GENDER SCAN 2021 survey
United States – Students report

Methodology of the Gender Scan TM 2021 survey :

The Gender Scan TM 2021 survey was conducted online (in 117 countries) from March to August 2021 on a declarative basis with 30,001 male and female respondents worldwide.

The total number of respondents for the United States is of 243 people among which 231 women, 5 men and 7 others, which provides for a 6,3% margin of error.

The total number of students in the STEM fields is of 200, among which 4 men and 196 women.

The total number of students in the digital fields is of 36, among which 1 men and 35 women.

The student definition is based on UNESCO's ISCED 2011 and 2013 definitions.

It therefore includes the following ISCED's levels :

students and graduates in higher education from ISCED levels 5 to 8 (i.e : post-baccalaureate short-cycle education, bachelors, masters and doctorate levels)
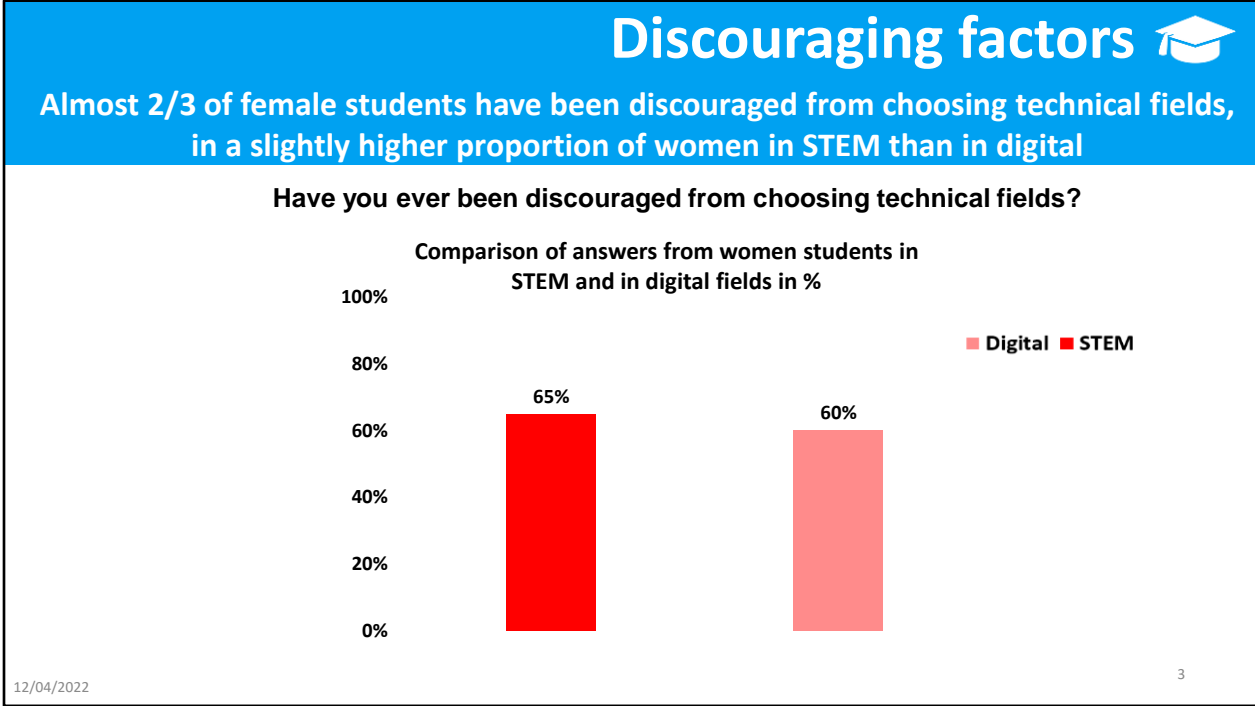
STEM disciplines include the following specializations:

- Mathematics
- Physics
- Life sciences, biology, chemistry
- Computer science, digital (courses under ISCED 2013 category 6, which includes programming, programming, network creation and administration, software and application development), software and application development).
- Engineers, processing and production industry
- Environment, sustainable development, ecology
- Building, civil engineering, construction
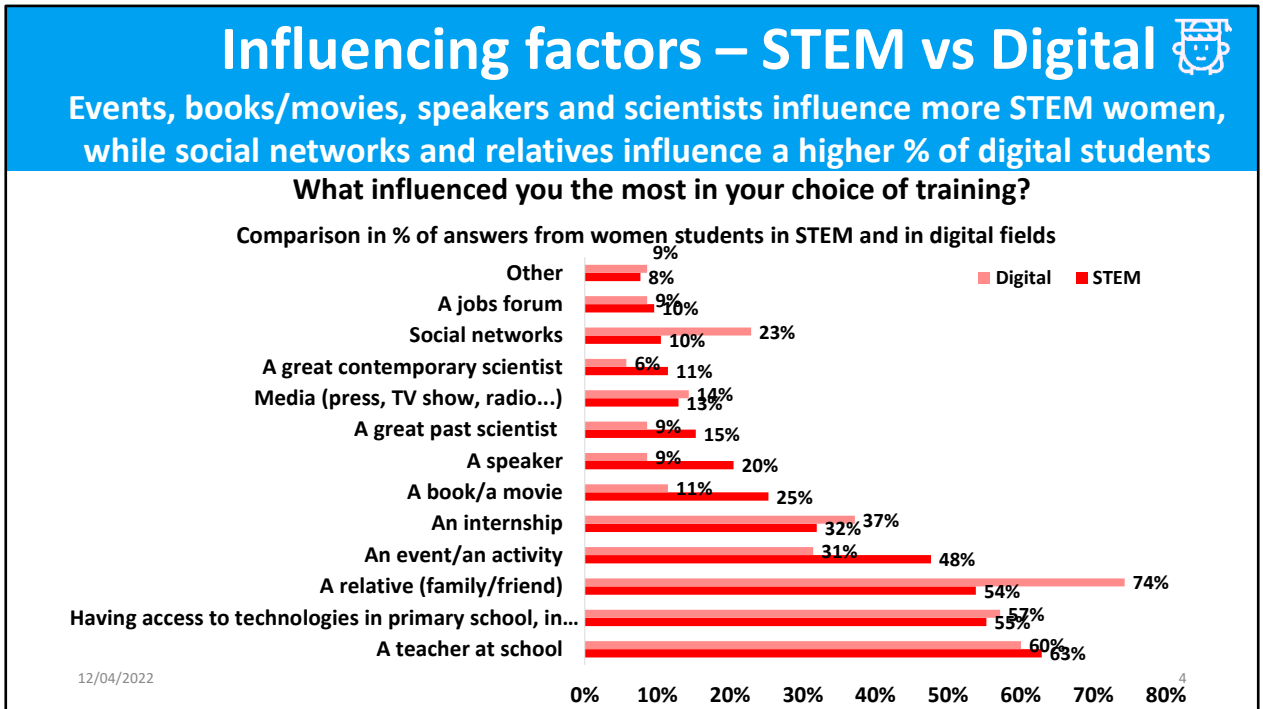- Agriculture, agronomy, forestry, veterinarians

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Discouraging factors 🎓

Almost 2/3 of female students have been discouraged from choosing technical fields, in a slightly higher proportion of women in STEM than in digital

Have you ever been discouraged from choosing technical fields?

Comparison of answers from women students in STEM and in digital fields in %

■ Digital ■ STEM

65%   60%

100%
80%
60%
40%
20%
0%

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+5% of women in STEM have been discouraged compared to women in digital. (65% vs 60%)
Almost 2 out of 3 women discouraged from choosing technical fields in STEM and digital.

Influencing factors – STEM vs Digital 🎓

Events, books/movies, speakers and scientists influence more STEM women, while social networks and relatives influence a higher % of digital students

What influenced you the most in your choice of training?

Comparison in % of answers from women students in STEM and in digital fields

Factor	Digital	STEM
Other	9%	8%
A jobs forum	9%	10%
Social networks	23%	10%
A great contemporary scientist	6%	11%
Media (press, TV show, radio...)	14%	13%
A great past scientist	9%	15%
A speaker	9%	20%
A book/a movie	11%	25%
An internship	32%	37%
An event/an activity	31%	48%
A relative (family/friend)	74%	54%
Having access to technologies in primary school, in...	57%	55%
A teacher at school	60%	63%

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A teacher at school, and access to technologies at school are important to similarly high proportions of STEM and digital fields students, which suggests the core levers to trigger interest in girls in STEM and tech subjects are the same. Some differences between them concern:

Factors that influence more STEM than digital students:
- An event, activity (48% vs 31%, +17%), A book/movie (25% vs 11%, +14%), A speaker (20% vs 9%, +11%)

Data from the verbatim: topics that had more answers to the question (based on a total of 17 answers from women in STEM and 3 in digital): "**What influenced you the most in your choice of specialization of study?** are:
- A specialized STEM/orientation/mentorship program(3/17 women in STEM and 1/3 women in digital)
"Extracurricular camps related to science and engineering (i.e.: hands on science, invention convention, odyssey of the mind, local science museum, and zoo)." Woman, 23, Business, economy, finance, accounting and law, Engineering, transformation and production industry
"Extra Curricular Mentors." Woman, 18, Engineering, transformation and production industry
"FIRST Robotics Programs" Woman, 22, Business, economy, finance, accounting and law, Computer sciences, digital

- Results at school (3/17 women in STEM, 0/3 women in digital)
"Being good at math and being recognized for it." Woman, 25, Engineering, transformation and production industry
"better grades in math and physics." Woman, 38, Engineering, transformation and production industry

Discouraging factors – STEM vs Digital

5% more of girls in STEM than in digital fields discouraged from going by their teachers, 7% more of girls in STEM than in digital discouraged by their family

Who discouraged you from pursuing scientific and technical fields?

Comparison in % of answers from women, students in STEM or digital fields

Category	Digital	STEM
Family	19%	26%
Friends	33%	36%
Teachers	48%	43%
Other	67%	78%
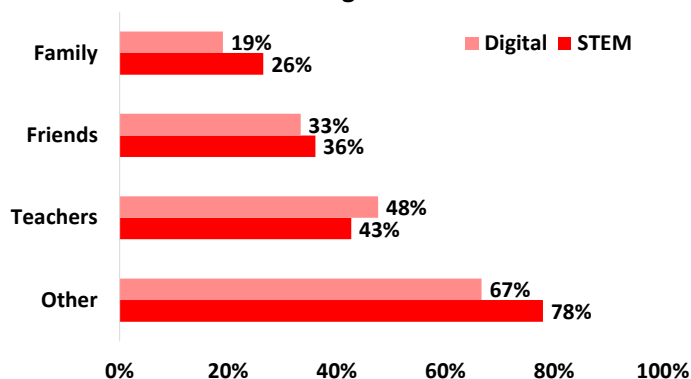
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Almost half of women, in digital and in STEM fields, declare to have been discouraged by teachers, a third of them by friends and a fifth of them by family.
- Teachers: digital: 48% vs STEM: 43%, +5% for digital.
- Family: digital: 33% vs STEM: 36%, +3% for STEM.
- Friends: digital: 19% vs STEM: 26%, +7% for STEM.

Data from the verbatim (total of 123 responses from women in STEM, 21 from women in digital). **Can you indicate the arguments which were evoked to discourage you from pursuing these professions and these courses?** :
- <u>The atmosphere will be hostile</u> (17% of women in STEM, 5% of women in digital)
"Inequity of job opportunities available for women compared to men and peer pressure." Woman, 25, student in Natural sciences, biology, chemistry/Engineering, transformation and production industry
"Stereotypes about working in engineering as a woman, academic struggles I'd seen my friends go through, attitudes of other engineering students." Woman, 21, Computer sciences, digital/ Engineering, transformation and production industry/ Environment, sustainable development, ecology
"Though not explicitly stated very often, there is an undercurrent of oppression towards women in STEM - nobody actually says it, but during classes or other STEM-related activity, I often get the impression that I am not welcome. Every time a man interrupts me in class, every time a male classmate informs me that I was incorrect, every time a man turns the conversation to a subject demeaning to women as a whole, this impression is reinforced and strengthened, as if to say 'this is how things are, you do not belong here' toward me and other women like me. Every time I interrupt a man, every time I shout out the correct answer and receive unenthusiastic affirmation in response, every time I try to leave a conversation that demeans my gender, this impression is actively working against me, retaliating against my refusal to submit to the institutionalized gender bias, as if to say 'how dare you try to change the way things are' toward me who dared to step out of line." Woman, 18, Engineering, transformation and production industry

- <u>It is not a field for women</u>(14% of women in digital, 18% of women in STEM)
"Many teachers in my high school discouraged me from studying STEM. Despite my high GPA and excellence in STEM related fields, I had teachers discourage me from majoring in Engineering based on my bubbly and fun personality. I also encountered people who would discourage me from going into STEM who would say things like, "Oh, well your husband wouldn't want you to be smarter or make more money than him." "Women should not go into the STEM field." "Guys won't want to date you if you're a nerd." Just to name a few." Woman, 24, Mathematics, Engineering, transformation and production industry
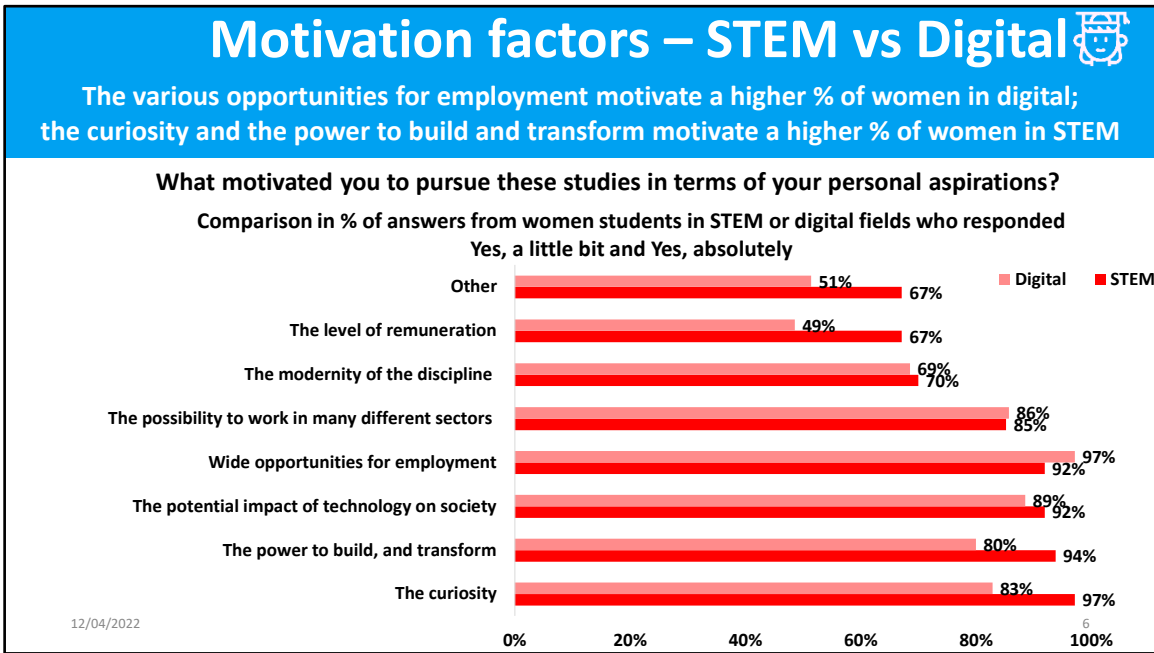"People saying girls shouldn't be engineers." Woman, 19, Computer Sciences, digital, Physics/Engineering, transformation and production industry

- <u>Sexism/ racism/ disrespect</u> (29% of women in digital, 24% of women in STEM)
"A professor gave me horrible feedback that was pretty sexist and racist. I also have had several internships with racist/sexist coworkers and conflicts with them." Woman, 26, Computer sciences, digital
 "I was one of the only girls involved in engineering offers at my school, before and after hours, and I would often get called names, tools taken away from me, and would get discluded since my peers and some mentors thought I couldn't succeed at building." Woman, 18, Engineering, transformation and production industry
"Dealing with sexism in STEM related classes made me really worried about going into STEM since it's very frustrating to deal with on a daily basis. While I felt discouraged, I realized that engineering was right for me and my goals, so I went into engineering despite my worries." Woman,19, Engineering, transformation and production industry

Motivation factors – STEM vs Digital

**The various opportunities for employment motivate a higher % of women in digital;
the curiosity and the power to build and transform motivate a higher % of women in STEM**

What motivated you to pursue these studies in terms of your personal aspirations?

Comparison in % of answers from women students in STEM or digital fields who responded
Yes, a little bit and Yes, absolutely

Motivation factor	Digital	STEM
Other	51%	67%
The level of remuneration	49%	67%
The modernity of the discipline	69%	70%
The possibility to work in many different sectors	86%	85%
Wide opportunities for employment	97%	92%
The potential impact of technology on society	89%	92%
The power to build, and transform	80%	94%
The curiosity	83%	97%

12/04/2022

Similar top motivation factors of students in tech and in STEM disciplines. The top drivers for a higher proportion of women in digital are:
- Curiosity: STEM: 97% vs digital : 83%. 14% difference for women in STEM fields.
- The power to build and transform: STEM: 94% vs digital : 80%. +14% difference for women in STEM fields.
- The level of remunerations: STEM: 67% vs digital : 49%. +18% difference for women in STEM fields

The one that motivates proportionately more digital than STEM students is:
- Wide opportunities for employment – digital: 97%, STEM : 92%, +5%

Data from the verbatim (based on a total of 155 answers from women in STEM and 28 in digital): **"Can you specify what triggered your current choice of professional orientation?"**
- Courses/ activities at school(14% of women in STEM, 25% of women in digital)
"Future City Engineering Competition for middle school students (participated for 2 years)." Woman, 21, Engineering, transformation and production industry
"Seeing an integrated circuit chip wafer at a science fair in high school, taking a physics class." Woman, 19, Computer sciences, digital/Engineering, transformation and production industry
"Programming a makey makey to turn a banana into a piano in 5th grade" Woman, 20, Computer sciences, digital
"My high school chemistry and physics classes inspired me to go into into engineering since I wanted to apply the information that I loved learning to the real world." Woman, 19, Engineering, transformation and production industry

An experience/ internship(13% of women in STEM, 18% of women in digital)
"Summer camps and internships + parental support and inspiration" Woman, 19, Computer sciences, digital
"I went to a NASA museum in Texas and saw all the amazing things that engineers can do." Woman, 21, Computer sciences, digital/Engineering, transformation and production industry/ Environment, sustainable development, ecology/Health and

social protection

"In high school, I had an internship at a college where I was introduced to scanning electron microscopy, and I have been in love with microscopy and materials science ever since." Woman, 26, Engineering, transformation and production industry

"An internship in the industry" Woman, 19, Arts, humanities and Languages/Construction industry, civil engineering

The impact this job can have society (14% women in STEM, 14% of women in digital)

"BP Oil spill occurred during Year 11 of high school. Was taking environmental science at the time, and we thoroughly covered the event, and specifically different solutions that could mitigate the impact. I wanted to be a part of creating future solutions to preserve the environment and stop these events from occurring." Woman, 25, Engineering, transformation and production industry/ Environment, sustainable development, ecology

"I love the logic of math, CS and biology and how they can be used to help people live happier, healthier lives." Woman, 18, Mathematics/ Natural sciences, biology, chemistry/Computer sciences, digital

"mainly being able to use this knowledge to advance other parts of our society, especially relating to policy" Woman, 21, Natural sciences, biology, chemistry/Engineering, transformation and production industry

Family/Friends (16% Women in STEM, 11% Women in digital)

"A family member always used to tell me about the wide variety of opportunities in the tech field which really intrigued me. I was really drawn to the idea that I could pursue so many different things in the tech field. It's basically like you can't go wrong. I'm also from silicon valley and tech is really valued here. I grew up on tech and my geographical location has taught me to value it so much growing up. " Woman, 19, Computer Science

"It was something I enjoyed and my grandfather, who is also an engineer, helped cultivate that interest from a young age" Woman, 24, Engineering, transformation and production industry

Interest in S&T: when - STEM vs digital

A higher % of women studying STEM disciplines seem to have first taken an interest in science and technology slightly earlier than those studying digital fields

Since when have you been interested in science and technology?

Comparison of answers from women students in STEM and digital fields in %

Digital: 3%, 37%, 20%, 23%, 11%
STEM: 15%, 40%, 17%, 18%, 5%

- ■ Early childhood, preschool
- ■ Childhood, primary school (until 11-12 years old)
- ■ Middle-school (until 15-16 years old)
- ■ High-school
- ■ After my secondary education
- ■ I don't know

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A few differences between female students in STEM and digital.

To be noted: 15% of female students in STEM say they have been interested in science and technology since early childhood, compared to 3% in digital studies. (12% difference)

Conversely 23% of students in digital studies, as against 18% in STEM, say their interest first awoke in high school (5% difference) and 11% of students in digital studies, as against 5% in STEM the period after secondary education was when they took an interest in science and technology. (6% difference)

Satisfaction – STEM vs Digital 🎓

11% more students in STEM than digital are highly satisfied, but trends are relatively similar

Are you satisfied with your choice of specialization of study?

Comparison in % of answers from female students in STEM and digital fields

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

63%

54%

33%

43%

■ Yes, a little bit   ✎ Yes, absolutely   ■ Digital ■ STEM
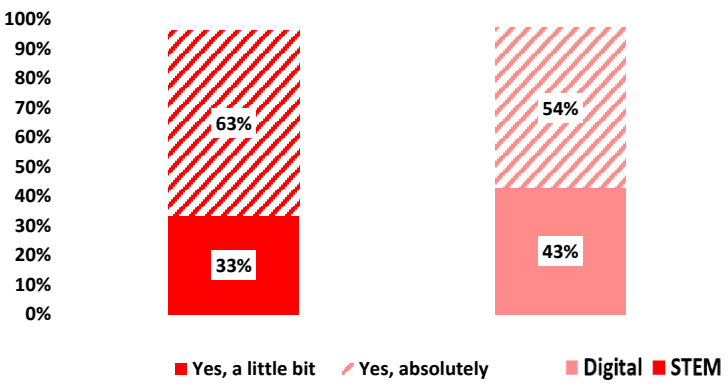
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Overall very similar levels of satisfaction across STEM and digital disciplines. Women in STEM declare to be absolutely satisfied in only higher proportions than women in digital studies.
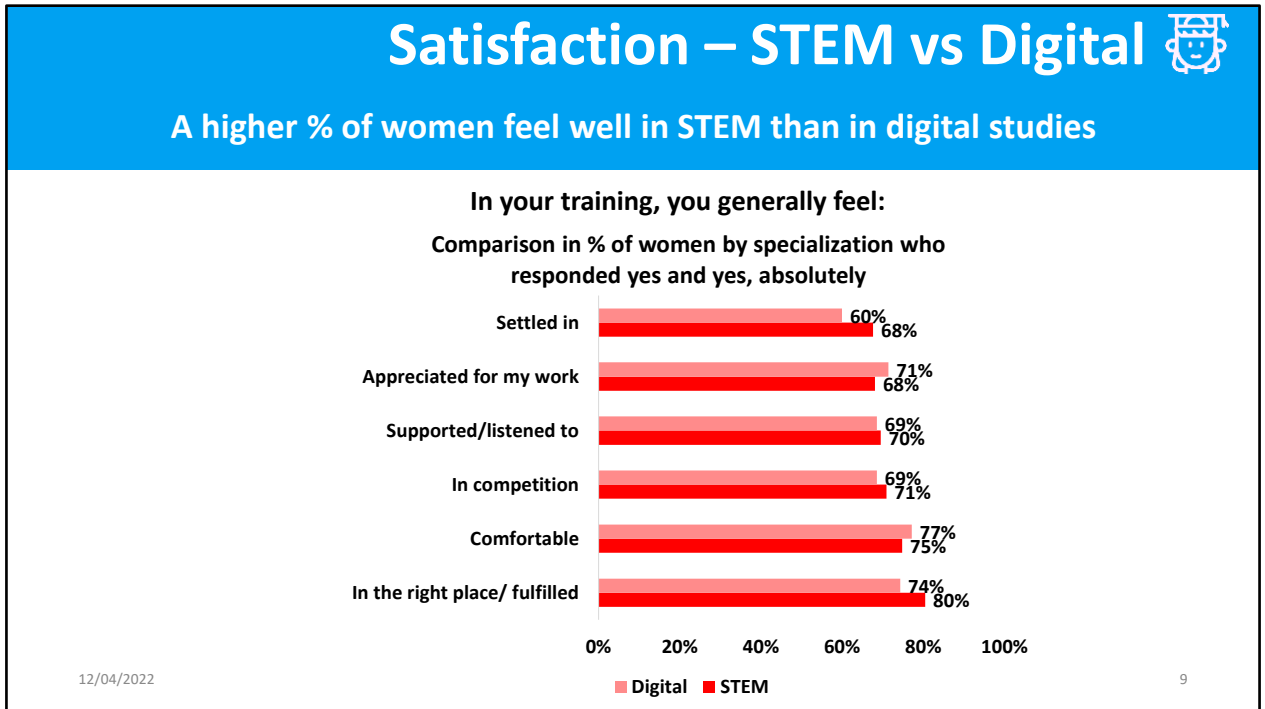
Similar trends: most female students feel in the right place/fulfilled, comfortable, supported/listened to.

However, some gaps remain reflecting a slightly lower level of integration of women in digital studies :
- 6% less of women in digital feel in their right place/fulfilled compared to women in STEM. (74% vs 80%).
- 8% less of women in digital feel settled in compared to women in STEM. (60% vs 68%).

Satisfaction – STEM vs Digital 🎓

Fewer digital students than STEM ones say they are satisfied with the atmosphere, but more with the work possibilities and ease to find employment

What satisfies you the most in your studies?

Comparison in % of women students in STEM and digital fields who responded yes or yes, absolutely

Category	Digital	STEM
The organization of the studies (tutorials, practical exercises...)	66%	65%
Other	69%	67%
The atmosphere and the relationships	60%	68%
The easiness to find a job after graduation	91%	76%
The possibility to work in a diversified range of sectors:...	91%	85%
Project/Challenge involved in my studies	94%	91%
The interest of the disciplines I study	91%	96%
The acquisition of new competences and skills	94%	98%

■ Digital   ■ STEM

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More women in STEM are satisfied with:
- The atmosphere and the relations (68% vs 60%, **+8%**)

Women in digital studies are slightly more numerous to be satisfied with:
- The possibility to work in a diversified range of sectors: Digital: 91%, STEM: 85%, +6%.
- The easiness to find a job after graduation: Digital: 91%, STEM: 76%, +15%.

Dissatisfaction factors – STEM vs Digital 🎓

More women in digital than in STEM are dissatisfied with the level of stress, the feeling of not having the level to succeed and the lack of gender balance

What are the most important problems you face today in your studies?

Comparison in % of respondents women students in STEM and digital fields who responded yes or yes absolutely

Legend: ■ Digital ■ STEM

Problem	Digital	STEM
Other	34%	35%
A lack of information on what I can do after i graduate	26%	37%
Lack of knowledge of the type of jobs i can access	31%	40%
The struggle to find internships	54%	42%
The gap between my expectations and my current studies	57%	50%
The atmosphere	57%	53%
Sexism	49%	64%
The feeling that I don't have the required level to succeed	83%	68%
The lack of gender balance	71%	70%
The level of stress	89%	85%

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More women in STEM point the following as important problems they face in their studies:
- Sexism: 64% vs 49% in digital, +15%.
- Lack of knowledge of future professions: 40% vs 31%, + 9%.
- Lack of information on possible paths to take following graduation: 37% vs 26%, +11%.

More women in digital point the following as important problems they face in their studies:
- The feeling of not having the necessary level to succeed: 83% vs 68% = +15%.
- The struggle to find internships: 54% vs 42%, +12%.
- The gap between expectations and studies: 57 vs 50%, +7%.

Data from the verbatim (based on a total of 169 answers from women in STEM and 28 in digital): **"What improvement would you like to see in the training you are taking?":**
- <u>The lack of connection between the courses and the work reality, lack of opportunities to practice (</u>36% of women in STEM, 32% of women in digital)

"I wish what we learned was less theoretical and more tailored to the industry. College sometimes doesn't feel necessary for the kinds of work I do, not because college in general is bad but because college can't teach you the practical skills of being an engineer." Woman, 19, Computer sciences, digital

"I would like to see more real world application. I think it would be more useful to spend a whole semester as an intern for a company instead of taking technical classes." Woman, 20, Engineering, transformation and production industry

"More information about how the concepts we learn in class relate to working in a real job. We learn a lot of interesting things, but I wonder how much of it will be used on a daily basis in my career." Woman, 21, Construction industry, civil engineering

- <u>The lack of gender balance </u>(21% of women in STEM, 29% of women in digital)

« Less white/cis/hetero/men bias» Woman, 20, Engineering, transformation and production industry

"Less gender disparity. More outreach to young girls. More accountability for men." Woman, 20, Computer sciences, digital
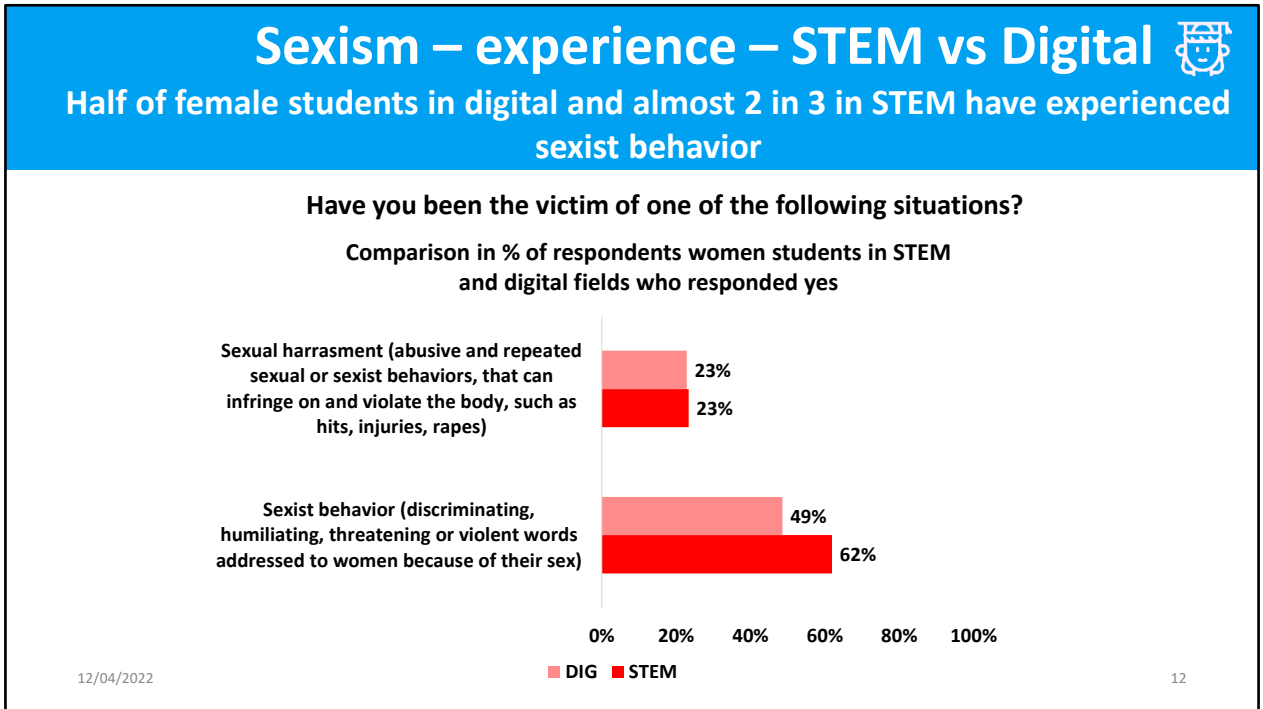
« My field is VERY heavily male dominated - sometimes I can be the only woman in a room full of 30 people. Women are very heavily discouraged from being themselves, and often have to conform to the "ideal male employee/student" stereotype to have any measure of success. The same thing goes for being queer (I am bisexual). I am not out to the majority of my peers, and the ones I am out to discredit my sexuality and the majority of the LGBT community. There is very little diversity, and even when there is, any minority is told to adhere to the "standard" at the expense of their personality and personal beliefs." Woman, 23, Engineering, transformation and production industry

- The gap between expectations and current studies (10% of women in STEM, 11% of women in digital)
"More equitable access to resources. Only the women who are employed by the university typically have access to Grace hopper and other resources from the university." Woman, 20, Computer sciences, digital
« More emphasis on growth and learning, less on memorization and comparisons against other students » Woman, 21, Computer sciences, digital/Engineering, transformation and production industry/Environment, sustainable development, ecology
« I think that there needs to be more consistency between courses. » Woman, 21, Engineering, transformation and production industry

Sexism – experience – STEM vs Digital 🎓

Half of female students in digital and almost 2 in 3 in STEM have experienced sexist behavior

Have you been the victim of one of the following situations?

**Comparison in % of respondents women students in STEM
and digital fields who responded yes**

Sexual harrasment (abusive and repeated sexual or sexist behaviors, that can infringe on and violate the body, such as hits, injuries, rapes)
- DIG: 23%
- STEM: 23%

Sexist behavior (discriminating, humiliating, threatening or violent words addressed to women because of their sex)
- DIG: 49%
- STEM: 62%

0%   20%   40%   60%   80%   100%

■ DIG ■ STEM

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- Sexist behaviors: 49% Women in digital, 62% Women in STEM, +13% difference.
- Sexual harassment: 23% Women in digital, 23% Women in STEM.

Women in STEM are more numerous to have experienced sexual behavior than those in digital studies.

Sexism – experience – STEM vs Digital 👲

More than half of students has heard sexist comments of different types

During your studies, have you experienced one of the following situations?

Comparison in % of respondents women students in STEM or digital fields who responded yes
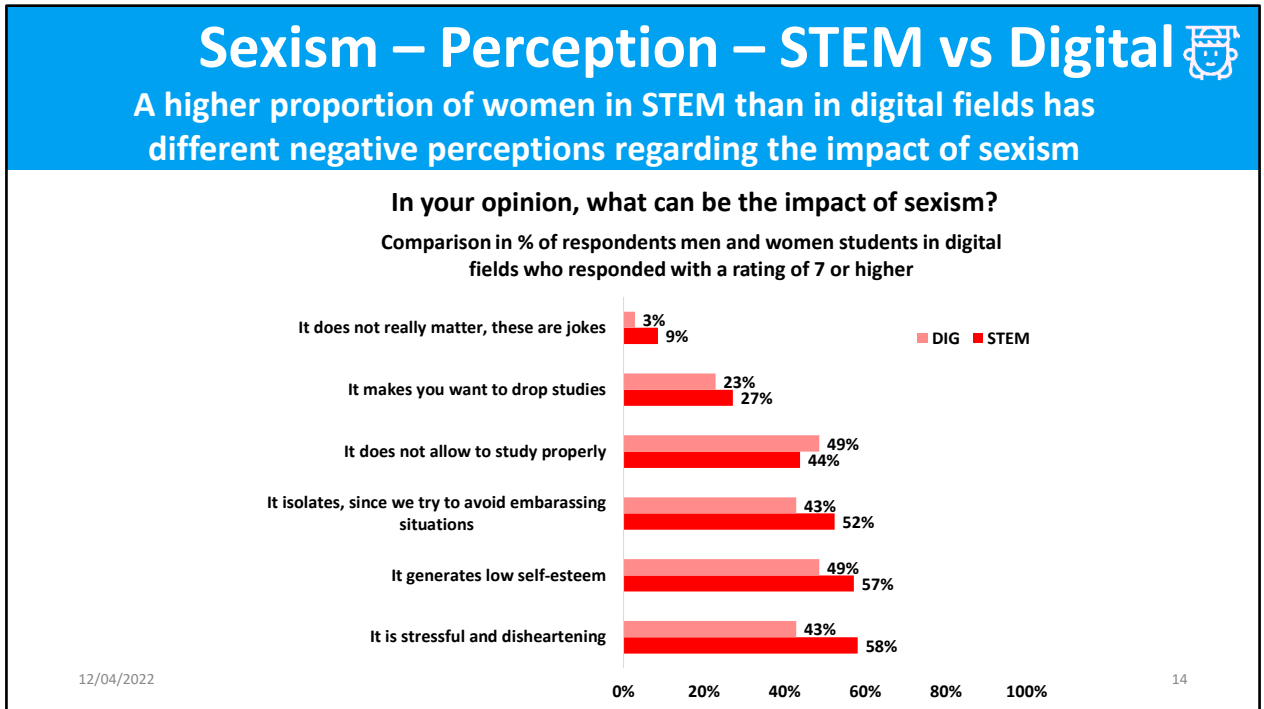
You have been told that your studies were not meant for women	37% DIG / 48% STEM
You have received malicious jokes and mockery that are inappropriate or insulting for women	57% DIG / 58% STEM
You have heard the saying that women were meant to take care of the house and of children, instead of working	54% DIG / 59% STEM
As a woman, you have often received comments on your physical appearance or on your clothes	51% DIG / 62% STEM

0%   20%   40%   60%   80%   100%

■ DIG   ■ STEM

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Women in STEM are very slightly more numerous to have experienced sexist behaviors.
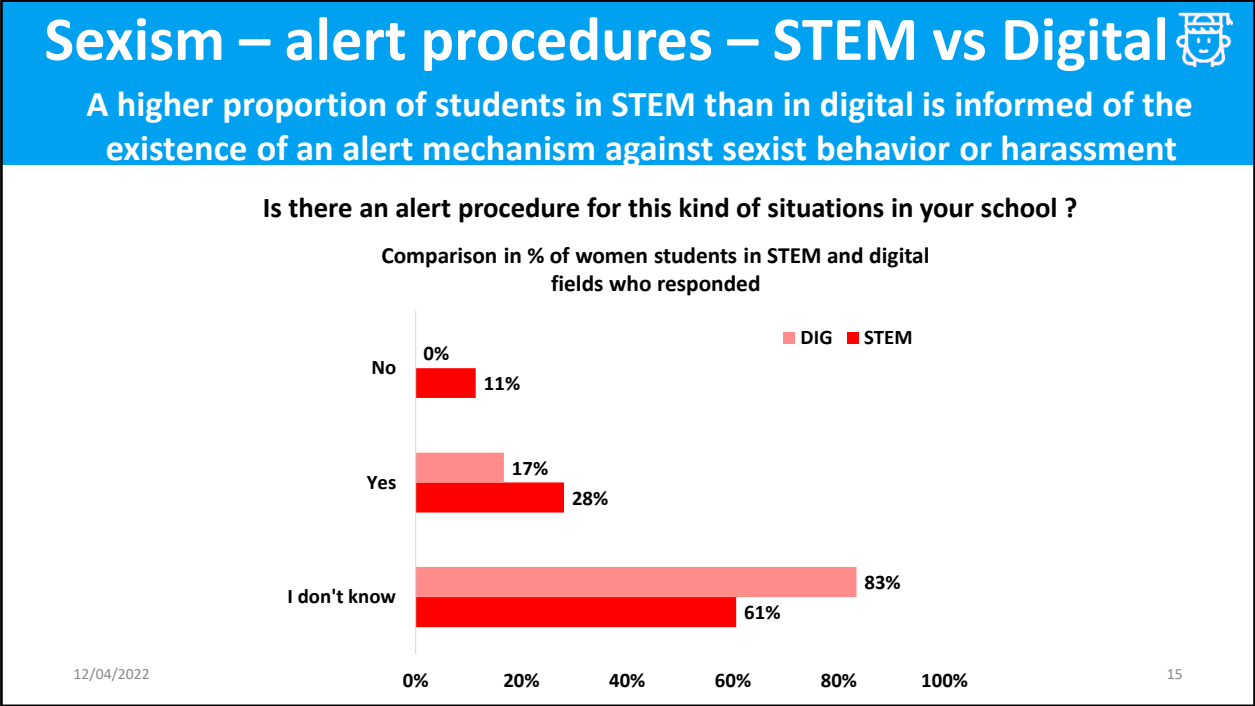- Mockery or malicious jokes: 57% Women in digital - 58% Women in STEM, +1%.
- Heard that women are made to take care of children and not to work: 54% Women in digital - 59% Women in STEM, +5%.
- Heard that these studies were not for women: 37% Women in digital - 48% Women in STEM, +11%.
- Remarks on physical appearance or clothing: 51% Women in digital - 62% Women in STEM, +11%.

Sexism – Perception – STEM vs Digital

A higher proportion of women in STEM than in digital fields has different negative perceptions regarding the impact of sexism

In your opinion, what can be the impact of sexism?

Comparison in % of respondents men and women students in digital fields who responded with a rating of 7 or higher

Impact	DIG	STEM
It does not really matter, these are jokes	3%	9%
It makes you want to drop studies	23%	27%
It does not allow to study properly	49%	44%
It isolates, since we try to avoid embarassing situations	43%	52%
It generates low self-esteem	49%	57%
It is stressful and disheartening	43%	58%

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15% more students in STEM than digital perceive sexism as stressful and disheartening (58% vs 43%).

12% more students in STEM than digital perceive sexism as a generator of low self-esteem (57% vs 49%).

9% more students in STEM than digital perceive sexism as a factor that isolates victims (52% vs 43%).

Sexism – alert procedures – STEM vs Digital

A higher proportion of students in STEM than in digital is informed of the existence of an alert mechanism against sexist behavior or harassment

Is there an alert procedure for this kind of situations in your school ?

Comparison in % of women students in STEM and digital
fields who responded

DIG STEM

No	0% / 11%
Yes	17% / 28%
I don't know	83% / 61%

0%   20%   40%   60%   80%   100%

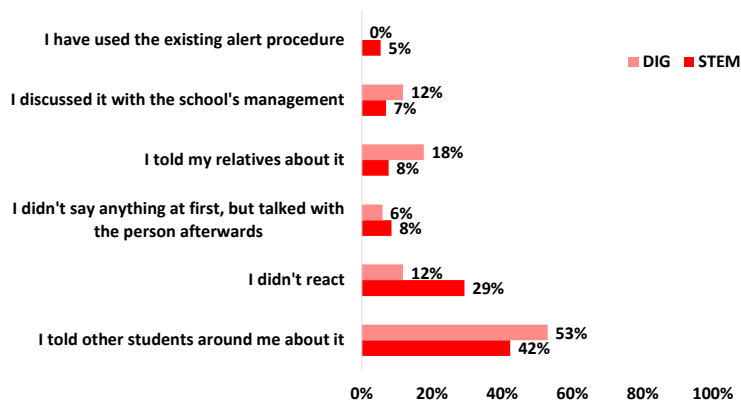12/04/2022   15

The majority of students (6 out of 10 in STEM and 8 out of 10 in digital) do not know if their school or university has an alert mechanism against sexism.

Sexism – reaction – STEM vs Digital 🎓

1 in 10 students seeks support from their school or university, 1 in 3 goes to their peers for support and 1 in 4 does not react at all

What was your reaction? (to Sexist Behavior)

Comparison in % of women students in STEM or digital fields who responded

Reaction	DIG	STEM
I have used the existing alert procedure	0%	5%
I discussed it with the school's management	12%	7%
I told my relatives about it	18%	8%
I didn't say anything at first, but talked with the person afterwards	6%	8%
I didn't react	12%	29%
I told other students around me about it	53%	42%

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Most students tell their peers about a sexist offense against them, and 11% more students in IT than in STEM do so (53% vs 42%).
17% more students in STEM do not react (29% vs 12%).

Data from the verbatim: The most cited responses to the question **« why didn't you use the alert procedure?»** were (based on a total of 23 answers from women in STEM and 3 in digital): :

- <u>Fear of reprimand</u> (30% of women in STEM, 33% of women in digital)
"Title 9 reports can get very serious and messy quickly. I didn't want to be part of an investigation" Woman, 25, Engineering, transformation and production industry
"Did not think the situation needed to be escalated and I know people who have had problems when reported it." Woman, 27, Engineering, transformation and production industry/Environment, sustainable development, ecology/Health and social protection
"Fear of being further segregated from peers for speaking up." Woman, 22, Engineering, transformation and production industry
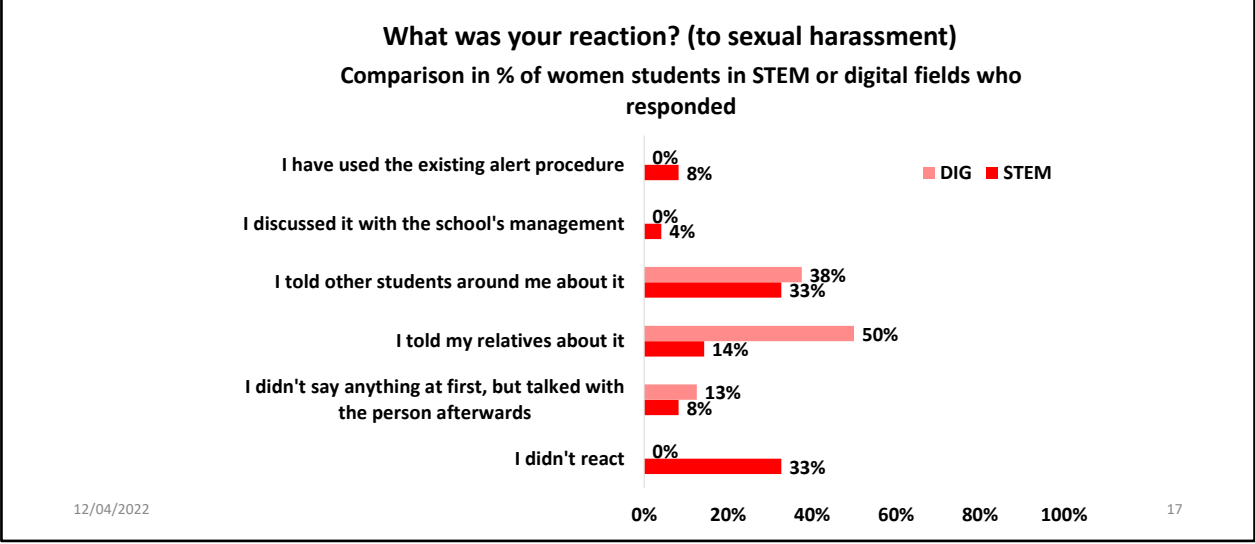
- <u>Perceived low impact of the procedure</u> (26% of women in STEM, 33% of women in digital)
"Don't feel the systems are effective. Felt like it would have been a waste of time and not worth the effort." Woman, 24, Engineering, transformation and production industry
« It doesn't work well. They drag the girls through the mud if they speak up. Schools protect the boys almost always. » Woman, 20, Engineering, transformation and production industry

Sexism – reaction – STEM vs Digital 🎓

1 in 10 students seeks support from their school or university, most go to their peers or relatives for support and 1 in 5 does not react at all

What was your reaction? (to sexual harassment)

Comparison in % of women students in STEM or digital fields who responded

|	DIG	STEM
I have used the existing alert procedure	0%	8%
I discussed it with the school's management	0%	4%
I told other students around me about it	38%	33%
I told my relatives about it	50%	14%
I didn't say anything at first, but talked with the person afterwards	13%	8%
I didn't react	0%	33%

12/04/2022

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36% more students in IT than in STEM tell their relatives (50% vs 14%).

5% more students in IT than in STEM tell their peers (38% vs 33%).

33% more students in STEM do not react (33% vs 0%).

Sexism – alert procedures – STEM vs Digital 🎓

9/10 students would like support procedures to be available in their training

Would you like such a procedure to exist ?

Comparison in % of women students in STEM or digital fields who responded

DIG — 0% No, 100% Yes

STEM — 6% No, 94% Yes

Axis: 0% 20% 40% 60% 80% 100%

Legend: ■ No ■ Yes
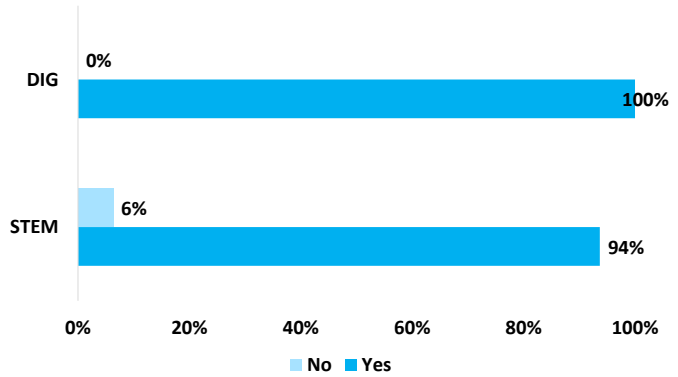
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Methodology note

	Men	Women	Other	Total
United States	5	231	7	243
US STEM	4	196	-	200
US Digital	1	35	-	36

* Some students are in both categories due to a doble degree.

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