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RERUM COGNOSCERE CAUSAS ET VALOREM

ITC competences of polish university students – pilot survey results

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ITC competences - Importance

1) ITC competences are highly demanded from specialist, managerial, and office work candidates

[EY, SGH, AmCham, 2012; Kocór, Strzebońska, Dawid-Sawicka, 2015]

2) Those competences are on insufficient levels among workforce (including recent graduates)

[Pieniążek et al., 2014; Kocór, Strzebońska, Dawid-Sawicka, 2015]

3) Demanded digital competences are poorly developed during Higher Education (excluding IT and engineering courses)

[Pieniążek et al., 2014; Kocór, Strzebońska, Dawid-Sawicka, 2015]

ITC competences - Importance

4) Digital competences will be needed at various (not only IT) jobs and necessary to use and further develop other competences – even more due to Revolution 4.0

[OECD, 2005; EU 2007; 2011; Czapla, 2018]

5) Did Generation Z master digital competences or is it only true for basic tasks of marginal professional use?

6) There is a need to assess regular – advanced user digital competences that will be necessary in work and education environment

ITC competence assessment

Professional accreditations (specific for narrow areas)

Work samples

Complex ITC competence models:

- **DigComp 2.1**
  - *(5 areas, 21 competences, 8 proficiency levels)*

    [Carretero S., Vuorikari R., Yves Punie Y., EU, 2017]

- **European E-Competence Framework 3.0**
  - *(5 areas, 40 competences, 5 proficiency levels, 23 professional profiles)*

    [EU, 2018]

Questionnaire

7 dimensions of ITC competences:

- gathering and processing **information**
- use of **office** programs
- online **communication**
- **multimedia** editing and creation
- **programming**
- **hardware** & e-commerce
- digital **security**

Questionnaire

35 questions (5 per dimension):

- single select multiple choice (out of 5 given answers)
- each question *scored 0-1*

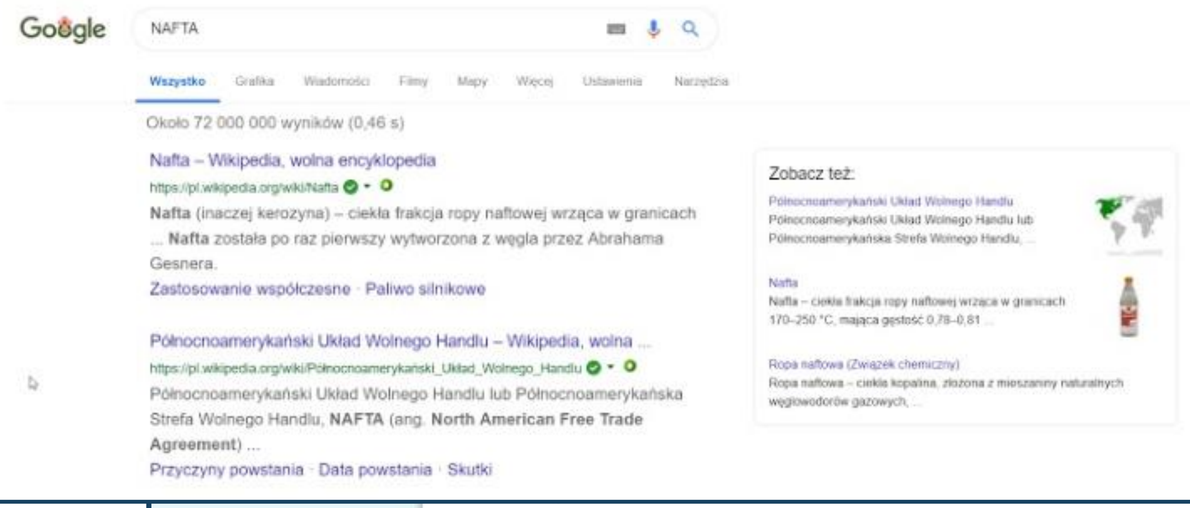
Questions testing for:

- practical skills *(situational, ”how to?”)*
- knowledge
- attitudes *(i.e. netiquette, safe online behaviour)*

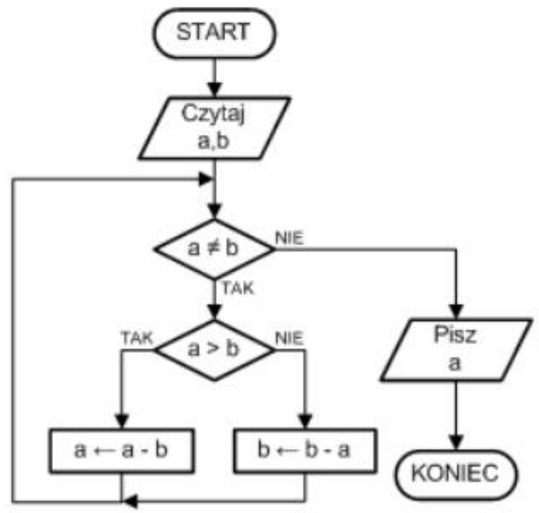
Badanie Kompetencji Cyfrowych

*Required

Aby wyświetlić tylko wyniki wyszukiwania dotyczące substancji chemicznej należy * 1 point



Poniższy algorytm * 1 point



Additional questions

Prior to filling questionnaire – ICT competence self assessment

- Level of user of ITC technologies
  - *Scale: 0-ocassional, 1- regular, 2-advanced, 3-expert*
- Satisfaction with ITC competence in each of 7 dimensions
  - *Scale: 1- Definitely unsatisfactory… 7-Definitely satisfactory*

Pilot survey

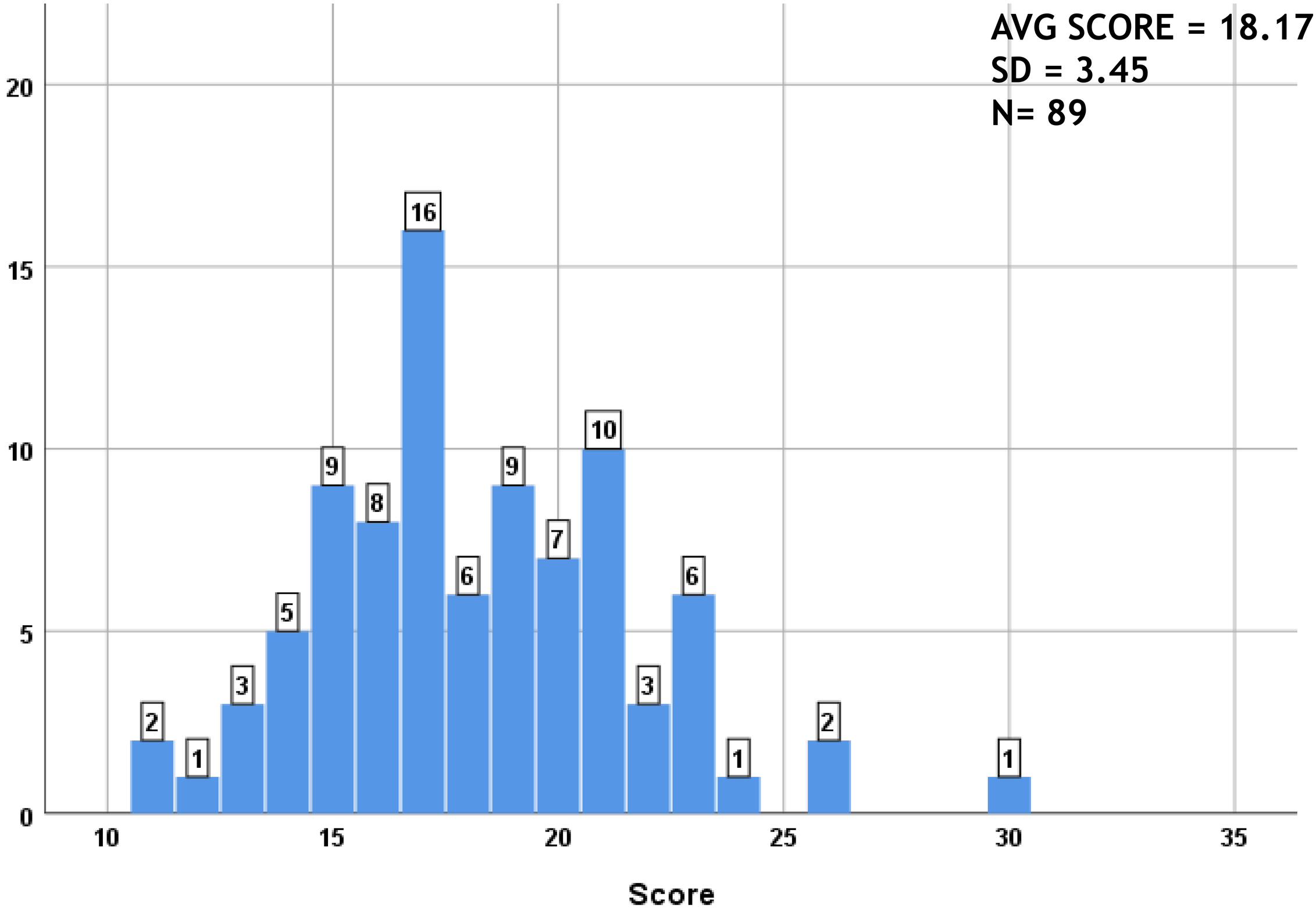
Method:

- **computer assisted self-interviewing (CASI)**

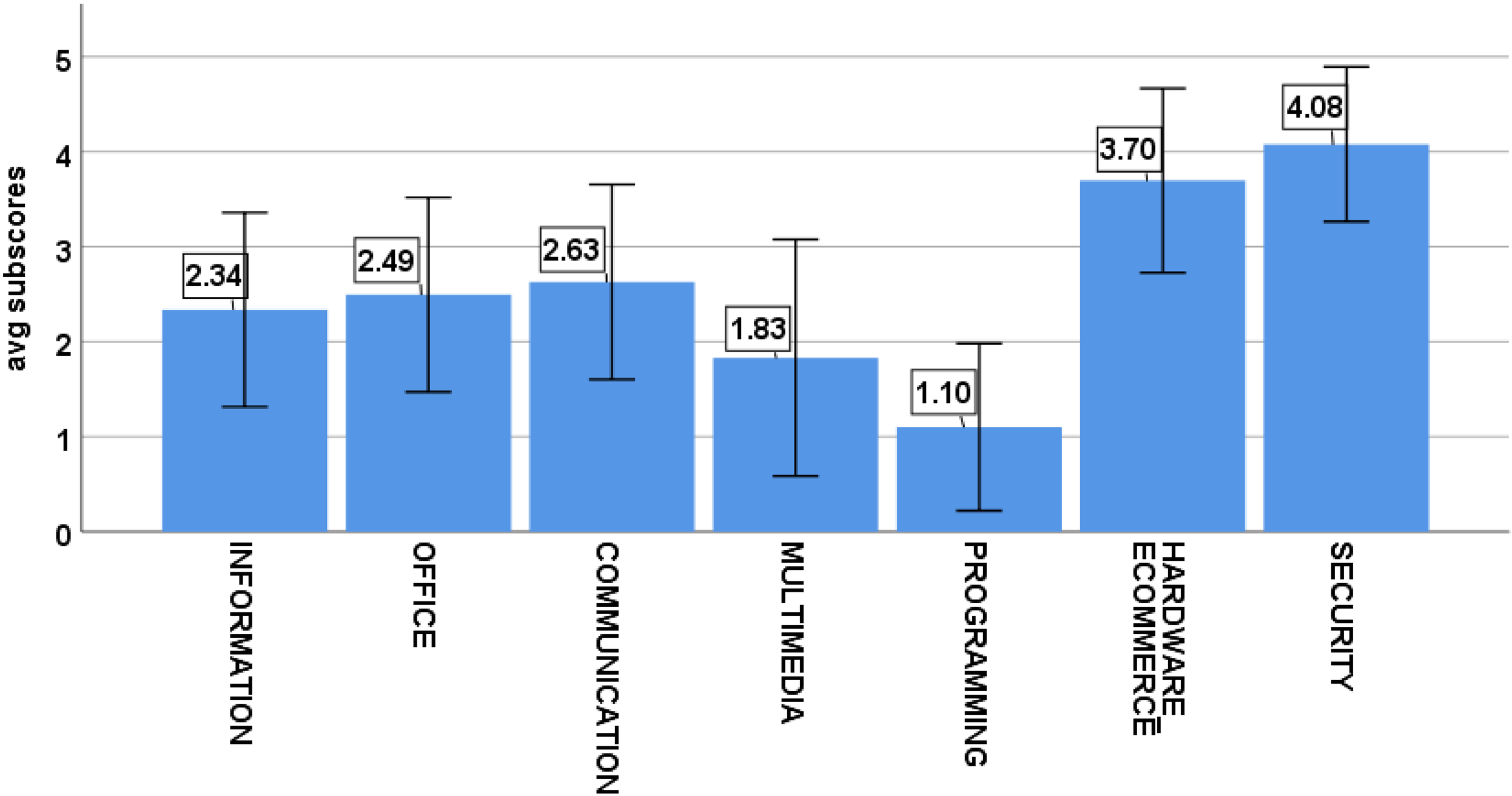
Sample:

- **89 CUE students (aged 19-24):**
  - **25 male, 64 Female**
  - **23 management, 66 Accounting**

Results: Total score



Results: Sub-scores



Significant correlations (Spearman)

- **Total Score – User Self Assessment (.384) ****
- Multimedia – Multimedia Self Assessment (.189)*
- **Programming – Programming Self Assessment (.330) ****
- **Hardware & E... – Hardware & E... Self Assessment (.326)****
- Security – Security Self Assessment (.192)*

* - Correlation is significant at the 0.05 level (1-tailed).

** - correlation is significant at the 0.01 level

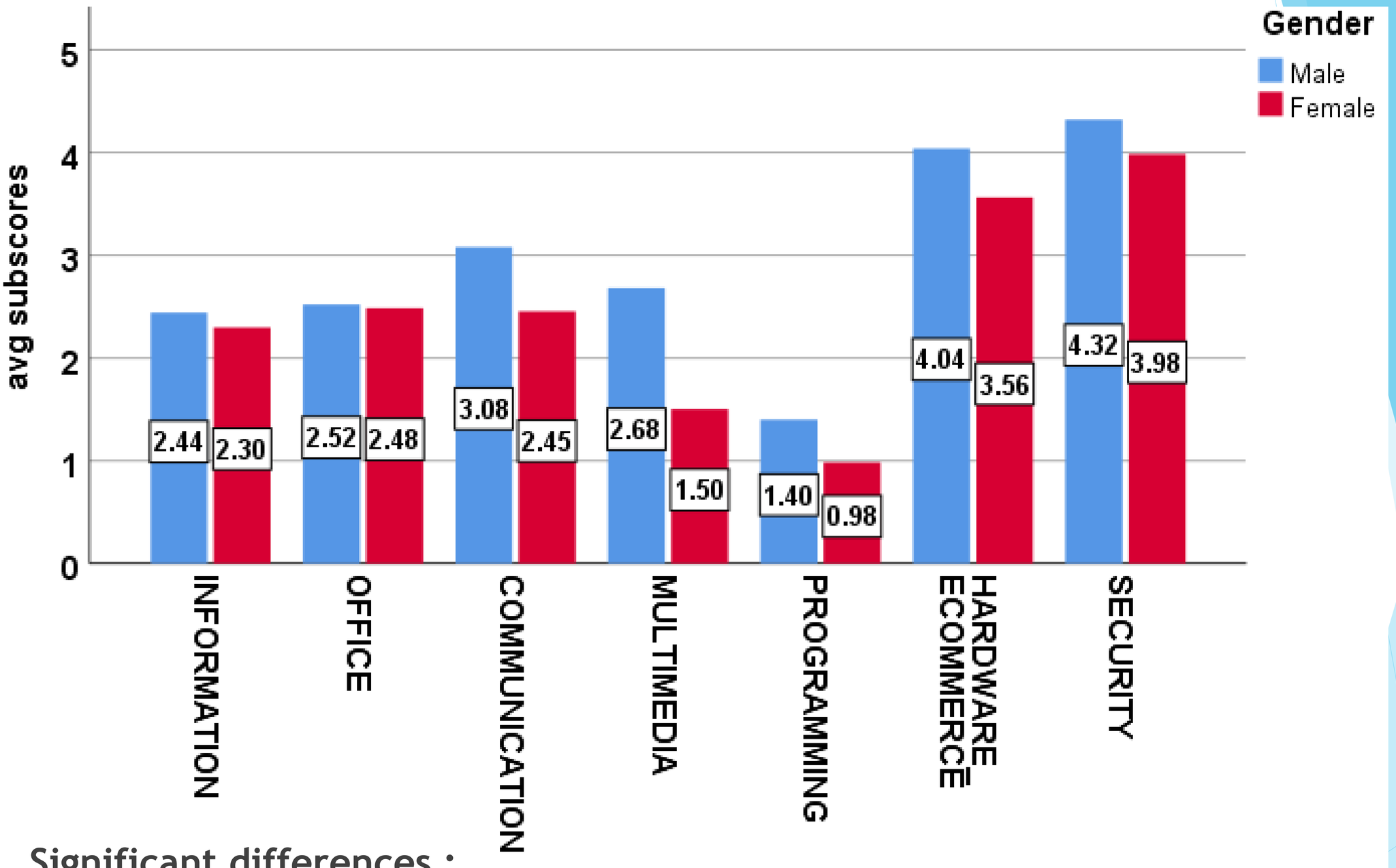
T-test: Total Score (gender)

- Male avg. 20.48 (SD=3.76)
- Female avg. 17.27 (SD=2.88)
- P<.001

T-test: User Self Assessment (gender)

- Male avg. 1.40 (SD=.58)
- Female avg. 0.94 (SD=.56)
- p=.001

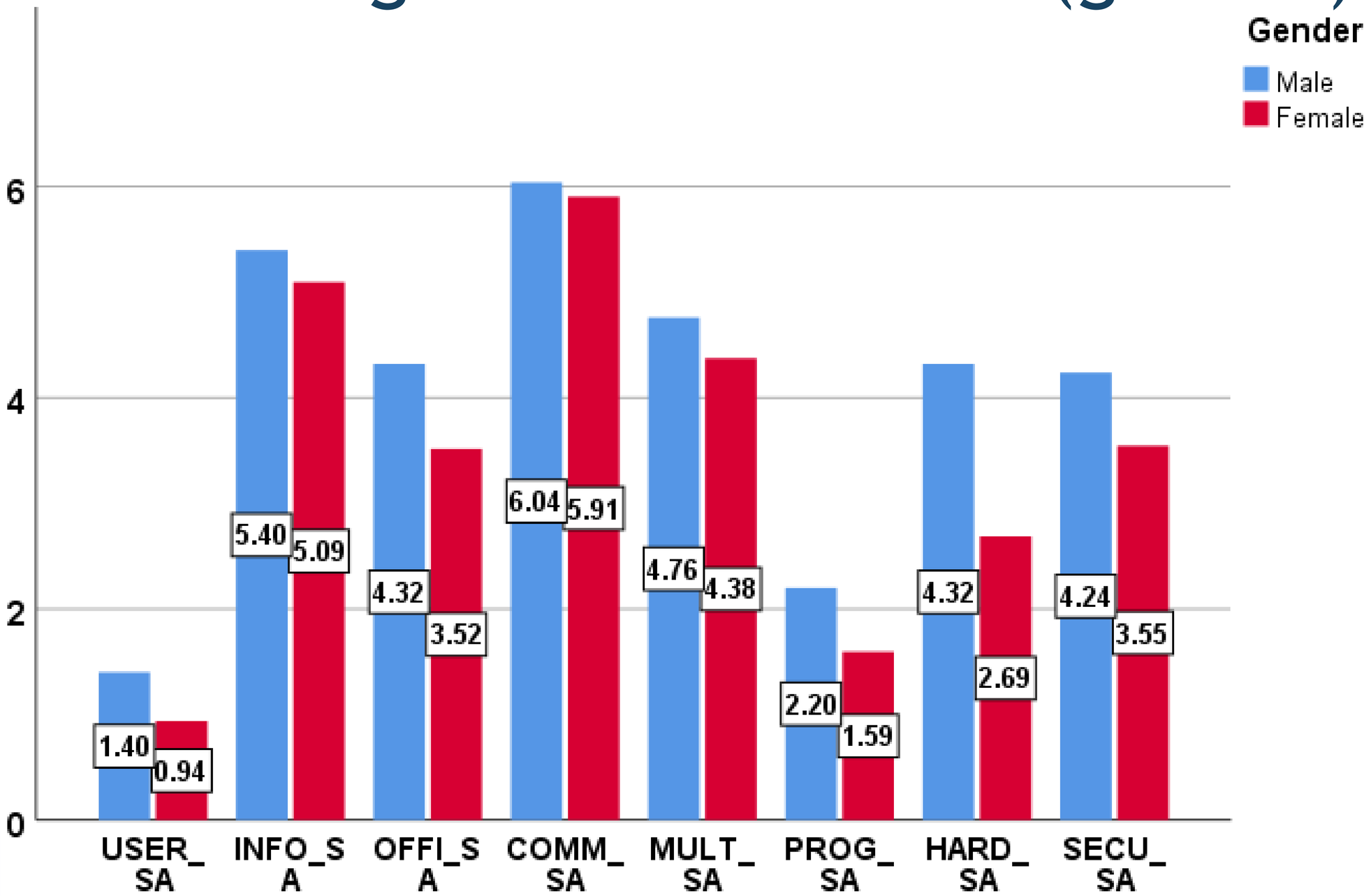
T-test: avg. sub-scores (gender)



Significant differences :

- Communication (p=.009)
- Multimedia (p<.001)
- Programming (p=.044)
- Hardware and E-commerce (p=.013)

T-test: avg. self assessment (gender)



Significant differences:

- Office (p=.016)
- Programming (p=.024)
- Hardware and E-commerce (p<.001)

T-test: sub-scores (course)

Significant differences:

- **Communication**
  - **Accounting students avg. 2.79 (SD=1.06)**
  - **Management students avg. 2.17 (SD=.78)**
  - **P=.013**

Factor analysis:

Rotated Component Matrix[a]

	Component	
	1	2
HARDWARE_ECOMMERCE	.627	.290
INFORMATION	.608	-.154
OFFICE	.595	-.116
PROGRAMMING	.535	.251
COMMUNICATION	-.159	.732
SECURITY	.028	.731
MULTIMEDIA	.323	.509

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Discussion:

Findings:

- On average highest sub-scores were received for Security and Hardware & E-commerce and lowest for Programming
- There are significant positive correlations between score and self assessment for:
  - Total Score, Programming, Hardware & E-commerce (moderate)
  - Multimedia and Security (low)
- Male students received on average higher:
  - Total scores as well as Communication, Multimedia, Programming, Hardware & E-commerce sub-scores
- Considering self assessment above differences were perceived for:
  - Total score, Programming, Hardware & E-commerce sub-scores
  - and for Office sub-score (!)

Discussion:

Strengths:

- Positive participant feedback: clear instructions and questions, convenient form

Weaknesses:

- Small sample
- Uneven gender proportions
- Similar participants (Age group, University, Area of studies)

Further research:

- Testing questionnaire on larger and more diverse samples

Sources:

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