

Preliminary Case Study: What Teachers can Learn from Researchers

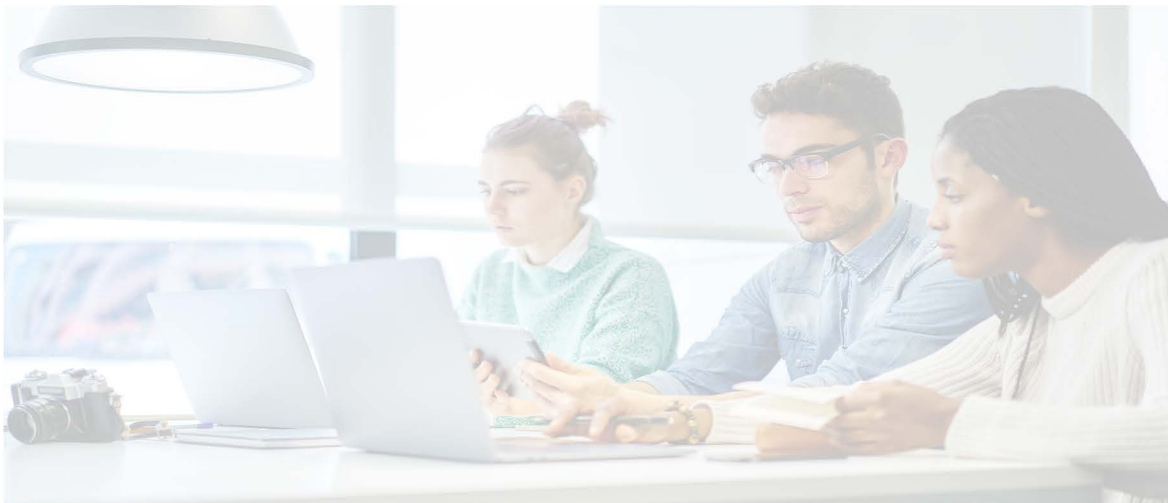
This is a preliminary look into what school teachers can learn from scientific researchers with a view to bettering their tuition. This study was carried out as I felt there was a gap to be bridged in teachers' understanding of the work researchers do and how they ended up following this path.

For an educator to understand these things I felt could help in their science instruction in several ways:

- Help teachers understand how to foster an interest in science
- Guide a teacher's lessons to be more relevant to actual scientific work
- Give teachers the knowledge to explain what scientists/researchers do
- Tackling scientist stereotypes at an early age

On 16/08/2021 in Teagasc Moorepark I carried out interviews with four researchers from different areas of study. This was a very small data sample and so is very much a preliminary study.

Below are the questions I put to the four researchers and some extracts from their responses. I choose the below extracts based on what I saw as being the most valuable and implementable responses from the researchers I spoke to.



What got you interested in science as a child?



"I was always the kid who got involved in **science fairs** in primary school. I **took all the science subjects** I could in secondary school and took part in the **BT Young Scientist Exhibition**. Ultimately, I found an area I loved in pharmaceutical chemistry which I studied in UCC."

-PhD Researcher #1

"When I was a kid, I **just liked to answer questions**. I loved Maths and Animals. I grew up on a farm so many of my questions had to do with **farming and nature and the outdoors**. Then when my parents couldn't answer the questions anymore I moved onto researching them myself."

-PhD Researcher #2

Did you encounter any barriers in pursuing this interest?



"The fact that I **was a girl who was academically strong** was sometimes an issue in the small town where I'm from. I remember one instance where I got the highest score in a maths test but regardless the maths award was given to a boy in my class. It can be difficult being a woman in science but I have to just roll with it. Ultimately I knew I deserved the award."

-PhD Researcher #2

"I think a **big barrier is a lack of facilities** for children to get into labs and practice science first hand. I feel this hands on experience helps a lot to get children interested in science. The **lack of field trips** is another issue. I was fortunate enough to go on some trips with my biology class and they were some of the most memorable days we had. **Enthusiastic teachers are really important also.**"

-PhD Researcher #3

Is there any area of science education you feel needs more emphasis?



“In my experience, I would say **ecology**. Drawing attention to the **importance of diverse environments** and the unseen benefits this can have.”

-PhD Researcher #3



“I guess for children who don't come from rural areas, **getting experience around farms and animals** could be great. I think getting the opportunity to explore farm life first hand would be really beneficial to their science education.”

-PhD Researcher #4

Did you always like science in school? Why?



“**I always liked science** yeah. I suppose all the experiments were what hooked me in generally speaking, I remember doing one called 'Elephant's Toothpaste' in which foam expanded out of a test tube.”

-PhD Researcher #4



“I did yeah. **I always had a natural curiosity**. I suppose growing up in the country I leaned into biology and chemistry and generally looking at the world changing outside the window.”

-PhD Researcher #3



“Yes definitely. **The extra-curricular opportunities I had were great**. In 4th, 5th and 6th class we were given the chance to run our own experiments for the Midleton Science Fair. This was the first time I got to do my own personal research. It gave me the opportunity to form my own thought process and **showed me how exciting science could be.**”

-PhD Researcher #1

Do you still feel there is a 'Scientist Stereotype'?



"Yeah I think it's **definitely something which is still around**. A lot of people probably think of Albert Einstein, lab coats etc. I guess the more people who know what scientists actually do, then the stereotype will fade. I never wear a lab coat for example. **There are many different types of scientists.**"

-PhD Researcher #4

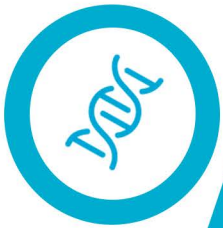


Is there anything a teacher could do to help facilitate a researcher when they visit their classroom?



"I think **hands on is best** in order to show what we're talking about. Otherwise, using scenarios to explain our work that apply to the lives of the children. **Finding ways to relate the science to the children's lives** can make a big difference. "

-PhD Researcher #2



"Interaction is the number one thing for me. Children asking questions rather than just the researcher talking constantly. It's important that the children know that there's no such thing as a bad question. I suppose some **advice on how to encourage children to ask questions** would be great."

-PhD Researcher #3



"With the classes I've taught and the camps I've instructed at, it's important to diversify the approach based on the children in question. There's no one size fits all. It's always **helpful for the teacher to give a background as to what children are interested in** which topic(s), with a view to getting every child engaged. "

-PhD Researcher #1

