Gender Stereotypes and Attitudes Towards Information and Communication Technologies in a Sample of Spanish Secondary Students

Sáinz, Milagros; Meneses, Julio; López, Beatriz-Soledad & Fabrègues, S.

Sex Roles, doi:10.1007/s11199-014-0424-2
Introduction

• Scarcity of women in computer science and telecommunications engineering (Women’s Institute, 2012; Castaño, 2011; Sáinz & Eccles, 2012)

• Gender differences in study choices emerge in adolescence when secondary students begin to orient their academic trajectory through the selection of subjects (Sáinz et al., 2004; Eccles, Barber, & Jozefowicz, 1999)

• Young people use stereotypical portrayals of occupations when contemplating future career choices (Eccles, 2007; Cheyran et al., 2012)

• Young people also tend to choose a career that is reflective of their personality (Holland, 1985) and coincide with their self-image (Moss & Frieze, 1993)
Illustration of gender roles and stereotypical portrayals

Boys are football players.
Girls are cheerleaders.
Girls keep houses.

Boys are pilots.
Girls are stewardesses.
Boys build houses.
Theoretical background

Multicomponent model of Gender Stereotypes. DEUX & LEWIS, 1984

Cheryan, Play, Handron & Hudson, 2013
Emotional and semantic evaluation of the characteristics associated with ICT professionals

Different *appraisals of the characteristics* associated with ICT professionals

Some characteristics of these professionals will lead to a positive or negative evaluation of ICT professionals

**Use of semantic gender** when describing ICT professionals’ characteristics

Asymmetrical representation of men and women in the ICT field

CHERYAN, PLAY, HANDRON, & HUDSON, 2013
Method

A content analysis of the following open-ended question was followed: “What type of person comes to mind when you think about someone working in ICT?”

Two independent coders were trained in three sessions to identify in the responses of 900 students:

I. the presence (1) or absence (0) of the characteristics associated with the research question (in light of Deaux & Lewis’ theory on the multidimensional structure of gender stereotypes and Eagly’s social role theory)

II. whether these characteristics involved negative, positive, or neutral appraisals (in line with a literature review on students’ attitudes towards ICT professionals)

III. whether these characteristics were masculine, feminine, or neutral (drawing on literature on the use of grammatical gender to look at the asymmetrical representation of men and women in occupations)
Results

1. Hypothesis. Students’ portrayals about ICT professionals will contain characteristics more aligned with male rather than female gender roles

Portrayals of ICT professionals

- Int Aptitudes: 31.90%
- ICT Use Prof: 30.60%
- Social Position: 18%
- Social Skills: 10.90%
- ICT Design Prof: 10.10%
- Physical App: 3.30%
- Role models: 28.20%
# Results

Hypothesis 2. Students’ portrayals about ICT professionals will contain more negative than positive or neutral appraisals

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>26 (7.7%)</td>
<td>22 (6.1%)</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>201 (59.6%)</td>
<td>231 (64.3%)</td>
<td>1.797</td>
</tr>
<tr>
<td>Positive</td>
<td>110 (32.6%)</td>
<td>106 (29.5%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>337</td>
<td>359</td>
<td></td>
</tr>
</tbody>
</table>

Contrary to expectations, both girls and boys tended to appraise the different characteristics associated with ICT professionals in neutral and positive terms rather than in negative terms.
Results

Hypothesis 2. Students’ portrayals about ICT professionals will contain more negative than positive or neutral appraisals

<table>
<thead>
<tr>
<th></th>
<th>Appraisals</th>
<th>Males</th>
<th>Females</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Appearance</td>
<td>Negative</td>
<td>10 (24.4%)</td>
<td>5 (14.3%)</td>
<td>44.189***</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>11 (26.8%)</td>
<td>12 (34.3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>20 (48.8%)</td>
<td>18 (51.4%)</td>
<td></td>
</tr>
<tr>
<td>Intelectual Aptitudes</td>
<td>Negative</td>
<td>11 (10.4%)</td>
<td>10 (9.3%)</td>
<td>392.688***</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>6 (5.7%)</td>
<td>13 (12.1%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>89 (84%)</td>
<td>84 (78.5%)</td>
<td></td>
</tr>
<tr>
<td>Social Skills</td>
<td>Negative</td>
<td>13 (40.6%)</td>
<td>14 (36.8%)</td>
<td>157.647***</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>3 (9.4%)</td>
<td>4 (10.5%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>16 (50%)</td>
<td>20 (52.6%)</td>
<td></td>
</tr>
</tbody>
</table>

Against predictions, both girls and boys tended to evaluate more positively than negative ICT professionals’ physical appearance, intellectual aptitudes, and social skills. Interestingly, boys were more likely than girls to evaluate negatively ICT professionals’ physical appearance.
Results

Hypothesis 3. The characteristics associated with ICT professionals will contain more masculine than feminine or neutral references

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine</td>
<td>41 (12.2%)</td>
<td>35 (9.7%)</td>
<td></td>
</tr>
<tr>
<td>Feminine</td>
<td>17 (5%)</td>
<td>29 (8.1%)</td>
<td>5.041</td>
</tr>
<tr>
<td>Neutral</td>
<td>152 (45.1%)</td>
<td>177 (49.3%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>337</td>
<td>359</td>
<td></td>
</tr>
</tbody>
</table>

In line with expectations, both girls and boys regarded the different characteristics associated with ICT professionals as neutral and masculine rather than as feminine.
Implications

I. Our participants have gender stereotypical portraits of who produces and uses certain ICT tools and services (Sáinz, 2007)

II. This research illustrates a social phenomenon associated with the historical production and reproduction of power and status in technological fields in Spain, as well as with masculine forms of ICT occupations (Rudman & Glick, 2010)

III. As most of the prestigious and managerial jobs are related to technology (López-Sáez et al., 2011), this field continues to be a male-dominated setting where women tend to occupy traditional feminine ICT positions and play a secondary role in the design and production of ICT tools and services (Sáinz & Eccles, 2012)

IV. Consequently, the stereotype that women lack technological competence will be reinforced and women will run the risk of being ‘stigmatized’ as users and not competent producers of ICT tools and services (Sáinz & Eccles, 2012)
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