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2023 SURVEY

OF FEMALE STUDENTS' ATTITUDES TO STEM

I AM STRONG
I NEVER GIVE UP
I TRY MY BEST
I CAN DO GREAT THINGS
I AM SMART
I BELIEVE IN MYSELF
I AM LOVED
I AM ENOUGH
I AM UNIQUE

I WISH

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We are pleased to present the I Wish 2023 survey results. 2,335 girls responded to our survey on their attitudes towards STEM.

As we head into our 10th annual showcase event, we reflect on how far we have come and our achievements over the last ten years. We had a dream to deliver change by positively influencing our next generation of young women to increase female participation in STEM. We never thought it would evolve in the way that it did. To date we have engaged with over 60,000 girls and turned their heads towards STEM.

Over the 10 years we have seen significant positive change; we see increases in uptake in STEM college courses, we see improvement in gender equality in STEM; however year on year there has been a consistent demand from the girls attending I Wish for more information. 84% of girls surveyed said they want to know more about STEM. It is now clear that it's not just information on subjects and how they might relate to future careers but also pathways to higher education.

We need to rethink how we connect information at school to future STEM career pathways. Lack of information about jobs in STEM and STEM college courses has been highlighted as the most significant barriers to pursuing a career in STEM. This suggests an urgent need to diversify how STEM careers and STEM college courses are portrayed to the next generation.

The I Wish annual survey is a key resource in understanding what actually inhibits girls from pursuing STEM careers. This gives all stakeholders the information needed to ensure that Storytelling in STEM is relevant, current, impactful and most of all accessible.

Our I Wish 2023 survey captures what the girls have to say.

Here at I Wish it is clear from the data that Knowledge is Power.

How we deliver that knowledge to the next generation is on us.

The I Wish Team

#NoGirlGetsLeftBehind #DreamDareDo

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REAL PROGRESS MADE...

FEMALE NEW ENTRANTS IN STEM UNDERGRADUATE PROGRAMMES, BY BROAD ISCED CATEGORY (HEA, 2023)

	2014	2022
All STEM Disciplines	29%	36%
Engineering, Manufacturing & Construction	15%	24%
Natural Sciences, Maths & Stats	51%	55%
ICTs	15%	23%

BUT STILL ROOM TO GROW!

ENGINEERING, MANUFACTURING & CONSTRUCTION

The highest percentage of female uptake are in the following courses within these categories:

- **64% Food Processing**
- **46% Chemical Engineering**
- **42% Architecture & Town Planning**

However the lowest within this category are:

- **16% Building & Civil Engineering**
- **15% Electrical & Energy**
- **12% Mechanics & Metal Trades**

NATURAL SCIENCES, MATHS & STATISTICS

The highest percentage of female uptake are in the following courses within these categories:

- **68% Biology**
- **65% Biochemistry**
- **53% Environmental Sciences**

However the lowest within this category are:

- **38% Statistics**
- **34% Mathematics**
- **27% Physics**

ICT's

The highest percentage of female uptake is in the following within this category:

- **51% Interdisciplinary programmes & qualifications involving ICT's**

However the lowest within this category are:

- **21% Software and application development and analysis**

ONLY ONE-IN-FOUR PEOPLE WORKING IN STEM ARE WOMEN.

WHY DO YOU THINK THAT IS?

WE ASKED THE GIRLS & THIS IS WHAT THEY SAID

Lack of opportunity
Lack of confidence
Societal/cultural factors
gender equality
Lack of role model/representation in STEM
Lack of support
Stereotypes/bias
I don't know
Lack of information
Lack of interest
Lack of support
Lack of access to education/subjects
Lack of access to subjects

* *The same inhibitors are coming out year-after-year. This is clearly a whole of society issue to resolve*

Let's Deep Dive

What barriers do I Wish respondents experience in School

67% Lack of information about jobs in STEM

66% Poor Gender Equality in STEM careers

64% Lack of information regarding STEM college courses

62% Lack of access to STEM work experience

60% Lack of confidence in pursuing a career in STEM

59% Lack of school visits from female role models

59% Lack of confidence in their ability in STEM subjects

54% Limited STEM subject choices in school

51% Lack of female role models

WHILE CONFIDENCE CONTINUES TO BE AN ISSUE THE STAND OUT BARRIERS ARE :

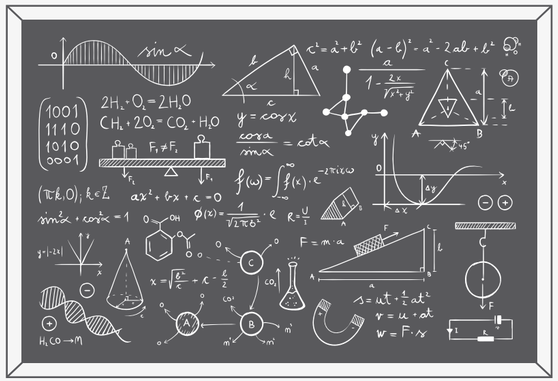
- Lack of Information about jobs in STEM
- Lack of Information regarding STEM college courses
- Lack of School Visits from female role models

84% WANT TO KNOW MORE ABOUT STEM

KNOWLEDGE IS POWER

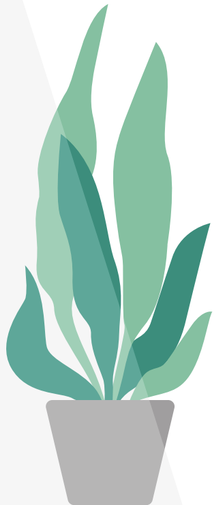
**It is clear we need to rethink how we connect STEM subjects in the classroom to STEM career pathways in the workforce. This presents an enormous opportunity for industry to play a role to change the dial for girls.*

THE MATHS FACTOR



Are girls making decisions to pursue STEM Careers based on their perception of whether honours maths is needed for their future course?

*But did you know that **in some Universities only 20% of STEM courses** (Mathematical Science, Data Science & Analytics and Engineering) **require Honours Maths**.*



HERE IS HOW GIRLS THINK ABOUT HONOURS MATHS

72% said that **how good they were** at maths was an important factor.

68% said that the **bonus points** offered for higher level maths was an important factor.

65% said that **how useful maths would be for college courses** of interest to them was an important factor.

64% said how **difficult they think maths was** an important factor.

62% said that how **useful maths would be in their future career** was an important factor.

56% said that **how much time maths takes** up was an important factor.

LOOK AT WHAT'S IMPORTANT...

THESE ARE THE TOP 5 MOST IMPORTANT WORK RELATED VALUES TO GIRLS:				HERE ARE THE TOP 5 VALUES THEY PERCEIVE A CAREER IN STEM DELIVERS:
Good work-life balance	1	←	→	1 Well paid work
High salary	2	←	→	2 A chance to make a difference in the world.
Opportunity to travel	3	←	→	3 Making new discoveries
Contributing to the world we live in	4	←	→	4 Work as part of a team
Being good at their job	5	←	→	5 A chance to put new discoveries into practice

* *We need to have a greater appreciation of the **values that girls hold**. Arguably a career in STEM delivers these values but perhaps we are not narrating the story the right way. Bringing STEM to life through the experiences of female role models would help bridge this gap.*

CAREER GUIDANCE

IS THERE SUFFICIENT CAREER GUIDANCE IN SCHOOLS?

- **41%** said they could do with **more career guidance and work related activities.**
- Only **48% had experienced career guidance** in transition year.
- **97%** said they have a career guidance counsellor in their school however **21% reported they have not had career guidance classes**.

With **64%** of girls reporting that they lack information regarding STEM college courses and **67% reporting lack of information about jobs in STEM as a barrier**, this suggests that we need to diversify how STEM careers and college courses are portrayed and how information is shared.

→ *How do we support Guidance Counsellors to develop streams of credible, accessible, relatable information about the breadth and diversity of STEM careers?*

KNOWLEDGE IS POWER

SINGLE SEX VS. MIXED

In single sex schools...

- Girls rated **teachers as more influential in choosing their Leaving Certificate subjects**.
- **Problem Solving, Logical**, and **Creativity** were highlighted as the most important skills/traits for pursuing a STEM career.
- **Limited STEM subject choice** was rated as more of a barrier.
- **Lack of visits by female role models** was rated as more of a barrier.
- **Lack of information regarding careers in STEM** was rated as more of a barrier.
- More likely to report **subject enjoyability and ability** to get a good grade as more of an important factor in subject choice.
- More frequently reported **high salary, contributing to the world they live in and good work-life balance** as the most important work related values.
- Nationally – As reported by **The Department of Education** indicators publication on STEM by Gender :
  - ***68.3%*** *of Girls Schools are offered a STEM subject other than Maths or Science.*

In mixed schools...

- Girls rated **siblings as more influential in choosing their Leaving Certificate subjects**.
- **Problem Solving**, **Logical**, and **Creativity** were highlighted as the most important skills/traits for pursuing a STEM career.
- **Limited STEM subject choice** was rated as less of a barrier.
- **Lack of visits by female role models** was less of a barrier.
- **Lack of information regarding careers** in STEM was less of a barrier.
- Girls are more likely to say that **STEM is more suited to boys**.
- Nationally – As reported by **The Department of Education** indicators publication on STEM by Gender:
  - ***87.4%*** *of Mixed Schools are offered a STEM subject other than Maths or Science.*

ACCESSIBILITY OR BIAS?

In general, girls in **single sex** schools **were offered less STEM subjects for the Leaving Certificate** than girls in **mixed schools**. This difference was statistically significant across the following subjects: **Agricultural Science**, **Construction Studies**, **Chemistry**, **Design & Communication Graphics**, **Technology**, **Engineering**, **Physics with Chemistry**, and **Computer Science**. A lack of STEM subjects limits exposure to STEM in **single sex** schools which could negatively impact future college and career decisions. It is important to note that **this mirrors the national picture** with the data showing that girls in **single sex** schools are not offered the same level of subject choice as girls in **mixed schools**.

However, counter intuitively girls in **mixed schools** were more likely to report that **STEM was more suited to boys**, and while having greater subject choice, are typically less likely to take STEM subjects than girls in **single sex** schools (IOP, 2012).

Equality of access to subjects in **single sex** schools is critical to promote STEM, but so too is dealing with biases towards STEM that is evident in **mixed schools**, so as to **ensure that when a girl does have a choice in STEM**, she is confident to choose it.

INFLUENCERS

PEOPLE WHO INFLUENCED CHOICE OF LEAVING CERTIFICATE SUBJECTS

63% said that **siblings** were important for influencing their choice of Leaving Certificate subjects.

40% said that **female role models** were important for influencing their choice of Leaving Certificate subjects.

39% said that **parents** were important for influencing their choice of Leaving Certificate subjects.

32% said that **friends/other students** were important for influencing their choice of Leaving Certificate subjects.

24% said that **teachers** were important for influencing their choice of Leaving Certificate subjects.

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RECOMMENDATIONS

KNOWLEDGE IS POWER

Ensure career guidance highlights the breadth of careers in STEM.

CHANGE THE NARRATIVE

Link STEM careers to the values that girls hold.

SEE IT, BE IT

Facilitate access to female STEM role models to all girls.

EQUALITY OF ACCESS

Provide equal access to STEM subjects to girls in single sex schools.

IT'S NEVER TOO EARLY

Start the STEM Storytelling at Primary Level, it is never too early to ignite girls imagination.

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The team at IWish would like to thank our private and public sector partners, and the Higher Education institutes, school teachers, and incredible network of IWish alumnae for your loyalty and support. You are helping to provide inspiration and encouragement to the STEM women of the future.

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ANYTHING IS POSSIBLE

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