ECER 2018, Bolzano

Conference Theme: Inclusion and Exclusion, Resources for Educational Research?

Institutional transformation to reduce the gender gap in STEM

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Conference:
ECER 2018

Network:
11. Educational Improvement and Quality Assurance

Format:
Research Workshop

Session Information

11 SES 05.5 PS, General Poster Session - NW 11

General Poster Session
Time:
2018-09-05
12:00-13:30
Room:
C & D corridor
Chair:

Contribution

Institutional transformation to reduce the gender gap in STEM

Despite the considerable efforts made in recent decades in order to reduce the gender gap as regards the teaching of science, technology, engineering and mathematics (STEM), great inequalities stills persist. In different situations, socioeconomic, cultural and other barriers continue to prevent the students complete or fully benefit from the quality education they have chosen (UNESCO, 2017).

The new UNESCO publication entitled Cracking the code: girls' and women's education in STEM, presented at the International Symposium and Policy Forum UNESCO, on this subject, specifically what factors hinder or facilitate the participation of girls and women in education

linked to STEM (Education 2030 Unesco, 2017). Gender inequality in the teaching of STEMs is surprising. In higher education, only 35% of students enrolled in careers linked to STEM are women. Today, only 28% of the world's researchers are women. Gender stereotypes and prejudices compromise the quality of the students' learning experience and limit their educational options. According to Dasgupta (2014) In today's globalized world, scientific innovation is vital for American economic competitiveness, quality of life, and national security. Much of the future job growth in the United States will be in science, technology, engineering, and math- ematics (STEM) and American businesses search globally for talent (National Academies, 2010). According to European Union (2016) Equality between women and men is a fundamental value of the European Union and one that has been enshrined in the Treaty from the very beginning, as the Treaty of Rome included a provision on equal pay. Over the last 60 years, societal changes and persistent policy efforts have established a trend towards gender equality. The EU has always been a major force behind these developments and will continue to play an important role in maintaining momentum and building on past achievements. The 2016-19 Strategic engagement for gender equality1 aims at pursuing these efforts in key policy areas.

The fields STEM (science, technology, engineering and mathematics), which encompass the fields of study of natural sciences, mathematics and statistics, information and communication technologies and engineering, industrial production and construction, are considered especially important when promoting innovation and economic growth. Many countries have tried to expand the reach of STEM education among its population or attract highly qualified immigrants with these profiles. Among adults with tertiary education in the OECD countries, an average of 25% have studied in the STEM field. However, there are large differences between countries, with Spain being one of the countries in which around 30% have a STEM profile (OECD 2017). The main objective of this study is to determine the actions regarding the integration of women from early in the field of science ages, technology, engineering and mathematics, performing interventions in schools and working closely with students, faculty, families and public organizations.

Method

In this paper we take as a reference a qualitative research model (Angrosino, 2012; Gibbs, 2012), where we analyze the current situation regarding the participation of girls and adolescents in the teaching of science, technology, engineering and mathematics (STEM). The methodology used in this study of the inferential comparative method that starts from the model presented by G. F. F. Hilker Bereday and then incorporated contributions Garrido García (1990), among others. This methodology involves the description and explanatory analysis of the relevant units of comparison data and the juxtaposition of data, where it investigates the factors that hinder or facilitate the participation of girls and women in education linked with STEM in Europe and

Spain. Materials The materials used for the collection of information have been: legal texts in STEM, European and Spanish measures in increasing the participation of girls and women in STEM programs. The materials have been extracted from the legal texts of the countries under study. Analysis unit As for the unit of analysis it has been developed through a literature review of the criteria based on which the material collected in terms of programs for the promotion of STEM in girls and women are compared. Once collected all this information, the data obtained by the juxtaposition phase and interpretation, to get to draw conclusions for comparing the overall state of the countries under study and formulate proposals for improvement are discussed. The sources of information used were mainly primary sources of different newspapers and official bulletins for finding all regulatory information. As well as secondary sources, publications, documents, reports, studies and official websites, both of the Ministries of Education of the respective countries under study. As for the temporal delimitation, the data have been extracted during the year 2017.

Expected Outcomes

Reduce the gap between men and women participation in STEM is so relevant to the area of science education from the area of education at the university level must contribute to develop and achieve the objectives of Agenda 2030 for the topic Sustainable Development adopted by the un in September 2015. The 2030 Agenda for Sustainable Development demands a new vision to address the environmental, social and economic concerns facing the world today. The Agenda includes 17 Sustainable Development Goals (SDGs), including SDG 4 on education and SDG 5 on gender equality. Recognizing that broader efforts are needed to combat gender discrimination and promote gender equality in society, changes at the system level are needed to improve the quality of STEM education in order to take into account the special learning needs of young people. girls Involving girls in STEM from an early age and ensure that their overall educational experience, the process of teaching and learning, content and the environment, taking into account gender issues and are free of gender discrimination and stereotypes are also important. Both in Spain and in the OECD and EU22 average, it can be seen that the most popular field of study is that of business, administration and law, accounting for 26.7% of graduates in Tertiary Education in Spain and 22, 8% and 21.3% in the tertiary graduates of the OECD and the EU22 respectively. In Spain, the next field of study with the highest percentage of population is Engineering, Industrial Production and Construction (17.3%), while in the OECD average as well as in the EU22 the next most chosen field of study is the Arts and humanities, social sciences, journalism and information, with 18.7% and 19.4% respectively.

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