LA BRECHA DE GÉNERO EN LAS ASPIRACIONES ACADÉMICO-PROFESIONALES DE LOS ESTUDIANTES DE SECUNDARIA

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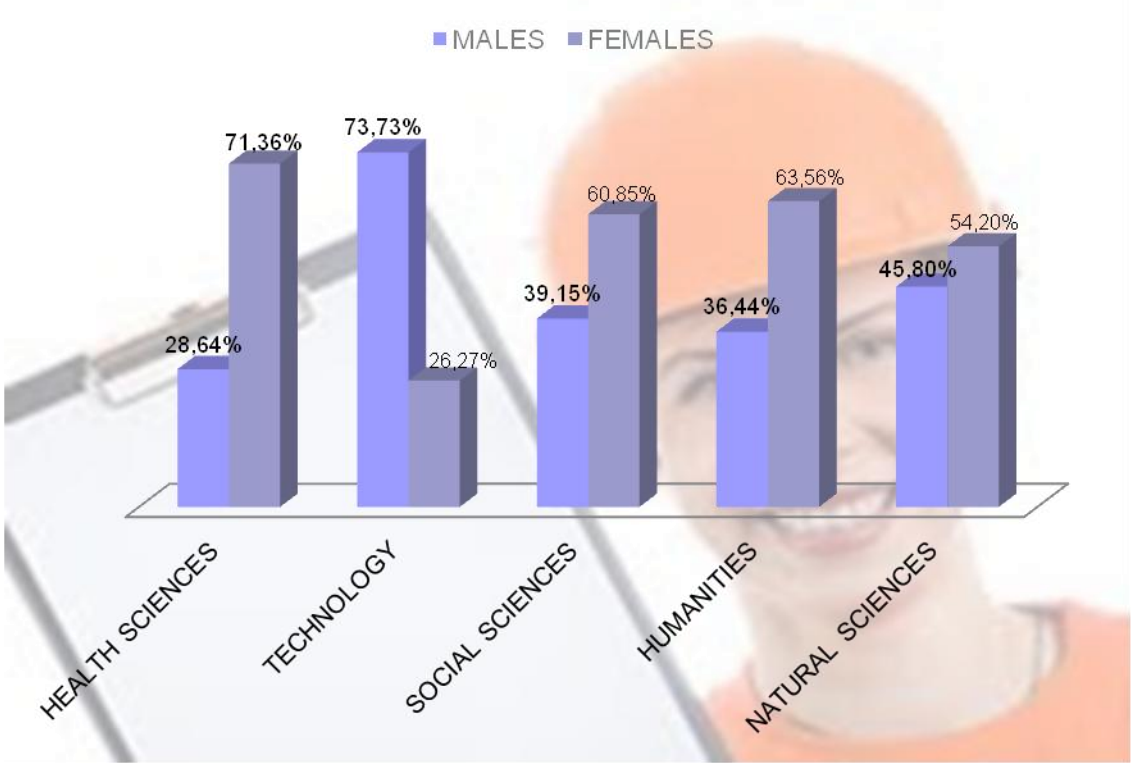
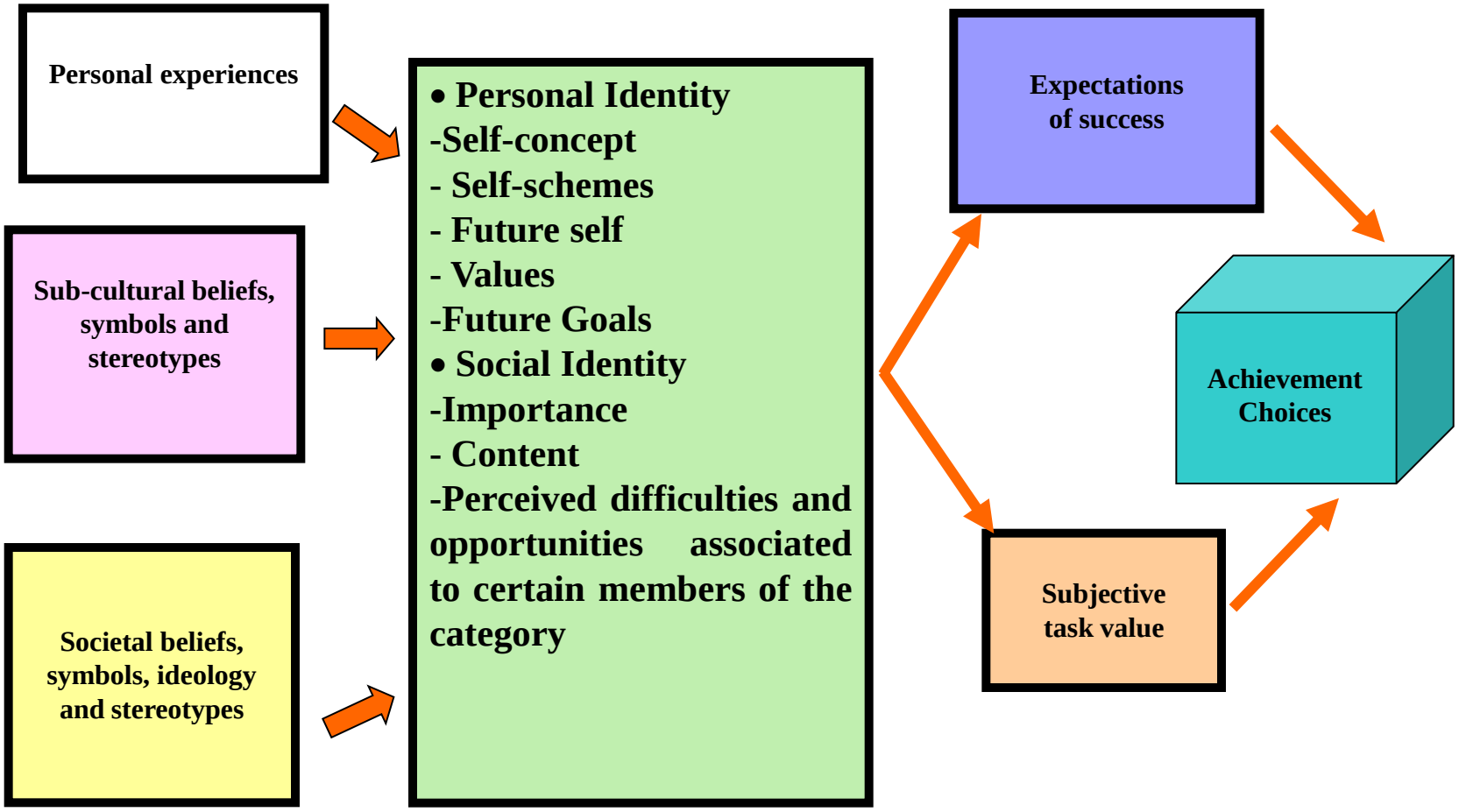
DISTRIBUTION OF WOMEN IN UNIVERSITY STUDIES



Source: Women's institute, 2013

Eccles et al's expectancy value theory



Adaptation from Eccles, Barber & Jozefowicz, 1999

BRIEF EMPIRICAL REVIEW

- Girls are more likely than boys to aspire to careers in health and biology-related careers and also less likely than boys to pursue math and physical science-related careers (Eccles, Wigfield & Schiefele, 1998; Simpkins & Davis-Kean, 2006; Stanat & Kunter, 2003)

- Encouragement received from significant people (family, schools, peers and others) to pursue math and technology-related studies plays a major role in whether adolescents decide to pursue a career in those domains or not (Bandura et al., 2001; Eccles et al., 1999; Hackett, 1999; Sáinz et al., 2009; Shashaani, 1994; Zarrett & Malanchuk, 2005; Zarrett et al., 2006).

- Boys have traditionally been perceived as more gifted in math than girls, whilst girls have been thought to have more verbal abilities than boys (Eccles, Wigfield & Schiefiele, 1998; Guimond & Roussel, 2001; Skaalvik & Skaalvik, 2004; Stanat & Kanter, 2001)

BRIEF EMPIRICAL REVIEW

- Individuals may value more those tasks they think they can excel than those they are unlikely to success: positive relationship between expectations of success and subjective task value (Eccles, 1983; 1987; 1989; 1994 &1998; Wigfield & Eccles, 1990)

- Girls' lower perception of math and technological ability predicts their lower enrollment in math and technology related studies (Bussey & Bandura, 1999; Creamer, Maszaros & Lee, 2006; Eccles, 1989; Eccles, 2007; Hackett, 1999; Sáinz, 2007; Zarrett & Malanchuk, 2006; Watt, 2006)

- Self-concept of ability plays a strong motivational role involved in different academic and career-choice related decisions (Eccles, 2007; Simpkins, Davis-Kean, and Eccles, 2006)

- However students are not realistic in the evaluation of their own competence (Marsh, 1984; Eccles, 2007; Sáinz and Upadyaya, 2012)

Objectives

- Examine young people's evaluation of their ability in STEM and non-STEM subject areas from a gender perspective

- Analyze gendered patterns and pathways to STEM and non-STEM fields

Sample

- **807 students** enrolled in the second course ESO
- Mean of age (**14**, s.d.=.82)
- 48% **Girls**
- 10 **public schools ramdonly selected**
  - Madrid (6)
  - Barcelona (4)
- 56% intermediate **socioeconomic** background
- 68% with **Spanish/Catalonian** origin

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Measures

- **Self-concept of ability**
  - "*How good do you think you are at*...."
    - Math (α=.84);
    - Spanish (α=.87)
    - English (α=.92)
    - Social science (α=.92)
    - Natural science (α=.93)
    - Technology (α=.92)
      - **1** (totally disagree) to **7** (totally agree)
- **Performance in the different subject areas**
  - "*What are the grades you got in the last exam of* ..."
    - **1** (Fail) and **5** (Excellent)

Measures

- Study choices
  - What studies would you like to pursue in the future?
    - Binomial values (MEPSD, 2013)

STEM:

- Architecture/Technology
- Health and Natural Sciences

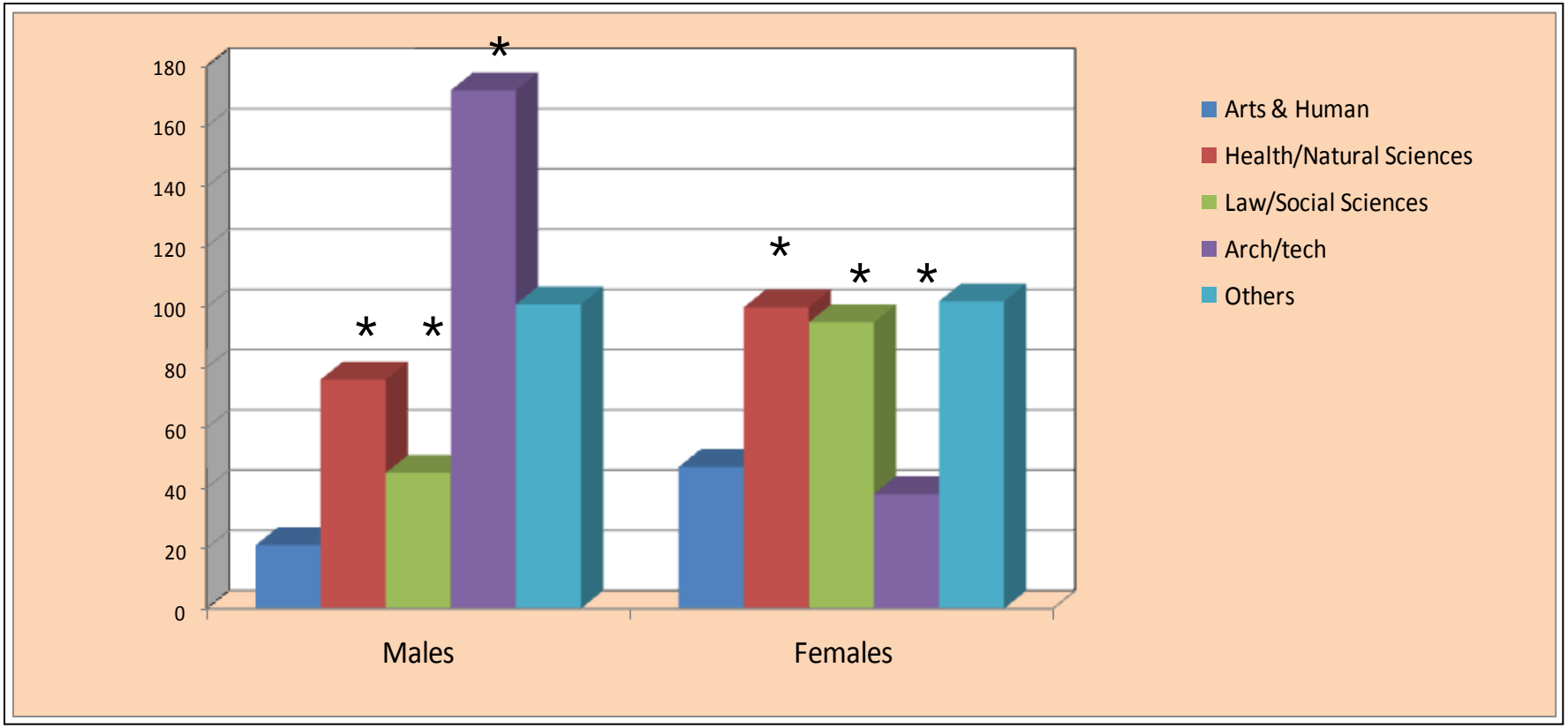
Non-STEM:

- Social Sciences
- Law and Humanities

RESULTS Objective 1

Profiling students with non-STEM and STEM aspirations

Academic aspirations



$X^2(4,807)=115.412$, $p<.001$

Are girls more realistic in the assessment of their abilities?

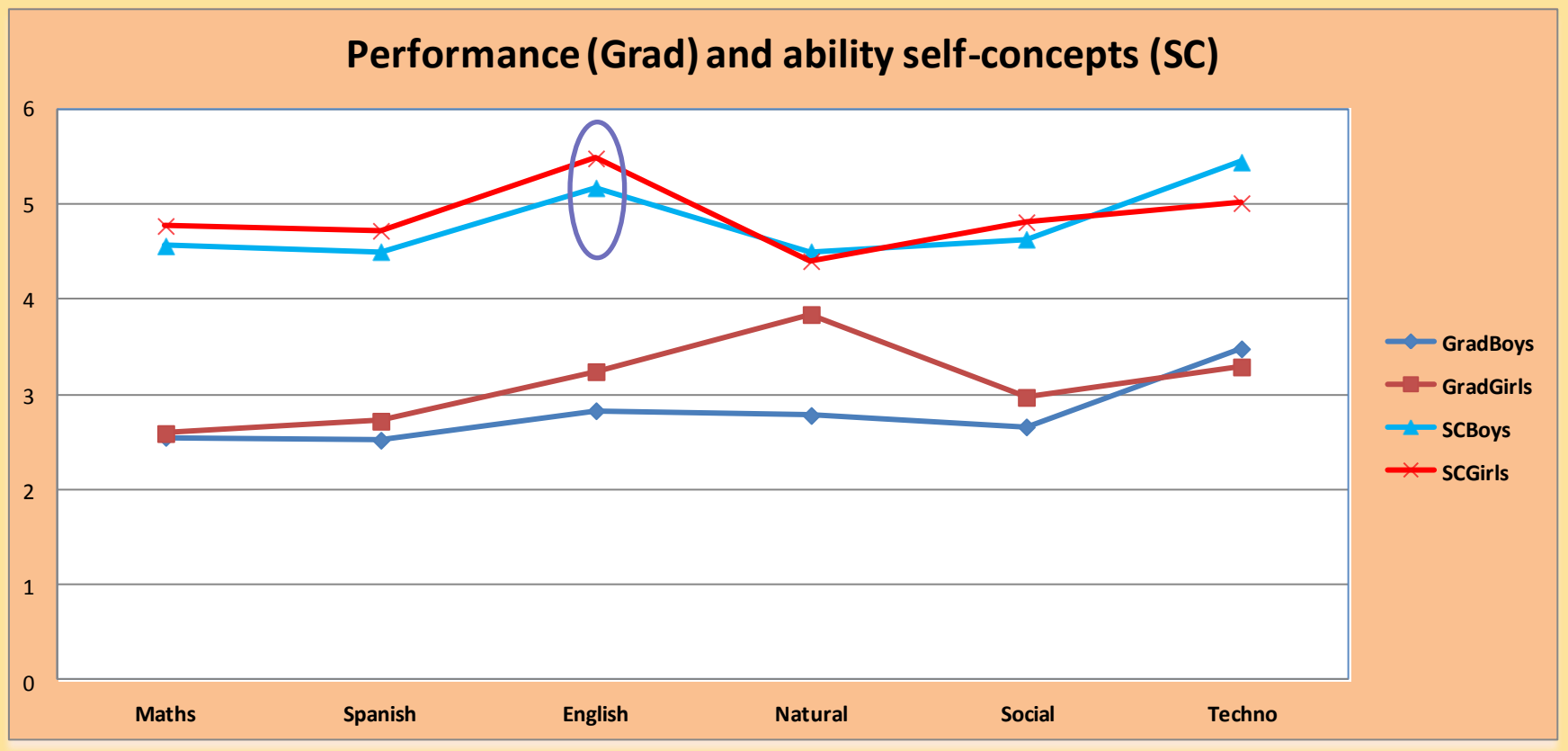
Subjects	Boys	Girls	Total
Mathematics	.59**	.61**	.60**
Spanish	.51**	.51**	.51**
Natural sciences	.55**	.61**	.58**
Social Sciences	.56**	.62**	.60**
Technology	.41**	.45**	. 43**

Zero orden correlations for the global sample

RESULTS Objective 1

Gender differences across subject areas

Scarce gender differences in the tech group



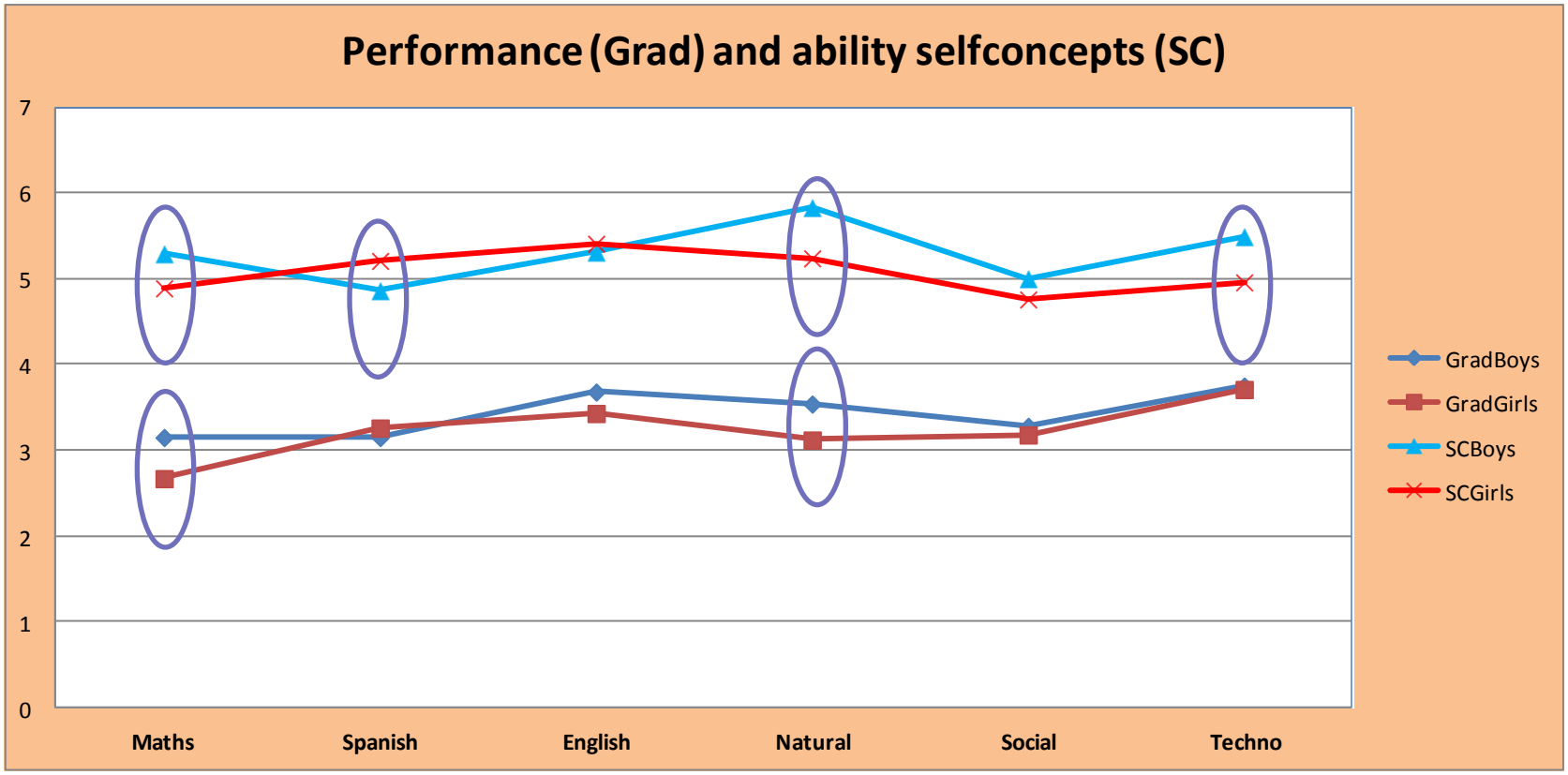
STEM: Architecture/Engineering

Are girls more realistic in the assessment of their abilities?

Subjects	Boys	Girls	Total
Mathematics	.61**	.66**	.61**
Spanish	.52**	.52**	.52**
Natural sciences	.51**	.63**	.53**
Social Sciences	.56**	.57**	.56**
Technology	.38**	.39**	.39**

Zero orden correlations for the Architecture and Technology sample

Remarkable gender differences in this group



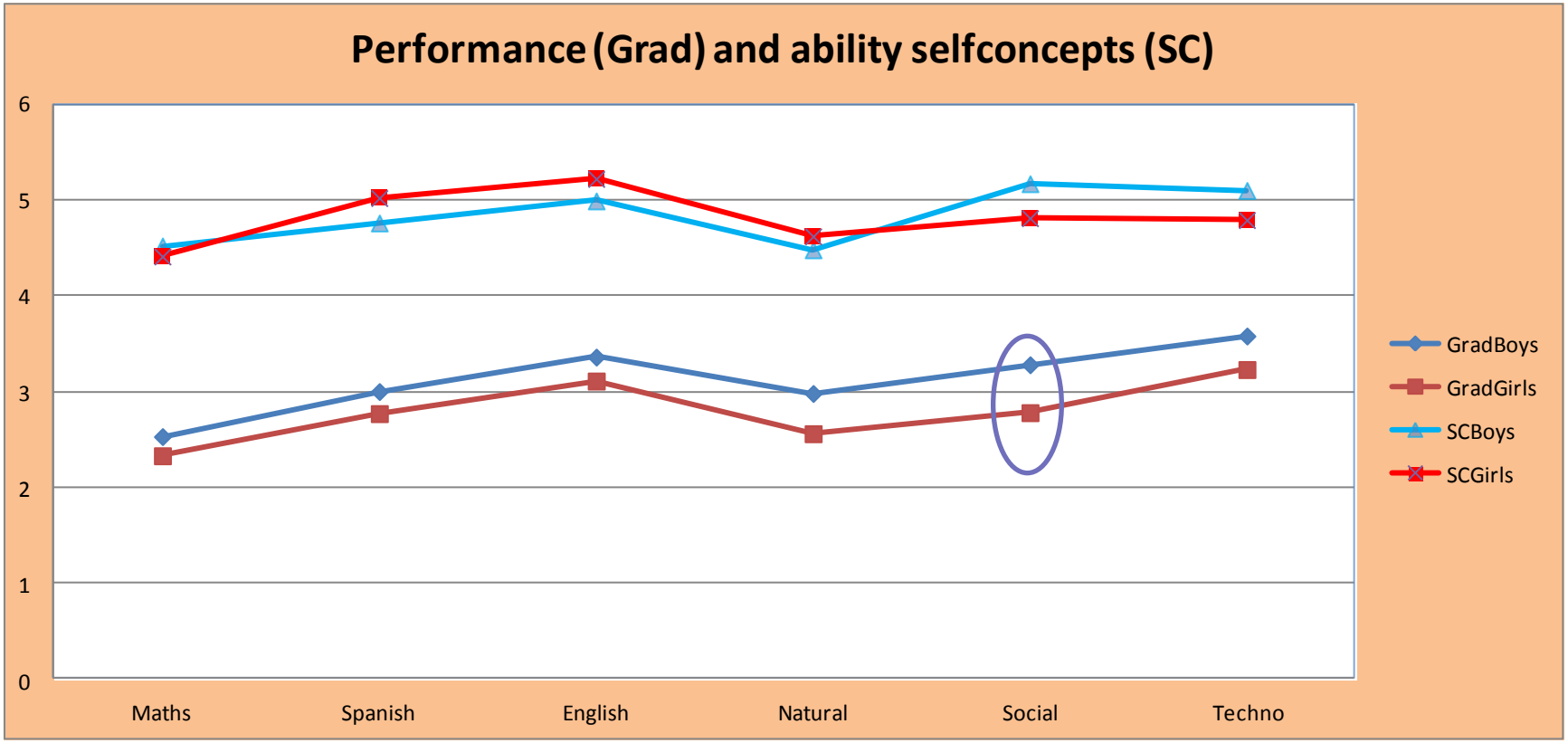
STEM: Health/Natural Science

Are girls more realistic in the assessment of their abilities?

Subjects	Boys	Girls	Total
Mathematics	.63**	.60**	.62**
Spanish	.47**	.42**	.44**
Natural sciences	.39**	.59**	.54**
Social Sciences	.57**	.57**	.57**
Technology	.29**	.51**	.42**

Zero orden correlations for the Health and Science sample

Gender differences in self-concept of social sciences ability



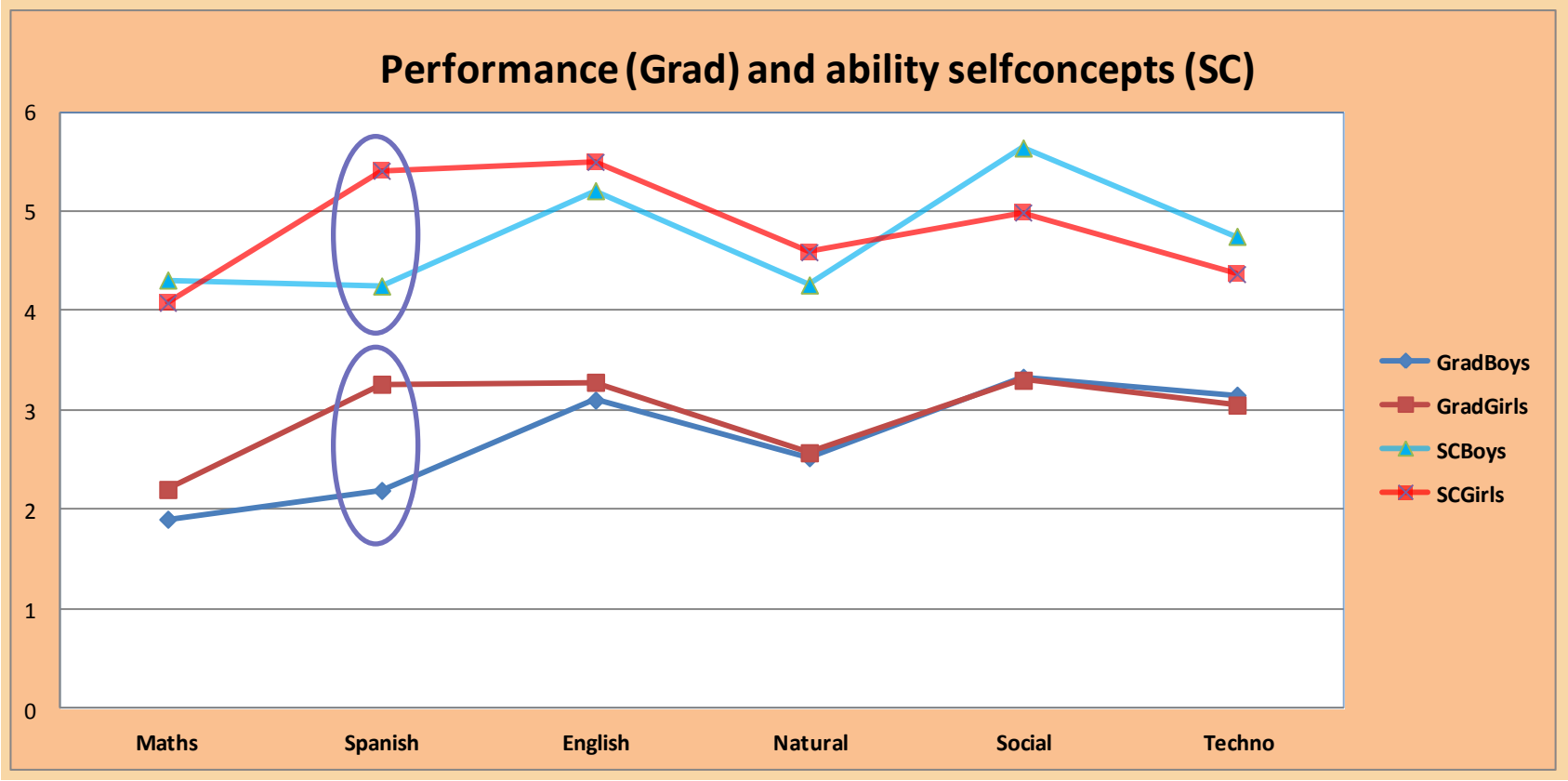
Non-STEM: Social Sciences

Are girls more realistic in the assessment of their abilities?

Subjects	Boys	Girls	Total
Mathematics	.49**	.60**	.57**
Spanish	.49**	.43**	.45**
Natural sciences	.49**	.64**	.58**
Social Sciences	.68**	.59**	.62**
Technology	.37**	.40**	.40**

Zero orden correlations for the law and social science sample

Few gender disparities in this group



Non-STEM: Arts/Humanities

Are girls more realistic in the assessment of their abilities?

Subjects	Boys	Girls	Total
Mathematics	.61**	.66**	.61**
Spanish	.52**	.52**	.52**
Natural sciences	.51**	.63**	.53**
Social Sciences	.56**	.57**	.56**
Technology	.38**	.39**	.39**

Zero orden correlations for the Arts/Humanities sample

RESULTS Objective 2

Prediction of STEM and non-STEM studies

Self-ability concepts as predictors of technological studies

Subject areas	Predictors	Wald	b	O.R.
Math	**Performance**	1.990	.087	1.091
	Self-concept of ability	.840	.057	1.060
Spanish	**Performance**	2.815	-.11	.897
	Self-concept of ability	10.165	-.21	.808***
English	**Performance**	2.134	-.084	.919
	Self-concept of ability	.428	-.035	.965
Natural Sciences	**Performance**	.096	.019	1.019
	Self-concept of ability	.000	-.001	.999
Social Sciences	**Performance**	.652	-.27	.973
	Self-concept of ability	4.879	-.12	.887*
Technology	**Performance**	2.027	.102	1.108
	Self-concept of ability	22.638	.327	1.387***
Gender		88.125	-1.857	.156***

Performance and ability self-concepts as predictors of Health and Science

Subject areas	Predictors	Wald	b	O.R.
Math	**Performance**	22.721	.32	1.371***
	Self-concept of ability	38.479	.483	1.622***
Spanish	**Performance**	35.788	.44	1.551***
	Self-concept of ability	13.758	.29	1.335***
English	**Performance**	27.355	.34	1.408***
	Self-concept of ability	10.904	.21	1.233***
Natural Sciences	**Performance**	42.236	.46	1.579***
	Self-concept of ability	62.818	.64	1.906***
Social Sciences	**Performance**	18.876	.28	1.322***
	Self-concept of ability	6.270	.16	1.579***
Technology	**Performance**	20.678	.18	1.462***
	Self-concept of ability	5.515	.16	1.176*
Gender		7.090	.459	1.582**

Several predictors of Arts and Humanities

Subject areas	Predictors	Wald	b	O.R.
Math	**Performance** **Self-concept of ability**	4.878 6.381	-.23 -.24	.793* .783*
Spanish	**Performance** **Self-concept of ability**	2.608 4.266	.16 .24	1.179 1.267*
English	**Performance** **Self-concept of ability**	1.384 4.550	.11 .21	1.113 1.229*
Natural Sciences	**Performance** **Self-concept of ability**	.843 1.095	-.09 -.09	.914 .916
Social Sciences	**Performance** **Self-concept of ability**	9.317 11.143	.29 .34	1.341** 1.399***
Technology	**Performance** **Self-concept of ability**	2.749 9.308	-.18 -.28	.833 .756**
Gender		12.587	.968	2.632***

Poor predictors for Law and Social Sciences

Subject areas	Predictors	Wald	b	O.R.
Math	**Performance**	.243	-.04	.965
	Self-concept of ability	.696	-.06	.941
Spanish	**Performance**	.974	-.07	1.076
	Self-concept of ability	3.458	.15	1.163
English	**Performance**	2.151	.098	1.103
	Self-concept of ability	.945	-.063	1.065
Natural Sciences	**Performance**	.071	-.003	1.003
	Self-concept of ability	.598	-.049	.952
Social Sciences	**Performance**	8.026	.095	1.100
	Self-concept of ability	.071	-.192	1.212**
Technology	**Performance**	.000	-.001	1.001
	Self-concept of ability	.709	-.059	.942
Gender		12.747	1.001	2.722***

Discussion

- The findings are in line with the reported vocational segregation in secondary education (Instituto de la mujer, 2013; Wigfield & Eccles, 2002)
- The best “accurate” students are more likely to pursue health and science-related studies
- Young females seem to be more realistic in the evaluation of their ability in all subject areas (Watt, 2006)
- Girls tend to under-estimate their abilities when being interested in technological studies
- Performance in the different subject areas does not play a role in the prediction of STEM and non-STEM studies
- Math performance and self-concept of ability are not good predictors for technological studies (Sáinz and Eccles, 2012)

Discussion

- Longitudinal research will determine whether the present results remain stable or change over time
- The effect of the segregation of students according to their performance and academic tracks on their expectations and study choices will be also analyzed
- Future research will illustrate the definite pathways followed to higher education
- Further research should be carried out in order to know teachers' influence on students' study choices
- Intervention measures to increase girls' and boys' accuracy in the assessment of their abilities in masculine and feminine subject areas

THANK YOU!!!!!!

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http://gender-ict.net/wordpress/

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