Girls, Where Are You?

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ABSTRACT

The female gender gap in Computer Science studies (CS) is an important problem to be tackled urgently. The authors wish first to share the procedures for promoting STEM that the University of Bari ALDO MORO (UNIBA) is carrying out within the Italian Scientific Degree Project for CS.

KEYWORDS

Scientific Degree Project, female gender gap, STEM, computing education

1 Introduction

In 2019 the University of Bari ALDO MORO (UNIBA) Italy activated the Italian Scientific Degree Project for Computer Science studies, forward referred to as PLS (in Italian "Piano Lauree Scientifiche"), led by the University of Milan.

At UNIBA the number of females enrolled in Computer Science (CS) courses is low (see Table I). Despite the number of students enrolled, graduates are not enough to cover the demand of IT companies, because of the dropout rate. For these reasons, PLS actions primarily focus on two objectives: (1) reducing the female gender gap and (2) limiting the dropout phenomenon.

This paper describes mainly the initiatives activated by our department of Informatics (DIB) to boost the enrollment of female students.

2 Events for PLS

During 2018 and 2019 the DIB orientation initiatives were increased and improved towards STEM. During **Open Days** addressed to students attending the last two years of high schools, we introduce the STEM female gender gap problem. The **NERD? Project** (http://www.progettonerd.altervista.org), started in 2014 by Sapienza University, is annually carried out by IBM in partnership with UNIBA and other Italian universities, to promote CS studies among girls. For the 2018 edition of the thirty-hour **Orientation Seminars**, we scheduled a seminar dedicated to Women in Computing and performed a survey of students' opinions on the STEM problem and PLS.

Table I: Number of students enrolled in a.y. 2018-2019 in bachelor's degrees in computer science (December, 2018)

	First year	Male	Female	From 2nd year	Male	Female
No. Students	819	726 (89%)	93 (11%)	2295	2025 (88%)	270 (12%)

In February 2019 UNIBA Scientific Courses organized a new whole-day orientation event, named **OPEN CAMPUS**. At this event, the DIB organized four parallel demo sessions as a tour (basic knowledge test, social robots, IT applications for health and serious game projects). We noticed particularly students' interest in the basic knowledge test simulation. This gave us further support in the decision to activate **MOOCs (Massive Open Online Courses)** on the EDUOPEN platform (http://eduopen.it/), concerning the basic knowledge required to pass the knowledge assessment test.

STEM-a girls' game is a new event promoted by the Apulian Region (the 8th March 2019 – Campus Bari). The event was hosted by the Polytechnic of Bari and organized in collaboration with various Apulian universities. Several associations supported the event. This event shows the growing sensitivity of government boards to the STEM issue. It is an example of good practice where more interested actors work together to fill the STEM gender gap.

A forthcoming DIB event is **CineForum4You** to promote STEM and CS studies. This action involves all students interested in scientific studies and aims at engaging and motivating them in starting this learning path. The Cineforum4You will be held in the high schools to encourage the participation also of teachers.

3 Conclusions

There is no ready-to-use recipe that is effective, quick and sustainable. The female gap is a socio-cultural issue not only related to CS studies. Therefore, synergistic actions are required at different levels by the government, university, school, and businesses. It is necessary to plan interventions as of primary school. A multi-disciplinary approach is needed, in which experts in STEM disciplines collaborate with sociologists, anthropologists, psychologists and pedagogues. A question to reflect on concerning this issue could be "Why did Ada Lovelace embrace scientific studies?".