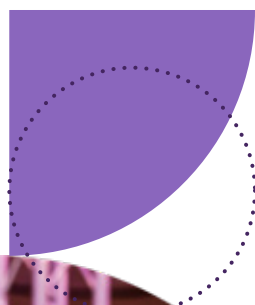




# 2020 SURVEY

of female students' attitudes to STEM

**CHOICES  
CHANCES  
CHANGES**







## A Message from I Wish Founders

This marks the 5th year of the I Wish annual survey. **2,571** girls responded to our 2020 survey making it the largest survey of secondary schools girls and their attitudes towards STEM in Ireland.

Since we began the I Wish journey in 2015, over **22,000** girls have attended I Wish events. In 2020 alone, we secured in excess of 6,000 student registrations from **22** counties, **25%** DEIS representation, **242** teachers, **64** exhibitors and **140** speakers.

Each year we use the scale of our events to survey the girls on what influences them on their subject and career choices. This data allows us to frame our events, to inform industry and to influence STEM education policy in Ireland to ensure that we have the greatest impact.

The issues while clear, are multi-faceted, complex and require a holistic whole of society approach. There is no one magic bullet. We know that increasing the visibility of female role models, better information, greater knowledge, and empowering girls to feel confident in their choices are critical success factors.

## Mixed v single-sex schools

This year we see emerging evidence of differing attitudes of girls in mixed schools versus single sex schools. When asked the question if “STEM is more suited to boys”, those girls in mixed sex schools were more likely to agree that STEM is more suited to boys, and girls in single sex schools were more likely to strongly disagree with this statement than girls in mixed sex schools. Why do girls in mixed sex school environments think more negatively about STEM? Is it peer influence, unconscious bias in how boys and girls are taught in mixed environments or a combination of both?



## Sporting Heroes

We also discovered a potential link between girls who play sport and their pursuit of STEM. We observed a trend, whereby a girl who plays more than 4 hours of sport per week could be as much as 89% more likely to have studied higher level maths to Junior Cert and could be as much as 32% more likely to have studied Junior Cert science. Furthermore, girls who play more than 2 hours of organised sport per week were more likely to agree that they would pursue a career in a male dominated area. Why is this? Is it linked to the confidence and supportive environment that children gain through sport? Or is it linked to the fact that many sports are under-represented by girls and those girls that do play sports at that level are shattering societies own barriers already? We believe there is merit in exploring this link further.

## Change can happen

But we know that change can happen and that the outcome for girls can improve. We now know through our data that where students attend 3 or more extracurricular STEM events, 30% will take at least two STEM subjects to Leaving Certificate compared to 20% where they attend two or less. The impact of attending STEM events is clear.

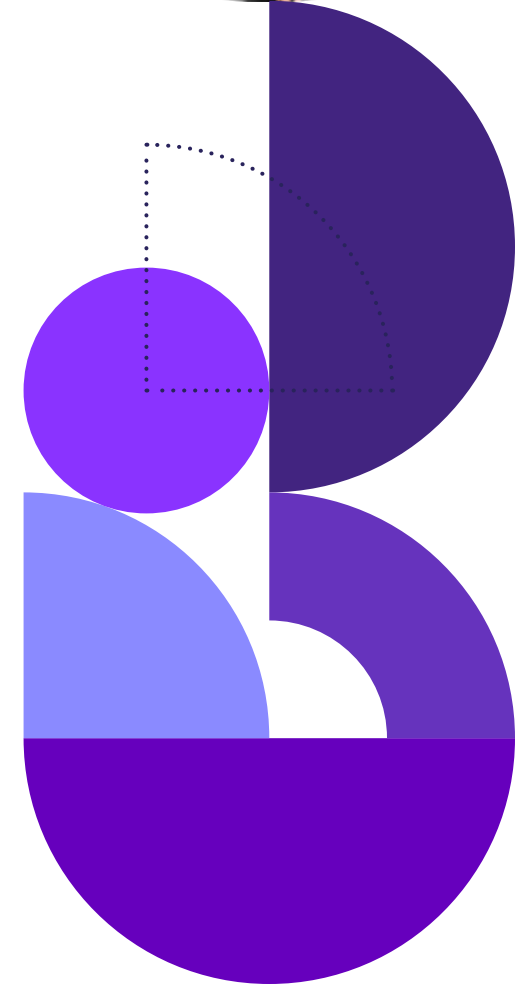
## Post Covid

The post Covid environment has accelerated the pace of technology and scientific discovery. There is a significant risk that girls will be left further behind with this accelerated rate of change. 2021 will mark the first I Wish online experience, ensuring that we are continuing to positively engage with the girls and their teachers so that no girl is left behind.

It is people who ultimately make a difference. Join the I Wish circle and influence thousands of girls on their STEM journey.

**Anything is possible. Be the change**

The I Wish Team



"I Wish definitely inspired me to look into jobs related to STEM" - Student



## STUDENT SURVEY

2,571 students participated in the I Wish 2020 survey



**86%**

of girls agreed that STEM is a growing area of opportunity



**85%**

of girls said that I Wish is an important source of information in STEM



**85%**

of girls agreed that they would like to know more about STEM



**68%**

of girls disagreed that STEM is more suited to boys than girls, girls in mixed sex schools however were more likely to agree that STEM is more suited to boys whereas girls in single sex schools were more likely to disagree with this statement.

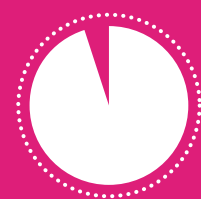
## TEACHER SURVEY

242 teachers participated in the I Wish 2020 survey



**65%**

of teachers said they do not know where to go for information on industry / school initiatives



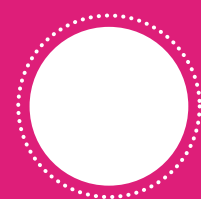
**95%**

of teachers said their students did benefit from attending I Wish



**85%**

of teachers said that confidence in ability when choosing Leaving Cert subjects was important



**100%**

of teachers said they would attend I Wish again





# THE IMPACT OF ROLE MODELS

**83%** of the girls surveyed at I Wish would agree or strongly agree that role models were very important in STEM.

Girls with role models have more belief in themselves and evaluate themselves as higher performers across STEM subjects. Stereotypes associating men more strongly with STEM compared to women have harmful implications for outcomes for women and their ultimate participation in STEM.

Role models will improve women's STEM identification, sense of belonging, weaken stereotypes and will strengthen implicit associations between women and science. These findings suggest that encouraging girls to identify with a role model is important for improving female STEM attitudes.

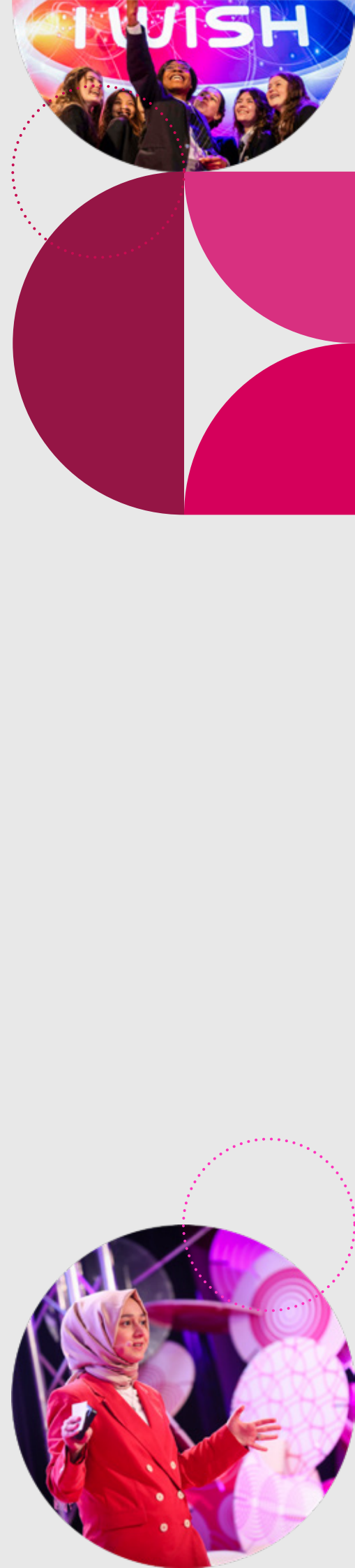
The role models directly inspire and motivate the students through their personal stories of career choices which helps girls develop confidence around STEM and the resilience to make choices that stereotypically were male focused.

*"Having role models and hearing from people who have a career in it, hearing women's success stories and inspirational stories motivates me"*  
- Student



"Knowing what it's about and the opportunities that come with it would make me more confident in pursuing a STEM career"  
- Student

# THE CONFIDENCE GAP



# ARTS & CREATIVITY

## THE ROLE OF ARTS & CREATIVITY IN STEM

66% of the girls that attended I Wish 2020 agreed that *Arts & Creativity* are an important part of STEM. However often girls do not see the link between STEM and the ARTS.

At I Wish 2020 we developed the I Wish Create IT Zone which allowed the girls to experience the *creativity in STEM* and develop cognitive skills through engaging with the everyday technology they use.

*Arts and creativity* are an important part of STEM. Creativity is a highly desired skill in our world of rapid change and ever increasing social, emotional and intellectual demands.

STEM activities are an effective way to developing student creativity. *Promoting arts and creativity* exhibits greater motivation to work on challenging projects, more willingness to take risks and welcome self-expression.

**We just need to tell the story of creativity in STEM differently.**





# SPORTSPORTSPORT

## THE CORRELATION BETWEEN GIRLS PLAYING ORGANISED SPORT & PURSUING STEM

We observed a trend whereby a girl who plays between 2 and 4 hours of sport every week could be as much as 50% more likely to have studied higher level maths to Junior Certificate (which almost identically carries through to their intention to study higher level maths to Leaving Certificate) and could be as much as 25% more likely to have studied Junior Certificate science versus a girl who plays no sport.

The results are more pronounced again where a girl plays more than 4 hours sport per week – as much as 89% more likely to have studied higher level maths to Junior Certificate and 32% more likely to take Junior Certificate science when compared to a girl playing no sport.

The girls who played more sports were more likely to strongly agree that they would like to know more about careers in STEM.

Girls who played between **2 and 4 hours** of organized sports per week had the lowest average ranking that “role models were important in STEM”, whilst girls who played **4 plus hours** of organized sports per week were more likely to strongly agree that “role models were important in STEM”.

Girls who played more than 2 hours of organized sports per week were more likely to agree that they “would pursue a career in a male dominated area”, girls who played more than 4 hours of organized sports had the highest agreement score. Girls who played no organized sports, or less than 2 hours of organized sports, had the lowest scores for the statement that they “would pursue a career in a male dominated area”.

Girls who played more hours of organized sports were more likely to strongly disagree and disagree that “STEM was for nerds/those gifted at maths” than girls who played fewer hours or no hours of organized sport.

This trend is both astonishing and interesting in equal measure. Each survey we do, we learn more about what influences girls, and we believe there is merit in our educators exploring this potential link further.



The I Wish team would like to thank the hundreds of volunteers, private and public sector partners, Higher Education Institutes and I Wish ambassadors who have travelled this journey with us and have positively impacted on the lives of these young girls.

Special thanks to Prof Ciara Heavin at Cork University Business School, Dr Samantha Dockray Senior Lecturer School of Applied Psychology, Kim McCullough School of Applied Psychology and Samantha Dick School of Public Health UCC, for their invaluable assistance on the data analysis.



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# CHOICES CHANCES CHANGES

**Anything is Possible.**

**Be a change maker.  
Join the I Wish community**

**[www.iwish.ie](http://www.iwish.ie)**

*"When we look up it is usually men we see. I Wish opened my eyes to a world of possibilities in STEM. I cannot wait to see what the future holds"*

*- Emma, I Wish attendee 2020*

