Abstract

Factors which influence girls’ orientations to ICT subjects in schools – evidence from Spain

- Milagros Sáinz[1]
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The participation of women in ICT-related studies remains scarce in Spain. Women represent respectively 17% and 26.59% in the studies of Computer Science and Telecommunications Engineering (Instituto de la Mujer, 2010). Conversely, women are a majority in the fields of humanities, social and health sciences.

Girls’ negative computer attitudes and low perception of their math and computer abilities seem to be associated with girls’ lower engagement than their male counterparts in studies that are highly demanding in math and computing skills (Hackett, 1997; Ma and Johnson, 2008, Sáinz, 2006; Sáinz and López-Sáez, 2010; Zarrett and Malanchuk, 2006; Whitley, 1995).

Expectancies for goals and task values are under the influx of gender roles and of certain social and cultural pressures present in our society (Eccles, 1984; Eccles, 1994; Eccles, Frome, Suk Yoon, Freedman-Doan and Jacobs, 2000; Eccles, Wigfield and Harold, 1993). Consequently, whilst boys place a higher value on high-risk and competitive activities and are also more interested than female participants in jobs that entail work with machinery, math or computers, female participants prefer people oriented occupations (Eccles, 1987; Eccles, Barber & Jozefowicz, 1999; Frome, Alfeld, Eccles and Barber, 2008; Sáinz, 2007). These aspects are crucial in the understanding of why girls are less interested than their male counterparts in pursuing technological studies.

The present study aims at analyzing a group of structural and psychosocial factors involved in students’ pursuit or not of ICT-related studies at two different time periods. A total of 1675 secondary students from different households and different areas in Catalonia (metropolitan and rural areas) participated: 900 students at time 1 and 775 students at time 2. At time 1, students’ mean of age is 15 years old and are enrolled in the last course of junior secondary education (ESO). At time 2, the same and other students were targeted the following academic year (mean of age 16 years), when they are enrolled in the first course of higher secondary education (Bachillerato).
The findings show that at time 1, gender, advice received from other significant people to pursue ICT-related studies, self-concept of computer ability and interest in achieving a people-oriented occupation are the main factors explaining the intention to pursue ICT-related studies. Consequently, being a boy, receiving advice to pursue ICT-related studies, holding a high self-concept of computer ability and being interested in achieving a people-oriented occupation increase the likelihood of pursuing ICT-related studies.

At time 2, the variables place of origin (rural versus urban), socioeconomic status, advice to pursue ICT-studies and self-concept of computer ability are the main factors explaining students’ intention to pursue ICT-related studies in a close future when they are included in the same model, eliminating the previous effect of gender. Therefore, coming from urban areas, belonging to intermediate households and holding a high self-concept of computer ability increase the odds of pursuing ICT-related studies.

These findings suggest the importance of designing intervention strategies with students, their families and teachers at both educational stages (before and after the students have chosen the different academic tracks in Bachillerato). These interventions should be oriented to overcome the gender gap in occupational aspirations and to increase girls’ self-concept of computer ability. If parents and other significant people do not encourage girls to pursue computer-related studies, they will hardly hold a positive self-perception of their computer abilities and will show no interest in pursuing computer-related studies. Simultaneously, if girls are expected to pursue a people oriented career, they will assume such an expectation and will be reluctant to choose careers incongruent with social roles (such as ICT-related studies).

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