

ATTITUDES AND MOTIVATIONS FOR STUDYING STEM COURSES AND PURSUING A STEM CAREER

Dimitris Karis, Siegbert Schmid, Alice Motion

Presenting Author: Dimitris Karis (dimitris.karis@sydney.edu.au)
School of Chemistry, The University of Sydney, NSW, 2006, Australia

KEYWORDS: STEM-education, motivation, self-efficacy

ABSTRACT

Science Technology Engineering and Mathematics (STEM) is responsible for the great innovations that make our world a better place to live. Studies in the US have revealed that advancements in STEM have accounted for more than half of economic growth in the later part of the 20th century (*Jobs for the Future*, 2005). Despite the considerable research interest, an insight into student choices and influences primarily has focused on a single underlying factor (Tyson, Lee, Borman, & Hanson, 2007).

Using the theoretical framework of self-efficacy (Bandura, 1977), the current research took a holistic approach of students' motivations and career aspirations in the STEM field. This was achieved by investigating if tertiary educational experiences, socioeconomic and cultural background influenced students' motivation and career aspirations in STEM. Surveys were administered to first and final year STEM students (N=1200) at an Australian university that measured students' general self-efficacy, subject specific self-efficacy, career aspiration, cultural and socioeconomic backgrounds while further insight of their motivations and career goals were sought with one-on-one interviews (N=15).

Analysis of the survey data indicates students' high school subject experiences and parental guidance influenced their initial choice in studying a STEM course at university. Furthermore, interviews revealed the important role academics play in motivating students to continue studying a STEM course and pursuing a STEM related career.

REFERENCES

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Jobs for the Future*. (2005). Washington D.C.
- Tyson, W., Lee, R., Borman, K. M., & Hanson, M. A. (2007). Science, technology, engineering and mathematics (STEM) pathways: High school and math coursework and postsecondary degree attainment. *Journal of Education for Students Placed at Risk*, 12(3), 243-270.

Proceedings of the Australian Conference on Science and Mathematics Education, The University of Sydney and University of Technology Sydney, 2 - 4 October 2019, page 51, ISBN Number 978-0-9871834-8-4