

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 developed economies is of 2925 people from 26 countries answered, which provides for a 1,8% margin of error.

The 26 developed countries from which the survey includes answers are the following : Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, the United States.

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 : postbaccalaureate short-cycle education, bachelors, masters and doctorate levels)

STEM disciplines include the following specializations:

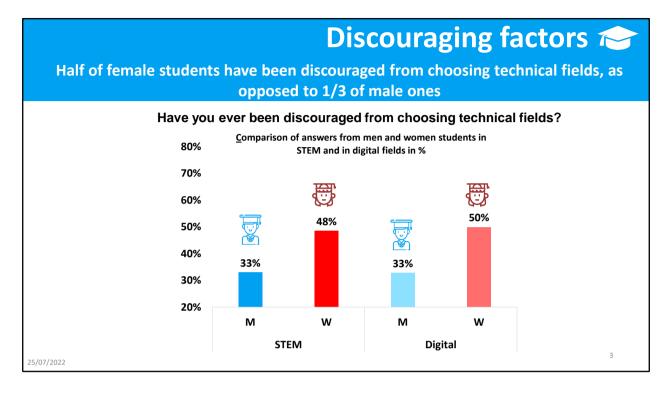
- Mathematics
- Physics
- Life sciences, biology, chemistry

- Computer science, digital (courses under ISCED 2013 category 6, which includes programming, programming, network creation and administration, software and application development).

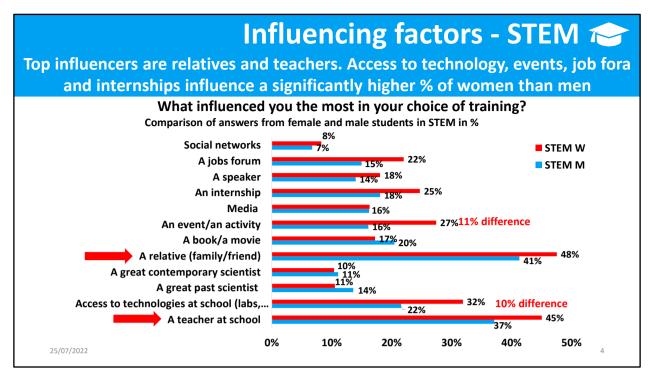
- Engineers, processing and production industry
- Environment, sustainable development, ecology
- Building, civil engineering, construction
- Agriculture, agronomy, forestry, veterinarians

GS 2021 survey – Developed countries Student report – table of contents

| Discouraging factors 3 | 3 |
|--------------------------------|----|
| Influencing factors 4 | 1 |
| Discouraging factors 7 | 7 |
| Motivation factors 10 | 10 |
| Interest in STEM/tech: when 13 | 13 |
| Satisfaction 16 | 16 |
| Dissatisfaction 23 | 23 |
| Sexism 26 | 26 |
| Methodology note 34 | 34 |



+15% of women discouraged from going into STEM compared to men. (48% vs 33%)
+17% of women discouraged from going into digital fields compared to men (50% vs 33%).
1 out of 2 women discouraged from choosing technical fields in STEM and digital.



The data shows that what motivates most female and male students to choose STEM is the human factor (firstly, relatives, family members or friends, and secondly, a teacher at school). The third most important factor is the access to technologies at school. This suggests that the school environment is particularly decisive to influence youngsters and trigger in them interest in STEM in developed countries.

In numbers:

- 48% of female students mentioned a close person (compared to 41% of male students), + 7% of women
- 45% of female students cited teachers at school (compared to 37% of male students), + 8% of women
- 32% of female students cited access to technology at school as (compared to 22% of male students) + 10% of women

Other factors that significant proportions of women cite are:

- An event/activity (W: 27% vs M: 16%) +11% for women
- An internship (W: 25% vs M: 18%) + 7% for women
- A jobs forum (W: 22% vs M: 15%) +7% for women

Data from the verbatim:

The most frequent answers to the question "What influenced you the most in your choice of specialization of study?" are:

- Being passionate about the field (15% of female students in STEM vs 19% male students)

"I just loved it and I wanted to learn more." Spain, Woman, 23, Student in Physics

« It was mostly a "natural passion", encouraged by those around me. » Belgium, Man, 21, Mathematics

- Interest/personal research (1% of female students in STEM vs 14% of male counterparts)

"Personal reflection and research." Italy, Woman, 24, Engineering, transformation and production

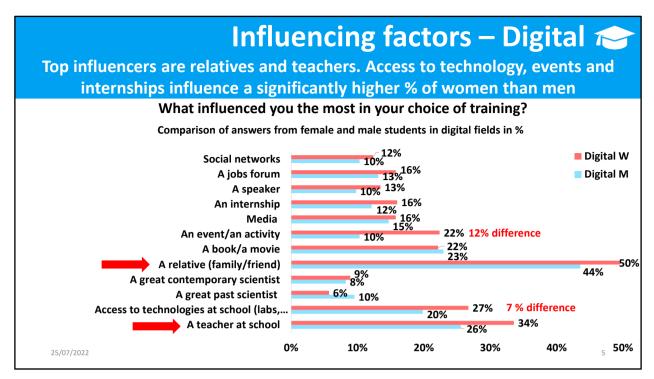
"I looked into what biomedical engineers did and thought that's what I wanted to do for a living." Belgium, Woman, 21, student in Mathematics, Physics, Natural sciences, biology, chemistry

"Self-directed learning of the subjects" France, Man, 19, Mathematics

- <u>Family/friends (11% of female students, 3% of male counterparts)</u>

"Family for introducing me to biodiversity, friends for talking to me about environmental issues in first grade." France, Woman; 24, student in Life sciences, biology, chemistry/ Engineering, processing and production industry/ Agriculture, agronomy, forestry, veterinarians

"My classmates." Finland, woman, 21, Engineering, processing and production industry "My own motivation and family/friends support" Poland, woman, 39, Life sciences, biology, chemistry



The data shows that what motivates the most female and male students to choose digital fields is the human factor (firstly, relatives, family members or friends, and secondly, a teacher at school). The third most important factor is the access to technologies at school. This suggests that the school environment is particularly decisive to influence youngsters and trigger in them interest in digital-related fields in developed countries.

In numbers:

- **50%** of female students in digital mentioned a close person (family or friend) (compared to 44% of male students) **+ 14% of women**
- **34%** of female students in digital cited teachers at school (compared to 26% of male students) **+ 8% of women**
- 27% of female students in digital cited access to technology at school (compared to 20% of male students)
 + 7% of women

Other factors that significant proportions of women cite are:

- An event/activity (W: 22% vs M: 10%) +12% for women
- An internship (W: 16% vs M: 12%) + 4% for women
- A jobs forum (W: 16% vs M: 13%) +3% for women

Data from the verbatim:

The most frequent answers to the question "What influenced you the most in your choice of specialization of study?" are:

- Being passionate about the field (22% of female students in digital fields vs 15% male students)

« I just love programming, mathematics, physics. » Portugal, Woman, 21, Computer sciences, digital/Engineering, transformation and production industry

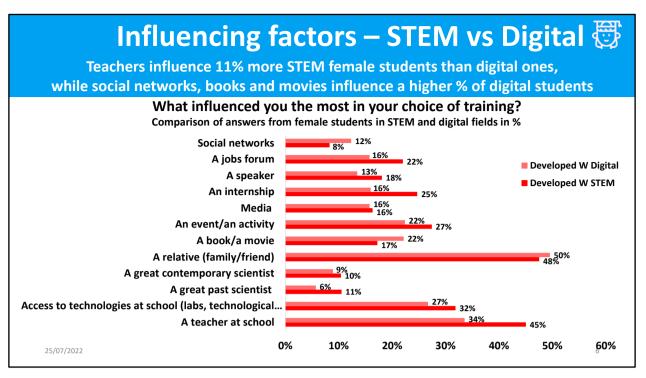
"I am naturally passionate about it, I like to draw and let my creativity run free" Belgium, Woman, 19, Arts, humanities and Languages/ Computer sciences, digital

« I wanted to study something I loved doing. » Iceland, Woman, 33, Natural sciences, biology; chemistry/Computer sciences, digital

-<u>Toys/video games (13% of female students in STEM vs 11% of male counterparts)</u> "Toys, riddles, games, treasure hunts, field trips" Iceland, Woman, 25, Mathematics/ Computer Sciences, digital

"Social contacts in computer games." Austria, Man, 31, Computer Sciences, digital "Video games (Minecraft) where I learned to program in Java in order to make modification." Belgium, Man, 20, student in Computer sciences, digital

- Interest/personal research (7% of female students, 17% of male counterparts)
- "I looked for information on my own on various training sites" France, Woman, 22, Arts, humanities and Languages/Information, journalism, social sciences/ Computer sciences, digital
- "Lifetime interest not influenced by a relative." Belgium, Woman, 22, student in Computer sciences, digital/Engineering, transformation and production industry
- "It was rather by myself, trying to understand the world that I saw what I wanted to do." Belgium, Man, 21, student in Computer sciences, digital



The top 3 influencing factors (relative, teacher at school, technologies at school) are shared between STEM and digital fields students in developed countries, which suggests the core levers to trigger interest in girls in STEM and tech subjects are the same in developed countries. Some differences between them concern:

Factors that influence more STEM than digital students in developed countries:

- A teacher at school (45% vs 34%, + 11%), An event, activity (27% vs 22%, + 5%), An internship (26% vs 16%, +9%), A Jobs forum (22% vs 16%, + 6%)

Data from the verbatim: topics that had significantly more answers to the question "What influenced you the most in your choice of specialization of study?" from STEM students than digital female students are:

- <u>Courses/ activities</u>: (9% of women in STEM/ 6% of women in digital fields)

"Summer research program" United States, Woman, 29, Social sciences, information, journalism/Natural sciences, biology, chemistry

"A robotics course I took part of (outside of school); general interest; fun in these subjects" Austria, Woman, 21, Mathematics/ Computer Sciences, digital

- Family/friends (11% of women in STEM/ 6% of women in digital fields)

"Parents and brother 10" United States, woman, 39, Engineering, transformation and production industry

"A friend told me about it" Belgium, woman, 20, Computer Science/Digital

 <u>The impact my job can have on society (3% of women in STEM/ 0% of women in digital</u> fields)

"Technological Projects and belief that there was a problem where I could make a difference." United States, Woman, 24, Engineering, transformation and production industry

"The problem of global warming, I realized that I really wanted to contribute to the technological advances that will allow us to pollute less (whatever the type of pollution) while maintaining a good standard of living." Belgium, Woman, 17, Engineering,

transformation and production industry

Factors that influence more digital fields students than traditional STEM students in developed countries:

- A book/ movie (22% vs 17%, +5%)

- Social networks (12% vs 8%, +4%)

Data from the verbatim: topics that had significantly more answers to the question "What influenced you the most in your choice of specialization of study?" from digital female students than STEM ones are:

<u>- Being passionate about the field (22% of women in digital fields vs 15% of women in</u> STEM)

"my artistic passion came alone when I was a child" Belgium, Woman, 23, Arts, humanities and Languages/Computer sciences, digital

« I wanted to work in science because I liked it "France, Woman, 23, Engineering, transformation and production industry

- Curiosity (8% of women in digital fields vs 6% of women in STEM)

"My natural curiosity for programming and mathematics "Spain, Woman, 16, Mathematics/Physics/Computer sciences, digital

"Curiosity toward geometry, architectural heritages and Sociology." Belgium, Woman, 26, Construction industry, civil engineering

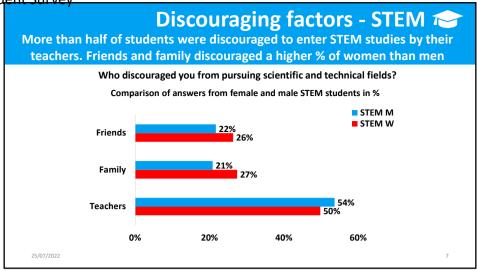
- <u>A professional/role model (7% for women in digital, 2% for women in STEM)</u>

"A professional who went to fix my sister's computer and I admired how he handled the machine. I wish one day I could work in this area." United Kingdom, Woman, 40, Computer sciences, digital

"Feminist role models" Austria, Woman, 30, Social sciences, journalism and information/Computer sciences, digital

"Interviewing a female engineer in high school." United States, Woman, 24, Arts, humanities and Languages/ Engineering, transformation and production industry

Gender Scan Student Survey



Teachers are cited as the main source of discouragement by female and male today's STEM students. This applies to around half of them. Family and friends follow as factors of discouragement of women studying in STEM, more than1 in 5 women in STEM is discouraged by friends or family circle. In numbers:

- Teachers: W: 54% vs M: 50%, + 4% gender gap.
- Family circle: W: 27% vs M: 21%, + 6% gender gap.
- Friends: W: 26% vs M: 22%, + 4% gender gap.

Data from the verbatim:

The most quoted arguments evoked by students when answering to the question : "Can you indicate the arguments which were evoked to discourage you from pursuing these professions and these courses? " were related to gender or student's level.

- It is not a field for women (25% of women studying in STEM, 0% of men)

"Family acted surprised at my interest, then expressed concern over having a 'family balance' in such a demanding career (I come from a culture in which women are typically pushed into the role of caretaking and discouraged from pursuing a career). Teachers questioned if I could handle it or suggested that I would do better in social sciences or communications, traditionally feminine fields. My peers often underestimated my abilities in extracurriculars like robotics and physics club and stated that I had little knowledge or understanding of topics I had been working on for years." United States, Woman, 18, Engineering, transformation and production industry/ Environment, sustainable development, ecology

"I actually had a college professor who told me in front of the whole class that I should not expect to pass this class on the first time because woman have a hard time grasping the subject. Obviously, I was the only woman in the class. It was humiliating but pushed me to prove him wrong. It was an extremely difficult class but I did pass it on the first time." United States, Woman, 40, student in Engineering, transformation and production industry

"I had many people tell me that I should have gone to medical school because mechanical engineering is not for women. When I went back to my high school to visit my math teacher, we ran into one of the guidance counsellors and she straight up told me I didn't look like an engineering student to her." Canada, Woman, - You're not good enough, it is too difficult for you (34% of women studying in STEM, 44% of men) "Some people around me, especially male high school classmates and teachers, gave me the idea that if I got good grades it was because I was responsible and put time into it, but I wasn't bright enough to do a pure science degree." Netherlands, Woman, 23, Student in Physics

"There was no one in particular who discouraged me. What made me have great doubts was the fact that physics and maths are too often associated with fields that are inaccessible, open only to true geniuses. At least, that's how I felt." Belgium, Woman, 21, Student in Physics

- You don't have the right profile, it is not for you (7% of women students, 11% of men)

"A family member and a friend expressed that they didn't think engineering fit my personality because I am generally social and love working with children." United States, Woman, 21, student in Engineering, transformation and production industry

"It's better if you become a doctor (to help people) or a writer (because you love literature, and everyone knows you can't do anything creative with math)" Canada, Woman, 25, student in Mathematics

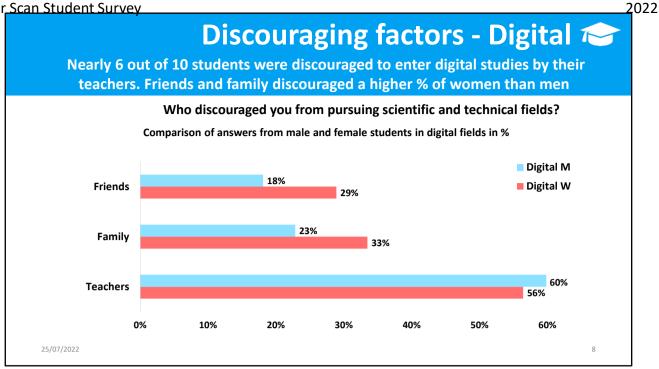
"I was told that it wouldn't be a place for me'. That it could be too dangerous, and I should rather become a teacher, that teaches that subject, than a active worker in that field." Austria ,Woman, 19, student in Physics/Engineering, transformation and production industry

"I had a (male) guidance counselor who told me I didn't "have the right personality type" to be an engineer. This in no way actually discouraged me." United States, Woman, 38, student in Engineering, transformation and production industry

- This is not useful, you won't find a job (7% women, 4% men)

"- You won't find a job. Your salary will be miserable. Art/gaming is not a profession. Belgium, Women, 22, Arts, humanities and Languages/Mathematics

"No job opportunities according to my parents" Poland, Woman, 32, Physics



Teachers are the leading discouraging factor for men and women studying digital technology, representing a discouraging factor for 6 out of 10 men and 5 out of 10 women. If a higher proportion of men declares having been discouraged by teachers, friends and family are indicated as having discouraged much more women.

- Teachers: W: 56% vs M: 60%, + 4% for men. -
- Family circle: W: 33% vs M: 23%, + 10% gender gap (4 points higher than the 6% gap in STEM)
- Friends: W: 29% vs M: 18%, + 11% gender gap. (7 points higher than the 4% gap in STEM)

Data from the verbatim:

The most quoted arguments evoked by students when answering to the question : "Can you indicate the arguments which were evoked to discourage you from pursuing these professions and these courses? " are related to gender or student's level.

- It is not a field for women(31% of women, 0% of men)

"everyone says it's a men's profession, and women get less for the same amount of work, and that men's brains are better at math..." Hungary, Woman; 19, student in Computer sciences/digital

"Evocation of femininity, that a woman should not dirty her hands. Evocation of the fact that engineering is too heavy for a woman." Canada, Woman, 22, Computer sciences, digital/Engineering, transformation and production industry

"It's not a place for women" Belgium, Woman, 21, student in Computer sciences/digital

You're not good enough, It is too difficult for you (27% of women, 44% of men)

"You have bad grades in high school, how can you imagine going to university? You don't like maths, studies are not for you" Belgium, Man, 20, student in Computer sciences, digital

"Some family and friends were afraid of me going into engineering or programming courses, because there was a social "rumor" that it was very difficult, and many people ended up dropping out. As they knew I didn't have very high grades, they advised me not to enroll in those courses." Portugal, Man, 29, student in Natural sciences, biology, chemistry/Computer sciences, digital

"That it wasn't for me and that I was bad at math anyway. That it's too "smart" a job for me" Belgium, Women, 23, student in Computer sciences, digital

« Some people around me, especially male high school classmates and teachers, gave me the idea that if I got good grades it was because I was responsible and put in the time, but I wasn't bright enough to do a pure science degree." Netherlands, Woman, 23, Physics

- You don't have the profile, it is not for you: 7% of women, 16% of men

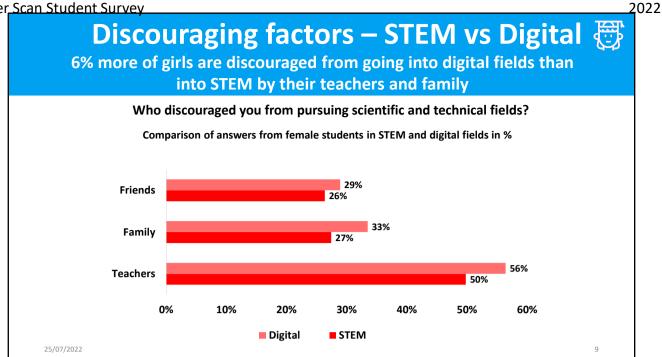
« "Computer science is for the unsociable", "You go into computer science, it's typically the default choice

when you don't know what to do with your future", "In computer science, you won't meet anyone and you'll stay single at 40", "You go into computer science, you'll become ugly, pimply and unsociable" Belgium, Man, 18, student in Computer sciences, digital

« Didn't seem "the type" to pursue a STEM career. » United States, Woman, 20, student in Computer sciences, digital/Engineering, transformation and production industry

"you have to have a square mind, I have too much creativity" Belgium, Woman, 22, student in Computer sciences

"That I'm not cut out for maths and science. Two maths teachers and a science teacher told me this repeatedly." Belgium, Man, 18, student in Computer sciences, digital/Engineering, transformation and production industry



Trends are similar between female students in traditional STEM fields and tech in developed countries, but a higher proportion of women studying computing declare to be discouraged by teachers, family and friends.

- Teachers: digital: 56% vs STEM: 50%, + 6%.
- Family circle: digital: 33% vs STEM: 27%, + 6%.
- Friends: digital: 29% vs STEM: 26%, + 3%.

Data from the verbatim:

Topics that had more answers to the question "Can you indicate the arguments which were evoked to discourage you from pursuing these professions and these courses? » from STEM students than digital female students are:

- You're not good enough, It is too difficult for you (34% of women in STEM, 27% of women in digital)

« Some of the teachers I had told me that I was not smart/competent enough to do this course. They said I would never pass the exams. They were quite wrong. » Belgium, Man, 25, Student in Engineering, transformation and production industry

« Family stating, it is too hard and that I am not good at maths (although I always had top grades at school without having to study for it)." Austria, Woman, 27, student in Physics/Computer sciences, digital/Engineering, transformation and production industry

The atmosphere will be hostile (8% of women in STEM, 5% of women in digital)

« You have to be strong, you have to be tough, you have to work hard, you have to have confidence in yourself, you're not cut out for that. It will be difficult. » Canada, Woman, 27 Physics/ Natural sciences, biology, chemistry/ Engineering, transformation and production industry

"I was particularly discouraged from pursuing civil engineering and more "traditional" engineering roles in particular companies. I heard stories from older friends who had bad experiences e.g. being the only female on the team, not having a female toilet onsite. "Ireland, Woman, 20, 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" United States, Woman, 21, Computer sciences, digital/ Engineering, transformation and production industry/ Environment, sustainable development, ecology

Sexism, racism, disrespect (7% of women in STEM, 5% of women in digital)

"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." United States, Woman, 19, Engineering, transformation and production industry

"Colleagues telling me how I should leave the available resources to men, who would benefit more from them than me." Austria, Woman, 29, Physics/Natural sciences, biology, chemistry

"Interning at companies and seeing subpar treatment of POC like myself "United States, Woman, 20, Computer sciences, digital "In my first year, I would get a lot of opposition from my male peers. They were not willing to work with me and did not believe in my abilities. Also, I have been pressured to take on design/project manager roles, instead of actual coding." Iceland, Woman, 31, Computer sciences, digital

Data from the verbatim:

The arguments with more answers to the question "Can you indicate the arguments which were evoked to discourage you from pursuing these professions and these courses? » from digital female students than STEM ones are:

- It is not a field for women(31% of women in digital, 25% of women in STEM)

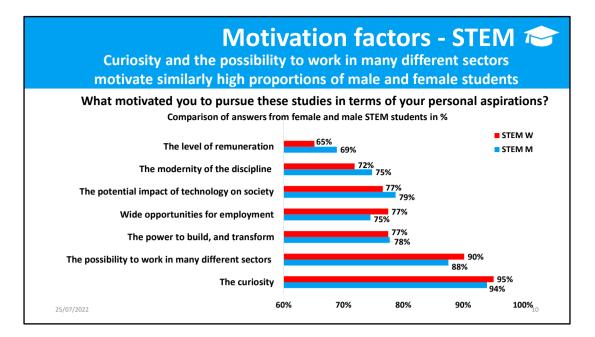
"It's a man's job" "What an idea to choose studies where there are so few women" Belgium, Woman, 24, student in Computer sciences/digital

"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." United States, Woman, 24, student in Mathematics/Engineering, transformation and production industry

- <u>This is not useful, you wont't find a job (7% of women in digital, 3% of women in STEM)</u>

"No future, no job, no skills, not a real job" Belgium, Woman, 21, Computer sciences, digital

"What kind of work would you have with this? Nobody needs that." Austria, Woman, 24, Mathematics



Strong similarity in the motivations of women and men students in STEM in developed countries. No significant gender gap in motivation factors, except for the level of remuneration, valued by a higher percentage of men than women (W: 65% vs M: 69%, + 4%). All examined factors motivate high percentages (+60%) of respondents.

Top 3 criteria:

- Curiosity: W: 95% vs M: 94%, + 1% difference for women
- The possibility to work in many different sectors : W: 90% vs M: 88%, + 2% difference for women
- The potential impact of technology in society: W: 77% vs M: 79%, + 2% difference for men

Data from the verbatim:

The most cited aspects in response to the question **"Can you specify what triggered your current choice of professional orientation**?" were:

- Passion (19% of Women, 23% of men)

"Since I was a little girl, I've always liked science, I've always done experiments, I've always played the scientist, I've always invented objects, it was a game. There was no triggering event, it has always been there. My parents let me do what I wanted and supported me in my studies." Belgium, Woman, 28, student in Engineering, transformation and production industry/ Environment, sustainable development, ecology/ Agriculture, agronomy, forestry, veterinary "I always loved maths and I thought physics would be the most interesting way to use maths even though I didn't feel I had a strong background or a natural ability in physics, I understood later that in boys schools they are more encouraged to learn physics than I ever was." Ireland, Woman, 26, student in Physics

"I was always good at math. Every adult I talked to in elementary school said that I should be an engineer since I was good at math. I guess it stuck. And I have had a passion for everything that flies since I was young: planes, rockets, and birds. I loved building things and knowing how things were put together. My major is mechanical and aerospace engineering, so I think I hit the nail on the head in doing what I love for a living." United States, Woman, 20, student in

Engineering, transformation and production industry

"I discovered my passion for technology (while I was studying economics) thanks to an Arduino box that was given to me for one of my birthdays." Belgium, Woman, 24, student in Business, economy, finance, accounting and law

- <u>The impact this job can have of society (14% of Women, 12% of men)</u>

"Insatiable curiosity to understand and comprehend what surrounds me, to feel that what I do can influence and improve people's quality of life and to do my bit for society in order to leave my "footprint" positively and feel that I have used my time for something productive." Spain, Woman, 16, student in Mathematics/Physics/Natural sciences, biology, chemistry

"I became interested in aiding the development of sustainable and renewable energies after I traveled to China for some time and realized how inequitable and unmanaged certain energy systems are in largely urbanized regions. I want to help make the world a more livable space for future generations." United States, Woman, 22, Engineering, transformation and production industry/ Environment, sustainable development, ecology

"Reconciliation between a field I am passionate about and the imperative of the state of the planet" Germany, Man, 21, Natural sciences, biology, chemistry/Environment, sustainable development, ecology/Agriculture, agronomy, forestry, veterinary

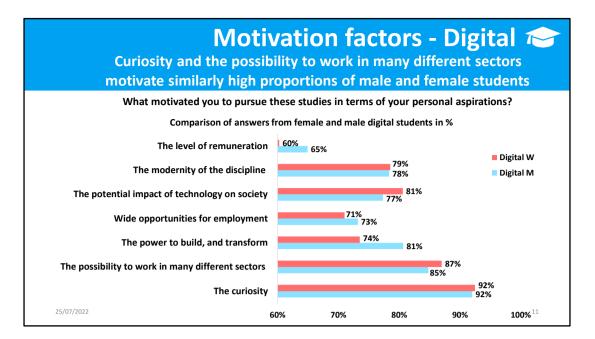
- Family friends (11% of women, 14% of men)

"An event in which I suggested becoming an engineer to my mother, who remarked that I act just like her colleagues, who specialized as electrical engineers, and that therefore I might enjoy majoring in electrical engineering" United States, Woman, 18, Engineering, transformation and production industry

"From a young age, my mother encouraged my interest in science and math. She bought me a book of science fair experiments, gave me a notebook for lab notes, and took me to museums to explore new ideas and topics. Since then, I have always had an interest in math and science. "United States, Woman, 26, student in Environment, sustainable development, ecology

"I was unsure what I wanted to do with my life, and even though I gravitated towards other disciplines my parents told me that STEM (Engineering in particular) fit me better. Since my dad is currently in the engineering industry, it felt easier to try to follow his footsteps than to pursue something risky and with less money in it. They didn't force me into my choice, but I wanted to make them proud with my decision and to feel like I would have a "real job" in the future." United States, Woman, 21, student in Engineering, transformation and production industry

"My father works in the same field and he strongly advised me to study civil engineering." United States, Man, 26; Engineering, transformation and production industry



Strong similarity in the motivations of women and men students in tech in developed countries. No significant gender gap in motivation factors - except for the power to build and transform, which motivates a higher proportion of men than women (M: 81% vs W: 74%, + 7%) and level of remuneration, (W: 60% vs M: 65%, + 4%). All examined factors motivate high percentages (+60%) of respondents.

Top 3 criteria:

- Curiosity: W: 92% vs M: 92%, equal proportion
- The possibility to work in many different sectors : W: 87% vs M: 85%, + 2% difference for women
- The potential impact of technology in society: W: 81% vs M: 77%, + 4% difference for women

Data from the verbatim:

The most cited aspects in response to the question "Can you specify what triggered your current choice of professional orientation?" were:

- Passion (22% of Women, 24% of men)

« I love to draw, it's my hobby, and I would like to make it my job » Belgium, Woman, 21, Computer sciences, digital

« I always liked technology and science, in any case I would have chosen programming, network security or computer engineer. There was no real triggering event other than the fact that I wanted to stay with my friends in my field of study » Belgium, Man, 19, Computer sciences, digital

« I like maths, I like computers, that's all » Luxembourg, Woman, 23, Computer sciences, digital "I didn't know what to choose, and I was already spending a lot of time on my computer chatting, discovering things related to computers and that made me passionate" Belgium, Man, 18, Computer sciences, digital

- Family/Friends (12% of Women, 10% of men)

"Boyfriend introduced me to programming and IT and showed me that it is indeed not as

difficult as I imagined it would be." Denmark, Woman, 26, Student in Business, economy, finance, accounting and law/Computer sciences, digital

"I started with advice from older friends in the IT area. High school colleagues were also planning to go for IT and engineering courses. I did some research and decided to go too. I'm loving the course. (pity there aren't more women in the class)" Portugal, Man, 29, Natural sciences, biology, chemistry/

Computer sciences, digital

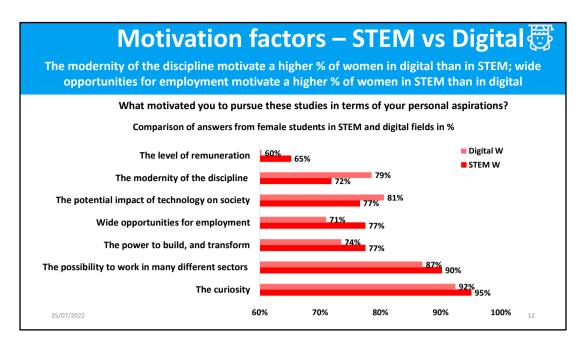
"I'm studying 2D Animation-Illustration at the HEAJ and I've been looking into it because my cousin studied there and seeing him do his work always made me dream so I went to study there a few years later," Belgium, Woman, 20, Arts, humanities and Languages/ Computer sciences, digital

"The introduction to computers by some members of my family," Belgium, Man, 23, Computer sciences, digital

- The impact this job can have on society (8% of women, 6% of men)

"Lack of women in science, even though it is so important that also women's need are taken into account when designing the future. Also the belief that science can do so much good for the world and solve many questions/issues. It is a unique way of changing and shaping our daily lives." Austria, Woman, 22, Natural sciences, biology, chemistry/Computer sciences, digital

"A computer science project that allowed me to discover what it could be like in practice and the ideal of being able to participate in the evolution of society towards a better world thanks to artificial intelligence and all the technological development that comes with it" Belgium, Man, 19, Computer sciences, digital



Similar trends as for the top 2 motivation factors of female students in tech and in STEM disciplines in developed countries:

- Curiosity: digital: 92% vs STEM: 95%, +3% difference for women in STEM fields.
- The possibility to work in many different sectors: digital: 87% vs STEM: 90%, +3% difference for women in STEM fields.

The ones that motivate proportionately more STEM than digital students are:

- Wide opportunities for employment STEM: 77%, digital: 71%, +6%
- The power to build and transform STEM: 77%, digital: 74%, +3%

Data from the verbatim: :

Topics that had more answers to "Can you specify what triggered your current choice of professional orientation?" from STEM students than digital female students are:

<u>The impact this job can have on society</u> (14% of women in STEM, 10% of women in digital)

"What made me decide to study engineering was when I realized that technology could have a positive impact on society. By improving living conditions and allowing us to live in a better world. This happened when I was about 15-16 years old and I read about the development of medical technology." Belgium, Woman, 21, student in Natural sciences, biology, chemistry/ Engineering, transformation and production industry

« - aim 1: in the middle of an ongoing developing field of work and knowledge, trying to sound and implement the most progressive forms of technological and digital possibilities to reaching egalitarian conditions of life for all. aim 2: shaking the gender related imbalance » Austria, Woman, 30, Social sciences, journalism and information/Computer sciences, digital

- <u>A university fair/open day (9% of women in STEM, 6% of women in digital)</u>

"There was a week where students could visit any university in the city to find out what is interesting to it, I visited a lecture at the technical university and knew I'd belong here." Austria, Woman, 20, Environment, sustainable development, ecology/ Construction industry, civil engineering/ Retail services, transportation services, security services STEM "Open day of my university. I found out that electronic engineering degree existed, it was exactly what I was looking for" Italy, Woman, 30, Computer sciences, digital/Engineering, transformation and production industry

The following factors seem to motivate more one group or another proportionately. Those that motivate more digital than STEM students are:

- The potential impact of technology in society digital: 81% vs STEM: 77%, +4%
- The modernity of the discipline digital: 79% vs STEM: 72%, +5%

Data from the verbatim:

Topics that had more answers to from digital students than STEM ones are:

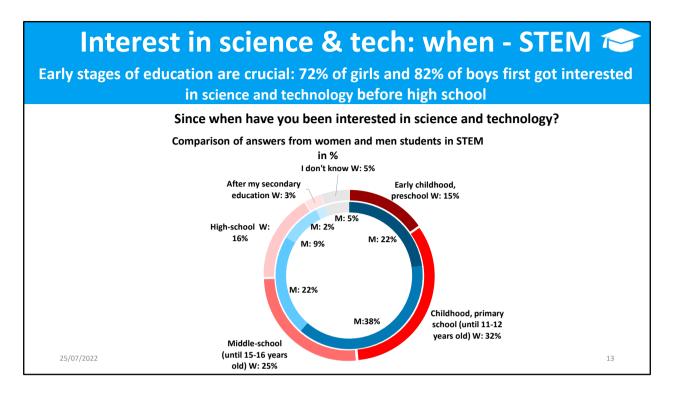
- <u>Passion</u> (22% of women in digital, 19% of women in STEM

"I didn't think too much about it, it was more of a given for me. I am passionate about the world around us and the studies I chose were the ones that were closest to what I love." Belgium, Man, 19, Natural sciences, biology, chemistry/Environment, sustainable development, ecology/ Agriculture, agronomy, forestry, veterinary

"It was always part of me. There wasn't really a choice to be made. I knew for a long time that I wanted to work in digital." Belgium, Woman, 23, Computer sciences, digital

- <u>The wish to create (4% of Women in digital, 0% of Women in STEM)</u>

"Designing items! Fashion design interest turned to materials interest turned to wider design tech focus" United States, Woman, 20, Engineering, transformation and production industry "I want to learn to make my own programmes, to create from scratch." Spain, Woman, 19, Computer sciences, digital

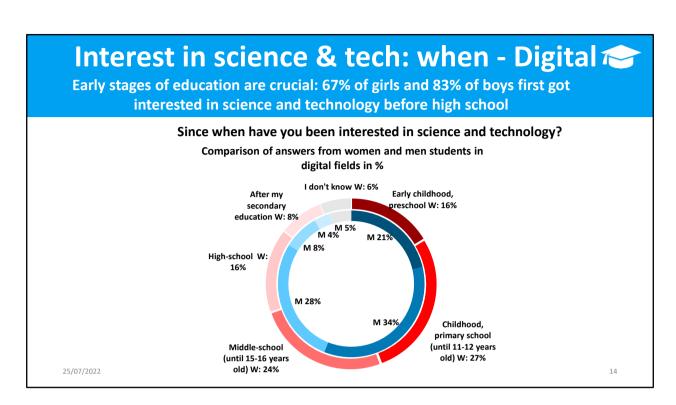


Similar trends regarding the moment women and men studying in STEM first got interest in science and technology in developed countries, although proportionately more men get interested earlier than women:

- Early childhood plays a non-negligeable role too: 15% of women, 22% of men, 7% difference.

- **Primary school is proportionately the most cited moment by women (32%)** and men (38%), **6% difference for men**.

- Middle school comes next, being mentioned by 25% of women and 22% of men,
 3% difference for women.
- High school weighs more for women (16%) than for men (9%), **7% difference for** women.
- 60% men indicate that their choice is made before entering college, while this applies only to 47% women

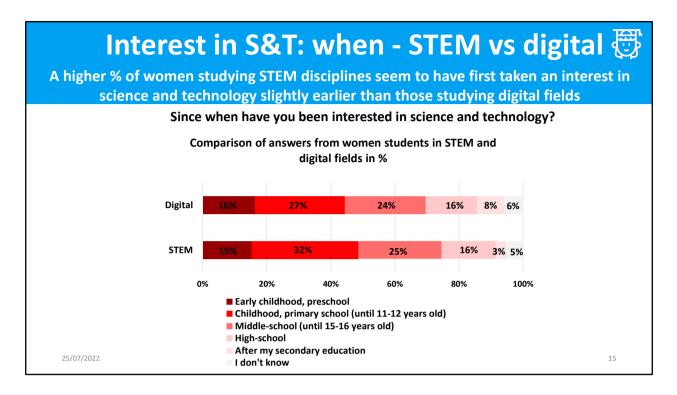


Similar trends regarding the moment women and men studying in digital fields first got interest in science and technology in developed countries, although proportionately more men get interested earlier than women:

- Early childhood plays a non-negligeable role too: 16% of women, 21% of men, 5% difference.

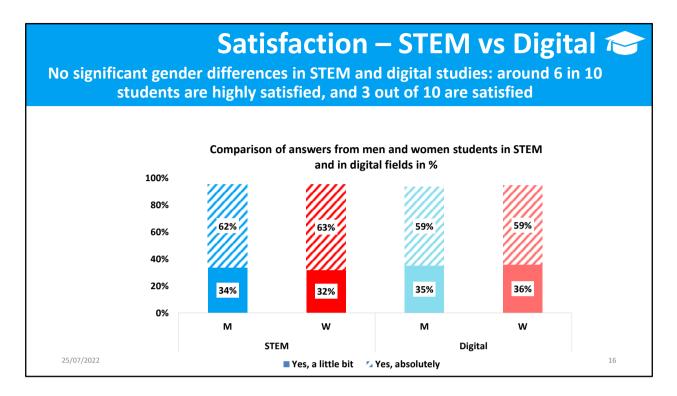
- Primary school is proportionately the most cited moment by women (27%) and men (34%), 7% difference.

- Middle school comes next, being mentioned by 24% of women and 28% of men, 4% difference.
- High school weighs more for women (16%) than for men (8%), 8% difference for women.
- 55 % men indicate that their choice is made before entering college, while this applies only to 41% women

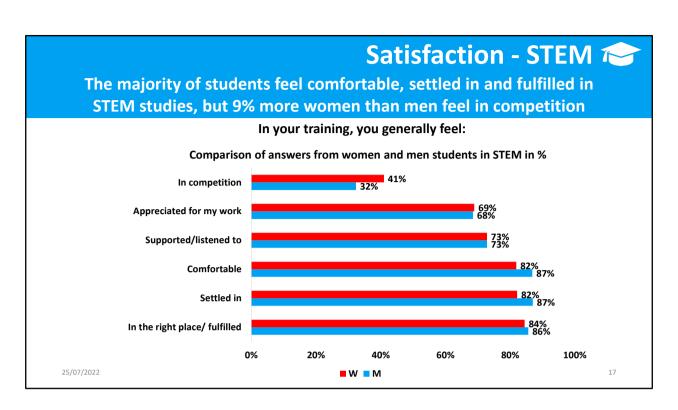


Few differences between female students in STEM and digital in developed countries.

To be noted: **32% of female students in STEM** say they have been interested in science and technology since **primary school,** compared to **27% in digital studies.** (5% difference) Conversely 8% of students in digital studies, as against 3% in STEM, say the period after secondary education was when they took an interest in science and technology. **(also 10% difference)**



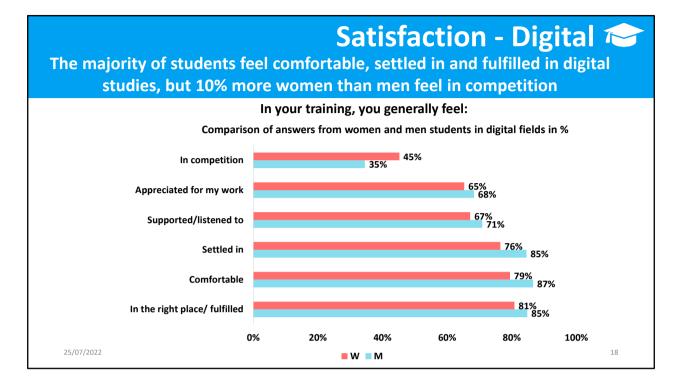
Overall very similar levels of satisfaction across STEM and digital disciplines and genders/ Women and men in STEM declare to be absolutely satisfied in only slightly higher proportions than women and men in digital studies.



A very positive perception of studies from female students, generally as positive as those of male students, which corroborates the previous point: women who have decided to embark on these fields are particularly determined and enthusiastic about their situation.

To be noted:

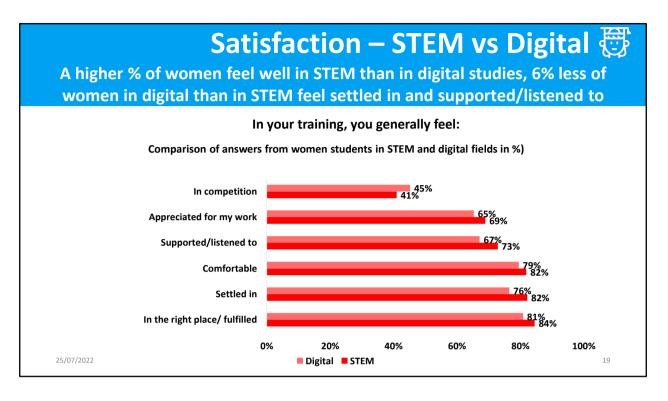
- 9% more of women than men students in STEM in developed countries feel in competition with their peers (41% vs 32%) .
- 5% less of women than men students in STEM in developed countries feel comfortable and settled in (87% vs 82%)



A very positive perception of studies from female students, almost as positive as those of male students, which corroborates the previous point: women who have decided to embark on these fields are particularly determined and enthusiastic about their situation. However, some gender gaps persist. To be noted:

- **10%** more of women than men students in digital fields in developed countries feel <u>in</u> <u>competition</u> with their peers (45% vs 35%).
- 9% less of women than men students in digital fields in developed countries feel <u>settled</u> <u>in (76% vs 85%) in their studies</u>
- 8% less of women than men students in digital fields in developed countries feel <u>comfortable</u> (79% vs 87%) in their studies

- 6% less of women than men students in digital fields in developed countries feel <u>in their</u> right place (81% vs 85%) in their studies



Top 3 similar criteria - In the right place/fulfilled, comfortable, settled in.

However, some gaps remain reflecting a lower level of integration of women in digital studies :

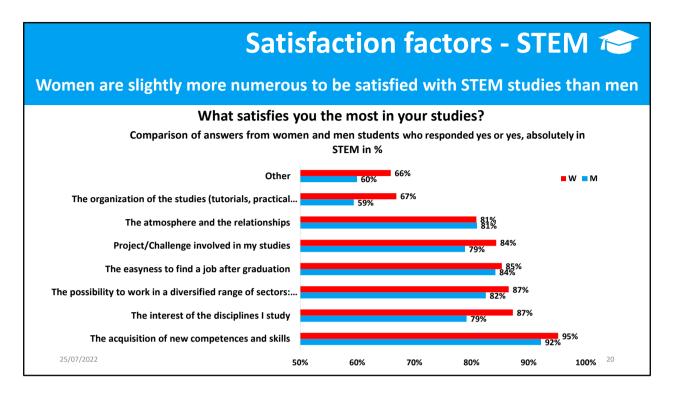
4% more of women in digital feel in competition with their peers compared to women in STEM. (45% vs 41%).

6% less of women in digital feel settled in compared to women in STEM. (76% vs 82%).

6% less of women in digital feel supported and listened to compared to women in STEM. (67% vs 73%).

3% less of women in digital feel comfortable in their studies compared to women in STEM. (79% vs 82%).

3% less of women in digital feel in their right place compared to women in STEM. (81% vs 84%)



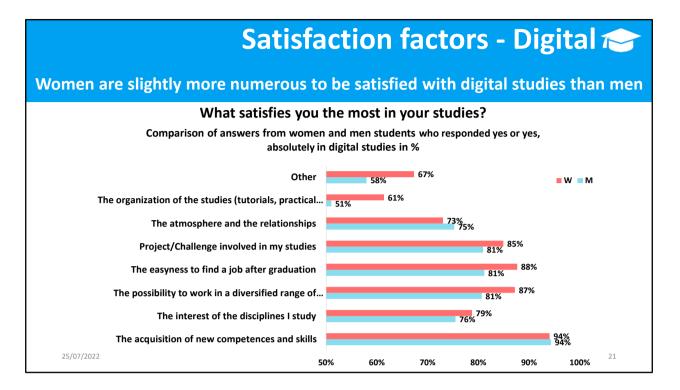
To be noted: women are slightly more numerous to feel satisfied by their studies on all criteria, the highest difference pertains to the organization of the studies and to the interest of the disciplines studied (8% more of women than men satisfied).

Top 3 satisfaction factors

- **The acquisition of new competences and skills:** W: 95%, M: 92%. 9 in 10 people cite the development of their skills as a factor of satisfaction in STEM.
- The possibility to work in a diversified range of sectors: W: 87%, M: 82%. +5% of women than men.
- The easiness to find a job after graduation: W: 85%, M: 84%.

Other factors that matter for a significant proportion of women in comparison to men are:

- The interest of the disciplines I study (W: 87% vs M: 79%, +8% for women)
- The project/challenge involved in the studies (W: 84% vs 79%, +5% for women)
- The organization of the studies (W: 67% vs M: 59%, +8% for women)



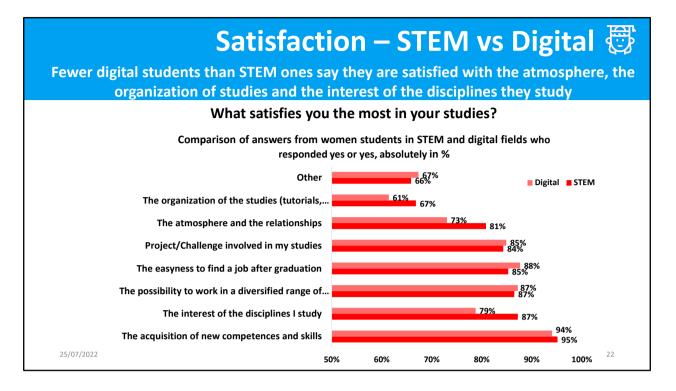
To be noted: women are slightly more numerous to feel satisfied by their studies on all criteria, the highest difference pertains to the organization of the studies (10% more of women than men satisfied). One exception though : the atmosphere and the relations (2% more of men than women, 75% vs 73%).

Top 3 satisfaction factors:

- **The acquisition of new competences and skills:** W: 94%, M: 94%. 9 in 10 people cite the development of their skills as a factor of satisfaction in digital studies.
- The easiness to find a job after graduation: W: 88%, M: 81%. +7% of women than men.
- **The possibility to work in a diversified range of sectors:** W: 87%, M: 81%. +6% of women than men.

Other factors that matter for a significant proportion of women in comparison to men are:

- The interest of the disciplines I study (W: 79% vs M: 76%, +3% for women)
- The organization of the studies (W: 61% vs M: 51%, +10% for women)
- The project/challenge involved in the studies (W: 85% vs 81%, +4% for women)



Top 3 satisfaction factors are shared between women in STEM and in digital studies in developed countries:

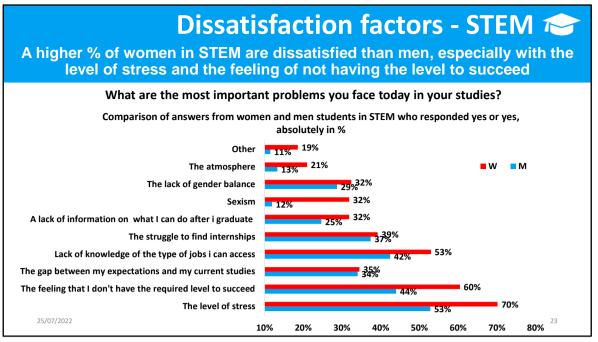
- **The acquisition of new competences and skills:** Digital: 94%, STEM: 95%. 9 in 10 women cite the development of their skills as a factor of satisfaction.
- The possibility to work in a diversified range of sectors: Digital: 87%, STEM: 87%.
- The easiness to find a job after graduation: Digital: 88%, STEM: 85%.

More women in STEM are satisfied with:

- The atmosphere and the relations (81% vs 73%, +8%)
- The interest of the disciplines I study (87% vs 79%, +8%)
- The organization of the studies (67% vs 61%, +6%)

Women in digital studies are more numerous to value the following elements :

- The easiness to find a job (88% vs 85%, +3%)
- Project/challenge in studies (85% vs 84%)



3 top factors of dissatisfaction:

- Stress level: 70% of women - 53% of men = 17% gap. More female STEM students are stressed than male students.

- The feeling of not having the level to succeed: 60% of women - 44% of men = 16% gap. More women feel they don't have the level needed to succeed more than men do in STEM.

- Lack of knowledge of future possible jobs: 53% of women - 42% of men = 11% gap. More women feel not enough informed about their future jobs than men

To be noted: 32% of Women in STEM in developed countries are dissatisfied about sexism in their education.

Data from the verbatim:

The most cited aspects in response to the question 'What improvement would you like to see in the training you are taking?' were:

- The gap between your expectations and reality (24% of women, 17% of men)

"I wish it was easier to get involved in undergraduate research. Currently at my university, there's only one avenue to becoming involved in undergraduate research. If you are not selected, or there are no positions available in your field or similar ones, there's no way to do undergraduate research at the university. Additionally, most professors only recruit first and second year students so they will be available for several years. This means it is even harder to get involved in research in your third or fourth year of university. "United States, Woman, 21, Natural sciences, biology, chemistry

"I think that there needs to be more consistency between courses." United States, Woman, 21, Engineering, transformation and production industry

"I don't know, ... you see a lot of things back and forth but never in depth, this is especially the case for computer training, you see a lot of different things but I really don't feel that it's useful " Belgium,

Woman, 22, Construction industry, civil engineering

"I would like my department (at the university) to make a real effort to teach according to modern pedagogical principles, not only to do the same thing they have been doing since the early 19th century" Canada, Woman, 25, Mathematics

"more interactive learning instead of front-of-class teaching" Austria, Man, 24, Natural sciences, biology, chemistry

"A more unified program. Courses are taught as independent from each other when in fact they are all related and needed to gain a deeper understanding of the subject studied" Belgium, Man, 25, Engineering, transformation and production industry

- <u>The lack of connection between the courses and the work reality, lack of opportunities to</u> <u>practice (14% of women, 26% of men)</u>

"Better preparation for entering the workplace. In my opinion, the academic world (as a student) and the professional world should not be so dissonant. A better integration between the two would make the transition from graduation to work more natural and fluid, where one knows what to expect and what is expected of him/her." Spain, Woman, 21, Mathematics/Physics

« 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. » United States, Woman, 20, Engineering, transformation and production industry

"working on real projects and not working on castles in the air" Austria, Woman, 27, Natural sciences, biology, chemistry

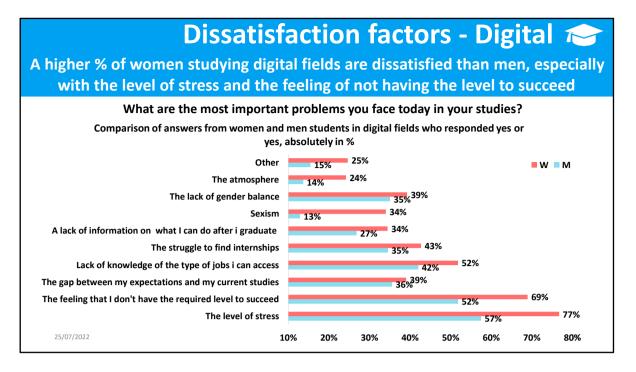
« To have a more practical and less theoretical university education. to be informed about what the labor market expects from us. » Belgium, Man, 23 Agriculture, agronomy, forestry, veterinary "Training where the theoretical aspect would serve a technical purpose, which is often not the case." Belgium, Man, 23, Mathematics/Physics/Engineering, transformation and production industry/Construction industry, civil engineering

- Lack of information on further study/future career possibilities (13% of women, 10% of men)

"I just wish we got more examples of what we can DO. I'm studying biomedical engineering. What are typical job titles? What does a profession BME do every day? What tracks could my future career potentially go down? Lack of information on further study/future career possibilities." United States, Woman, 20, Engineering, transformation and production industry STEM

"Much more information on the course, on the different options and on the masters " Belgium, Women, 21, Business, economy, finance, accounting and law

"Training on the future job that really awaits the graduate. Position, salary, expectations, atmosphere,..." Belgium, Man, 24, Construction industry, civil engineering



3 top factors of dissatisfaction:

- Stress level: 77% of women - 57% of men = 20% gap. More female digital students are stressed than men.

- The feeling of not having the level to succeed: 69% of women - 52% of men = 17% gap. More women feel they don't have the level needed to succeed than men do in digital studies.

- Lack of knowledge of your future professions: 52% of women - 42% of men = 10% gap. More women feel they are not enough informed about their future jobs than men

To be noted: 34% of Women in digital fields in developed countries are dissatisfied about sexism in their education.

Data from the verbatim:

The most cited aspects in response to the question 'What improvement would you like to see in the training you are taking?' were:

- The gap between your expectations and reality (23% of women, 28% of men)

"The first year of the bachelor's degree in computer graphics techniques is far too general, there are many useless or badly distributed courses, it's a waste of time, the options should be split from the first year to avoid having so many courses that don't interest us." Belgium, Women, 19, Computer sciences, digital

"More information on different ways to do things and not saying that one way is "the way" to do things, as new methods are found all the time and having students open to change is important." Iceland, Women, 21, Computer sciences, digital

« Going deeper into everything. I feel like I have only studied the tip of the iceberg. » Iceland,

Women, 21, Mathematics/Natural sciences, biology, chemistry/Computer sciences, digital "Keeping up with the times a lot more; realize that 50% of what we're thought isn't really that relevant anymore and 90% of what is isn't even taught." Portugal, Men, 20, Computer sciences, digital

- <u>The lack of connection between the courses and the work reality, lack of opportunities to</u> <u>practice (13% of women, 19% of men)</u>

« 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." United States, Woman, 19, Computer sciences, digital

« more related to the industry, more examples, more industry partnerships, less theoretical » Canada, Woman, 21, Computer sciences, digital

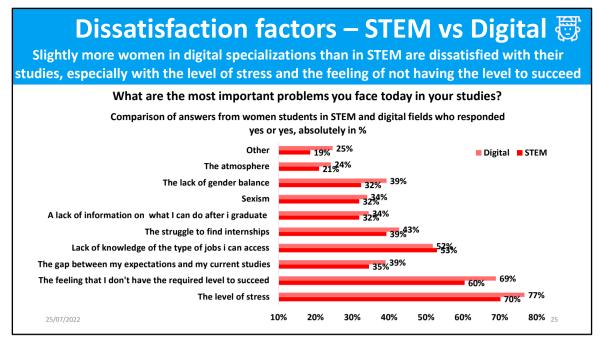
« Mentoring and feedback on how to make things better (e.g. coding) and more practical examples and also practical project work. » Austria, Man, 31, Computer sciences, digital « More projects, more concrete actions. », Belgium, Man; 19, Computer sciences, digital

- Lack of information on further study/future career possibilities (10% of women, 4% of men)

"Events for information on possible future jobs according to what is being studied." Spain, Woman, 17, Mathematics/Physics computer sciences, digital/Engineering, transformation and production industry

"to be more informed about additional jobs and training. Otherwise, the training is quite complete." Belgium, Woman, 19, Computer sciences, digital

« To have more information about possible further studies and to know what my job will be later on." Belgium, Man, 19, Computer sciences, digital



Note: More women are dissatisfied in digital studies on most criteria

Top 3 factors:

- Stress level: 77% women in digital - 70% women in STEM = 7% difference. Women in digital feel more stressed overall than those in STEM.

- The feeling of not having the necessary level: 69% women in digital - 60% women in STEM = 9% difference. 6 out of 10 women in STEM and 7 out of 10 in digital studies feel they don't have the level they need to succeed.

 Lack of knowledge of future professions: 52% women in digital - 53% women in STEM

Another significant difference:

- Lack of gender balance: 39% women in digital - 32% women in STEM = 7% difference. Conclusion: women students in the digital sector are 7% more likely to cite the lack of gender balance as a factor of dissatisfaction than those students in STEM.

Data from the verbatim:

The topics that had more answers from female STEM students than digital ones in answer to the question "What improvement would you like to see in the training you are taking?" were:

- The lack of connection between the courses and the work reality, lack of opportunities to practice (14% of women in STEM, 13% of women in digital)

"More real life work situations that show how the curriculum matches up with the real world. More training for "on the job" expectations of employers" United States, Woman, 40, Engineering, transformation and production industry

« Less theory, more applied knowledge and exercises. Allow for more specialized tracks within computer science. Not everyone is interested in theory or algorithms." United States, Woman, 19, Computer sciences, digital

- <u>The lack of information on further study/future career possibilities (13% of women</u> in STEM, 10% of women in digital)

« More information about the job after the studies (lifestyle, status, etc.) » Belgium, Woman, 24, Computer sciences, digital

"More information about the work you can get afterwards. For example, bringing in several people working in different fields in the FIRST year so that we can have an idea of what kind of work we might have. Personally, I have only attended 4 presentations since the beginning, and I find this insufficient." Belgium, Woman, 21, Engineering, transformation and production industry

The topics that had more answers from female digital students than STEM ones were: - <u>The level of stress (</u>10% of women in digital, 7% of women in STEM)

"-More understanding. If you don't have the right equipment / internet access, you can't do much with it in this area. Better scheduling of deadlines and exam dates so that they don't slip over each other, because if they want to get a good job from us, it takes time." Hungary, Woman, 19, Computer sciences, digital

"Stress level far too high, far too many courses per year, credits allocated to courses NOT representative of the work required." Belgium, Woman, 20, Natural sciences, biology, chemistry

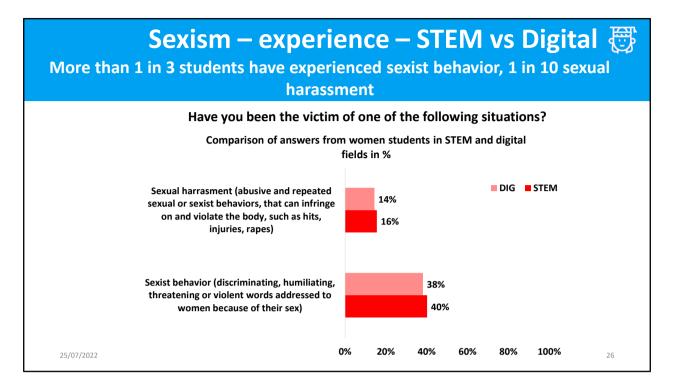
- <u>Lack of diversity/gender balance (9% of women in digital, 4% of women in STEM)</u>

"It would be nice to have more diversity in faculty and professors of engineering" United States, Woman, 22, Arts, humanities and Languages/Engineering, transformation and production industry/Environment, sustainable development, ecology

"Mentorships for Women, inclusion and diversity in teachers, more quest lecturers/ models" Denmark, Woman, 26; Business, economy, finance, accounting and law/Computer sciences, digital

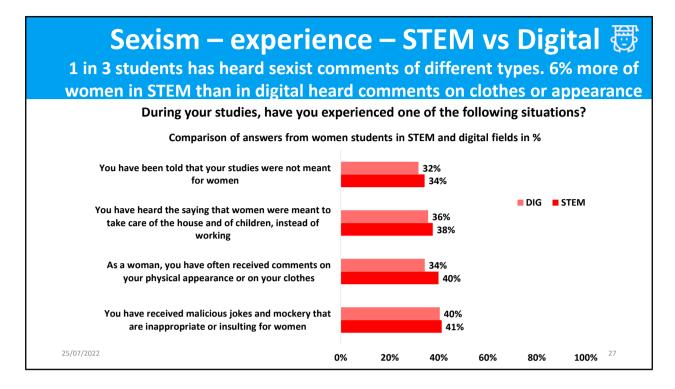
"Greater gender balance, more welcoming environment for everyone, more representation of diverse genders at higher levels." Canada, Woman, 25, Physics/Natural sciences, biology, chemistry

"More gender balance and teachers that are not white males" Iceland, Woman, 22, Mathematics/Computer sciences, digital/Engineering, transformation and production industry



- Sexist behaviors: 38% Women in digital 40% Women in STEM = 2% difference.
- Sexual harassment: 14% Women in digital 16% Women in STEM = 2% difference.

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



Note: Overall, women in STEM are very slightly more numerous to have experienced sexist behaviors.

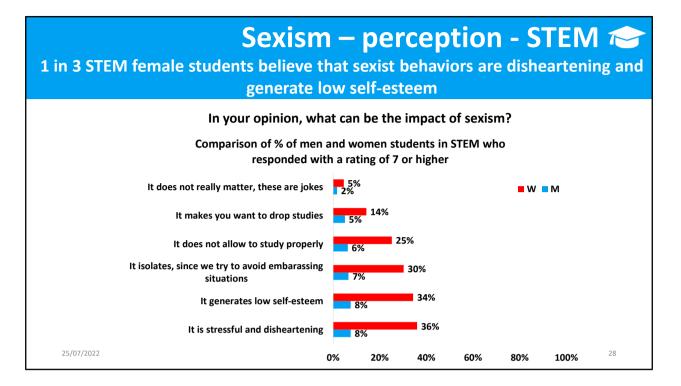
- Mockery or malicious jokes: 40% Women in digital - 41% Women in STEM = 1% difference.

- Remarks on physical appearance or clothing: 34% Women in digital - 40% Women in STEM

= 6% difference.

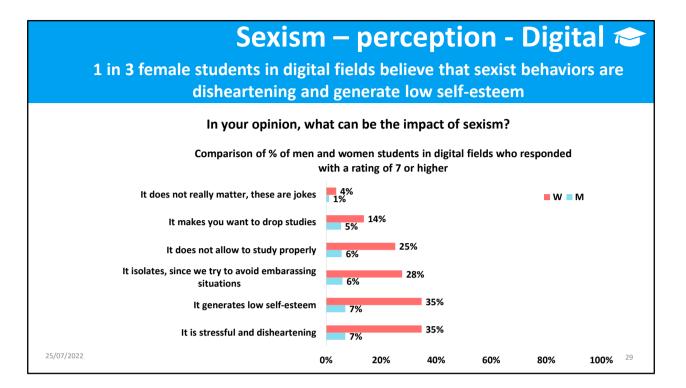
- Heard that women are made to take care of children and not to work: 36% Women in digital - 38% Women in STEM = 2% difference.

- Heard that these studies were not for women: 32% Women in digital - 34% Women in STEM = 2% difference.



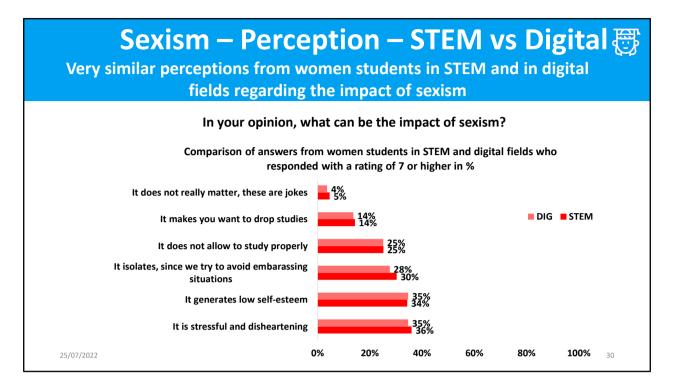
Significant differences between the evaluations of the impact of sexism according to men and women in STEM in developed countries, suggesting that there is room for improvement concerning sensitization and communication campaigns. Top 3 evaluations:

Disheartening and stressful: 36% of women - 8% of men = **28%** gap Loss of self-esteem: 34% of women - 8% of men = **26%** gap. Isolates from others: 30% of women - 7% of men = **23%** gap

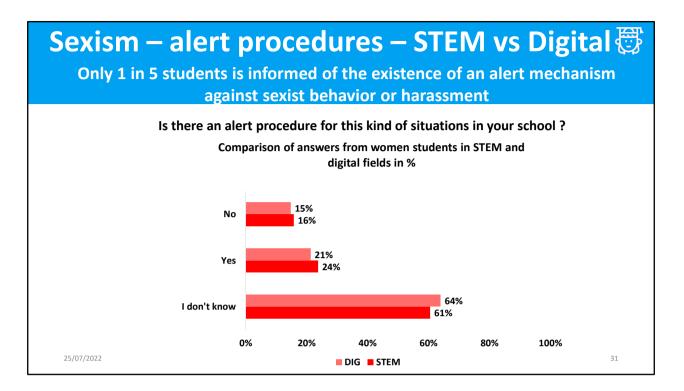


Significant differences between the evaluations of the impact of sexism according to men and women in digital fields in developed countries, suggesting that there is room for improvement concerning sensitization and communication campaigns. Top 3 evaluations:

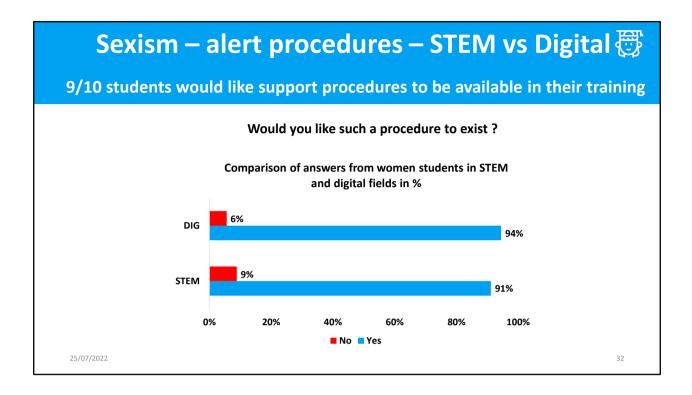
Disheartening and stressful: 35% of women - 7% of men = **28%** gap Loss of self-esteem: 35% of women - 7% of men = **28%** gap. Isolates from others: 28% of women - 6% of men = **22%** gap

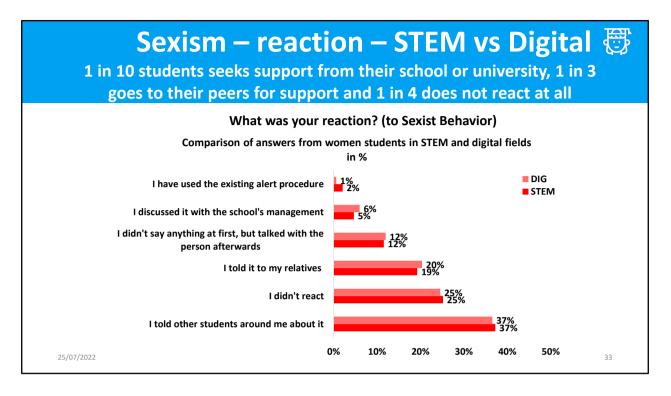


No remarkable differences in % of the perceptions from students in STEM and digital fields regarding the impact of sexism in developed countries.



The majority of students (6 out of 10) in both fields of study do not know if their school or university has an alert mechanism against sexism.





No remarkable differences in % of the reactions from students in STEM and digital fields facing sexism in developed countries

Data from the verbatim:

The most cited responses to the question « why didn't you use the alert procedure?» were:

- <u>Perceived low importance of the incident</u> (36% of women in STEM, 50% of women in digital)

"Because the sexist behaviour I experienced is a kind of benevolent patriarchy that doesn't realise it exists. I have not experienced anything mean or humiliating." Belgium, Woman, 30, Mathematics/Physics

"Because it wasn't that important. It was "just a joke", from a drunk guy, admittedly a repeat offender, but I didn't want to fight about it. And I was ashamed too, of the words, which I didn't want to repeat." Canada, Woman, 22, Mathematics/Physics/Computer sciences, digital/Health and social protection

"Feeling that it wasn't "bad enough" Czech Republic, Woman, 21, Engineering, transformation and production industry

- <u>Preference to deal with it alone or through informal support</u> (10% of women in STEM, 7% of women in digital)

"I didn't feel I needed to. I was (relatively) comfortable having a conversation with the person when it was someone I knew (a classmate) or leaving the situation." Canada, Women, 24, Arts, humanities and Languages/ Physics

"I talked about it directly with the person, the situation was manageable without going through an intermediary" Belgium, Woman, 23, Environment, sustainable development, ecology

"I preferred to deal directly with the people involved and my teachers" France, Woman, 22, Computer science, Digital

- <u>Fear of reprimand (17% of women in STEM, 14% of women in digital)</u>

"I don't dare talk about it for fear that people will say "you're extrapolating, it's not serious at all what happened to you". Unfortunately, ordinary sexism is very common and I realise that fewer and fewer people notice it." Belgium, Woman, 21, Physics/Engineering, transformation and production industry

"I was an intern and the person was a high level manager in a small company. I did not want the drama. " United States, Woman, 26, Computer sciences, digital

"Did not think the situation needed to be escalated and I know people who have had problems when reported it." United States, Woman, 27, Engineering, transformation and production industry/Environment, sustainable development, ecology/Health and social protection

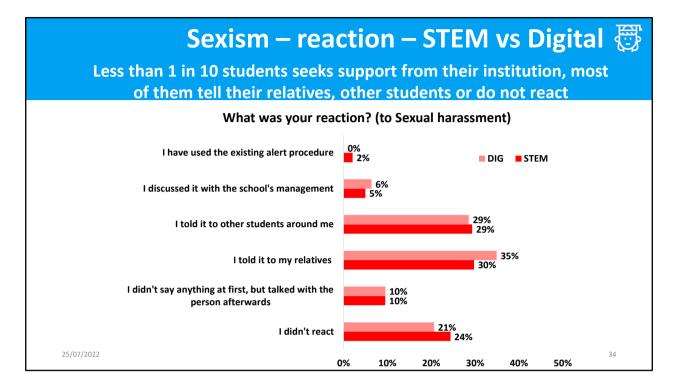
"Shame, fear of repercussions..." France, Woman, 18, , Engineering, transformation and production industry

<u>Perceived low impact of the procedure (17% of women in STEM, 7% of women in digital)</u>
 "There are never any consequences for members of the teaching staff who act wrongly."
 Portugal, Woman, 27, Physics

« I have used it but it doesn't work. they always hide among the people with more power. » Belgium, Woman,32, Physics

« It doesn't work well. They drag the girls through the mud if they speak up. Schools protect the boys almost always." United States, Woman, 20, Engineering, transformation and production industry

"Didn't think they would do anything" United States, Woman, 40, Computer sciences, digital/ Engineering, transformation and production industry



3% more students in STEM than in digital do not react (24% vs 21%).5% more in digital than in STEM told their relatives (35% vs 30%).

| | Methodology | | | | |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|--|
| | Men | Women | Other | Total | |
| Developed countries | 985 | 1904 | 36 | 2925 | |
| a United Nati other docume We are aware do not embra scholars and | We use the perimeters of developed and developing countries following a United Nations' (UN) widely used classification, as present, among other documents, in the <u>2021 World Economic Situation Prospects</u> . We are aware of the problems and limits of this conceptualization and do not embrace it unconditionally. However, alongside many analysts, scholars and consulting firms, as well as UN agencies we consider it adequate for the purposes of benchmarking and comparison. | | | | |
| | | | | | |