

# Workforce Development and YouthMappers: Understanding perceptions of students in humanitarian mapping

Patricia Solís<sup>1,\*</sup> and Sushil Rajagopalan<sup>2</sup>

<sup>1</sup> YouthMappers, Knowledge Exchange for Resilience, Arizona State University, Tempe, AZ, United States; [patricia.solis@asu.edu](mailto:patricia.solis@asu.edu)

<sup>2</sup> School of Sustainability, Arizona State University, Tempe, AZ, United States; [srajag20@asu.edu](mailto:srajag20@asu.edu)

\* Author to whom correspondence should be addressed.

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Over the last few decades, the geospatial workforce has grown globally across all sectors and the sector is expected to grow at a compound annual growth rate (CAGR) of 19% from 2017 to 2023 [1]. Humanitarian mapping efforts are one way for young people to gain valuable career preparation experience in both technical and practical aspects of the geospatial industry to take advantage of such opportunities. YouthMappers is a global network of local chapters, student-led groups based out of currently 157 university campuses in 42 countries around the world, which organizes open mapping for humanitarian and development needs while serving as a platform for capacity building [2].

While students prepare themselves for careers through tertiary education, their association with extracurricular activities such as YouthMappers may help them acquire certain geospatial skill sets as well as other “soft” job skills that are critical for this growing job market because of its connection to authentic, real-world applications, and a framework that is explicitly linked to geospatial competencies and learning objectives [3, 4]. From preliminary assessments and anecdotal experience, we know that the humanitarian purpose of the data creation efforts motivates YouthMappers students to participate, but does it lead to better preparation for a global workforce? Which activities and engagement mechanisms correspond to perceptions of being better prepared? How do these activities differ by gender or location? What do mappers gain from their volunteering? Does it matter if their engagement includes formal coursework at all or in a particular field or might it be sufficient to engage in informal types of activities of YouthMappers alone? We will present an analysis of results from an online survey of YouthMappers around the world to understand the perceptions on career preparedness of the students who have been engaged in humanitarian mapping with YouthMappers.

Our study indicates that, on average, respondents report having experience with using 3.39 different geospatial tools, where males have a mean of 3.45 and females, 3.26. One-way ANOVA tests shows that there is a significant difference in the mean number of

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geospatial tools used by YouthMappers [ $F(2,215) = 9.821, p = 0.000$ ] among groups spending shorter versus longer time periods participating in YouthMappers activities. The percentage of students who consider their skill level as 'expert' in geospatial tools increases with the time spent participating in YouthMappers activities. Overall, 38 percent of students with 2 years or more participation in YouthMappers consider themselves as 'expert', while only 24.5 percent with 1 to 2 years do so; meanwhile 15.5 percent of those with less than 1 year participation opine the same. Almost 47 percent of YouthMappers feel "very prepared" for 'their professional career after they finish their degree,' and we found no statistically significant difference between male and female respondents. Results show that 65.7 percent of students "strongly agree" that 'their frequent participation with geospatial/mapping technology through YouthMappers make them a stronger candidate for employment'. Likewise, 62.3 percent feel that their YouthMappers experience has been "very helpful" in preparing students for a professional career, where answers were statistically significantly higher for female respondents at  $p < 0.05$  level. The gender analysis reveals that 52 percent of females attribute being able to attend or participate in a national or international level conference, workshop, or meeting as a direct result of their participation in YouthMappers, compared to 38.7 percent of males. More than one-third of students indicate receiving an internship and/or job offer as a direct result of their YouthMappers experience.

The findings presented here confirm that the YouthMappers design contributes to key capacity building elements for students to prepare for geospatial careers, which include positive results for female mappers. The study indicates areas for further research and potential awareness-raising among participants about the value of extracurricular humanitarian mapping. By increasing geospatial skills among university/college students to prepare them for employment and careers, along with its efforts to eliminate gender disparities in acquiring such skills and deploying such activity in service to humanitarian and development purposes, YouthMappers makes important contributions to Sustainable Development Goal 4 (Quality Education) in a global context. On the basis of our findings, this paper hopes to stimulate discussions around the need to introduce such purposefully-designed extracurricular activities like YouthMappers in universities/colleges to both enhance the learning experience, and develop additional job market skills, in order to better prepare university/college students for working as global citizens in a geospatial workforce.

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