

11-2016

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Recommended Citation

Rosenblatt, Meryl MBA; Ramirez, Cristina; and Ouloupis, Sophia, "The Changing Face of Entrepreneurship" (2016). *Faculty Works: Business*. 35.
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The Changing Face of Entrepreneurship

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ABSTRACT

In most developed countries today, having a work force with skill sets in Science, Technology, Engineering and Mathematics (STEM) are seen as essential to long-term economic growth. In many countries, the demand for STEM workers is expected to grow faster than any other occupation over the next decade. Yet the research shows that females are underrepresented in STEM-related fields. The numbers of females entering into STEM careers is generally lower than males, but there are countries where females account for a greater percentage than males in other fields or occupations. In the U.S. women continue to be underrepresented in STEM careers even though they account for more than half the college-educated work force. The workforce requires an increase in female participation in STEM occupations as we transition towards a more global economy. Today there are more women starting their own business, and assuming management roles in companies and large organizations. Research indicates that females, as entrepreneurs and innovators, are just as successful as their male counterparts. Females attending universities to pursue a degree in a STEM-related discipline is now on the rise, a trend that is vital both economically and socially. A survey was administered in Europe and the United States to help identify the barriers women face entering STEM careers, and to better understand the challenges from an entrepreneurial perspective.

Keywords: STEM, women, entrepreneurship, careers, education

1 INTRODUCTION

It is commonly believed that entrepreneurship and STEM areas of knowledge are more suited for men, than for women. Therefore, young women may feel they are at a disadvantage and lack confidence to pursue STEM careers. However, today more younger women are reshaping these stereotypes as they also create greater economic opportunities.

Women also face barriers in entrepreneurship as it relates to STEM. Entrepreneurship is not limited to creating and starting a business. Entrepreneurship relates to STEM in that it is seen to have an impact on leadership, economic growth and innovation. Entrepreneurs create businesses and provide jobs for the economy while also increasing competition. By increasing competition, businesses are forced to fortify and innovate in research and technology (Acs, 2016). Both entrepreneur and STEM related fields have shown a male dominated pattern. Many countries, such as the U.S., Lithuania and Germany have been finding ways to increase the participation rate of women in the fields of science, technology, engineering, and mathematics in hopes of increasing economic growth. In Lithuania the government's emphasis on STEM studies among girls is underscored by state financing funds (one third) allocated towards physical and technological sciences over the past two years.

Within the United States, the importance of women pursuing careers within STEM has been noted both economically and socially. STEM related fields generally pay more than the traditional female careers, which has an economic impact. From a social perspective, males comprise more than fifty percent of STEM fields. In the United States, women may out-number men in higher education but many do not enter the workforce, or enter and then leave for a variety of reasons. Some of the main reasons why a woman leaves the workforce is because child-rearing responsibilities and familial duties (Mlinar, 2015).

Germany has a lower percentage of women entering STEM-related fields than in the U.S. Compared to men, only 30% of women in Germany enter a STEM profession, however this is now on the rise. In Germany also men are twice as likely to graduate with degrees in computer science, engineering, and other science related majors compared to women. Less than 20% of female graduates majored in STEM related fields. Germany has targeted

female participation in this academic field to increase women's participation rate (Hutchinson, 2014).

The participation rate of women in STEM or entrepreneur-related professions varies depending on country culture and social norms that continue to cast women in the role of "home maker." Despite the increase of women in the workforce overall, the persistence of long-held stereotypes will continue to limit the participation and retention of women in STEM-related fields (Eagly, 2016).

3 METHODOLOGY

Online surveys were used to collect data in three countries, Germany, Lithuania and the US, from three different age groups. A total of nine questionnaires were used to collect the information needed using the Internet. The age groups were ages 16-18, students in schools, 19-24, students in universities and women 25+ that graduated in STEM fields. Generation Z is of specific interest as these young women are at an age where they are selecting their areas of academic focus and beginning to plan for a career. **Generation Z** is generally defined with birth years ranging from the mid to late 1990s through the 2010s or alternately ranging from the early 2000s through the early 2020s (https://en.wikipedia.org/wiki/Generation_Z).

The research objective for this project was to characterize women that pursue careers in STEM fields and identify factors that influence their decision. We want to analyze the three different age groups to understand how these perceptions have, or can be changed. These findings reflect survey data collected from the U.S. sample of respondents, and wherever total results relate to all three countries.

4 FINDINGS

The study of scientific literature and other sources revealed that even with more women entering the work force, many developed countries still lack female presence in the fields of STEM. This trend might be less of an issue than in Western Europe and the United States. However, everywhere women are still haunted by various barriers and stereotypes inhibiting them from engaging in STEM-related studies and careers.

The investigation showed that more than a half of generation Z respondents had needed abilities and required key competences for engaging in the area of STEM. In addition, the majority of them also expressed their willingness to pursue their career in STEM, as they believe in equal knowledge and equal possibility of success in those fields between genders. However, despite having aspirations and abilities to engage in STEM, not everyone intend to exploit this potential. Generation Z see themselves in the future as event planners, designers, social workers, teachers or customer representatives. Meanwhile, generations Y (b. 1975-1995) and X (b. 1961-1981) are more likely to involve in business and finances, working as managers, accountants or various analysts. Entrepreneurship leads in the selection of business area

too. More than 50% of members of generations Z and Y are mostly willing to start their business in the areas of financial activities or business in general. Elder generation X tends to be more flexible.

The main concern resulting the situation of women avoiding the areas of STEM and entrepreneurship is fear of possible obstacles they might face. Generation Z set forth the existing stereotypes and lack of support as the main barriers, while Generation Y specified gender discrimination and lack of aggression and confidence for women to compete with men. Generation X on their behalf points out career interference with high involvement in taking care of the children and family.

In summary, there are still difficulties preventing women from joining the area of STEM or creating their own business; thus, because of the various preexisting fears, it is quite complicated for them to overcome all those barriers and stereotypes. However, generations change and over time will change ways of thinking, commonly held stereotypes and various beliefs. Younger females are more willing to engage themselves in technological areas of business and entrepreneurship. Increasingly this segment is demonstrating their skills and capabilities as they succeed in STEM, proving that the science and technology are associated equally with both genders and in fact, can be a girl thing!

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