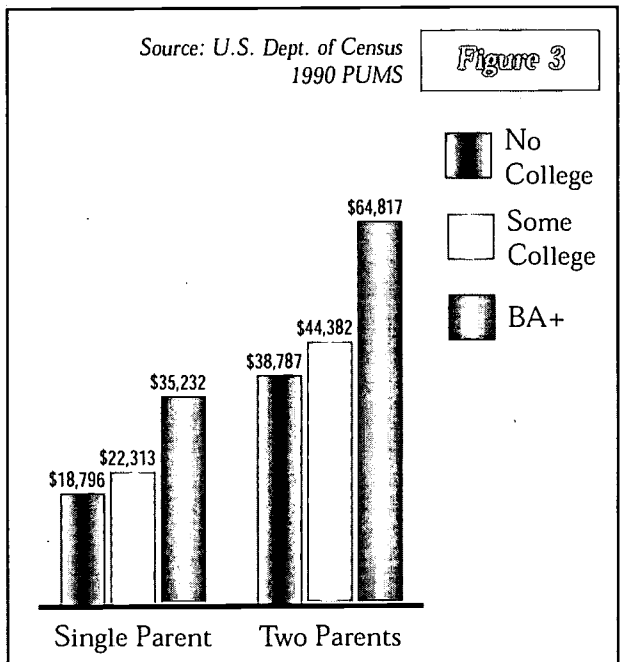
reach nearly 19 percent. For some individual schools and districts, including Minnesota s largest, students of color represent a majority population and the forecast trend over the decade is for more schools to become racially/ethnically diverse.

Student Gender

Despite the changing racial background of Minnesota s students, the proportion of male and female students is expected to remain almost evenly divided. But, in tandem with shifts in racial and family composition, differences in male and female outcomes and experiences are destined to continue. In recent years, females have demonstrated considerably higher levels of educational attainment with a particularly wide gulf, by gender, among lower-income and first-generation students. The career plans and professional aspirations of females are changing as increasing numbers move from traditionally female dominated occupations such as school teacher or nurse to fields such as law, marketing, and computer science. And, although within all three cohorts (graduating classes of 1997, 1998, and 1999), women still tend to expect lower earnings than their male counterparts, that gap, both in terms of expectations and reality, is diminishing. Females also show a greater sense of civic obligation and remain significantly more likely to actively participate as a volunteer in their communities. While males and females are about equally likely to report that they plan to remain residents of Minnesota, (regardless of their planned educational attainment) females are consistently more likely to report that they expect to live in a community other than the one where they attended high school.

Parent Educational Attainment and Family Income

Figure Three (next page) helps illustrate the relationship between parent marital status, education attainment and family income. Based on data from the last decennial census, Minnesota single parent/no college families had an average annual income in 1989 of about $18,800 (or about one-half the income of their two-parent counterpart). At the other end of this spectrum, two-parent families where one or both parents have a bachelor s degree or higher, had an average annual income of approximately $64,800.[1] This disparity in income reflects differences in earnings by level of educational attainment as well as differences in labor force participation. While family incomes



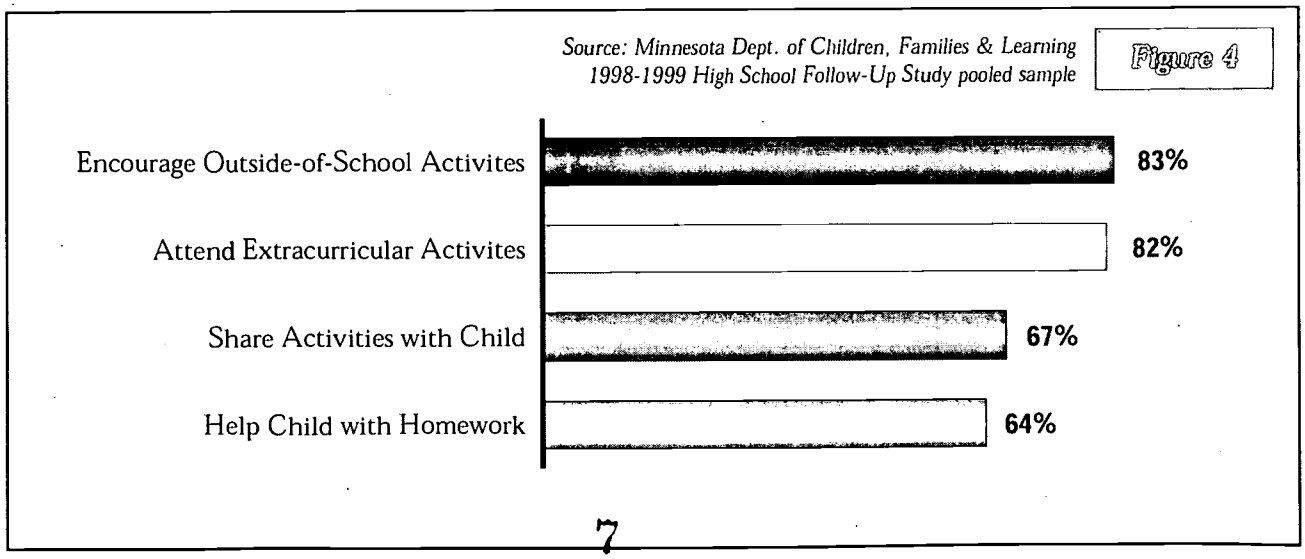
Mean Family Income by Parental Educational Attainment and Marital Status: All Races

increased over the decade, middle and upper income families generally experienced faster income growth than moderate or low income families, which suggests that the disparity in family resources by parent education attainment has probably widened since the last census.

Parental Involvement

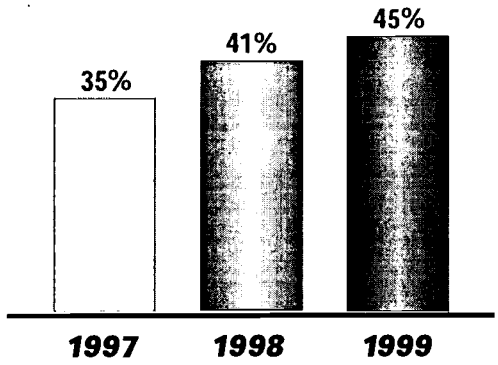
For all three cohorts from our study, a large majority of parents reported at least some involvement in their children s learning and development both in and out of the classroom. More than 90 percent of all parents reported regular involvement in at least one or more of the following aspects of their child s education: attending extracurricular events; helping with homework; fostering involvement in activities outside of school; and sharing hobbies and other activities. (Figure Four) While less than one-third of parents reported regular involvement in all four activities, for the three cohorts in our study, there has been a steady trend (Figure Five) towards increased parental engagement.

A related aspect of parental support and involvement concerns parental savings for the child s education. On average, one-half of all parents reported some savings or investment in preparation for college although a pronounced disparity exists by parent educational attainment or family income. Even among families where one or both parents have a college degree, however, nearly one in three have not saved for the student s post-secondary education. Among other implications, this lack of preparation may bring with it a greater reliance on borrowing, a possible delay in college entry and/or an extension of time to completion to balance competing responsibilities of work and education.



Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

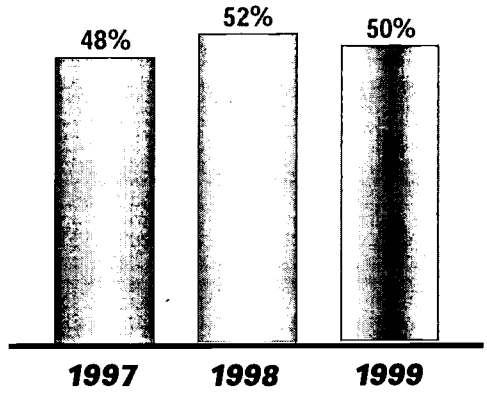
Figure 5



Percent of Parents Engaged in All Four Activities of Support

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 6



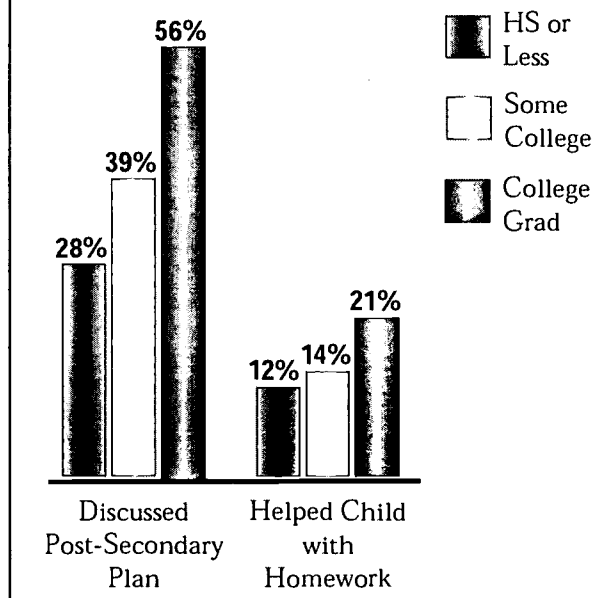
Percent of Parents Who Saved or Invested for Their Child's College Education

Education Capsule 1: How does Minnesota Parental Engagement Compare Nationally?

While questions concerning parental engagement are not identically worded, a comparison of the Minnesota High School Follow-up cohorts with their counterparts nationally suggests that a larger proportion of Minnesota parents are taking greater involvement in their children's learning and plans after high school (Figure Seven). With respect to involvement in college plans, more than 57 percent of Minnesota parents from the most recent cohort indicated significant involvement compared with less than 40 percent nationally. Even after controlling for differences in parental educational attainment, Minnesota parents report greater involvement. Similarly, with respect to day-to-day activities, such as helping their child with their homework, Minnesota parents were more than three times as likely to indicate that they had often or regularly helped their child.

Source: US Dept. of Education, National Center for Education Statistics, National Longitudinal Study of 1988, Third Follow-up Survey 1994, Data Analysis System

Figure 7



Percent of Parents Nationally Who Often Discussed Post-Secondary Plans and Who Often Helped Their Child with Their Child - by Parental Educational Attainment

SECTION TWO

HIGH SCHOOL EXPERIENCE AND STUDENT INVOLVEMENT

To date, our High School Follow-up Study has not tracked student academic performance during high school. While it would be highly desirable to compare students perceptions, aspirations and social background across different levels of academic preparation, developing standardized approaches to measure cognitive gains or student abilities remains a complex and somewhat controversial issue.

However, students participating in our surveys have been routinely asked to assess multiple aspects of their learning environment and experience that – based on other research – have been shown to be closely associated with learning engagement and academic progress.[2] Even within our own universe of data, the association between student satisfaction with their high school environment and plans for further attainment and career and community involvement, suggest that engagement, performance and aspirations go hand in hand. In particular, students who showed greater satisfaction and involvement in their academic, extracurricular and related work and service learning experiences were consistently more likely to aspire to an advanced degree and/or professional, advanced technical or senior managerial career goals.

High School Academic Experience

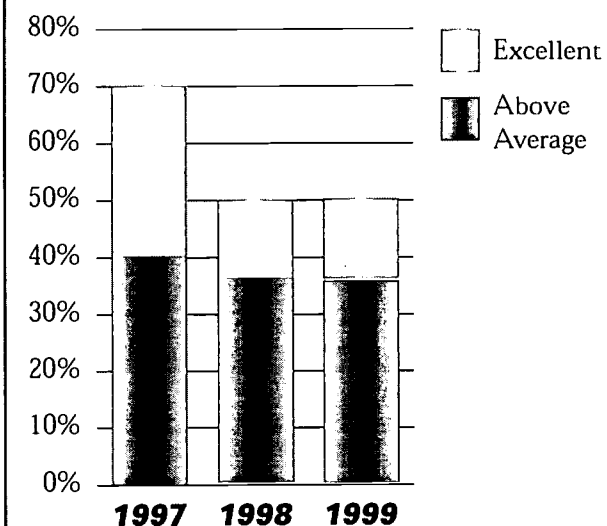
The academic experience encompasses three broad aspects of learning including: quality of teaching; the content of courses and their relevance to future plans; and opportunities for collaborative learning with other students. Within these three areas the specific wording of questions concerning instruction and collaborative learning remained largely the same while differences in questions about curriculum make year to year comparisons (particularly from 1997 to 1998) more problematic.

High School Curriculum

Assessment of high school curriculum (Figure Eight) consists of three criteria: relevance of courses to future plans; how well different academic areas related to each other; and opportunities learned within a real world context. In general, students gave fairly high marks for relevance and how well different subjects related to each other. More than half of all students gave above average to excellent marks for both criteria in all three years. By contrast, student ratings of opportunities to learn in applied settings were lower. About one-third gave above average or excellent ratings and one-third gave a below average or failing grade.

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-up Study

Figure 8



Composite Student Rating of Relevance of High School Curriculum

[2] See for example, Answers in the Tool Box : Academic Intensity, Attendance Patterns, and Bachelor s Degree Attainment, by Clifford Adelman, U.S. Dept. of Education, Office of Educational Research and Improvement, 1999

In general, the three years of student surveys show a strong interest in experiential type learning and suggest that students as a whole would welcome additional opportunities to bridge the classroom with the world of work.

Quality of Teaching

Student assessment of teaching quality (Figure Nine) is based on four broad criteria: knowledge of the subject; ability to stimulate student thinking and student interest in learning; personal attention and support from individual teachers; and access to teachers in and outside the classroom. Over the course of the past three years, a strong majority of students (72 to 78 percent) have given the quality of teaching above average to excellent ratings based on a composite of these four measures – making this among the most highly rated aspects of the Minnesota high school experience.

Collaborative Learning

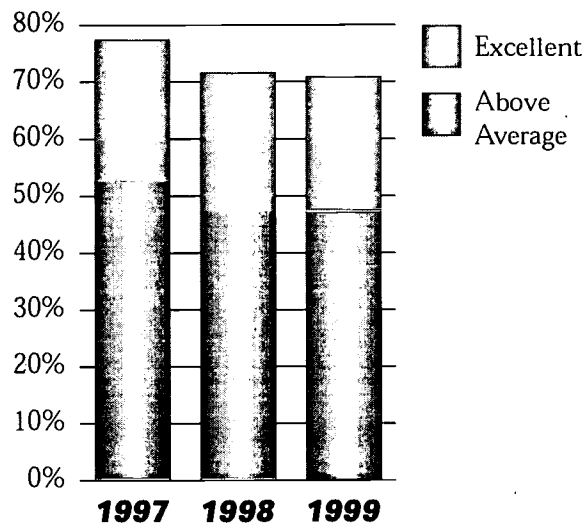
A related facet of teaching and instruction concerns opportunities for collaborative learning. That is, students working with other students through group activities (Figure Ten). Collaborative learning is widely regarded as an effective way to facilitate engaged learning because it empowers students to serve as the primary agent for their own instruction. Through collaborative learning experiences students develop essential interpersonal and group or team-based skills. Among the various measures of the academic experience, the opportunity for group learning was also among the most highly rated. Between 65-72 percent of all students gave this aspect of their experience an excellent or above average rating over the past three years.

High School Extracurricular Experience

Extra-curricular activities represent an important dimension of a student s high school education. Structured extra-curricular activities allow students to acquire a range of talents and to work in group settings – often reinforcing the knowledge and skills that are taught in the classroom. In addition, extra-curricular participation is often treated as an

Source: Minnesota Dept. of Children, Families & Learning 1997-99 High School Follow-Up Study

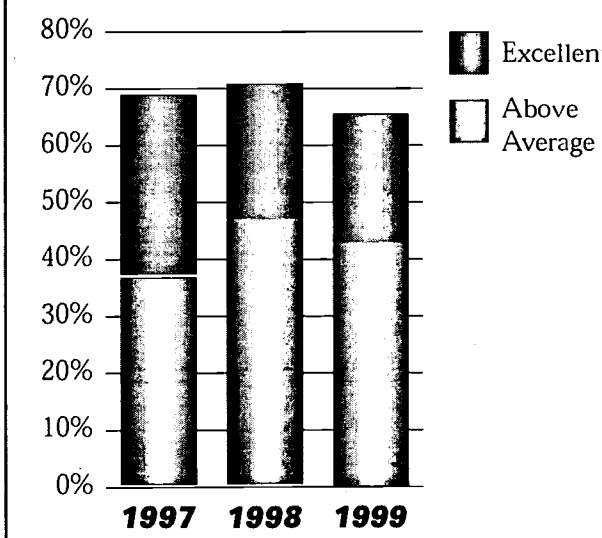
Figure 9



Composite Student Rating: Quality of Teaching

Source: Minnesota Dept. of Children, Families & Learning 1997-99 High School. Follow-Up Study

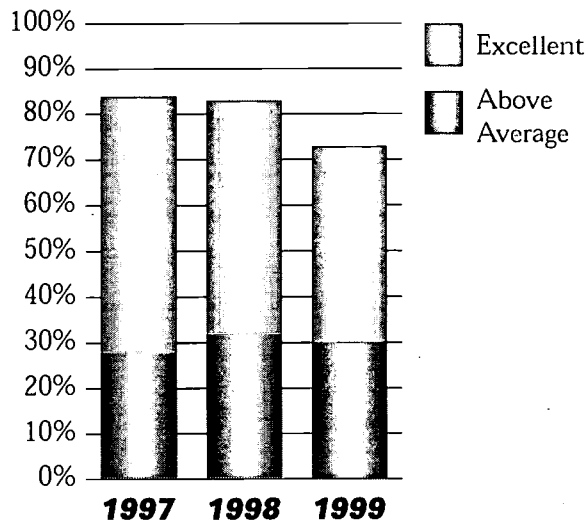
Figure 10



Composite Student Rating of Opportunities for Collaborative Learning

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 11



Student Rating of Opportunities for Extra-Curricular Involvement

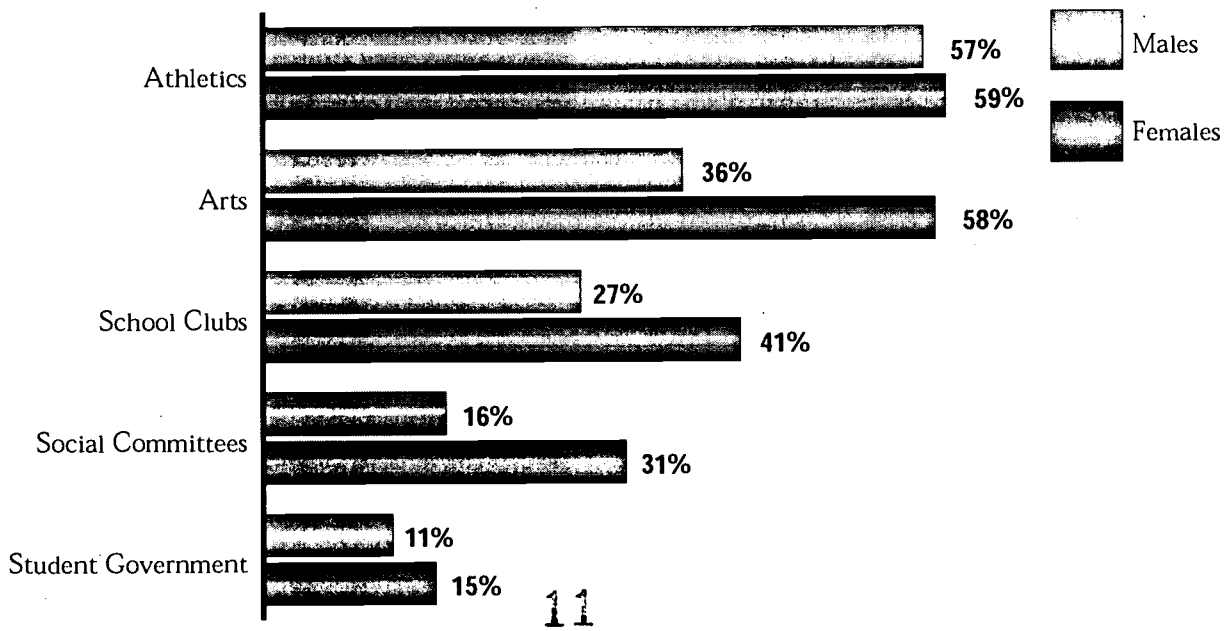
important criterion for college admission and may have a bearing on labor market opportunities as well. Student ratings of their high school extra-curricular experience were based on three criteria: 1) opportunities to participate in activities that relate to their own personal interests; 2) the extent to which such activities contributed to their skills, knowledge and personal development; and 3) the number of specific activities they were regularly and actively involved in as a high school student.

The return on a school s investment in extra-curricular activities is at least partly justified by the large number of students who indicate that such experiences have contributed significantly to their skills, knowledge and personal development.

Of the various aspects of the high school learning experience addressed in our surveys, opportunities to participate in extra-curricular activities that relate to student personal interests (Figure Eleven) were among the most highly rated.

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study— pooled sample

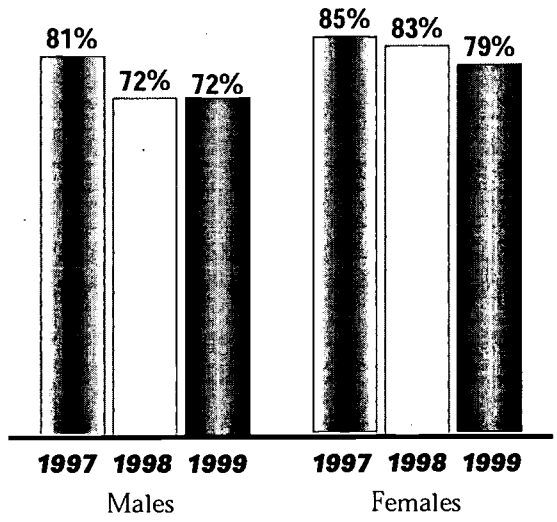
Figure 12



Percent of Students Who Were Actively and Regularly Involved in Extracurricular Activities by Type and Gender

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 13



Percent of Seniors Involved in One or More Extracurricular Activities

Type of Extra-Curricular Activities

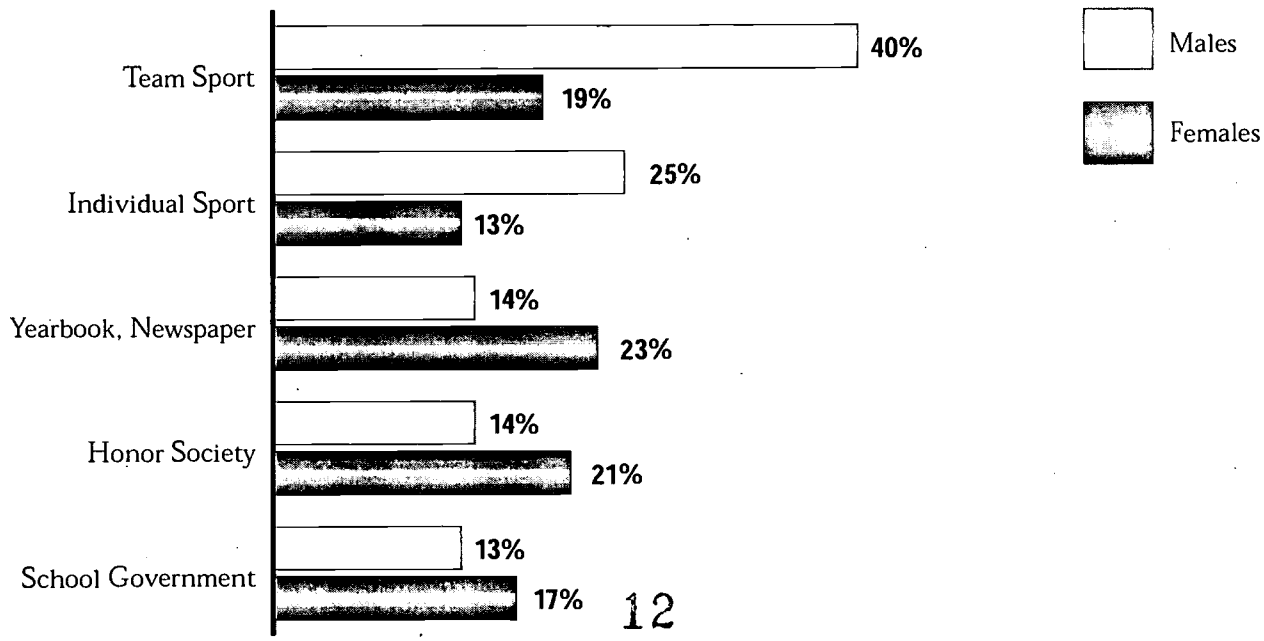
To help gauge the depth and breadth of student involvement, seniors from each cohort of the High School Follow-up were asked to identify the specific types of extra-curricular activities in which they were actively and regularly involved during their high school years (Figure Twelve). On average, students participated in just under two activities, with females reporting a slightly larger number of activities than males.

Trend in Extra-Curricular Involvement

For the three years of graduating cohorts, (Figure Thirteen) more than three-14 of all students were involved in at least one extra-curricular activity with a trend towards decreased involvement from 1997 to 1999.

Source: US Dept. of Education, National Center for Education Statistics, National Longitudinal Study of 1988, Third Follow-up Survey 1994, Data Analysis System

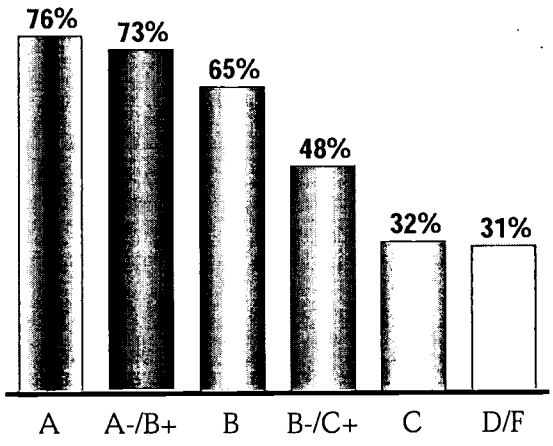
Figure 14



Percent of Students Nationally Who Were Actively and Regularly Involved in Extracurricular Activities - by Type and Gender

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study – pooled sample

Figure 15



Percent of Seniors Planning to Attend a Four-Year Institution in the Fall by Overall Rating of the High School Academic Experience

Education Capsule 2: How Does Extra-Curricular Involvement In Minnesota Compare With Students Nationally?

On average, Minnesota's graduating seniors show a tendency towards greater involvement both in the number of activities and level of involvement than their counterparts nationally (Figure Fourteen).

Taking Stock of the High School Learning Experience

The implications of these various measures are perhaps better understood when student responses are considered in light of their aspirations and family background. Measures of satisfaction with the learning environment and learning engagement are closely associated with higher education and career aspirations. Figure 15 shows the relationship between student s composite rating of their academic and extra-curricular experience and the likelihood of planning to attend a four-year institution in the fall after graduation. Among students who gave their high school an "A" rating, 76% plan to go to a four year institution, compared with less than half for students who rated their experience a B- or C+ and less than a third for students or rated their experience a C or below.

SECTION THREE

LIFEWORK DEVELOPMENT

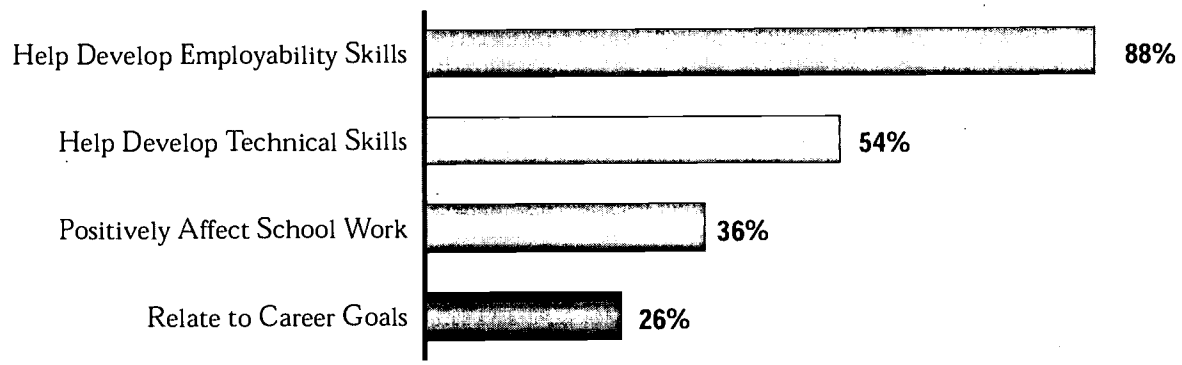
During the past decade, the importance of early work experiences and experiential learning has taken on new and greater significance. Such experiences during high school and in the years immediately following high school have been shown to contribute positively to earnings later in life. In recent years, experiential learning in the form of paid internships and coop educational programs have emerged as a valuable way to help students finance their college education and jump start their careers. Finally, students who engage in paid employment during high school report a number of immediate benefits associated with these experiences including the acquisition of relevant skills (Figure Sixteen).

Experiential Learning

Minnesota, along with a small number of other states, is unique in efforts to facilitate applied learning by bringing work and service learning experiences into the classroom, and from there to the community. The fruits of these efforts are reflected not only in the number of students who

Source: Minnesota Dept. of Children, Families & Learning 1997 High School Follow-Up Study

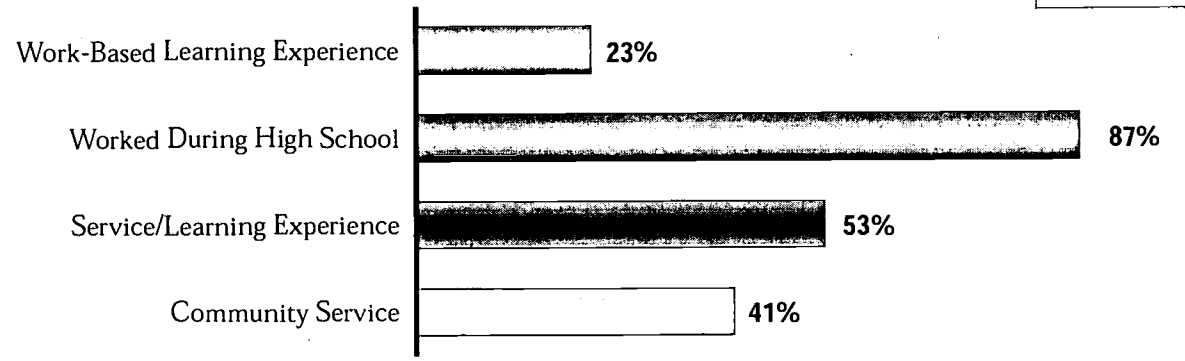
Figure 16



Benefits that Students Believe are Related to Working While in High School: Class of '97

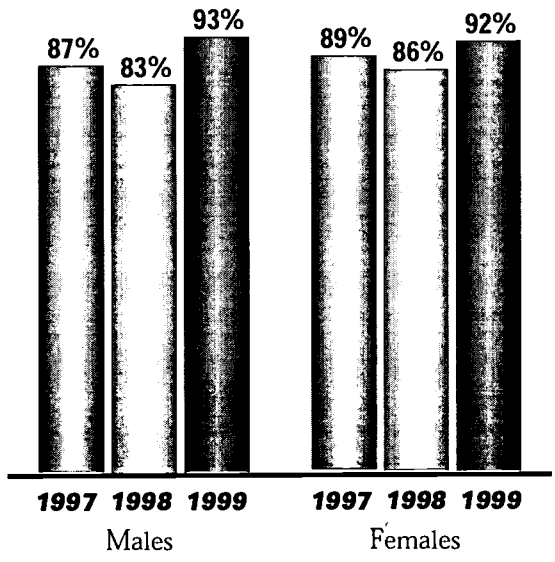
Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study – pooled sample

Figure 17



Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

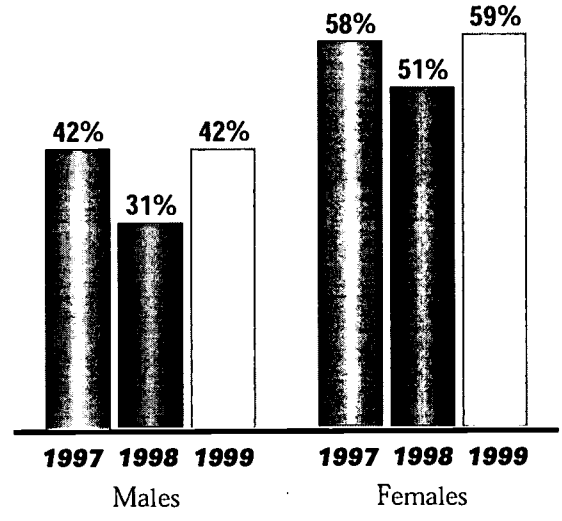
Figure 18



Percent of Students Who Worked While in High School

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 19



Proportion of Students Who Served as Community Volunteers While in High School

have participated in a service and/or work-based experience but by the importance that students themselves ascribe to these types of experiences.

To help understand more about the role of experiential learning in high school and its relationship to college and career, students were asked a series of questions concerning their involvement in such work- and service-based activities as: job shadowing, mentorships, apprenticeships and entrepreneurships, as well as their involvement in volunteer or service learning projects.

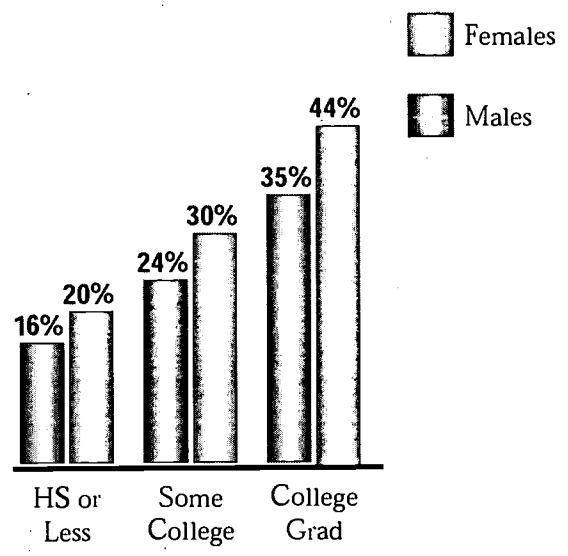
For the three cohorts in our studies (Figure Seventeen), virtually all students have participated in at least one work or service-based learning experience. More than half of all students reported a service-based learning experience and more than one-third have served as a community volunteer or some other service activity. Among those students who were involved, more than 40 percent received credit towards graduation for their involvement. In aggregate, females were more likely than males to participate in a service-learning program, as were students from upper-income families and students whose parents completed a bachelor s degree or higher. In general, students who aspired to a graduate or bachelor s degree were also more likely to participate in a service learning program.

More than 85 percent of all students have held at least one job during their sophomore, junior or senior year and nearly one-fourth have participated in a work-based learning experience. Of that number, almost two-thirds (63 percent) indicated that they had received credit towards graduation for their involvement. In most cases, (about 60 percent of the time) students indicated that the school was the primary sponsor of their work-based program.

Overall, males were only slightly more likely than females to participate in a work-based program and students planning to attend technical college were more than twice as likely as other students to participate.

Source: US Dept. of Education, National Center for Education Statistics, National Longitudinal Study of 1988, Third Follow-up Survey 1994, Data Analysis System

Figure 20



Proportion of Students Nationally Who Have Participated in Community Service During High School, by Gender and Parental Educational Attainment

Employment While in High School Trend

Consistent with a long-term national trend, the proportion of Minnesota seniors who work for pay during high school continues to increase.[3] As of 1999, just under 93 percent of all seniors were actively employed for at least one of four years during high school. (Figure 18)

Trend in Community Service

Over the course of the past three years, (Figure Nineteen) the proportion of students engaged in some aspect of service learning has remained constant with the notable exception of the Class of 98 which (as with many of the characteristics observed in this study) is significantly lower.

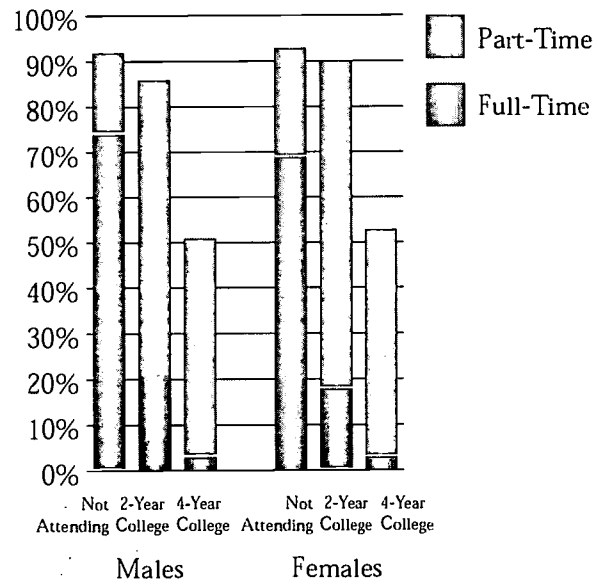
[3] See for example Youth Indicators – Trends in the Well Being of American Youth September 1996, National Center for Education Statistics – which provides long term trend data on numerous aspects of students educational, social and economic background.

Education Capsule 3: How does Community Involvement in Minnesota Compare Nationally?

A significantly larger proportion of Minnesota seniors are involved with community service than their counterparts nationally (Figure Twenty), and this pattern tends to hold for students of all backgrounds. Among students whose parents did not attend college, Minnesota seniors were more than twice as likely to have volunteered (41 versus 18 percent) and among students from families where one or both parents attended college, Minnesota seniors were more than 25 percent more likely (59 versus 40 percent).

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 21



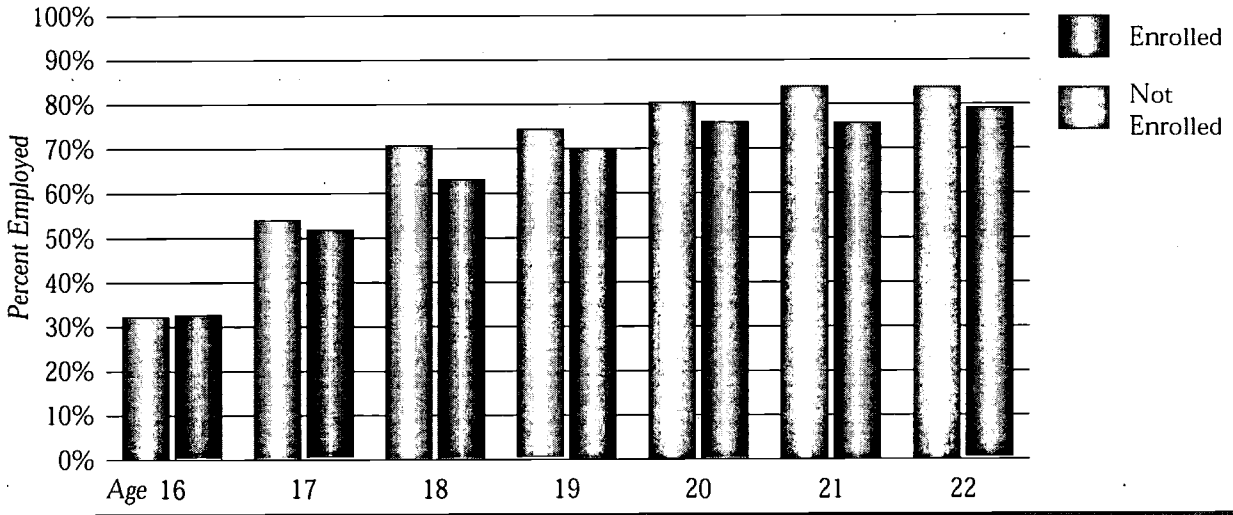
Percent of Students Planning to Work after High School by Work Load and Fall Attendance Plans

Employment Plans after High School

Both out of economic necessity and as a source of personal development, the majority of Minnesota seniors (Figure Twenty-one) plan to work for pay in

Source: US Dept. of Education, National Center for Education Statistics, 1980-92 High School & Beyond Longitudinal Study (HS&B), Sophomore Cohort, Data Analysis System

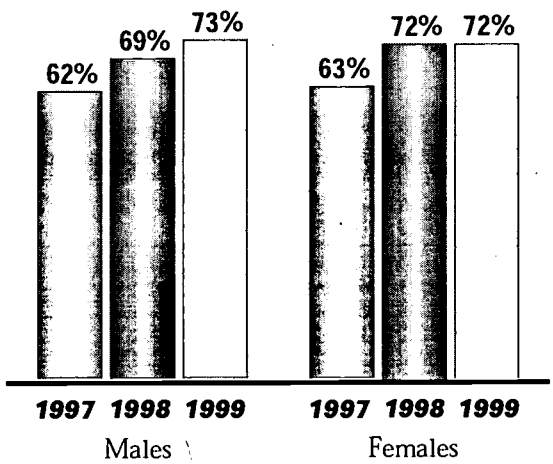
Figure 23



Employment Status of Young Adults by Enrolled Status

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 22



Percent of Seniors Planning to Work for Pay in the Following Fall

the fall after graduating from high school. While a majority of students expect to work fewer than 35 hours a week, the incidence of full-time work is significantly higher for students who do not plan to attend college. There was little difference in employment plans for males and females.

Trend in Work Plans

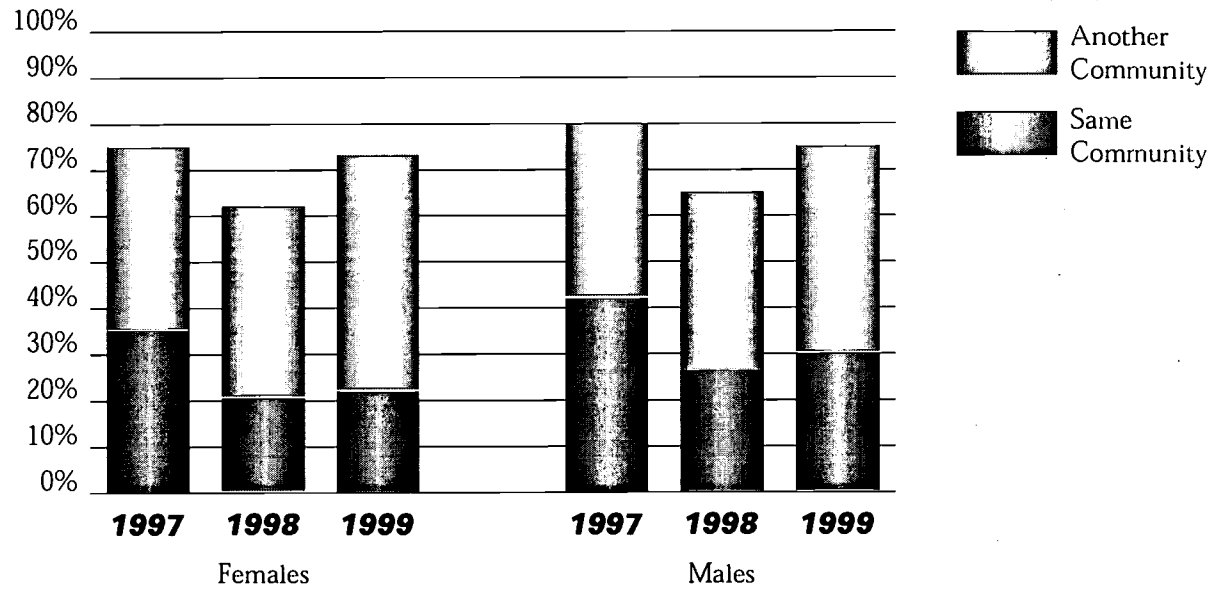
In the three years of the Follow-Up Study and consistent with an on-going long-term national trend (Figure Twenty-two), the proportion of Minnesota seniors who plan to work after graduating from high school continues to rise. As of 1999, just under three – fourths (72 percent) of all males and females expect to work at least part-time – up from 63 percent two years earlier. In general, a majority of those students planning to work expect to hold jobs in what is sometimes described as the secondary job market – positions that require little training, offering limited compensation or opportunities for advancement.

Education Capsule 4: How Does Student Employment In Minnesota Compare Nationally?

Minnesota students report a slightly higher incidence of employment (Figure Twenty-three) relative to their counterparts nationally in virtually the same fields of employment. Students who are enrolled in school, either high school or post-secondary institutions, have only slightly lower rates of employment.

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

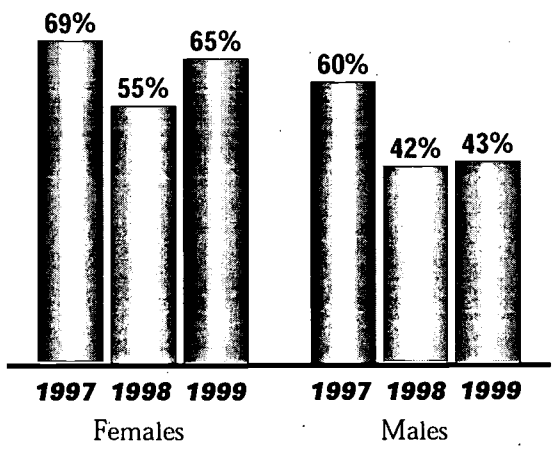
Figure 24



Percent of Students Who Expect to Live in Minnesota Six Years After High School

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study.

Figure 25



Percent of Students Who Expect to be Actively Involved in Their Communities Six Years After Graduation from High School

express an interest or commitment to give back to their communities. Given the motivation of these students and their plans for the future, it is particularly significant that the majority of these students intend to continue to reside in Minnesota as they enter adulthood. For all three cohorts, including both males and females, on average, more than three-14 of all seniors plan to be state residents six years after graduation. (Figure 24)

In addition to large numbers living in Minnesota, a significant proportion of high school seniors expect to be actively involved in their communities. However, for the three cohorts of our study, the trend has been towards decreased civic involvement even as education and career aspirations continue to rise. (Figure 25)

Community Involvement

By most standards, Minnesota s high school seniors could be characterized as enterprising individuals. As a group, they show generally high educational and career aspirations and in a number of ways

SECTION FOUR

POSTSECONDARY PLANS AND ASPIRATIONS

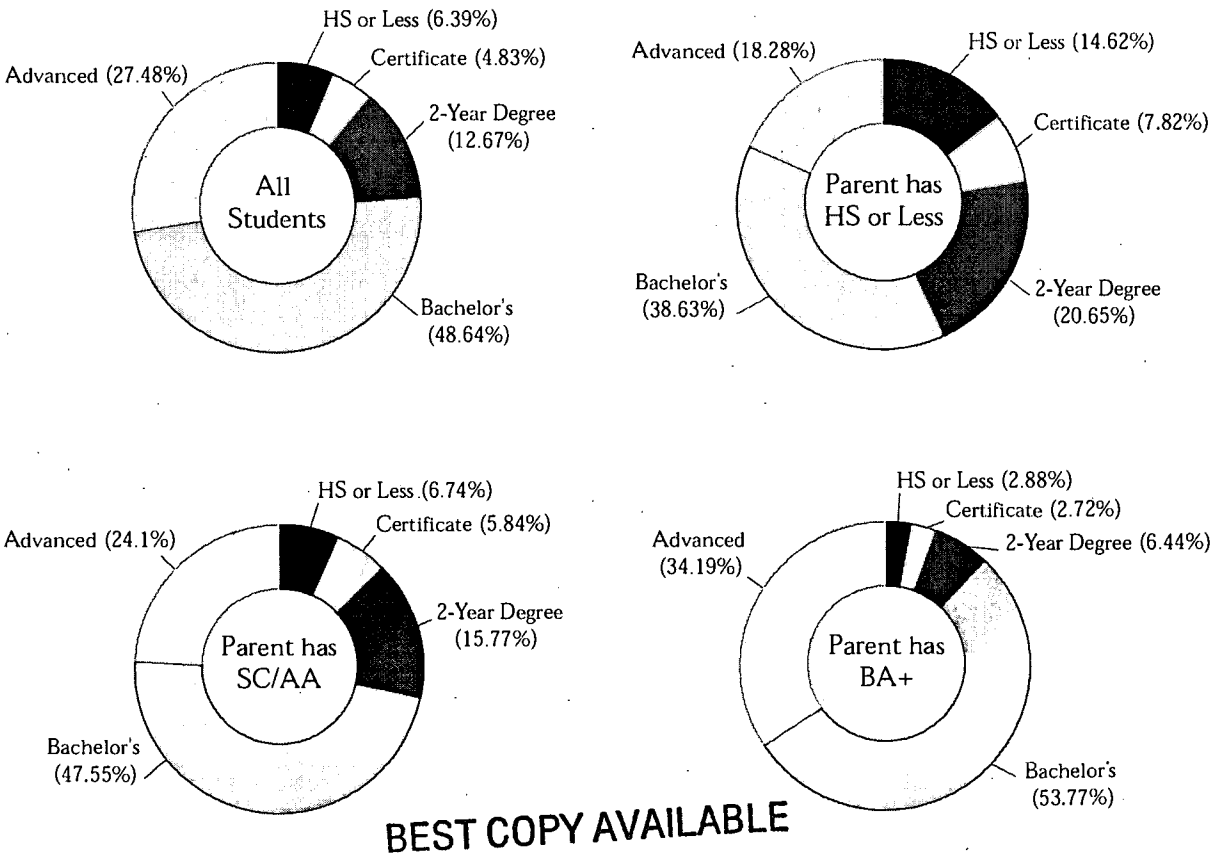
The past decade has marked a number of important changes in the U.S. economy that have had direct bearing on students decisions to attend college, the ability to pay for college and what they would study. In many respects, while a historically unprecedented tight labor market has raised the earnings of young adults without a college education, it has raised the earnings of college graduates even more. The earnings differential for those with and without a college education continues to rise, which continues to make college an attractive investment.

Education Aspirations and Attainment

Among high school seniors, both in Minnesota and nationally, there exists an almost universal aspiration to attend college. For the three cohorts of this study, more than 96 percent of all seniors expect to have had at least some college within six years of graduating from high school and more than three-14 expect to have completed at least a bachelor s degree. The proportion of students who expect to have a Bachelor s or more increases as parental educational attainment increases.

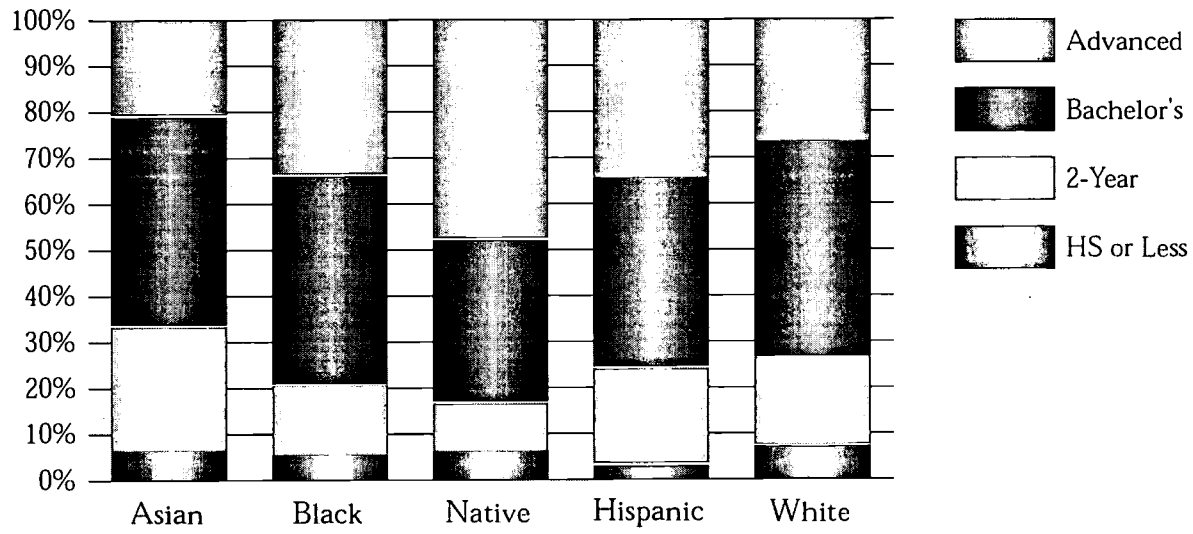
Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 26



Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 27



Educational Aspirations by Race

As Figures 26 and 27 show, the high aspirations of Minnesota s students cut across all aspects of background almost irrespective of parent attainment, economic background or race or ethnicity.

Trend in Attainment Aspirations

For the first three cohorts of the Follow-up study, the proportion of students aspiring to a bachelor s degree has increased slightly. (Figure 28 and Figure 30) At the same time, the proportion of students planning to attend a four-year institution in the fall has remained constant.

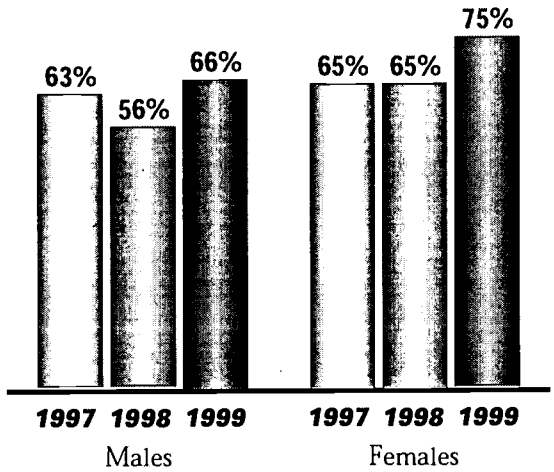
Actual attainment, however, both in Minnesota and nationally, falls short of aspirations. The first sign of students failing to reach their attainment goals can be observed in students fall plans. They show a substantially smaller proportion planning to attend a four-year institution than their aspirations would otherwise suggest. For the two most recent cohorts, about 60 percent plan to attend a four-year institution the following fall. In contrast with longer term aspirations, which show modest differences across comparative parent education attainment, fall plans to attend a four year institution are significantly higher for students from families where one or both parents have themselves completed a degree. (Figure 29)

Because the Follow-up study is only now returning to the field to learn about the status of the first 97 cohort – we do not yet know the college participation or attainment status of our students. Other public domain data, however, reveals a pattern that supports the idea that for several groups of students – attainment is likely to fall short of aspirations.[4]

4 See for example any of the recent national longitudinal studies sponsored by the National Center for Education Statistics including the National Longitudinal Study of the High School Class of 1972, the High School and Beyond, Senior and Sophomore Classes of 1980 and the National Education Longitudinal Study of 1988.

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 28



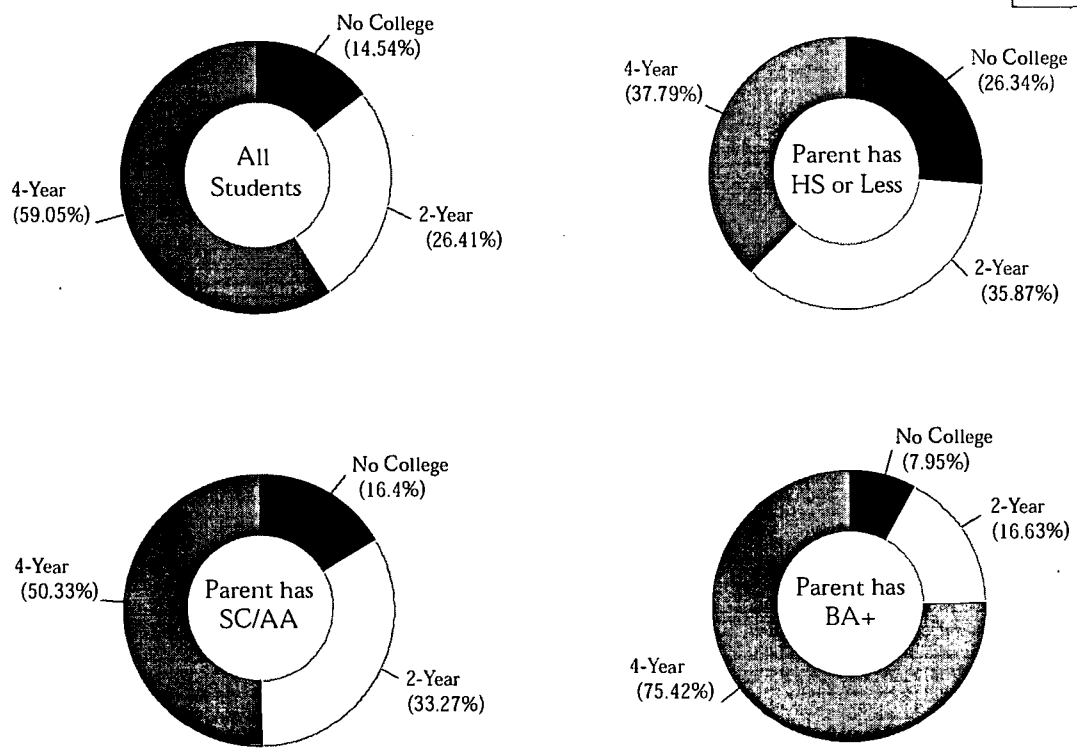
Percent of Seniors Expecting to Complete a Bachelor's Degree or Higher Within Six Years After High School Graduation

Education Capsule 5: ACT Test Takers by Race

Another indication of lower educational attainment than expressed educational aspirations comes from the actual proportion of students who take the ACT test. ACT is for most four-year institutions a necessary condition of admission. During the past five years, the proportion of Minnesotans taking the ACT test as a percent of the population has remained fairly constant. The significance of this figure is two fold – 1) the proportion has remained virtually unchanged despite increasing aspirations, and 2) there is a pronounced disparity in test-taker participation rates by race with Black, Hispanic and American Indian students being anywhere from one-half to one fifth as likely to take the ACT test as their white or Asian counterparts. (Figure 31)

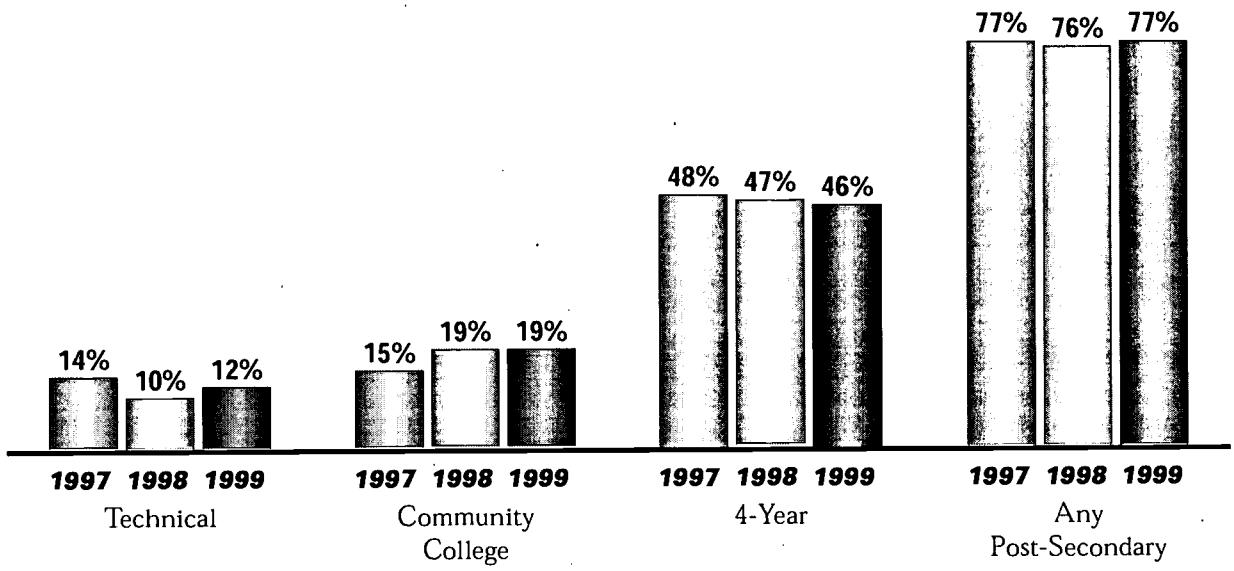
Source: Minnesota Dept. of Children, Families & Learning High School 1998-1999 Follow-Up Study-pooled sample

Figure 29



Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

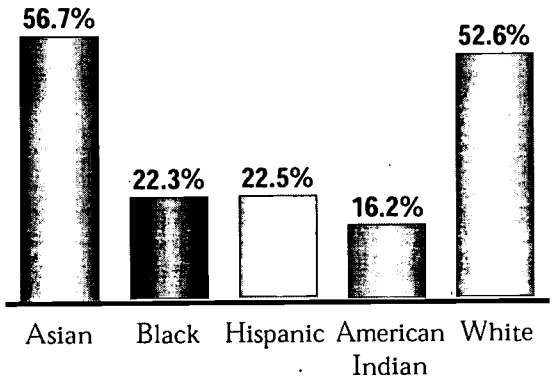
Figure 30



Percent of Seniors Planning to Attend College the Fall After Graduation from High School - by Type of Institution

Source: American College Testing

Figure 31



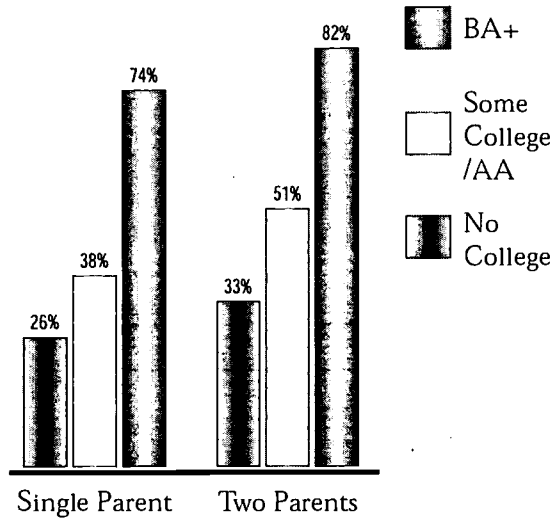
MN ACT Test Takers as a Percent of All 18-Year-Olds - by Race

Education Capsule 6: How Do College-Going Rates For Minnesota High School Seniors Compare Nationally?

Despite the nearly universal aspiration to attend college, the actual proportion of students who matriculate is considerably less than universal and strongly related to parent educational attainment. Based on national studies of prior graduating cohorts, the reported student expectations from the Follow-up study greatly outstrip actual national attendance and completion rates. While about 44 percent enter college immediately after high school fewer than 30 percent of the population have completed a bachelor s or higher. Students whose parents have received a Bachelor s degree or higher are more than three times as likely to enroll than those students whose parents did not attend college. (Figures 32, 33 and 34)

Source: US Dept. of Education, National Center for Education Statistics, National Longitudinal Study of 1988, Third Follow-up Survey 1994, Data Analysis System

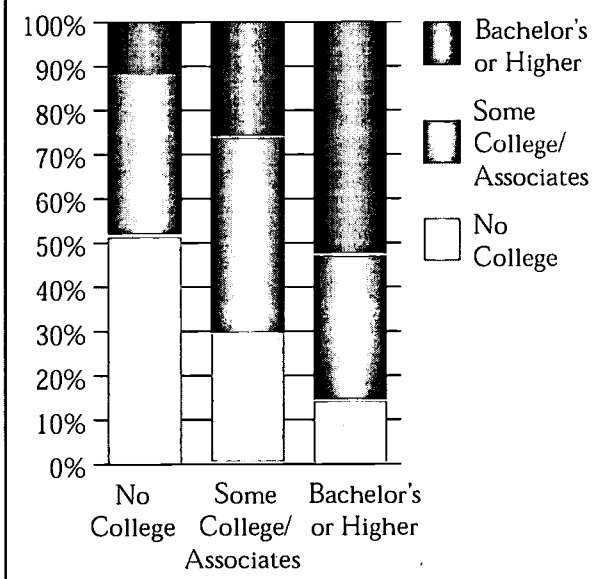
Figure 32



College Going Rates by Parent Educational Attainment and Marital Status

Source: U.S. Dept. of Education, National Center for Education Statistics, 1980-92 High School & Beyond Longitudinal Study (HS&B), Sophomore Cohort, Data Analysis System

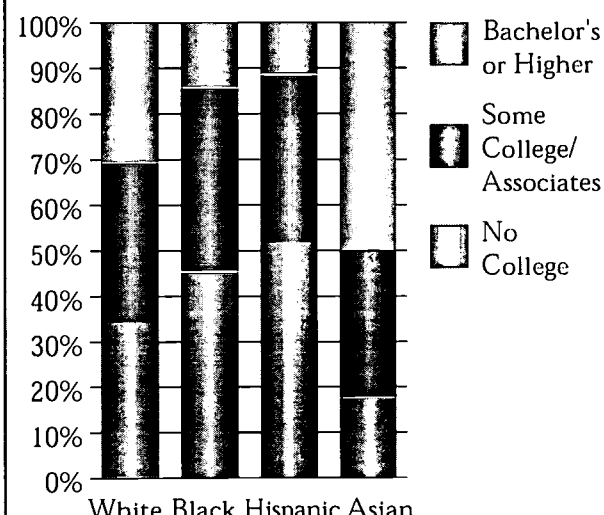
Figure 33



Distribution of Educational Attainment by Parent Educational Attainment

Source: US Dept. of Education, National Center for Education Statistics, 1980-92 High School & Beyond Longitudinal Study (HS&B), Sophomore Cohort, Data Analysis System

Figure 34



Distribution of Educational Attainment by Race/Ethnicity

SECTION FIVE

CAREER ASPIRATIONS

The Minnesota economy has undergone extraordinary changes in the past decade with further major shifts anticipated. Examined over the long run, Minnesota continues to lose employment in production-related activities and gain in producer and professional services. Naturally, the implications of these shifts for Minnesota high school seniors are considerable and dictate not only where the greatest economic opportunities lie, but also

Source: Minnesota Dept. of Economic Security

Figure 35

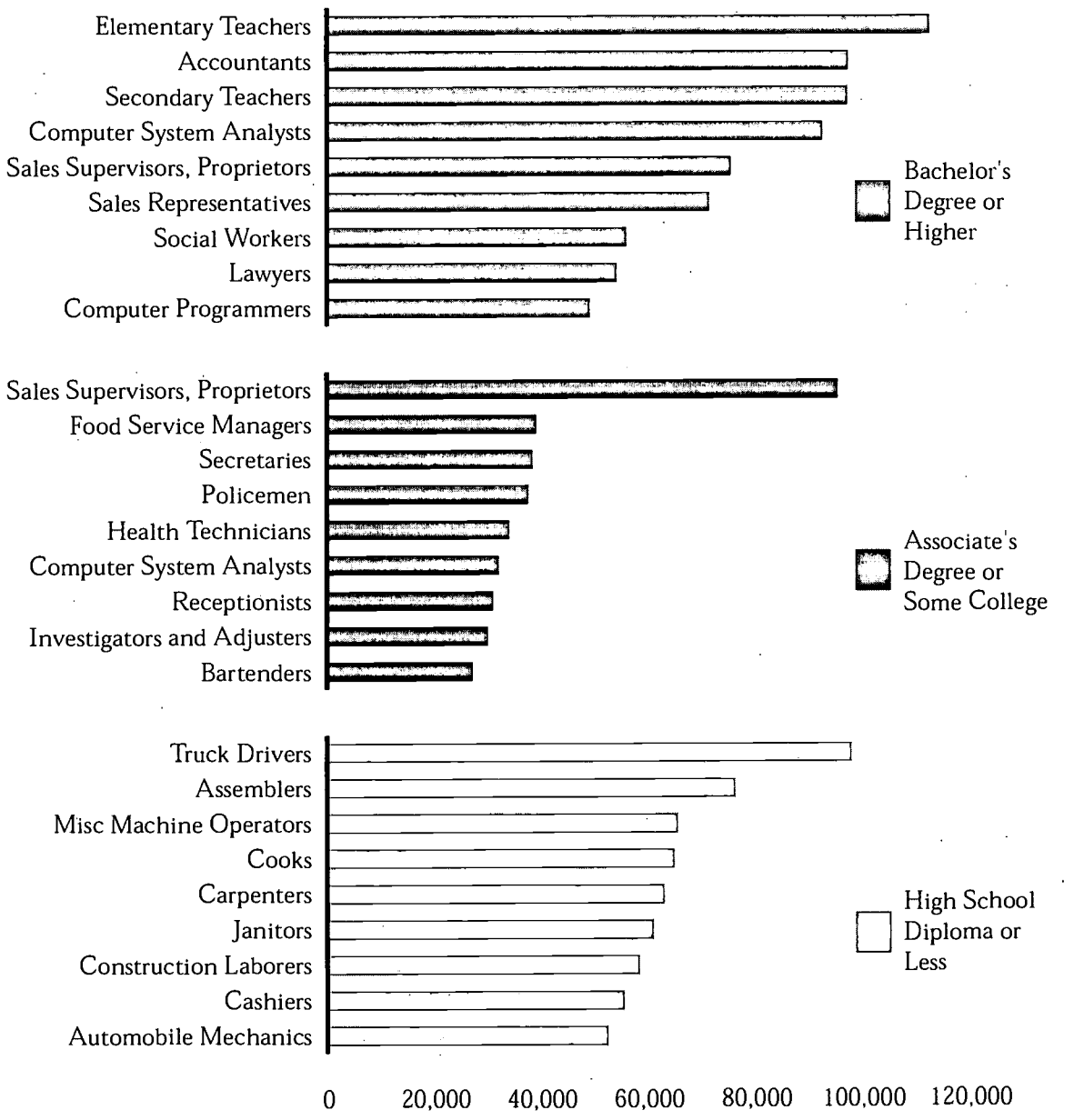


Figure 35

The Most Important Occupations to Minnesota's Economic Future

Table 1

Occupations	Minnesota Employment 1996	Minnesota Employment 2006	Net Change '96-06	Percent Change '96-06
Financial Managers	17,413	21,157	3,744	21.5%
Marketing, Advertising, & Public Relations Mgrs.	13,061	17,398	4,337	33.2%
Engineering, Math, & Sciences Managers	6,693	10,038	3,345	50.0%
Food Service & Lodging Managers	10,935	13,939	3,004	27.5%
Engineers	25,732	32,421	6,689	26.0%
Electrical & Electronic Engineers	7,037	10,629	3,592	51.0%
Computer & Mathematical Scientists	35,931	67,749	31,818	88.6%
Computer Scientists & Related Workers	34,694	66,456	31,762	91.5%
Computer Engineers	3,986	9,600	5,614	140.8%
Computer Systems Analysts	10,428	20,655	10,227	98.1%
Computer Support Specialists	2,900	5,263	2,363	81.5%
Computer Programmers	10,683	13,538	2,855	26.7%
All Other Computer Scientists	4,542	14,654	10,112	222.6%
Social Scientists, Recreational, & Religious Workers	43,829	57,393	13,564	30.9%
Social and Recreation Workers	33,110	44,748	11,638	35.1%
Residential Counselors	8,487	11,666	3,179	37.5%
Human Services Workers	7,249	11,999	4,750	65.5%
Legal Assistants & Technicians	4,681	5,940	1,259	26.9%
Non-vocational Education Instructors	3,936	5,497	1,561	39.7%
Instructors & Coaches, Sports & Physical Training	6,475	8,600	2,125	32.8%
Physicians & Surgeons	11,464	14,549	3,085	26.9%
Therapists	7,732	10,607	2,875	37.2%
Emergency Medical Technicians	2,570	3,609	1,039	40.4%
Other Health Practitioners & Technicians	26,408	33,126	6,718	25.4%
Medical Records Technicians	2,113	3,222	1,109	52.5%
Artists & Related Workers	5,127	6,551	1,424	27.8%
Designers, Except Interior Designers	3,922	5,121	1,199	30.6%

The Most Important Occupations to Minnesota's Economic Future

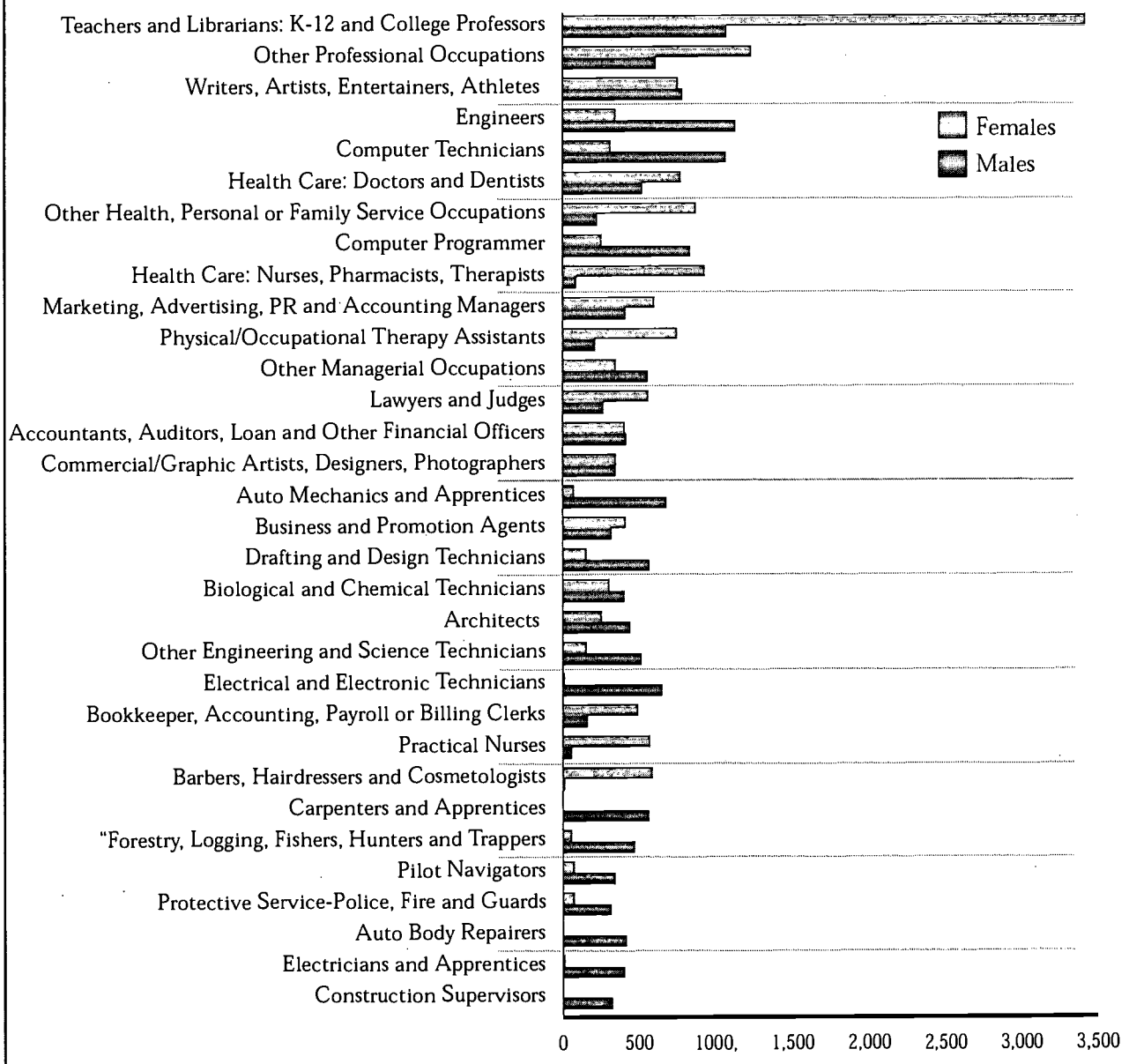
Table 1, continued from previous page

Occupations	Minnesota Employment 1996	Minnesota Employment 2006	Net Change '96-06	Percent Change '96-06
Musicians	4,110	5,215	1,105	26.9%
Securities, Commodities, Financial Agents	6,073	7,928	1,855	30.5%
Sales Agents, Business	4,644	6,214	1,570	33.8%
Adjustment Clerks	8,767	13,438	4,671	53.3%
Bill & Account Collectors	4,393	6,336	1,943	44.2%
Receptionists & Information Clerks	25,360	31,812	6,452	25.4%
Protective Service Occupations	28,578	35,993	7,415	25.9%
Correction Officers & Jailers	4,429	6,602	2,173	49.1%
Guards & Watch Guards	9,915	13,377	3,462	34.9%
Health Service & Related Occupations	57,090	74,658	17,568	30.8%
Medical Assistants	2,217	3,448	1,231	55.5%
Home Health Aides	12,506	21,112	8,606	68.8%
Physical & Corrective Therapy Assistants & Aides	1,422	2,457	1,035	72.8%
Amusement & Recreation Attendants	14,007	18,026	4,019	28.7%
Flight Attendants	3,133	4,151	1,018	32.5%
Personal & Home Care Aides	4,476	7,822	3,346	74.8%
Data Processing Equipment Repairers	2,679	4,432	1,753	65.4%
Desktop Publishing Specialists	1,466	2,835	1,369	93.4%
Numerical Control Machine Tool Operators	2,729	4,172	1,443	52.9%
Packaging & Filling Machine Operators	7,912	9,982	2,070	26.2%
Hand Packers & Packagers	18,875	23,946	5,071	26.9%
Vehicle Washers & Equipment Cleaners	5,874	7,416	1,542	26.3%

Source: Minnesota Dept. of Economic Security

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 36



Top Planned Occupation by Gender

the necessary related skill and knowledge sets required to pursue work in those fields.

Minnesota's Most Important Occupations

To help get a feel for the changing demand for new labor force entrants and associated skill and knowledge requirements, we have identified those occupations in the Minnesota economy that are projected to have the fastest rates of expansion and/or account for the largest number of future job openings over the next decade. For purposes of this discussion, we refer to these occupations as Minnesota s fastest growing and most important emergent job opportunities. (Table 1)

One of the implications of falling short of one s educational aspirations is the likelihood of falling short of one s occupational aspirations as well. Even among those students who manage to fulfill their educational goals, a majority are expected to change their occupational plans as well. The link between occupational employment and educational attainment is made fairly clear by observing the differences in leading occupations by level of attainment for young adults. While there is some job overlap, young adults with no college, versus some college or a bachelor s clearly participate in three fairly distinct labor markets. Baccalaureate holders are more likely to hold professional specialty occupations, associate degree holders more likely to hold technical and precision production occupations and non-college educated to hold service, laborer, transportation and less skilled production occupations. (Figure 35)

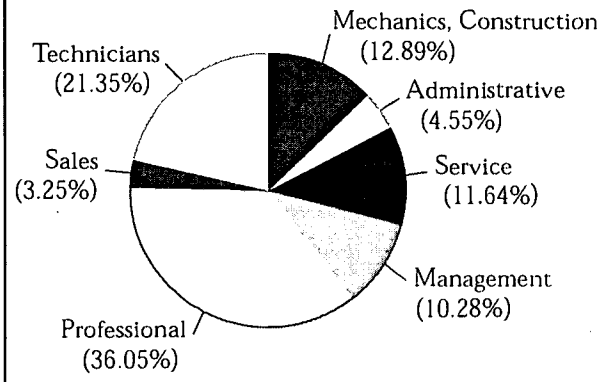
Detailed Occupational Plans

While the career aspirations of Minnesota s high school seniors are highly diverse, males and females still tend to cluster around a few key fields. For instance, teachers both historically and today remain the top occupation for women while more males aspire to be engineers than any other career. As figure 36 shows, to a very large extent, males and females participate in very separate labor markets – and of the 25 leading male and 25 leading female occupations, there are perhaps only three or four that have roughly equal representation from both sexes.

Overall, student career aspirations can be classified into eight broad groups, with the largest proportion of students indicating an intention to enter a career in a professional field. Approximately 21% plan to enter a technical career and the smallest proportion of students intend to build their career in sales. (Figure 37)

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 37



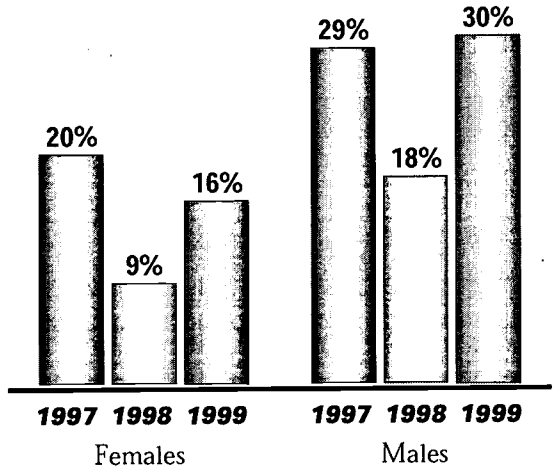
Distribution of Students by Broad Occupational Goals

Entrepreneurship

On average, about one in five students expect to own or operate their own business six years after graduation from high school. For all three cohorts in the study, males are significantly more likely than females to plan to be involved in ownership or entrepreneurship. (Figure 38) Students planning to start or operate their own business are found in virtually every major field of employment from computer programmers to teachers to artists, writers and entertainers, and tend to have slightly lower educational aspirations than other students. To help put these numbers into perspective, fewer than 5 percent of all seniors nationally from the graduating class of 1982 were business owners ten years after high school.

Source: Minnesota Dept. of Children, Families & Learning 1997, 1998 and 1999 High School Follow-Up Study

Figure 38



Percent of Students Who Expect to Own Their Own Business Within Six Years After Graduation

SECTION SIX

PUTTING KNOWLEDGE AND SKILLS TO WORK

As our economy has shifted from resource to goods producing to professional and producer services and most recently to electronic commerce, it has become increasingly evident that what largely determines a state s overall capacity to compete are the skills and knowledge of its workers. In large part the infrastructure that supports the acquisition of these requisite skills and knowledge is Minnesota s system of K-12 and postsecondary education.

Putting College Curriculum into Context

One of the most remarkable facets of education as a form of investment is its portability – the simple fact that investing in education unlike other capital investments can be applied in highly diverse ways. One clear reflection of that portability is in how Minnesota high school seniors intend to apply their postsecondary fields of study as preparation for various careers later in life. A majority of students planning to enter a given occupation will often declare the same academic major, however, students often plan to enter a given field of employment based on very divergent paths of preparation.

To help illustrate the fact that students tend to use their education, often in ways that we can hardly imagine, the following series of charts show the distribution of students academic major related to students plan to enter selected occupations. For instance, among those students planning to be to be computer technicians, 59 percent plan to major in computer science, but the balance plan to study such diverse fields as nursing, engineering, communication, biology and accounting. Presumably this will enable these individuals to leverage expertise from more than one field. Similarly, among those students planning to enter the field of marketing and/or advertising, 46 percent plan to major in business administration and another 25 percent in marketing, while the balance plan to major in such diverse fields as communication and psychology. (Figure 40)

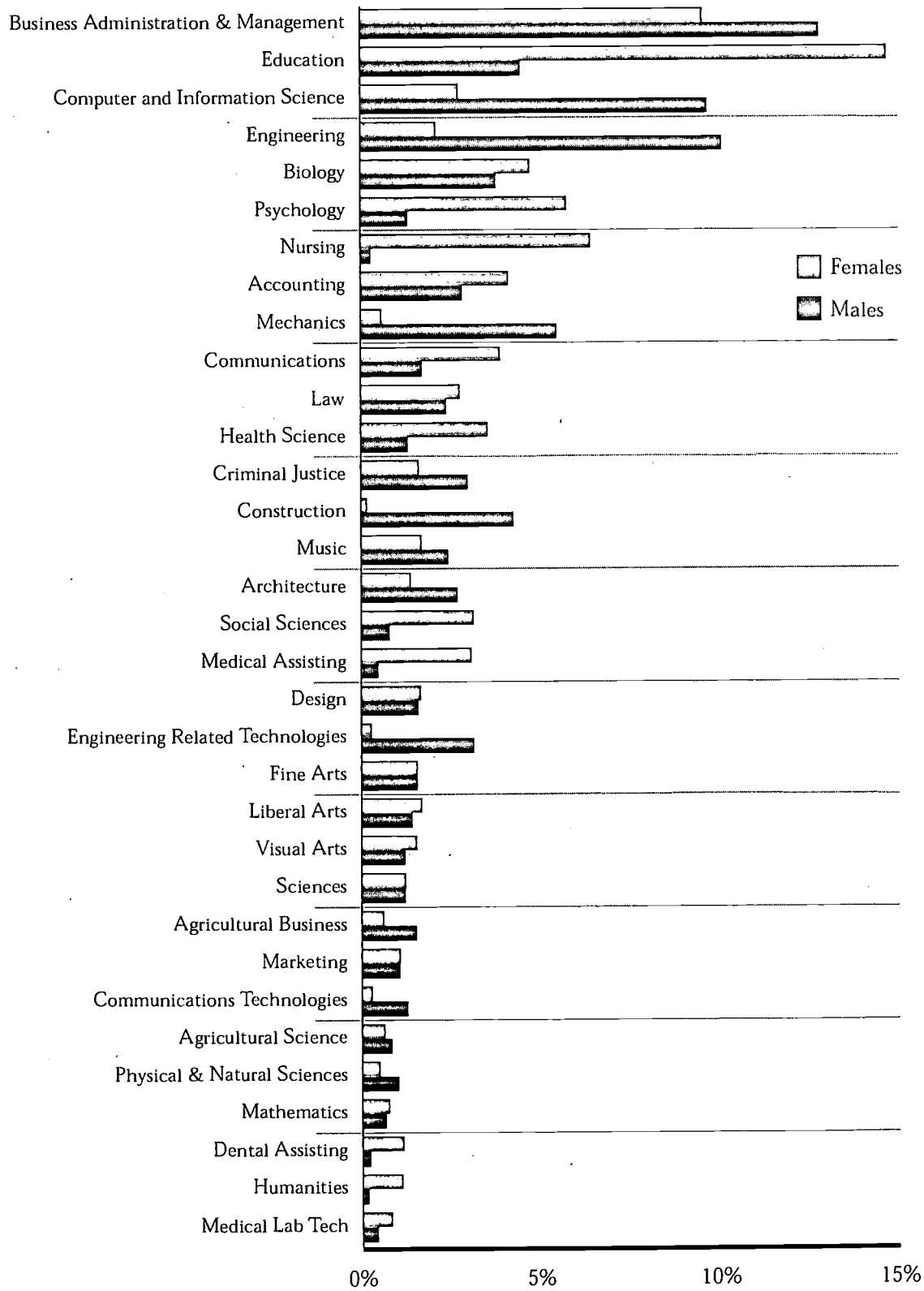
Mastery and Relevance of Critical Skills

One of the more important aspects and challenges of the Minnesota High School Follow-up concerns the need to understand which critical skills students believe are relevant to their future plans and their perception of mastery of those skills. During the past three years, students have been asked a variety of questions concerning the acquisition of key skills in order to help understand the effectiveness of a Minnesota high school education from a student s perspective.[6] In the most recent year of our study, these skill areas were refined to include 16 critical competencies that were regarded as necessary skills for college and work. (Figures 41, 42 and 43)

Regardless of a student s plans for the fall, a majority of students rated goal-setting as the most critical skill for meeting their fall plans. After goal-setting, however, skill priorities diverge depending on a student s fall plans. For instance, among students planning to attend a four-year institution in the fall, using computers ranked as the second highest priority with nearly 65 percent citing this skill as highly relevant to their plans compared with fewer than one-third of students who do not plan to attend college. Similarly, about 45 percent of all students considered reading and writing to be

Source: Minnesota Dept. of Children, Families & Learning 1999 High School Follow-Up Study

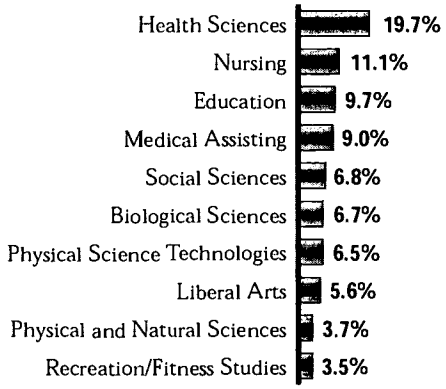
Figure 39



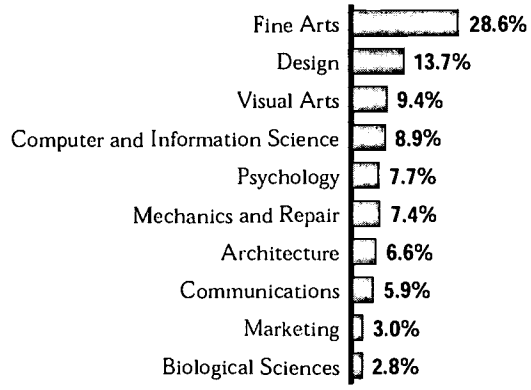
Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 40

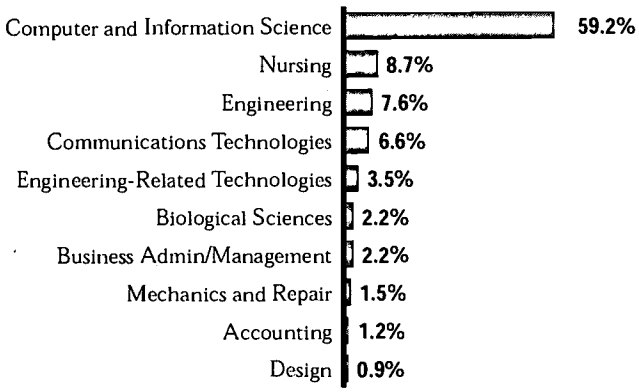
Occupational Therapists



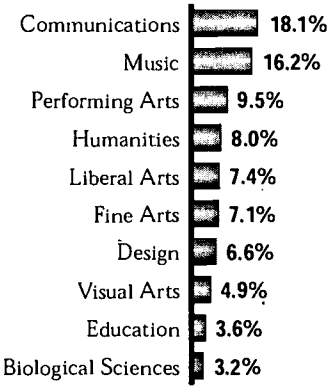
Commercial Artists



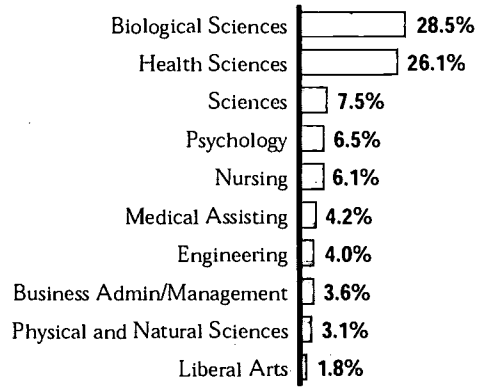
Computer Technicians



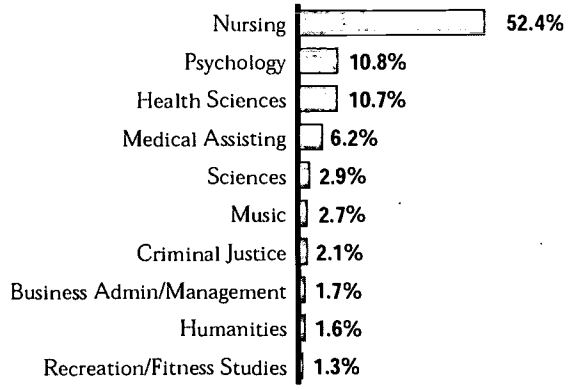
Writers, Artists, Entertainers



Doctors and Dentists

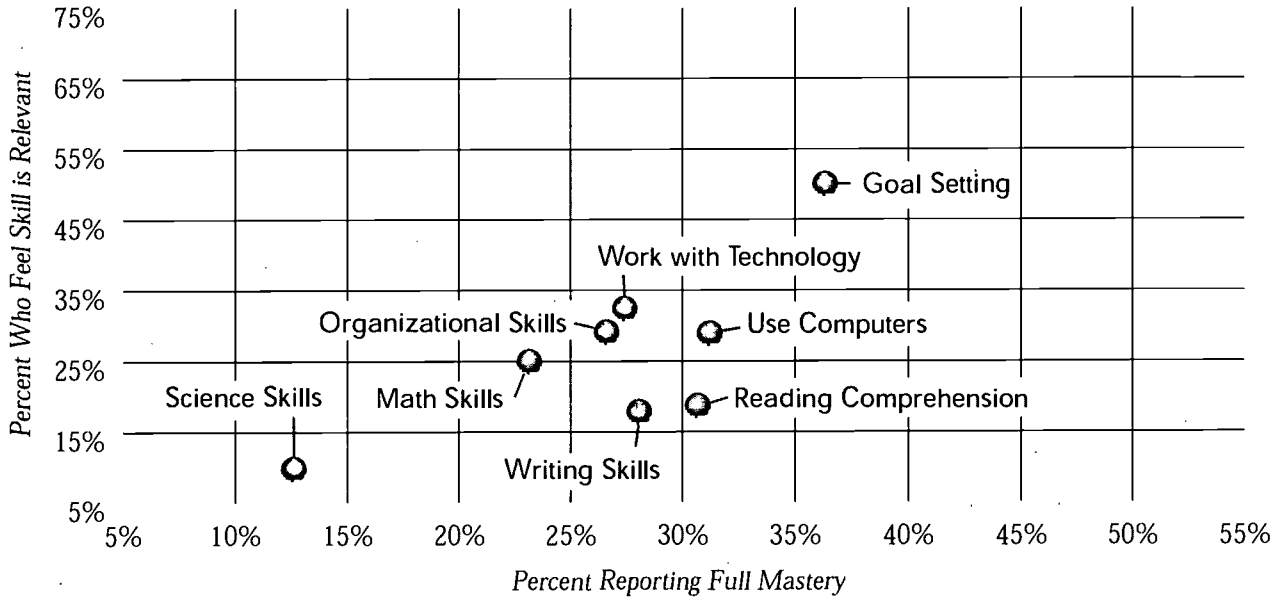


Nurses, Pharmacists, Therapists



Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figure 41



Relationship Between Student's Mastery of Critical Skills and their Relevance to Student's Fall Plans: Student Not Attending College

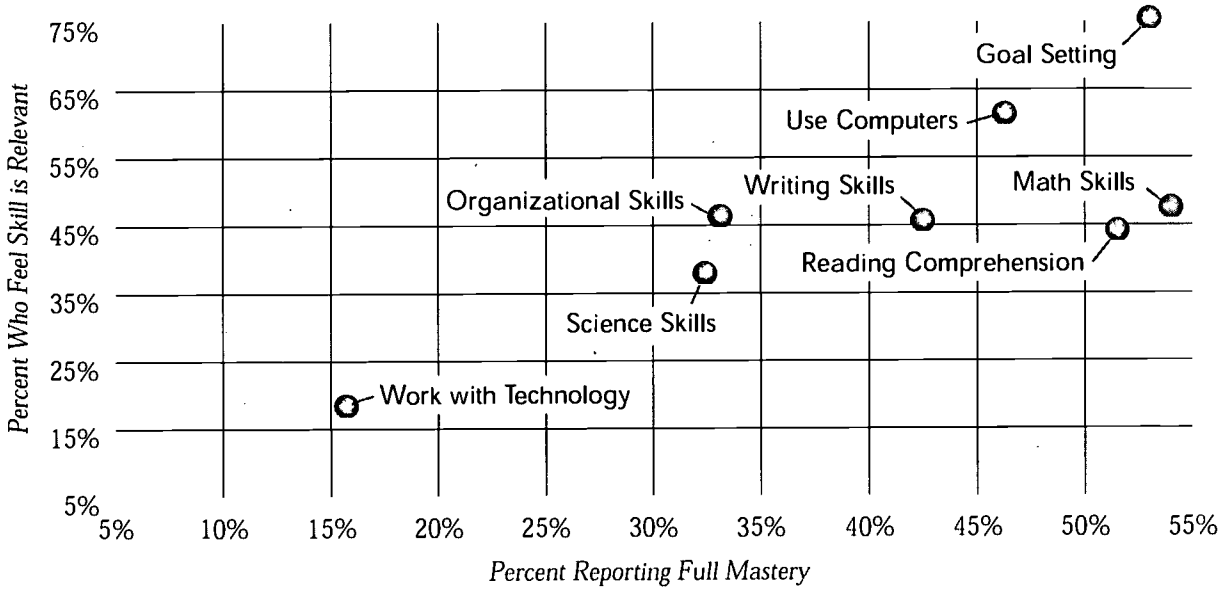
highly relevant compared with less than 20 percent for non-college bound. At the same time, more than one-third of all students not planning to attend college rated working with technology as highly relevant compared with less than 18 percent for students planning to attend a four-year institution.

Skills and Occupational Employment

Figures 44-49 compare the relevance and mastery of six skill areas: writing, mathematics, computers, tools and technology, scientific knowledge and research skills, across ten leading planned occupational goals. Naturally, the perceived relevance and mastery of individual skills varies considerably by students planned occupational goals. Students planning to enter the same occupation did not agree about the skill areas they thought were relevant or the areas in which they have gained mastery. However in many instances, planned occupational goals were closely associated with individual skills. In general, students who plan to enter professional and managerial fields give greater weight and report greater mastery of foundational skills such as writing, reading and mathematics, while students planning to enter technical and production related occupations place greater emphasis on use of technology and/or quantitative skills.

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

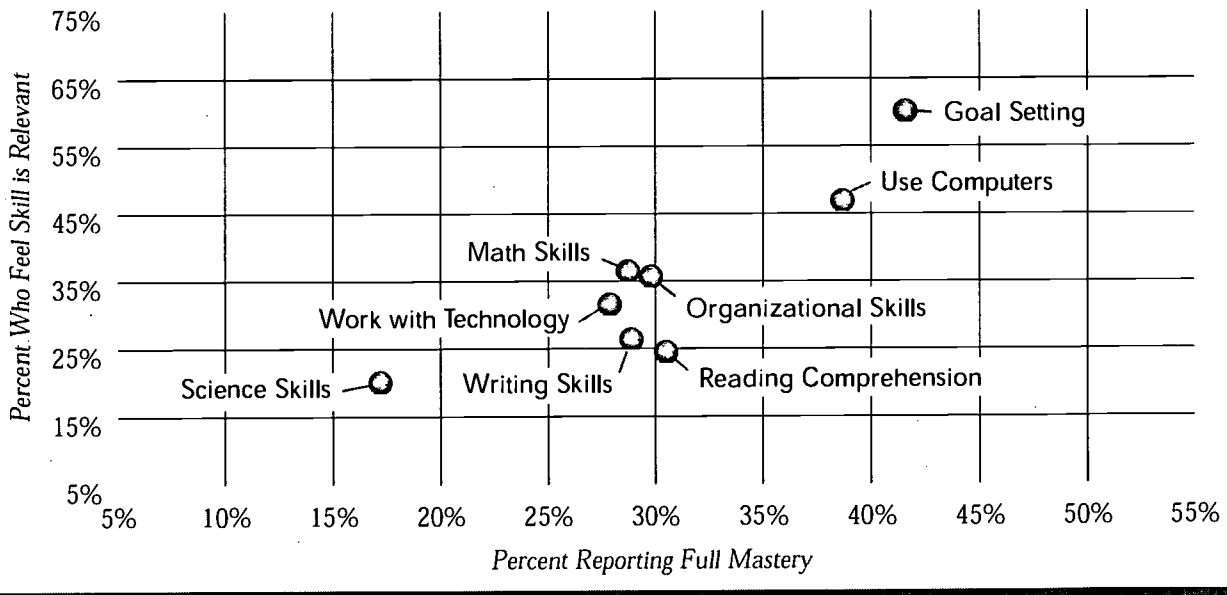
Figure 42



Relationship Between Student's Mastery of Critical Skills and Their Relevance to Student's Fall Plans: Students Attending Four-Year Institutions

Source: Minnesota Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

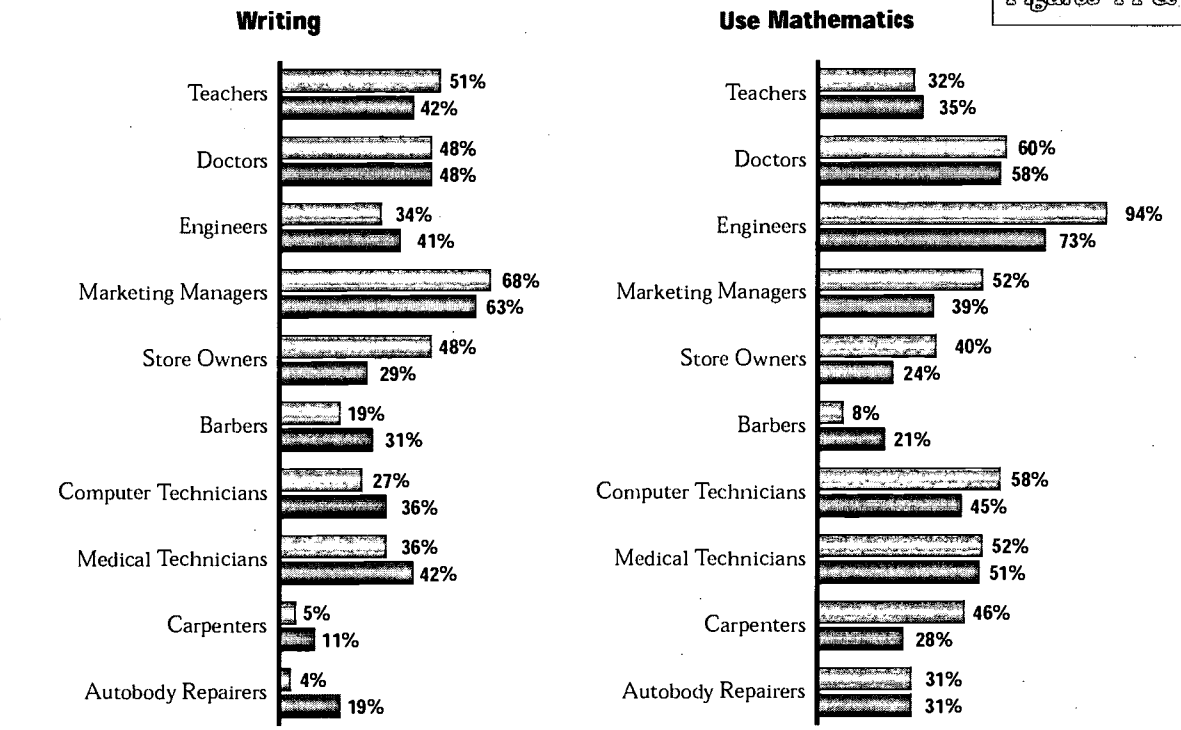
Figure 43



Relationship Between Student's Mastery of Critical Skills and Their Relevance to Student's Fall Plans: Students Attending Two-Year Institutions

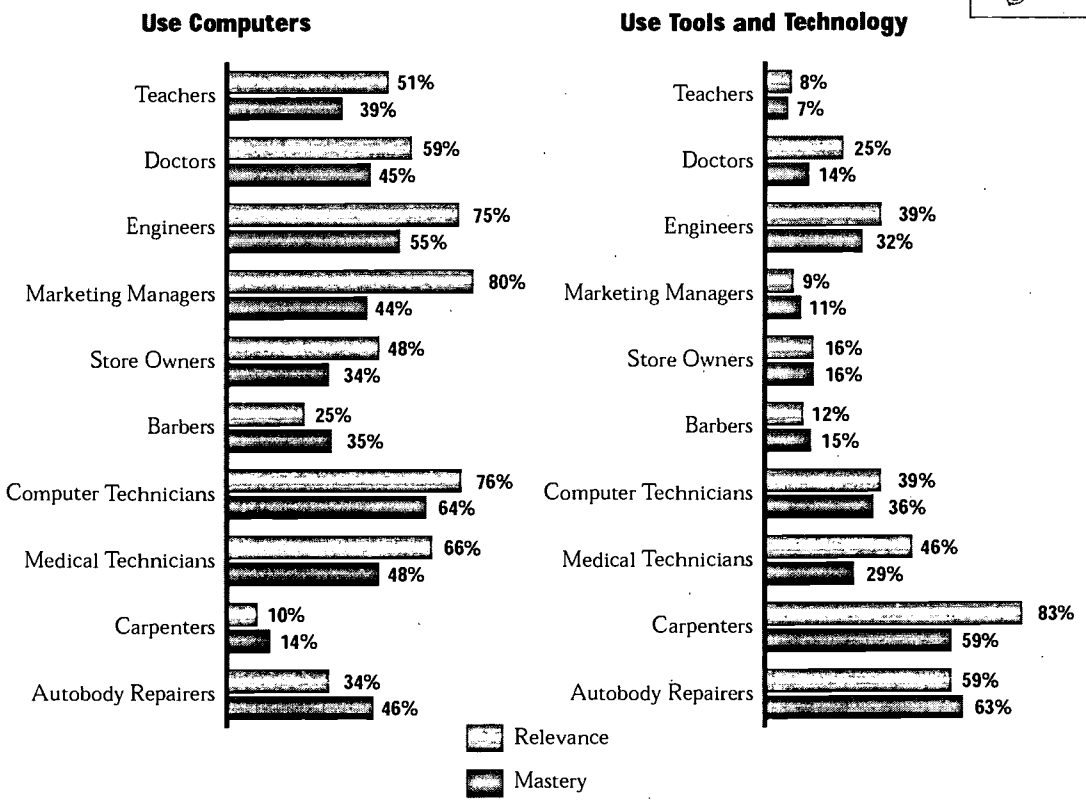
Source: MN Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample.

Figures 44 & 45



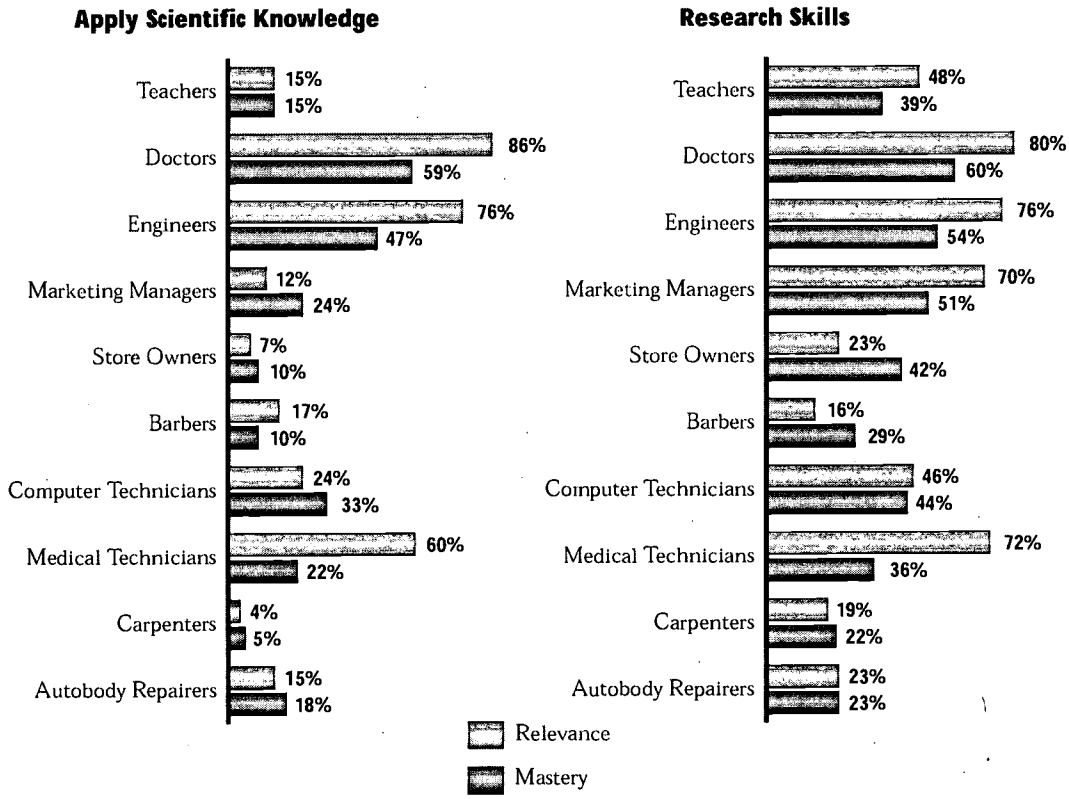
Source: MN Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figures 46 & 47



Source: MN Dept. of Children, Families & Learning 1998-1999 High School Follow-Up Study-pooled sample

Figures 48 & 49



Relevance and Mastery of Skills for Students Planning to Enter Selected Fields of Employment

SECTION SEVEN

CONCLUSIONS: FAMILIES, HIGH SCHOOL AND THE ALTERNATIVES

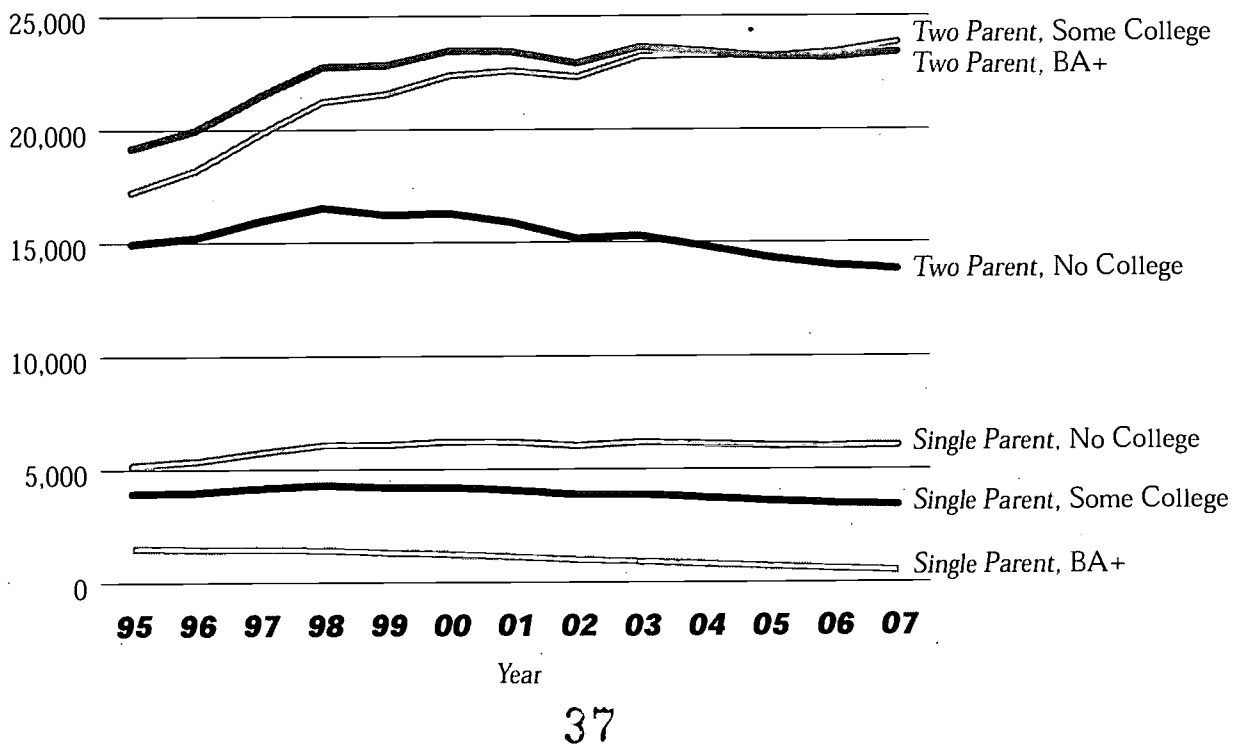
The findings of the research generally show that Minnesota students – regardless of social background bring with them high career and educational aspirations. They also appear to be enormously creative in how they plan to pursue those goals. This basic finding is encouraging and speaks to a model of education in which teachers are serving as facilitators of learning to help students fulfill their goals rather than prescribers dictating what it is that students should master.

Such high aspirations and diversity of perspectives is encouraging and is likely to further contribute to the economic diversity of the state and a stronger competitive position. There is also an apparent schism, which leaves students from certain backgrounds less likely to fulfill their visions. That schism is drawn sharply across lines of parent educational attainment and is also associated with a student s ethnic/racial background. Underlying this schism, therefore, is the question of families as the primary unit of analysis.

Over the course of the next decade, the parental educational attainment of Minnesota high school seniors is expected to rise. A growing proportion of these students will come from families where one or both parents have a bachelor s degree or at least some college. That shift is likely to increase a student s chances of reaching their educational goals and their career goals as well. At the same time, the proportion of students most at risk (including students from single parent families with no college background) are expected to

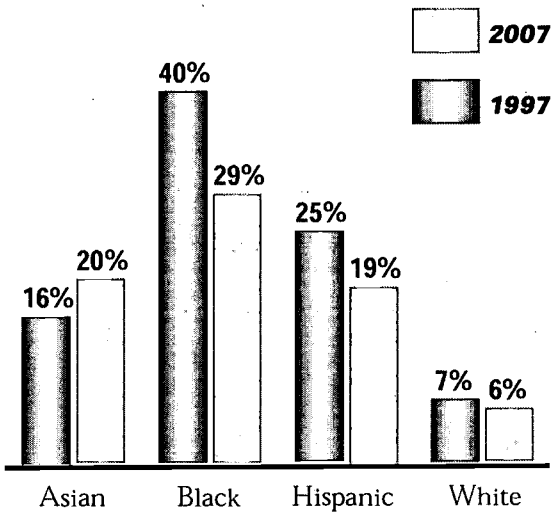
Source: US Dept. of Census Population Projections; US Dept. of Census 1990 PUMS; Human Capital Research Custom Tabulation

Figure 50



Source: US Dept. of Census Population Projections; US Dept. of Census 1990 PUMS; Human Capital Research Custom Tabulation

Figure 51



Projected Change in Population Share of Single Parent Families with No College - by Race

decrease as the state s student population continues to diversify. Nonetheless, nearly one in ten students will continue to come from single parent/no college families.

While the information presented in this trend report reflects the perceptions and planned intentions of the seniors in the classes of 1997, 1998 and 1999, their accuracy will be tested in the 3-year and 6-year follow-up surveys that will be conducted with these classes. At that point we will be able to compare student intentions with reality and make a better assessment as to how their educational experiences have served them in their lives after high school.

APPENDIX

OVERVIEW OF THE MINNESOTA HIGH SCHOOL FOLLOW-UP SYSTEM AND RESEARCH METHODOLOGY

The Minnesota High School Follow-up system was initiated in 1972 to provide information on curriculum development, program planning, evaluation, guidance, and counseling. Since its inception, the Follow-up System has continued to change in response to the evolving information needs of the State, schools and districts. In 1996, the Minnesota Department of Children, Families and Learning embarked on a more comprehensive approach to surveying students.

Under this framework, students are surveyed in the spring of their high school senior year and again three years and six years after high school graduation. Because an understanding of family background and home environment is critical to any meaningful assessment of student perceptions and outcomes, all baseline surveys consist of both a student and matched parent (or guardian) interview. In addition, data from parent and student surveys were supplemented with information from the Minnesota Automated Reporting Student System (MARSS).

The restructured Follow-up System has taken a building-block approach in its design and implementation. In 1997, the first year of the revised methodology, the survey included input from a matched sample of 1,775 students and their parents representing 29 schools. In the following year 1,977 students and parents from thirty schools participated in the study. The 1999 survey includes 1,992 student and parent responses from thirty-five high schools.

The high schools included in the follow-up study are drawn from a stratified sample that controls for region of the state, level of community resources (district tax capacity), school size (student enrollment) and population diversity (proportion of students of color). Weighted to proportionately represent all high schools graduates, survey findings are projectable at both a state and regional level. For most tabulations, survey results have a sampling margin of error of less than 4 percent.

Survey Instruments

In each of the three years of the Follow-up study, separate survey questionnaires were administered to students and their parents. As part of a natural evolution of the study, the survey questionnaires administered to each cohort have been successively modified to better reflect the objectives of the project. In broad terms, the intent of both instruments is to capture basic population characteristics, such as parent education and family income, selected aspects of the education experience as well as future plans and aspirations.

The purpose of this statistical digest is to showcase selected key aspects of the student experience across a basic segmentation of the student population. Because the student and parent surveys include more than 100 questions, however, it is possible to construct thousands of tabulations to explore specific issues in far greater depth. Readers interested in further analysis of specific issues should contact the Minnesota Department of Children Families & Learning.

Sample Frame

For each year of the follow-up study, participant schools were selected to ensure a statistically representative population of the senior graduating cohort. Criteria for school selection included geographic location (based on state economic

development regions), school size (based on senior class enrollment), community economic resources (based on district tax capacity) and ethnic/racial diversity (based on the proportion of students of color as a percent of total enrollment).

Each participating school provided a master roster of all graduating seniors who were to receive the survey and all surveys. Each survey instrument was then linked to an individual respondent based on a unique student/parent ID number. All surveys were also linked through student MARSS ID numbers to the state s MARSS enrollment file.

Each participating high school in the survey sample had first line responsibility for ensuring full participation of their graduating class. In most cases the surveys were administered in the classroom primarily during the months of April and May. Students were responsible for bringing parent/guardian surveys home to be filled out by parents/guardians and parents/guardians were then to return the completed questionnaires via an enclosed postage paid envelope. All school, students and parents were provided with a toll-free number to call for any questions or comments regarding the follow-up study. In a few instances in which response rates were deemed unacceptably low, a second follow-up mail wave was administered to both students and parents via the home address.

Sample Weighting

Respondent sample weights were based on a probability weighting procedure derived from the ratio of total high school seniors by sex and economic development region (as reported in the MARSS enrollment file) to the corresponding total number of seniors (and parents) who responded to the follow-up survey. The resultant weighted population totals were then re-scaled in a second weighting iteration to conform with the number of students within each region of the state by sex and racial/ethnic status.

Survey Response Rates and Sampling Margin of Error

Student survey response rates vary by high school from an approximate low of 40 percent up to 100 percent. For most tabulations, the matched set of student-parent data has a sampling margin of error of less than 3 percent with a range of about 1 to 7 percent at 95 percent level of confidence.

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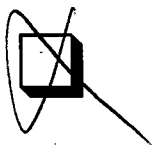

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