



Limit Less

Support young people to change the world

October 2020

IOP Institute of Physics

Information about the surveys referred to in this document

The IOP commissioned Censuswide, an international market research consultancy, to conduct two surveys and a series of focus groups to inform our campaign.

The first survey was of 3,007 parents and carers of children aged 5–16 in state schools in the UK and Ireland. The second survey was of 616 young people aged 14–21, also in the UK and Ireland.

Five 90-minute online focus groups were conducted with parents and carers in the UK and Ireland. Four involved participants in the C1 and C2 socio-economic groups in England, Ireland, Scotland and Wales. One involved participants in the D socio-economic group, drawn from across the UK and Ireland.

Information about the quotations used in this report

In the preparation of this report, the IOP asked its members to provide their own stories of lived experience related to the stereotypes and barriers that our campaign aims to dismantle. A similar request was made to subscribers to IOP's Qubit newsletter, who are aged 16–19. A series of requests was also posted on IOP's Twitter account, @physicsnews. The IOP is grateful to everyone who has shared their experiences with us and invites anyone reading this report who would like to share their own experiences to please contact us.

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Support young people to change the world

Young people are well aware of the unprecedented challenges that we face today and the impact these challenges will have on their future. In response to climate change, poverty and pollution, many are taking actions themselves to make a positive difference.

Their drive to change the world and improve their future should be supported, not limited or denied. Physics teaches young people to understand and solve complex problems. Not just on paper. Not just in theory. The kind that exist everywhere in the world, waiting to be solved.

Unfortunately, too many young people's opportunities are being limited. One such opportunity is studying physics at school.

Some young people are put off by misconceptions about what physics is. These misconceptions are shaped by the opinions of others and the information young people see around them. They are told "physics is too difficult", "it's not creative" or "it's boring".

Other young people are denied the opportunity to study physics because of the prejudice and stereotypes that they experience because of who they are. Many girls are told that physics is more suited to boys, and both girls and boys are told that physics is not for the likes of them based on their ethnicity, their sexual orientation, their disability and their social background.

Too many young people are made to feel that they can't do physics, or they just don't fit in.

This is important because when young people are deterred from studying physics, they are missing out on the benefits that studying physics brings. This may be a rewarding career in physics or one which uses physics, and the opportunity to pursue their passion. Or it may be reaping the rewards of studying a subject that builds analytical and problem-solving skills, for example, and is recognised and valued as such by employers.

Crucially, they are also being denied the opportunity to explore how their world works and contribute to shaping their future as informed citizens.

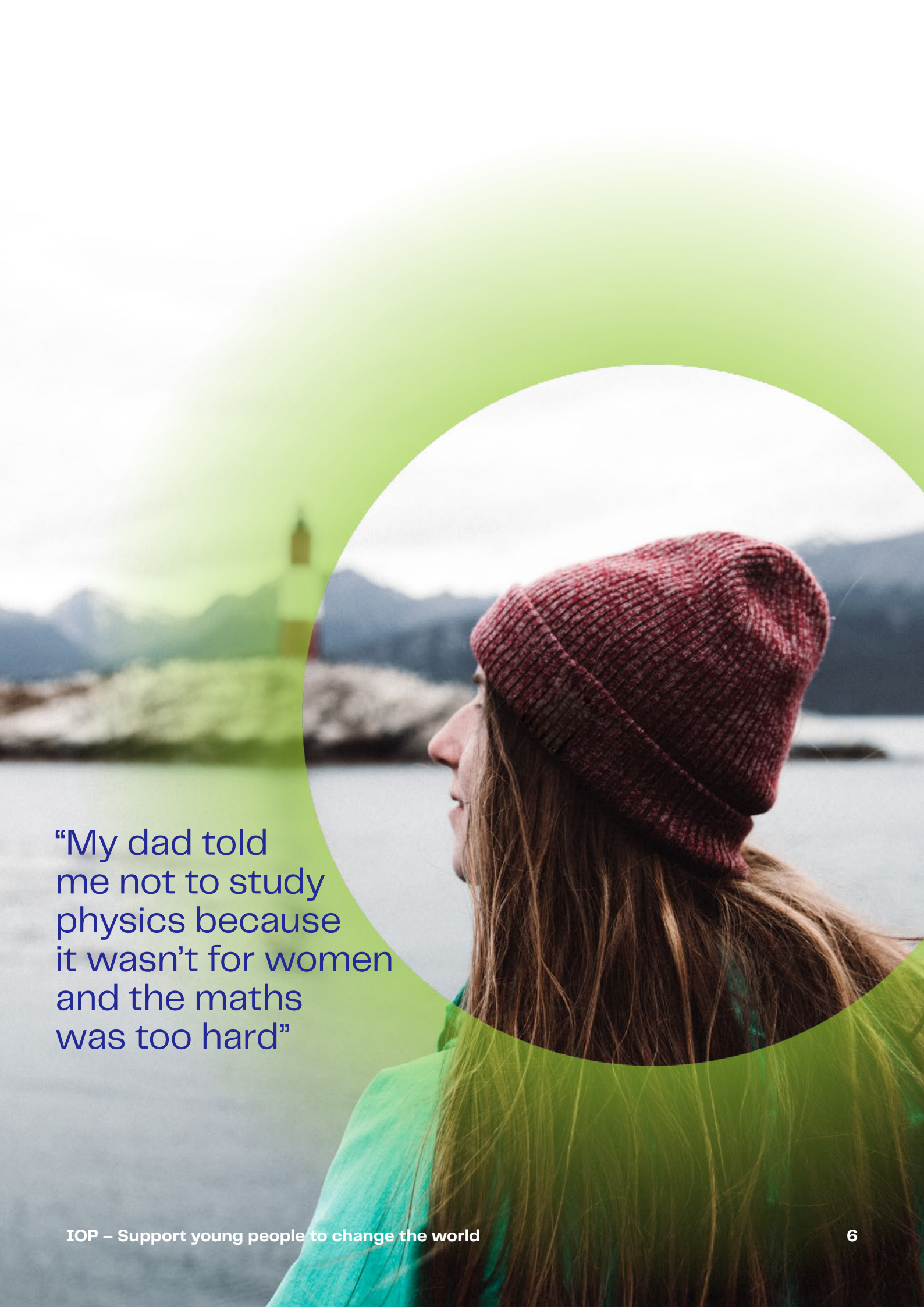
To support young people to change the world, we need to limit less and support them more.

For this reason, the Institute of Physics (IOP) has launched the Limit Less campaign to increase the number of young people from underrepresented groups in our society who do physics from age 16.

The campaign is not directly aimed at young people themselves. Instead, it is aimed at those whom younger people listen to, and who help shape their opinions and decisions. Working with our members and a broad range of organisations, including charities and community groups, we will counter the negative perceptions of physics and the attitudes that drive away some young people.

We will promote the relevance of physics to everyone, and the positive contribution that physics makes to solving the challenges that are affecting young people now and in the future. We will do this by campaigning in the spaces where young people are exposed to these different influences – in their homes and communities, in their schools, and in the media and social media.

Our goal is to achieve systemic change, that has widespread impact, and sustainable change, that lasts long after our campaign ends.



“My dad told
me not to study
physics because
it wasn’t for women
and the maths
was too hard”

The problem is not of young people's making

We know that the physics community does not look like the wider society it is in. There are too few women; too few Black physicists, especially of Black Caribbean descent; too few people with disabilities; too few LGBT+ people; and too few people from less well off or disadvantaged backgrounds. As a consequence, the diversity of thought that makes for better physics is narrower than it could and should be.

This lack of diversity has a number of causes. For example, some people from underrepresented groups study physics, join the physics community and find it unwelcoming, and sadly do not stay in it. Many miss out on having a specialist physics teacher at school to teach them and prepare them for further study or a career using physics. The IOP is committed to addressing these different causes in order to make our community better reflect society. However, other young people are also put off choosing to do physics because of what they are told by people they trust.

Young people are exposed to different attitudes, opinions and advice in their families, in their communities and schools, and in the media and social media. What they are told and how they are treated can either open up worlds to them or serve to limit their aspirations for the future and their choice of what to study. It is therefore very important that those with trusted opinions offer advice that is not the result of their own biases or misconceived ideas.

What comes to mind when people are asked to think of a physicist?

“For individuals who lack social skills ... a bit geeky ... for duller people”

Parents in focus group discussions

For many, the answer is a lab coat-wearing professor in front of a blackboard working on a mind-boggling equation. For others, it's an eccentric loner, effortlessly solving problems while suffering from a lack of social skills.

Whatever the finer details of the pictures in people's minds, it's highly probable that the physicist they see is white and a man. This is not surprising, as the physics community has a diversity problem and most physicists in our society are indeed white men.

However, continuing to promulgate these simple stereotypes rather than challenging them hurts young people. Wearing lab coats or standing in front of blackboards is not wrong; nor is being a white male physicist, who are needed just as much as everyone else to build a thriving physics community. It's just not the whole story and it excludes too many young people from underrepresented groups.

We will never know how many young people have been steered away from pursuing a subject they love because they don't match someone else's idea of what a physicist looks like.

How would people describe physics?

While many people describe physics as interesting, they also describe it as complicated and difficult. They tell young people that physics is “too hard” and that you must be gifted in maths to even attempt to study it. (Yes, physics can be challenging but so are other subjects and, like other subjects, doing well in physics requires dedication and enthusiasm.) Some will describe physics as important, but fewer will say it is topical. Too many will describe it as boring and underplay the creativity and teamwork that drives innovation. Importantly, they will

also tell young people that physics has little relevance to their everyday lives and that studying physics therefore limits their career opportunities.

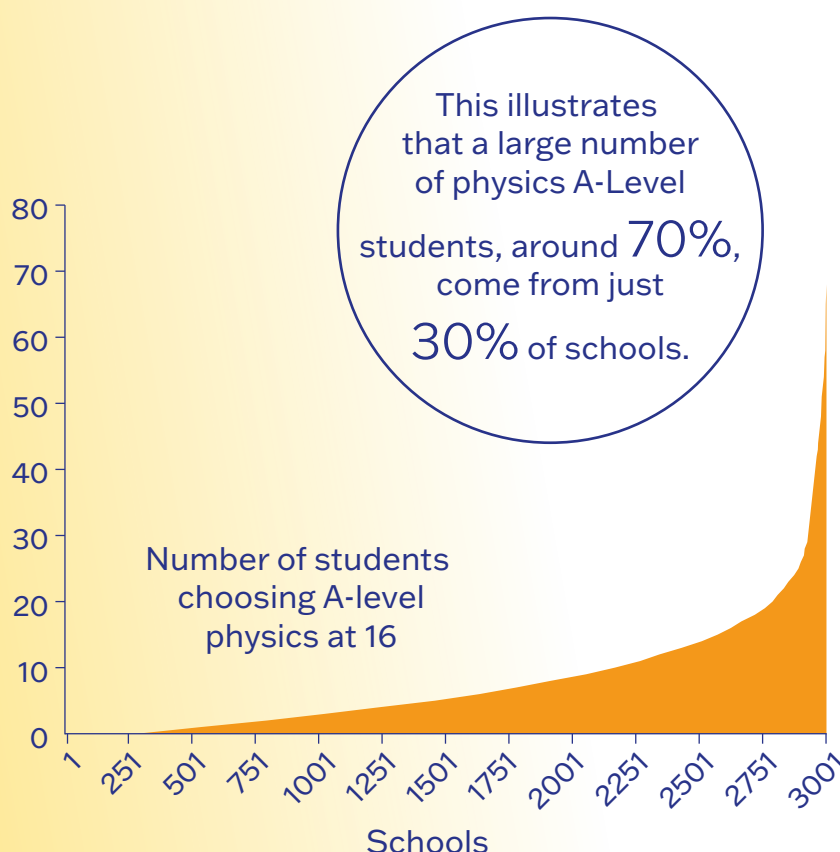
All of these misconceived ideas discourage and deter young people from studying physics and contribute to the lack of diversity in the physics community.



Word cloud made from the words parents and carers provided when asked to describe someone who does physics.

The opportunity to study physics

This graph shows the number of students choosing A-level physics across state schools in England in 2019. For 302 schools, not one of their students pursued A-level physics. At the other end of the scale, there are about 20 schools from which more than 50 students chose physics.



All state schools in England, 2019. Source: Improving Gender Balance and Drayson Foundation Pilot Project Evaluation Report, <https://tinyurl.com/IOPdata2020>.

Limited by gender

Northern Ireland

In 2020,
only **1.02% (290)**
of girls chose A-Level physics,
compared to
2.64% (750) of boys.
(Source: Joint Council for Qualifications)



Wales

In 2019,
only **2% (237)**
of girls chose A-level physics,
compared to
9% (738) of boys.
(Source: StatsWales)



England

In 2020,
only **2.6% (7,147)**
of girls chose A-level physics,
compared to
8.6% (24,685)
of boys.
(Source: Joint Council for Qualifications)

In 2020, physics was the second most popular A-level subject for boys in England and Wales and the fifth most popular in Northern Ireland. Physics is the 15th most popular subject for girls in England and Wales and the 16th most popular in Northern Ireland. More girls got an A grade in psychology A-level than actually took physics A-level. (Source: Joint Council for Qualifications)

Ireland

In 2019,

only **3.59% (1,869)**
of girls chose Leaving Certificate
physics, compared to
9.91% (5,884)
of boys.

(Source: State Examinations Commission)



Scotland

In 2019,

only **27.5% (2,290)**
of girls chose Higher physics,
compared to
72.5% (6,037)
of boys.

(Source: Scottish Qualifications Authority)





Women account for **50%**
of all apprentices in the UK.

However, for science, technology,
engineering and maths (STEM)
apprenticeships, in the 2018-19

academic year, only **10%**
of STEM apprenticeships were
started by women.



Limited by ethnicity

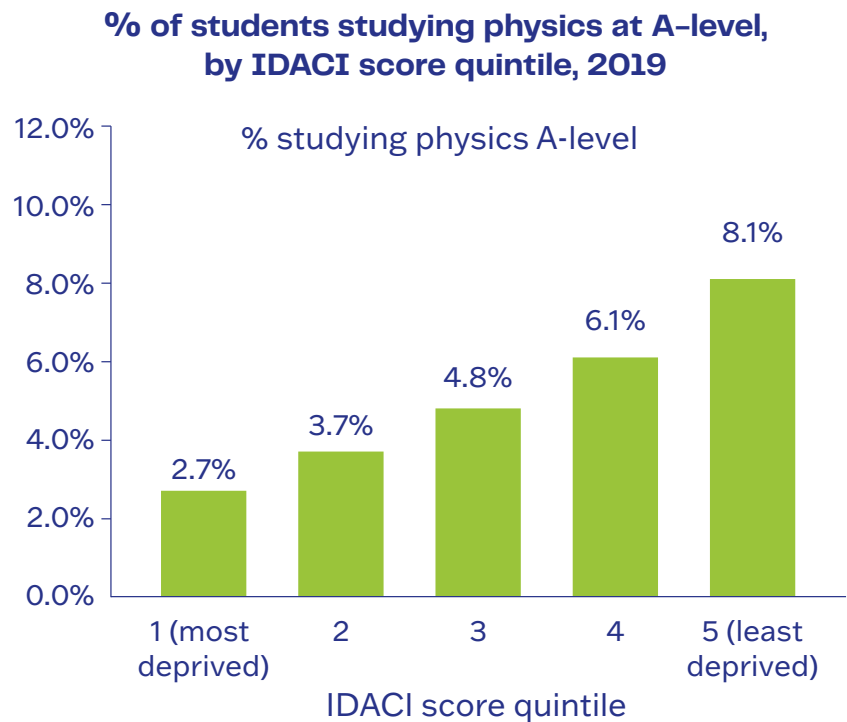
While some ethnic groups are well-represented at ages 16-19, young people of Black Caribbean descent are most underrepresented.

Ethnic Group	16-19 Demographic (%)	Physics A-Level (%)	Representation Factor (to 1 dp)
Black Caribbean	1.4%	0.5%	0.3
Mixed White/ Black Caribbean	1.3%	0.6%	0.5
Black Other	0.5%	0.3%	0.6
Pakistani	3.1%	2.4%	0.8
Bangladeshi	1.3%	1.2%	0.9
White British	76.9%	73.3%	1.0
Black African	2.8%	2.9%	1.0
Mixed White/ Black African	0.4%	0.4%	1.0
White Other	3.3%	4.3%	1.3
Mixed Other	1.3%	1.7%	1.3
White Irish	0.3%	0.5%	1.4
Any other Ethnic Group	1.2%	1.7%	1.4
Asian Other	1.3%	2.4%	1.8
Mixed White/ Asian	0.8%	1.5%	1.9
Indian	2.4%	4.9%	2.1
Chinese	0.4%	1.5%	3.8

All state schools in England, 2019. Source: Improving Gender Balance and Drayson Foundation Pilot Project Evaluation Report.

Limited by social background

Using the Income Deprivation Affecting Children Index as an indicator of socio-economic background, there are stark differences between young people from families on low incomes compared to those from the least financially deprived families.



All state schools in England, 2019. Source: Improving Gender Balance and Drayson Foundation Pilot Project Evaluation Report.

Limited by disability

In 2017–18, 13% of physics undergraduates in the UK had a known disability. This is below the percentage for all working age adults (19%). (Source: Higher Education Statistics Agency (2018), *Students in UK Physics Departments Report*. Available at: www.iop.org/sites/default/files/2020-07/Student-characteristics-2017-18.pdf)

A word about data

When preparing this report, we wanted to present as complete a picture as possible, with comparable information from across the UK and Ireland. Unfortunately, there are marked differences in what is collected in different countries and also what is publicly available. The IOP believes that more needs to be done by those responsible for young people's education to collect and publish data related to young people and the study of physics.



Limit Less in families and communities

At key points in their lives, young people must make important decisions about the subjects they will study in school or whether they will leave to undertake an apprenticeship, for example. These decisions will affect their future study and employment prospects, what they earn and their job satisfaction.

Young people are unlikely to make these decisions without first discussing them with people whose opinions and advice they trust. However, their decisions are not just influenced by those discussions but also by all the opinions they have heard about the subjects – and indeed themselves – up to this point.

From an early age, young people are exposed to the opinions of a variety of people in their homes and communities: their parents and carers, brothers and sisters, friends, relatives and others, such as youth leaders.

Positive opinions promote equality, highlight opportunities and encourage each young person to consider all the choices that are available to them.

Negative opinions, based on incorrect stereotypes, a lack of information or misconceived ideas, have the opposite

“I wouldn’t know how to engage my son. It’s a big barrier, because if I’m not inspired, I can’t inspire him!”

Mother in focus group, Wales

“I did continue with physics and now hold a doctorate in physics but looking back I can see how many people tried to dissuade me. When I had decided to study physics in college, my mother would repeatedly ask me ‘if I was sure’. Neighbours and acquaintances (adults) would always say ‘physics – what will you get out of that?’ or ‘physics? so you want to be a teacher’. Several people even told me that physics was a very ‘cold’ subject.”

effect and limit the young person’s view of the world and their place in it.

As some of the most trusted advisers of young people, parents, other family members and friends have a crucial role in promoting a positive image of physics. To do this, they need to ensure that they have correct information about physics, and are supported to find it, so that they can provide quality advice and encouragement, especially at those key points when decisions are made about the future.

In the community outside their home, young people are also exposed to lots of opinions and information. It is important that the positive opinions they hear from family and friends are reinforced by others.

Community and youth leaders, charities and other voluntary organisations working with young people and their families from underrepresented groups all have a role to play. When they offer support and advice about education and career choices, they must ensure that they share correct information about physics with young people and their families and don’t limit the choices that they see. However, they can go further and promote physics to those currently underrepresented as an opportunity that should no longer be denied to them.

Companies that employ physicists also have an important role to play in demonstrating to young people the diversity of physicists and the wide range of jobs that they are employed in. They must encourage and support their employees, especially those from underrepresented groups, to do outreach as part of their paid work in their local communities. Their employees can act as role models to promote physics and the opportunities that it provides both locally and further afield.

For those whose day to day work is in STEM outreach, promoting the benefits of physics, including the IOP, we must ensure that our activities are effective in reaching families from underrepresented groups. Similarly, local and national museums and science centres must also ensure not only that they provide physics-based activities but that they are fully inclusive and accessible to families from underrepresented groups. For the IOP, our changing approach will focus on how the work of physicists impacts on all of our lives, including in relation to climate change, energy and public health.

“I’m just not sure where you would go with physics... You’d need some sort of fallback, as options will be limited.”

Father in focus group,
England

“When you hear of someone who’s done A-level physics or as a degree you go ooh, you must be clever”

Father in focus group,
Wales



However, our engagement with communities will be guided by their own interests. So, we will first listen to what people tell us are the key concerns in their lives and then show how physics positively contributes to addressing them.

Young people’s aspirations should not be limited by stereotypes and other misconceived opinions, whether about themselves or school subjects. They must receive support from their families, friends and communities to make the important decisions that will allow them to shape their futures and their world.

“I was told by my family that I wasn’t going to be good at maths, because none of them were. And I should study English or history or take up a trade. When I tried to take a physics course, they refused to sign off on it, as they “weren’t going to sign on a course I’d obviously fail out of”. I’m in my third year of my BSc with a focus on mathematical physics now with high marks in every course I’ve taken.”

“I was told by a close female family member that physics was boring and a waste of time. I found out I was actually really good at it. Absolutely one of the most interesting and fascinating fields of study.”

What the IOP wants to see

- Parents, carers and other family members challenge the stereotypes and biases that limit their children’s opportunities and choices based on who they are.
- Everyone in families and communities, whom young people listen to and trust, shares correct information about physics when discussing subject and career choices with them.
- Community and youth leaders, charities and other voluntary organisations:
 - ensure that the families and young people they work with receive correct information and encouragement to consider choosing physics as a subject or career opportunity.
 - work with families from underrepresented groups to promote the idea that physics is for everyone.
- Companies encourage and support their employees, especially from underrepresented groups, who are doing physics-based jobs or with physics backgrounds to do outreach as part of their paid work.
- Organisations responsible for STEM outreach and promoting physics ensure that their activities are effective in reaching families from underrepresented groups.
- Local and national museums and science centres organise physics-themed activities that are fully inclusive and accessible to families from underrepresented groups.

Limit Less in nurseries and schools

Teachers are crucial to encouraging more young people from underrepresented groups to study physics in school and consider a career using physics.

Educators in nurseries and schools must see young people as individuals so that they can be helped to realise their full potential and be supported to make their own choices. Unfortunately, some educators make assumptions about young people based on their ethnicity, gender identity, disability, sexual orientation and social background rather than who they are as individuals. By expressing their own conscious or unconscious biases, these educators discourage young people from exploring all of their possibilities.

This is by no means a new problem, but it is a problem that demands our urgent attention. Attainment gaps between girls and boys, disadvantaged young people and their peers, and young people of different ethnicities have persisted for too long. As these attainment gaps grow wider, not closer, we must act now to build a better, more equitable education system for all.

“A Black girl studying and being good at physics wasn’t the stereotype my teachers were used to. I’m very sure the bias they had towards me was unconscious, as they were really nice people, and in fact, good teachers (to the other, whiter, students).”

“I was told I was not smart enough for physics and that if I didn’t want to be an engineer there was no point.”

Creating an inclusive, equitable environment

To ensure that all young people are treated equally, there needs to be a transformation in our nurseries and schools. To make this momentous difference for all young people, our governments and senior leaders in schools must take the lead.

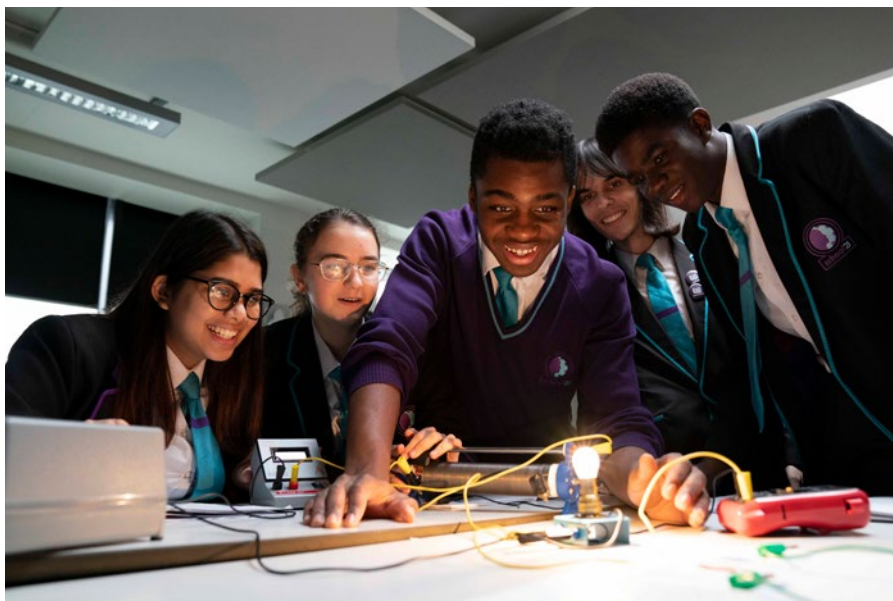
Governments can demonstrate their commitment to ending inequality of choice and opportunity in a number of ways. First they can set out new requirements in their official teaching standards. The standards must more explicitly define the important role of teachers in taking an anti-racist stance and actively dismantling barriers such as sexism.

However, standards alone are not enough. Teacher training must also give more time and weight to these issues so that teachers are supported throughout their careers to address their own biases and challenge others to do the same. To support young people in underrepresented groups, our governments must mandate nurseries and schools to develop whole-school action plans that promote equity and equality. School inspections must assess evidence that equity plans are working and hold schools to account for making progress towards genuinely inclusive environments.

In nurseries and schools, it is crucial that senior leaders and governors set the tone and demonstrate that they are not afraid to take bold steps to tackle the barriers holding back some young people. Adopting a whole-school approach, they must work together with school staff, students and parents to challenge the conscious and unconscious biases and stereotypes that currently deter too many young people from choosing particular subjects or careers. Collecting data and evidence should underpin decision making and help schools both to understand their performance against the national average and to track progress against their equity plans.

This whole-school approach must also ensure that no young people feel they are limited to studying certain subjects. Every young person should see physics as something that is for them, not just for others or for a certain group.

“I was recommended not to take physics and mathematics, despite these being my best subjects. My impression was that the intention was to discourage me from being overambitious since someone from my social class should not be expected to aim too high in life. I disregarded this advice.”



Promoting the benefits of physics

Young people and their families need to know the positive benefits of continuing with physics, either through study or an apprenticeship or technical role. They need to know that studying physics doesn't narrow career opportunities but opens doors to jobs in many sectors. More also needs to be done to increase young people's knowledge of the contribution that physics makes to our society and the opportunities it gives young people to change their world.

Just as a whole-school approach is needed to create an inclusive, equitable environment, so one is needed to ensure that no young people are deterred from studying physics. All educators must ensure that young people are encouraged to study physics no matter who they are or their background.

Physics teachers must use teaching techniques and resources to make their lessons as inclusive as possible. Physics lessons should show young people a contemporary view of physics that includes examples of physicists from underrepresented groups.

Careers advisers must challenge their own preconceptions and ensure that young people and their parents and carers receive accurate information about the opportunities that studying physics provides. For young people and their families in underrepresented groups, careers advisers must also actively dispel misconceptions about who can do physics that currently discourage them from considering studying physics from age 16.

**When young people were asked
“are you currently or were you part of a STEM club
when you were at school?”**



In Scotland, only
17%
of young people
answered **yes**

While **3 in 10**
respondents said **yes**, almost
4 in 5
(78%) **Black African**
respondents said **no**

35% of boys
answered yes compared to
29% of girls



In terms of social background,
38% of young people from
families described as **socio-economic
group A** answered **yes**, compared to just
23% of young people from
families in **socio-economic group D**



“My A-level teacher told me that girls didn’t tend to be very good at physics, so I might struggle at uni. He said there was only one girl on his undergraduate course and that she wasn’t very good.”

However, it is not just in the classroom that young people can be supported to see the benefits of physics and pursue their passion for the subject. Extracurricular activities such as STEM clubs can excite young people about physics and build their confidence and skills. Unfortunately, too few young people from underrepresented groups benefit from these activities. More primary and secondary schools need to run STEM clubs. Those running STEM clubs must ensure that their activities are inclusive and accessible and make greater efforts to ensure that young people from underrepresented groups can participate.

It is only by everyone within the education environment thinking and acting in a new, proactive way that we will see more young people from underrepresented groups choosing to study physics.

When young people were asked where, if anywhere, would you, or have you previously, accessed careers/education choices information, the top two answers were:



Teachers

43%

Careers advice
provided by school

40%



“Whenever a topic was mentioned that linked to A-level physics, our teacher would look towards a certain group of boys and say, “you’ll need to remember this for A-level”, even when I’d told him at various revision sessions that I was considering physics as a degree and career.”

What the IOP wants to see

The IOP is calling on the governments of the UK and Ireland to:

- Revise teachers’ standards to set out an expectation that teachers will address injustice in their professional practice and actively dismantle sexism, racism, homophobia, ableism and classism in their own work and their schools’.
- Ensure that all teachers are trained in inclusive teaching and tackling injustice so that they can achieve these robust standards. This should be in both their initial teacher education and their continuing professional development.
- Instruct those responsible for school inspections to place greater emphasis on the importance of inclusive teaching and schools’ efforts to address injustice.
- Mandate nurseries and schools to develop whole-school equity action plans that:
 - are informed by ongoing data and evidence collection including students’ choices.
 - promote equity and equality for young people in underrepresented groups.

In all nurseries and schools, the IOP wants to see:

- All staff prioritise challenging conscious and unconscious bias and stereotyping.
- Educators, parents and students develop and implement whole-school equity action plans that provide an inclusive environment that promotes equity and equality for younger people in underrepresented groups.
- Governors play an active role in ensuring that equality is promoted in their schools and that inequalities are addressed, including appointing a member with specific responsibility for equality.
- Teachers teach science and physics in an inclusive way that promotes a positive, contemporary view of physics and portray physicists from underrepresented groups.
- All schoolchildren and their parents receive a good standard of careers advice that includes physics-related career options and encourages them to consider studying physics from age 16.
- More schoolchildren from underrepresented groups benefit from learning outside the classroom, such as in science or STEM clubs.



Limit Less in the media

Every day we consume a huge amount of information from a range of media, including television, radio, film, print and the internet. Throughout our lives, this information shapes our ideas and influences the decisions we take. There is therefore an important role for all media to play in accurately portraying physics and describing the contribution it makes to our everyday lives.

However, physics and portrayals of physicists rarely feature in the media. When they do, they often reinforce the stereotypes and misconceived ideas that turn young people away from choosing to do physics.

For example, discoveries and breakthroughs that are invariably the result of physicists working together in teams, often with colleagues from other disciplines, are portrayed as the result of one man's work. In so doing, the teamwork, creativity and diversity of physics is kept from the audience.

Dramatic portrayals of physics reinforce the stereotypes of the mad professor or the lone genius. The actors chosen to play these roles too often demonstrate limited diversity and depict physics as an occupation primarily for white men.

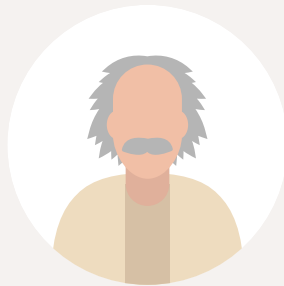
The focus in the media on a limited number of real physicists also works to limit people's idea of whether physics is for them. As a result, while a majority of people can recognise Albert Einstein, Stephen Hawking and Isaac Newton, only a handful can identify the Nobel Prize winners Donna Strickland and Abdus Salam.

“I never saw anyone like myself speaking about physics on the news.”



When parents and carers were asked to indicate which, if any, of the physicists from a supplied list they had ever heard of:

92%
recognised
Albert Einstein



3.4%
recognised
Donna Strickland



only 1.3%
recognised
Abdus Salam



The media can help young people and their families to see physics as open to all. To do so, the media must communicate a more diverse representation of physics and emphasise the contribution that physics makes to solving the problems that young people and others care about. This is especially important for those media that are popular with families in underrepresented groups.

All media have a responsibility to provide families with accurate and positive information that expands, not limits, their understanding of physics, the role it plays in their lives and the opportunities it provides young people to change the world.

When parents and carers were asked whether they could remember seeing someone who was described as a physicist on the TV/radio/social media/newspapers in the past six months:

Only **26%**
of respondents said
they could



Women related to the person they
saw less than men

(41% to 48%)

48%
of respondents in the **highest**
income group related to the
physicist they saw compared

to just **21%**
in the **lowest two**
income groups

Of those who could remember
seeing a **physicist**,
less than half (45%)
said that **they and their child could relate**
to the person they saw



What the IOP wants to see

- All media increase their coverage of physics and its contribution to our everyday lives.
- All media portray more accurate depictions of physicists from a diverse range of backgrounds.
- The media that is popular with families in underrepresented groups introduce or increase their coverage of physics.
- The media describe a physicist as a physicist rather than the more general “scientist”.

Limit Less in social media

The use of social media is now a common part of most of our lives. Many young people spend more time on social media, for instance on YouTube, than they do watching television. However, it is not just the young who are consuming more social media content: their parents and friends are increasing their consumption too. As such, social media – just like traditional media – shapes our ideas and influences the decisions we make.

It is important, therefore, that the physics-related content on social media platforms informs rather than misleads, and challenges stereotypes rather than perpetuates them.

Unfortunately, too much is currently said in the name of physics and too much of it is incorrect, either by mistake or design. Incorrect or false information about physics can undermine people's understanding of the contribution it makes to solving the global challenges faced by our society. Who is talking about physics in social media is also important. If more young people from underrepresented groups, and those who influence them, are to identify with doing physics and with physicists, we must ensure that the people talking about physics are more diverse.

This can be achieved in a number of ways. First, there needs to be more physics-related content on all social media platforms, and it needs to be high quality and accurate. Physicists themselves have a key role to play in this. More physicists need to create content that is

“I mean, how can I promote physics if I haven’t got an understanding of it myself ... I wouldn’t be able to explain it to him. I guess I’d probably have to go on YouTube or Google it”

Father in focus group, England

accessible and relevant to young people and their families in underrepresented groups. Companies that employ physicists must encourage and support their employees to do outreach on social media as part of their paid work. Their employees can act as role models to promote physics and demonstrate diversity using accessible language that relates their content to the lives of their audiences.

Those who are prominent on social media platforms – popular influencers and high profile physicists with large followings – also have an important contribution to make. As well as producing their own content, they must use their prominence to promote the diverse, high quality content created by others so that it is seen by more social media users.

The operators of social media platforms must actively promote good quality, accurate physics-based content. Furthermore, they must ensure that content from a diverse range of providers is seen by the widest, most diverse audience. They must also make greater efforts to decouple accurate physics-based content from the misleading content that is too often presented to social media users.

When those who run social media platforms describe their values, they talk of “freedom of opportunity”, “seeking diverse perspectives” and “building social value”. To support young people to change the world, social media platforms must live up to these values and ensure that young people are not limited in their imagination by stereotypes and misinformation carried on their platforms, but are free to explore their opportunities, define their place in society and change the world.



What the IOP wants to see

- Social media platforms actively promote accurate physics-based content that represents a more diverse range of physicists.
- Social media decouple genuine physics content from fake news and conspiracy theories.
- Social media influencers support our campaign by working with a diverse range of physicists to promote their content.
- More physicists in industry and academia become active in social media, demonstrating more diversity.
- More people who studied physics and have pursued other careers use social media to tell people about the opportunities that were opened up to them by studying physics.
- Companies encourage and support their employees who are physicists to take an active role in engaging the public through social media.
- Social media users provided with tools to identify bad physics content and to challenge it on different platforms.

The IOP's commitment to support young people to change the world

The Institute of Physics (IOP) is committed to building a thriving, more diverse physics community. It is vital, therefore, that we encourage more young people from more diverse backgrounds to choose to do physics.

We know that diversity of thought makes for better physics and a better contribution from physics to solving the global challenges and other problems that we as a society face. A more thriving, more diverse physics community will also make an even greater contribution to our economy, creating more jobs and growth.

Importantly, we know that choosing to do physics gives young people the tools to understand their world and shape their future.

The Limit Less campaign is the IOP's commitment to make a generational change by removing the barriers to young people seeing physics as not for everyone, not for them.

Our goal is beyond what we ourselves can deliver and so we will work in partnership with organisations and individuals, supporting and influencing their work to ensure that no young people are denied the opportunity to choose physics. We will show families the impact of physics on people's lives and support them with accurate information

about the opportunities that physics provides for young people. We will campaign to ensure that all schools dismantle harmful stereotypes and that the images of physics and physicists that young people and their families see in the media and social media are positive and diverse. Our campaign also challenges our own ways of working and we will redouble our efforts to reach people who are currently underrepresented in our physics community.

Our goal is ambitious, necessary and urgent and to achieve it we need your support.

To find out how you can support our campaign, please go to iop.org/LimitLess or contact campaigns@iop.org.





iop.org/LimitLess

The Institute of Physics is the professional body and learned society for physics in the UK and Ireland, inspiring people to develop their knowledge, understanding and enjoyment of physics. The Institute is a charity registered in England and Wales (no. 293851) and Scotland (no. SC040092). Photo credits: iStock/Getty images. For further information contact campaigns@iop.org.