



College Confidence: How Sure High School Students Are of Their Future Majors

Casey George-Jackson and Eric J. Lichtenberger

Executive Summary

This study examines high school students' confidence in their planned college major with an emphasis on students planning to study one of the Science, Technology, Engineering, and Mathematics (STEM) fields. The study draws on responses from the ACT Student Interest Inventory of the Illinois High School Class of 2003, which asks students about their educational and occupational plans. Analysis of 75,698 responses revealed important differences by gender, race/ethnicity, and type of planned major.

When examining high school juniors' confidence in their planned college major, distinct differences were found between different groups of students and majors. Namely:

- **Women** were more confident in their planned college major than men.
- **African American students** were more confident in their planned college major than students from other racial and ethnic backgrounds.
- **Low-income students**, from families that made less than \$30,000 per year, were more confident in their planned major than students from higher income backgrounds.

- Students indicating they planned to pursue a major in the **Health Sciences** and **STEM Teacher Education** were more confident in their major than students intending to pursue other STEM majors.
- Students who expected to complete a **vocational/technical degree** or a **professional degree** were more confident of their planned college major, compared to students who expected to complete an associate's degree, a bachelor's degree, or some graduate school.

Although women, students of color, and low-income students are underrepresented in many STEM fields, a high proportion of underrepresented students who plan to major in STEM were very sure of their educational plans. In addition, the level of education required for certain jobs appeared to increase all students' confidence in certain types of majors. These findings, and others, shed light on how a student's confidence in a planned major may be related to characteristics of particular STEM fields, such as the opportunity for exposure to incumbents and high school course work within the given field. Strategies to increase students' knowledge and understanding of potential majors during their secondary education experiences may help to increase students' confidence in their future college majors.

Implications and Conclusion

The results of the study can be used to inform programs aimed at improving recruitment into the STEM fields. For instance, programs that offer students and their families information about STEM majors and careers may lead to early awareness of opportunities in STEM fields. The timing of these interventions is crucial given that many students in their junior year of high school already have a notion of what their college major will be, as well as what job they may have in the future. Recruitment programs that inform students and their parents of the many STEM major options, as well as pathways to STEM-related degrees and occupations, may help strengthen students' selection of STEM majors, as well as their confidence in their choice.

In terms of current policy, these results could be useful as the new STEM learning exchange program is implemented in Illinois. Learning exchanges are an integral part of Illinois' Race to the Top grant and are designed to support the local development of P-20 STEM programs that connect a student's career and educational interests. The STEM programs heavily emphasize educational and school to workforce transitions, as well as facilitate the development of public-private partnerships between schools and a variety of stakeholders. The learning exchanges are designed to coordinate functions across the P-20 STEM talent pipeline and are designed to improve access and success for underrepresented populations in STEM fields, including women, racial/ethnic minorities, low-income, and disabled students (<http://ocrl.illinois.edu/Newsletter/2011/spring/6>).

The results also disrupt common perceptions of underrepresented students in STEM fields. Groups that are traditionally underrepresented—women, African Americans, and low-income students—are actually more confident in their plans to major in a STEM field than traditionally well-represented students. This may reflect a notion that students from these groups need to be overly-confident of their major choice to compensate for the perception that they may not succeed in the major due to the level of their group's representation in the STEM fields. Also, comparatively higher proportions of underrepresented groups planning on majoring in select STEM fields, such as African American students in Computer and Information Sciences and Engineering and low-income students in Health Sciences and Agriculture.

This study offers an initial understanding of high school students' levels of confidence in their future college majors; however, being very sure of a STEM (or any) major does not necessarily equate or lead to long-term success in these fields. Further, planning to major in a STEM field does not guarantee that a particular student even enrolls in college upon high school graduation. In addition, the congruency between planned major and students' academic qualifications and preparation levels needs to be explored further to provide additional insight into the process by which students enter and persist in STEM majors. In other words, are educational expectations aligned with academic qualifications and at which point in the talent pipeline are underrepresented students with sufficient academic qualifications exiting the field? These questions will be examined in future IERC reports.

The full report is available at <http://ierc.siue.edu/iercpublishation.asp>

For further information, contact the IERC at Southern Illinois University Edwardsville toll-free at 1-866-799-IERC (4372) or by email at ierc@siue.edu.