Students' Perception of e-Assessment

A Case Study from Germany

Bastian Küppers, Ulrik Schroeder

RWTH AACHEN UNIVERSITY

Students' Perception of e-Assessment

Our Project: FLEX

FLEX (Framework for FLExible Electronic EXaminations)

Students' Perception of e-Assessment

Motivation

- e-Assessment is a rather new, but actively developed topic for German Institutes of Higher Education (IHE) [1]
- **FLEX** aims to enable German IHEs to conduct e-Assessment on Student Owned Devices (→ BYOD)
- Research suggests that acceptance of e-Assessment [2,3] and BYOD for e-Assessment [5] is important
- Goal of the presented work:
  1. Verify the existing findings for German students
  2. Find out factors that influence the students' perception of e-Assessment

Survey I – General / TA-EG

Part	Item	Scale
General	Age	3 Options
	Study Program	9 Options
	Gender	2 Options
Questionaire TA-EG [5]	I like to have new electronic devices.	Five-level Likert Scale (5LLS)
	Electronic devices cause illness.	
	I like to go to stores for electronic devices.	
	I (would) have problems understanding electronic and computer magazines.	
	Electronic devices provide a high standard of living.	
	Electronic devices lead to intellectual impoverishment.	
	Electronic devices make many things more complicated.	
	I inform myself about electronic devices, even if I have no intention to buy them.	
	Electronic devices make you independent.	
	I enjoy trying out electronic devices.	
	Electronic devices make everyday life easier for me.	
	Electronic devices increase security.	
	Electronic devices reduce personal contact between people.	
	I know most of the functions of the electronic devices I own.	
	I am thrilled when a new electronic device comes onto the market.	
	Electronic devices cause stress.	
	I know about electronic devices.	
	It is easy for me to learn how to operate an electronic device.	
	Electronic devices help to obtain information.	

Survey I – General / TA-EG

Part	Item	Scale
General	Age	3 Options[1]
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	I enjoy trying out electronic devices.	
	[illegible]	
	[illegible]	
	[illegible]	
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	It is easy for me to learn how to operate an electronic device.	
	Electronic devices help to obtain information.	

1. < 18; 18 – 25; > 25
2. Bachelor Computer Science, Master Computer Science, Scientific Programming, Technomathematics, Bachelor Technical Communication, Master Technical Communication, Bachelor Computer Science (Teacher), Master Computer Science (Teacher), Other (free text)

Survey I – General / TA-EG

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Survey II – e-Assessment / BYOD / Fraud

Part	Item	Scale
e-Assessment	I think it is very good to have electronic examinations in my studies.	5LLS
	I think that electronic examinations are a good complement to paper-based examinations.	
	I think that electronic examinations are a good substitute to paper-based examinations.	
	I see advantages of electronic examinations, namely…	4 Options[1]
	I see disadvantages of electronic examinations, namely…	4 Options[2]
BYOD	I find it very advantageous if electronic examinations are carried out on my own electronic device (laptop).	5LLS
	I see the following advantages in using my own electronic device (laptop) for an examination, namely...	3 Options[3]
	I see the following disadvantages in using my own electronic device (laptop) for an examination, namely....	3 Options[4]
Fraud	I think that cheating in paper-based examinations can be done very easy.	5LLS
	I think that cheating in electronic examinations can be done very easy.	5LLS

1. Faster Correction, More Realistic Examinations, More Diverse Examination, Tasks, Other (free text)
2. Security, Usability, Fairness, Other (free text)
3. Familiar Device, Location-independent Examinations, Other (free text)
4. Security, Differences Between Devices, Other (free text)

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Survey III

Participants of the Survey

- The survey was carried out with an online platform

- The survey was sent to students from several IHEs
  - RWTH Aachen University
  - FH Aachen University of Applied Sciences
  - Maastricht University
  - Alpen-Adria-Universität Klagenfurt
  - TU Berlin
  - FOM Hochschule für Oekonomie und Management, Study Centre Aachen
  - Albstadt-Sigmaringen University

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So, who answered the survey eventually?

Let's have a look….

The Results in a Nutshell

General Demographics

	Male	Female	NA	∑
< 18	1.2 %	0.2 %	0 %	1.4 %
18 – 25	60.3 %	16.7 %	0.5 %	77.5 %
> 25	14 %	6.4 %	0 %	20.4 %
NA	0.5 %	0	0.2 %	0.7 %
∑	76 %	23.3 %	0.7 %	100 %

The Results in a Nutshell

General Demographics

	Male ↓	Female ↓	NA ↓	∑ ↓
< 18	1.2 %	0.2 %	0 %	1.4 %
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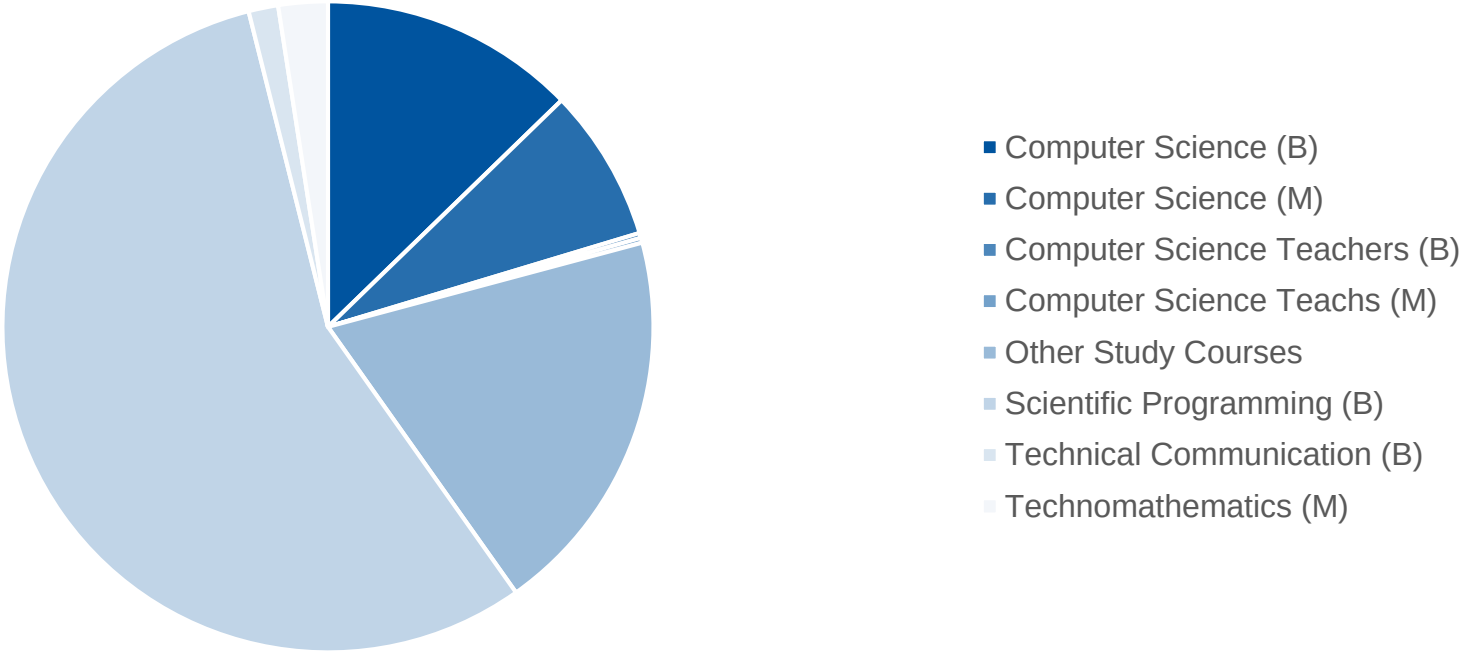
→ In general, the biggest share among the participants are men between 18 and 25 years

The Results in a Nutshell

Study Courses

- That young men account for the majority of the participants of the survey is – statistically speaking – no surprise, given the study courses of the participants

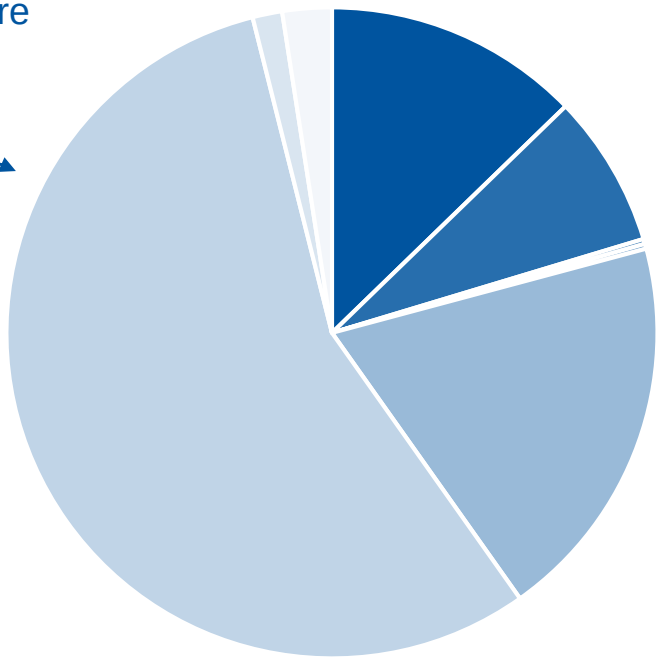


The Results in a Nutshell

Study Courses

- That young men account for the majority of the participants of the survey is – statistically speaking – no surprise, given the study courses of the participants

Those students are educated at our department…



The Results in a Nutshell

People who want to have e-Assessment (278 / 408 = 68,1 %)

	Male	Female	NA	∑
< 18	1,4 %	0 %	0 %	1,4 %
18 – 25	64 %	15,9 %	0,4 %	80,3 %
> 25	11,5 %	6,1 %	0 %	17,6 %
NA	0,7 %	0 %	0 %	0,7 %
∑	77,6 %	22 %	0,4 %	100 %

“I think it is very good to have electronic examinations in my studies” ≥ 4

The Results in a Nutshell

People who want to have e-Assessment (278 / 408 = 68,1 %)

	Male	Female	NA	∑
< 18	0,2 pps	-0,2 pps	0 pps	**0 pps**
18 – 25	**3,7 pps**	**-0,9 pps**	-0,1 pps	**2,7 pps**
> 25	**-2,5 pps**	-0,2 pps	0 pps	**-2,7 pps**
NA	0,2 pps	0 pps	-0,2 pps	**0 pps**
∑	**1,6 pps**	**-1,4 pps**	**-0,3 pps**	**0 pps**

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The Results in a Nutshell

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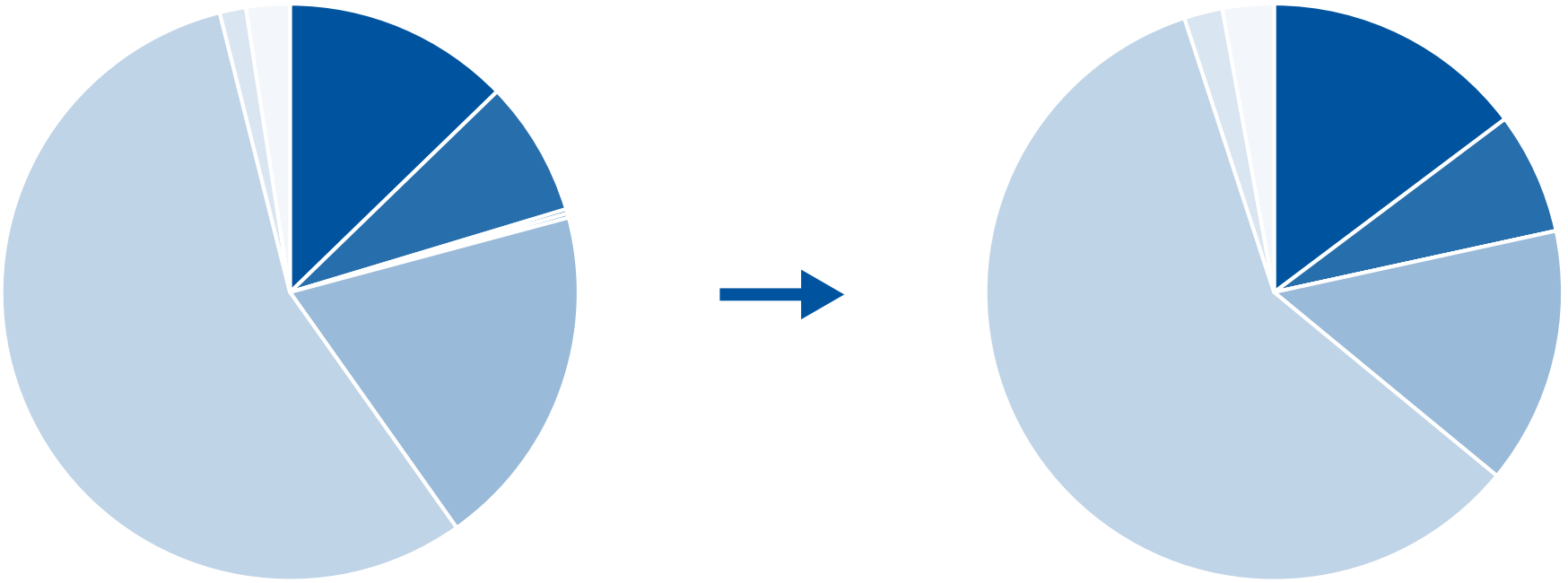
- Study Courses



The Results in a Nutshell

People who NOT want to have e-Assessment (49 / 408 = 12 %)

	Male	Female	NA	∑
< 18	0 %	2 %	0 %	2 %
18 – 25	46,9 %	22,5 %	2 %	71,4 %
> 25	12,3 %	12,3 %	0 %	24,6 %
NA	0 %	0 %	2 %	2 %
∑	59,2 %	36,8 %	4,0 %	100 %

“I think it is very good to have electronic examinations in my studies” ≤ 2

The Results in a Nutshell

People who NOT want to have e-Assessment (49 / 408 = 12 %)

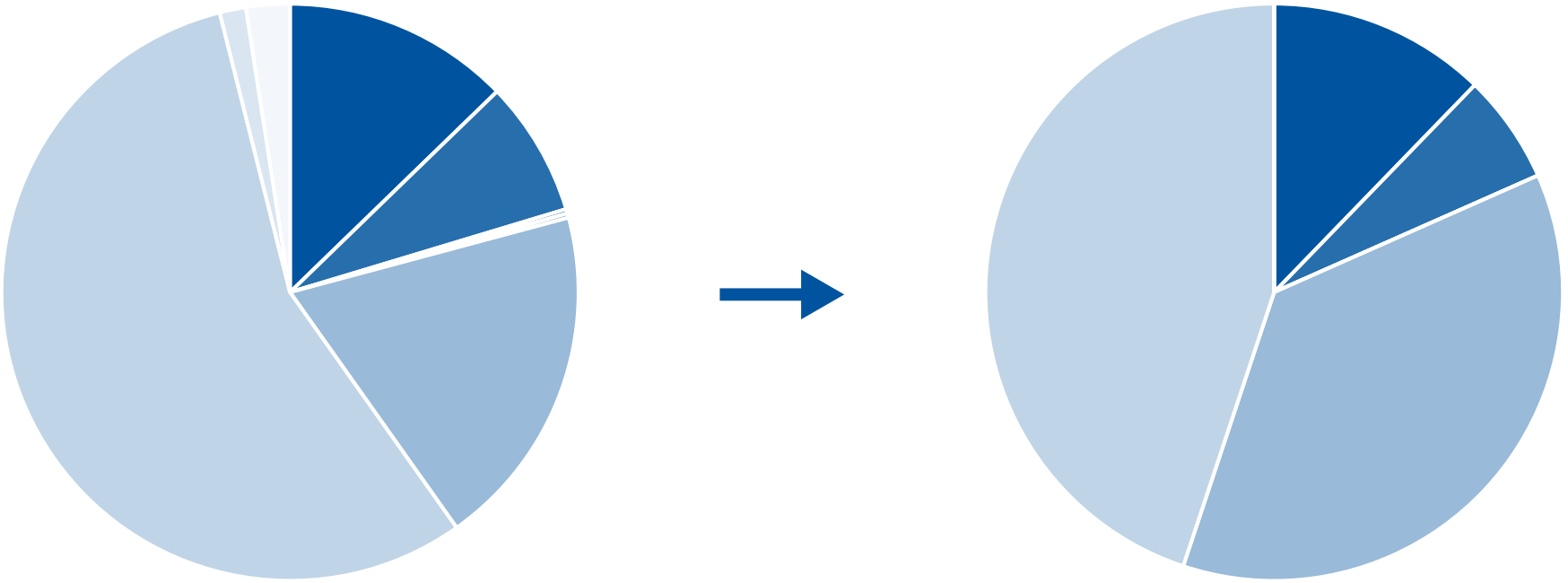
	Male	Female	NA	∑
< 18	-1,2 pps	1,8 pps	0 pps	0,6 pps
18 – 25	-13,3 pps	5,8 pps	1,5 pps	-6 pps
> 25	-1,7 pps	5,8 pps	0 pps	4,1 pps
NA	-0,5 pps	0 pps	1,8 pps	1,3 pps
∑	-16,7 pps	13,4 pps	3,3 pps	0 pps

“I think it is very good to have electronic examinations in my studies” ≤ 2

The Results in a Nutshell

People who NOT want to have e-Assessment (49 / 408 = 12 %)

- Study Courses



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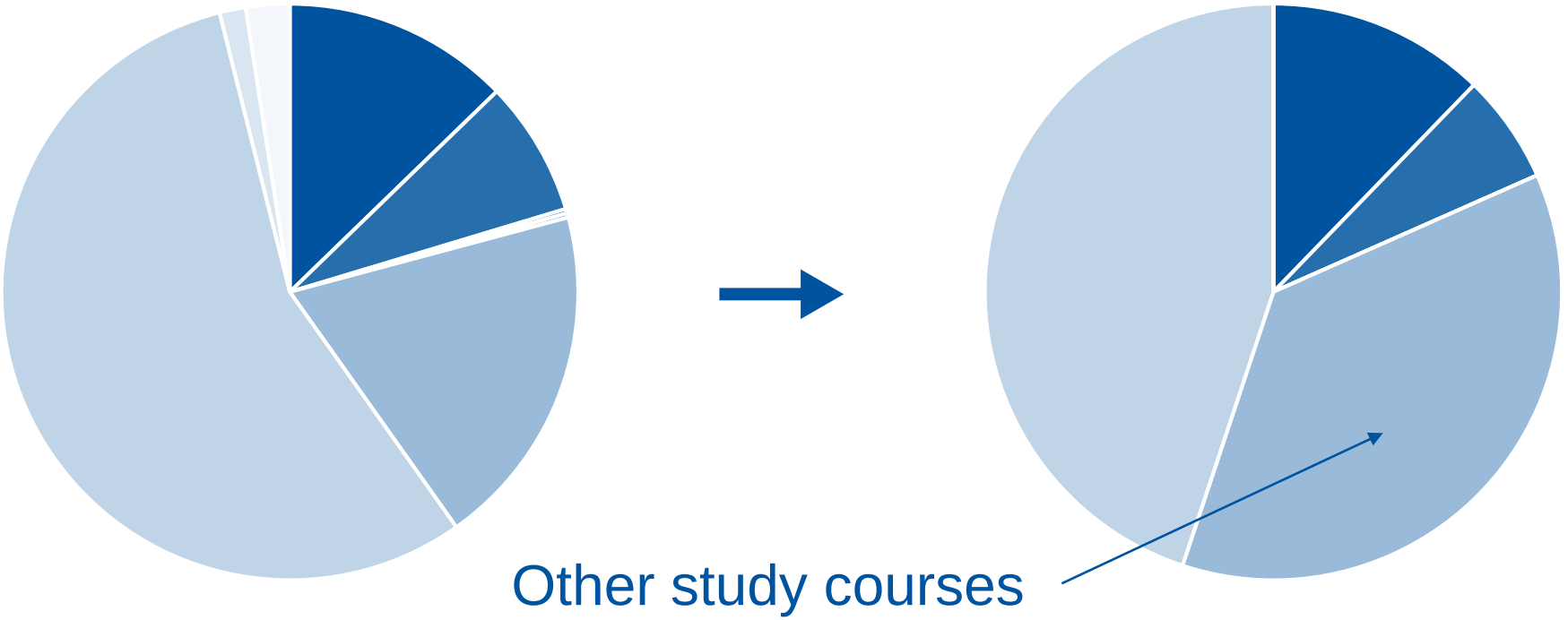

The Results in a Nutshell

Who is indifferent? (79 / 408 = 19,4%)

	Male	Female	NA	∑
< 18	1,3 %	0 %	0 %	1,3 %
18 – 25	54,4 %	16,5 %	0 %	70,9 %
> 25	24 %	3,8 %	0 %	27,8 %
NA	0 %	0 %	0 %	0 %
∑	79,7 %	20,3 %	0 %	100 %

“I think it is very good to have electronic examinations in my studies” == 3

The Results in a Nutshell

Who is indifferent? (79 / 408 = 19,4%)

	Male	Female	NA	∑
< 18	0,1 pps	-0,2 pps	0 pps	**-0,1 pps**
18 – 25	**-5,9 pps**	-0,2 pps	-0,5 pps	**-6,6 pps**
> 25	**10,1 pps**	**-2,6 pps**	0 pps	**7,5 pps**
NA	-0,5 pps	0 pps	-0,3 pps	**-0,8 pps**
∑	**3,8 pps**	**-3 pps**	**-0,8 pps**	**0 pps**

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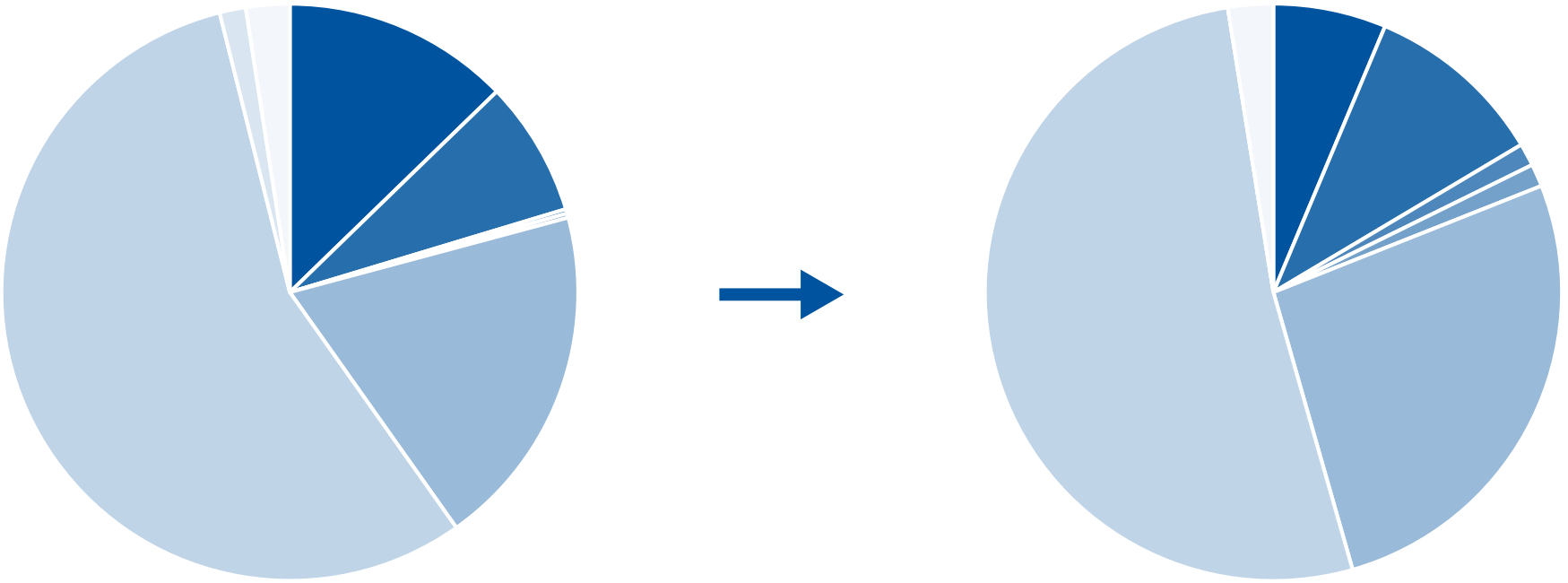
The Results in a Nutshell

Who is indifferent? (79 / 408 = 19,4%)

- Study Courses



The Results in a Nutshell

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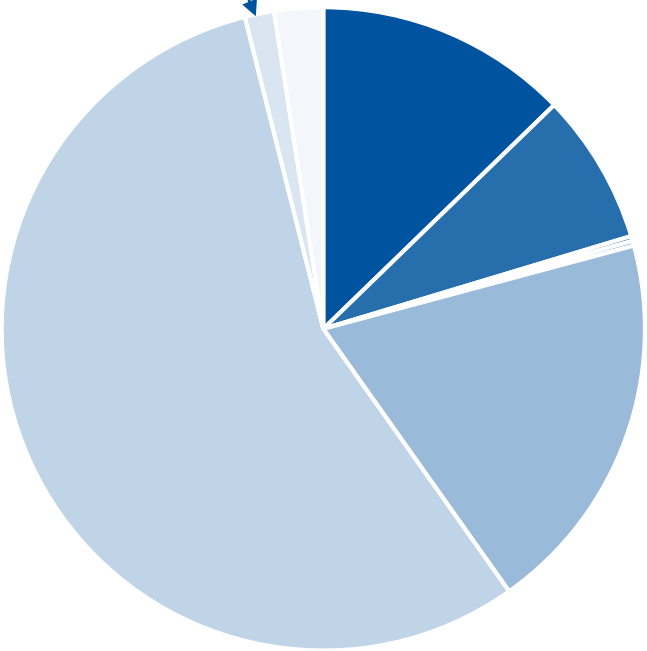
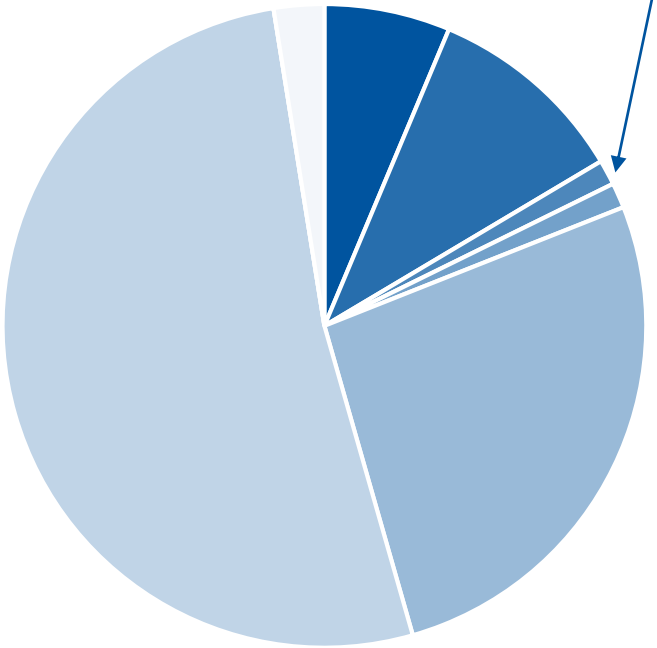
- Study Courses

Technical Communications



Computer Science Teachers



The Results in a Nutshell

People who want to have BYOD (262 / 408 = 64,2 %)

	Male	Female	NA	∑
< 18	1,1 %	0 %	0 %	1,1 %
18 – 25	61,8 %	16,8 %	0 %	78,6 %
> 25	13 %	6,5 %	0 %	19,5 %
NA	0,4 %	0 %	0,4 %	0,8 %
∑	76,3 %	23,3 %	0,4 %	100 %

“I find it very advantageous if electronic examinations are carried out on my own electronic device (laptop)” ≥ 4

The Results in a Nutshell

People who want to have BYOD (262 / 408 = 64,2 %)

	Male	Female	NA	∑
< 18	-0,1 pps	-0,2 pps	0 pps	**-0,1 pps**
18 – 25	**1,5 pps**	0,1 pps	-0,5 pps	**0,9 pps**
> 25	**-1,0 pps**	0,1 pps	0 pps	**-0,9 pps**
NA	-0,1 pps	0 pps	0,2 pps	**0,1 pps**
∑	**0,3 pps**	**0 pps**	**-0,3 pps**	**0 pps**

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The Results in a Nutshell

People who want to have BYOD (262 / 408 = 64,2 %)

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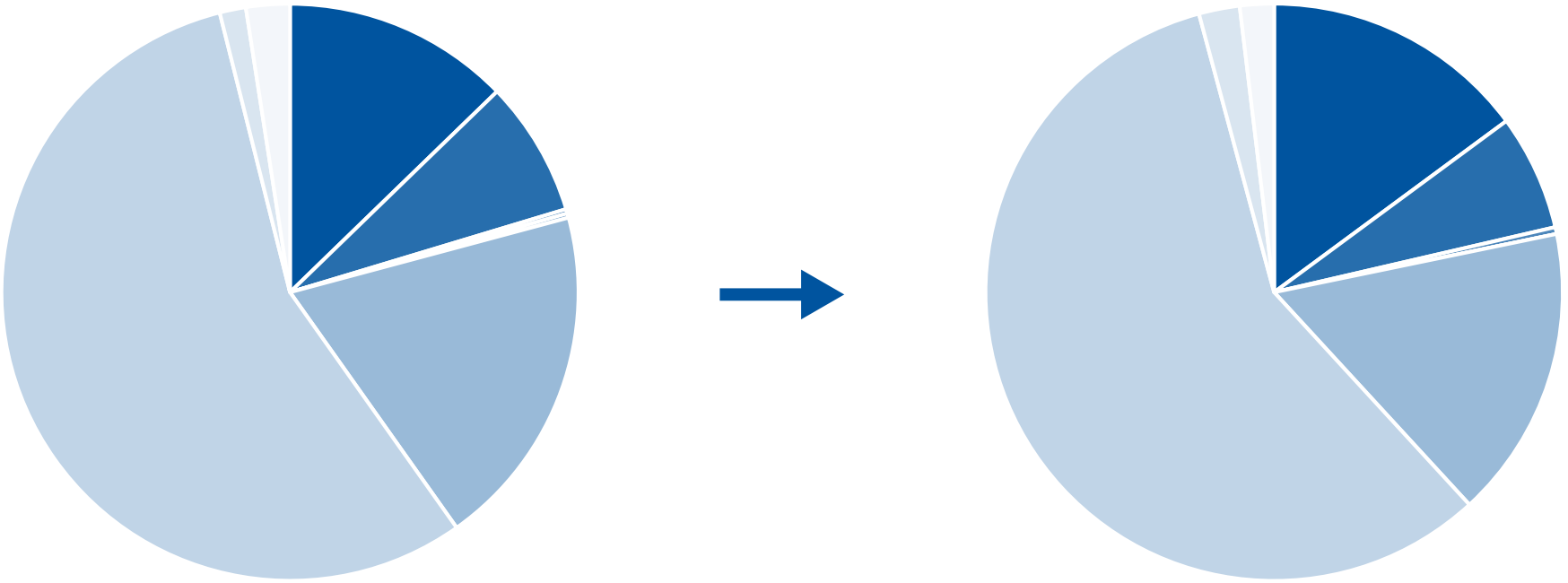

The Results in a Nutshell

People who NOT want to have BYOD (63 / 408 = 15,4 %)

	Male	Female	NA	∑
< 18	1,6 %	1,6 %	0 %	3,2 %
18 – 25	46 %	20,6 %	1,7 %	68,3 %
> 25	20,6 %	7,9 %	0 %	28,5 %
NA	0 %	0 %	0 %	0 %
∑	68,2 %	30,1 %	1,7 %	100 %

“I find it very advantageous if electronic examinations are carried out on my own electronic device (laptop)” ≤ 2

The Results in a Nutshell

People who NOT want to have BYOD (63 / 408 = 15,4 %)

	Male	Female	NA	∑
< 18	0,4 pps	1,4 pps	0 pps	1,8 pps
18 – 25	-14,3 pps	3,9 pps	1,1 pps	-9,3 pps
> 25	6,6 pps	1,5 pps	0 pps	8,1 pps
NA	-0,5 pps	0 pps	-0,1 pps	-0,6 pps
∑	-7,8 pps	6,8 pps	1,0 pps	0 pps

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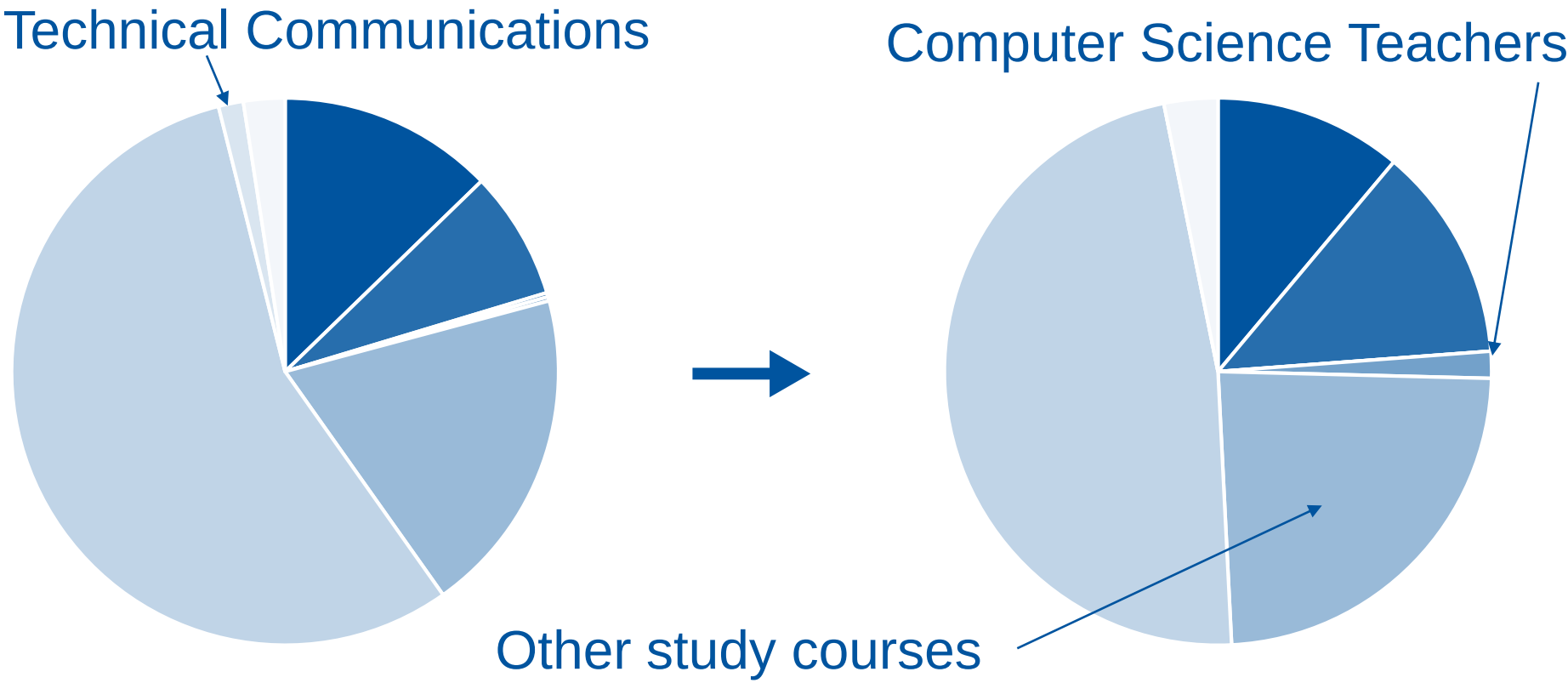

The Results in a Nutshell

Who is indifferent? (79 / 408 = 19,4%)

	Male	Female	NA	∑
< 18	1,3 %	0 %	0 %	1,3 %
18 – 25	67,1 %	12,6 %	0 %	79,7 %
> 25	12,7 %	5 %	0 %	17,7 %
NA	1,3 %	0 %	0 %	1,3 %
∑	82,4 %	17,6 %	0 %	100 %

“I find it very advantageous if electronic examinations are carried out on my own electronic device (laptop)” == 3

The Results in a Nutshell

Who is indifferent? (79 / 408 = 19,4%)

	Male	Female	NA	∑
< 18	0 pps	-0,2 pps	0 pps	**-0,2 pps**
18 – 25	**6,7 pps**	**-4,0 pps**	-0,4 pps	**2,3 pps**
> 25	**-1,3 pps**	**-1,3 pps**	0 pps	**-2,6 pps**
NA	**0,7 pps**	0 pps	-0,2 pps	**0,5 pps**
∑	**6,1 pps**	**-5,5 pps**	**-0,6 pps**	**0 pps**

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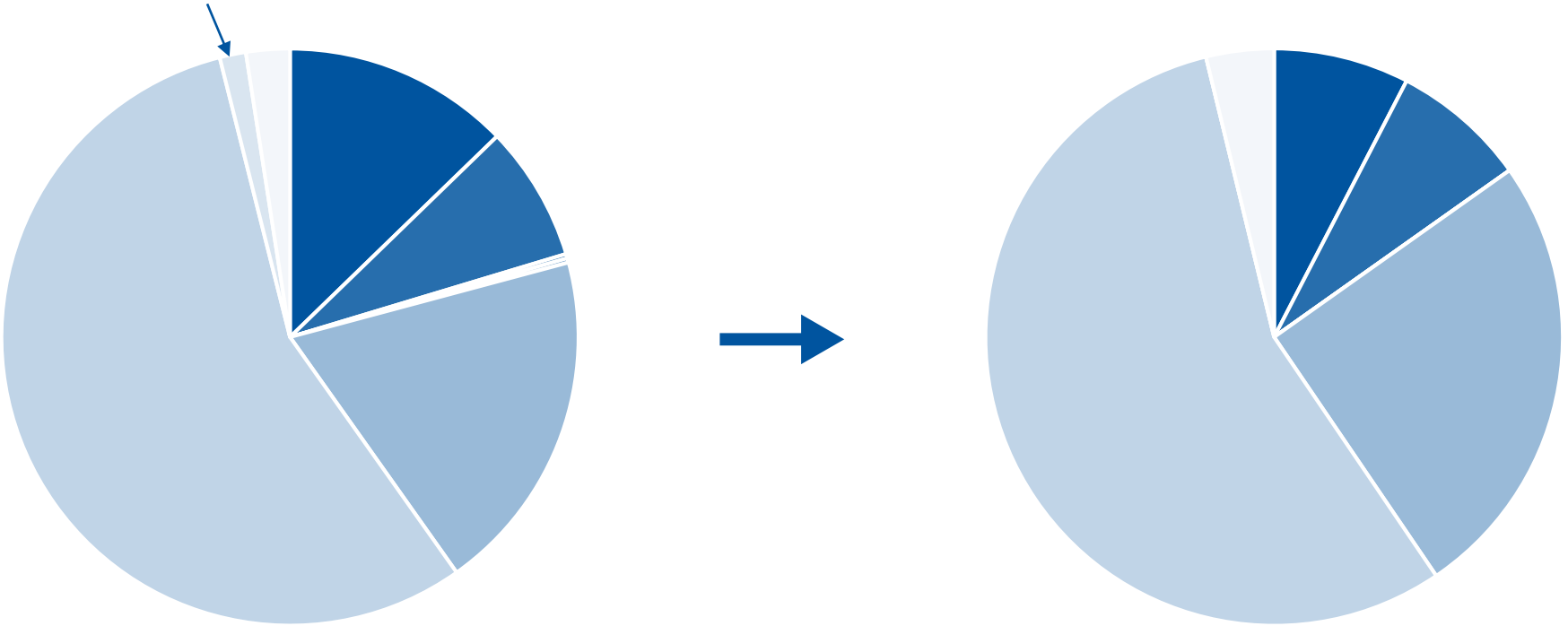

Summary / Outlook

- Some factors seem to influence the perception (and thus the acceptance) of e-Assessment
- We have more data from the survey, that we still have to analyze
- A next survey is in preparation, that will investigate what influence clarification has on the perception of e-Assessment

However, we think that e-Assessment is worth being considered as one (not THE) form of assessment at IHEs

Thanks for your attention! ☺
Danke für Ihre Aufmerksamkeit! ☺

Are there any questions or comments?

Sources

[1] Hochschulforum Digitalisierung: The Digital Turn: Hochschulbildung im digitalen Zeitalter (2016) https://hochschulforumdigitalisierung.de/sites/default/files/dateien/Abschlussbericht.pdf

[2] V. Terzis and A. A. Economides, “The acceptance and use of computer based assessment“, Computers & Education, vol. 4, no. 56, pp. 1032-1044 (2016)

[3] M. Hillier, “The very idea of e-Exams: Student (pre)conceptions”, Proceedings of ASCILITE 2014 - Annual Conference of the Australian Society for Computers in Tertiary Education. ASCILITE. 2014. p. 77-88 (2014)

[4] M. Hillier, “e-Exams with student owned devices: Student voices“, Proceedings of the International Mobile Learning Festival 2015: Mobile Learning, MOOCs and 21stCentury learning, Hong Kong SAR China (2015)

[5] K. Karrer, C. Glaser, C. Clemens and C. Bruder, „Technikaffinität erfassen – der Fragebogen TA-EG“, Der Mensch im Mittelpunkt technischer Systeme. 8. Berliner Werkstatt Mensch-Maschine-Systeme., pp. 196-201 (2009)