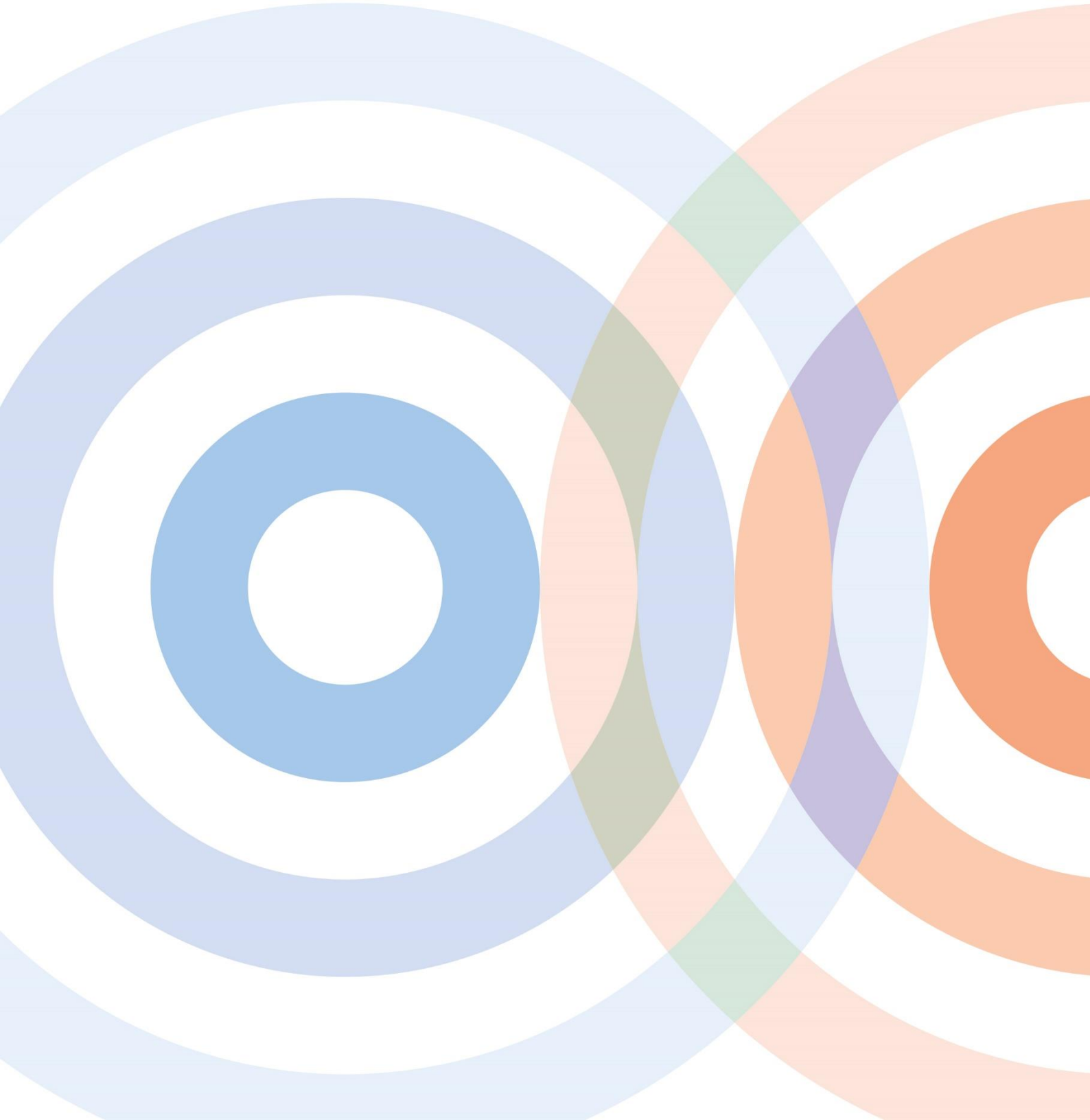
Ondata Research

Physics Mentoring Project Annual Evaluation Report

Laura Thomas, December 2023



Executive Summary

This section summarises the key findings in the report for the different groups of participants.

Mentees:

- Learners within the schools returning to the project seem to have more positive attitudes towards physics A-level than those joining for the first time.
- Mentees have indicated an increased interest in Physics A-level following participation in the project: those indicating they “definitely will” choose physics A-level increased by 3.3%. However, even where mentees continue to be uncertain about their choices, they benefitted from the experience as it encouraged them to think about their future career and their options.
- Across the year groups participating, the largest movement into “definitely will” came from the Year 11 learners.
- The project has been successful in highlighting alternative routes into physics careers, with those who “definitely will” or “probably will” consider an apprenticeship increasing from 12.6% pre-participation to 23.5% following the sessions.
- Mentees showed an increased interest in going into a science-related career. To begin with female mentees were more likely to consider a career in this field compared with male mentees (29.3% of female mentees versus 10.5% of male mentees) but both showed an increase in those responding they “definitely will” consider a science-related career (increases of 5% for female mentees and 10% for male mentees post-participation).
- There is a gender split across the intended career sectors. The top three sectors of interest to female mentees were health (37.7%, public services (18.9%) and science & research (9.4%) for male mentees these were science & research (12%), health (12%) and digital (12%).
- Spending time with university students as their mentors and having the opportunity to visit a university were important factors in helping to raise aspirations of mentees. The mentees felt they had access to more up to date information from the mentors.
- Mentees increased their understanding of how physics connects to their own lives and therefore have a better awareness of its relevance to them.
- Mentees enjoyed working with each other and the mentors to explore physics and felt they belonged in the group as they were able to explore shared interests.
- Mentees have demonstrated increased confidence and engagement in their classes following participation in the project.

Teachers:

- Teachers benefitted from being able to develop links with universities and other schools.
- Teachers were able to improve their own practice as participation in the project encouraged them to re-evaluate their own resources and activities. For others they developed their project management skills.
- Teacher also recognised the longer term benefits which could be achieved through longer term participation. Teachers were keen to see a longer term commitment of funding to the project to allow them to commit over multiple years, as participation in the project was felt to contribute to a positive culture of physics within the schools.

Mentors:

- Mentors continue to develop their skills and enhance their employability through participation in the training and through the preparation and delivery of sessions.
- Mentors have an interest in a range of careers, including teaching. For mentors who don't necessarily see themselves in a teaching career, the experience with the mentoring project has helped them identify interest in undergraduate teaching, public engagement and outreach career opportunities.
- Mentor alums felt that their communication skills were significantly enhanced through participation and this has had an ongoing impact on them on graduation as they progressed into their career. For others, increased awareness of inclusion and diversity issues were important aspects of the project they carried forward into their post-university lives.

Contents

1. Introduction

The Physics Mentoring Project (PMP) worked with 320 mentees in 26 schools in cycles 7 and 8 in the school year 2022/2023. The school group consisted of 19 English medium schools, six Welsh medium and one bilingual school. There were three different delivery modes of mentoring: in-person, online and blended (a mixture of in-person and online). Regardless of the delivery method, the structure of the sessions is the same: up to six sessions where mentors work with mentees to help them connect to physics. The underlying theoretical premise is based on the Science Capital Teaching Approach[1]. Mentors work with mentees to identify their interests and tailor the sessions accordingly. The sessions help mentees to see where physics is around them in their daily lives and also what career options are open to them if they pursue physics.

Mentors are prepared for their role through a two-day in-person training weekend focusing on mentoring theory, science capital and modelling approaches using resources and guidance provided by the project. This is supplemented at the beginning of the calendar year with online top-up training, where mentors can refresh their knowledge. This is especially important where mentors may not have worked with a school in the first cycle.

The key aims of the project in relation to schools are consistent around increasing interest in physics and science careers amongst learners, especially female learners. In addition to the increased interest, the project also hopes to increase confidence and sense of belonging in relation to science. For mentors, there is the opportunity to develop their skills and experience, especially in terms of what it's like to work with secondary school learners. Whilst the aims of the project are to increase interest in physics, it's also about ensuring learners have a real understanding of what the subject involves in order to make a decision for themselves about what they enjoy. In the end this may mean that mentees may be less likely to take physics in the future and that too is a positive result as mentees are being supported in making informed choices about their future. Mentees are selected by the project and their teachers because they have an interest in physics or potential in physics but are unsure about whether or not to continue their studies. The near-peer mentoring model used by the Physics Mentoring Project works best when targeted at learners who meet this criteria of uncertainty or interest[2].

The PMP, whilst based at Cardiff University, is a partnership of Welsh universities including Aberystwyth, Bangor, Cardiff, Swansea, University of South Wales and Wrexham Glyndwr. Partners come together on a steering group and the university representatives are joined by

[1] Godec, S., King, H., & Archer, L (2017). *The Science Capital Teaching Approach: engaging students with science, promoting social justice*. London: University College London.
[2] Christensen, K.M., Hagler, M.A., Stams, G.J., Raposa, E.B., Burton, S. and Rhodes, J.E., 2020. Non-specific versus targeted approaches to youth mentoring: A follow-up meta-analysis. *Journal of Youth and Adolescence*, 49(5), pp.959-972.

colleagues from Careers Wales, Welsh government and education consortia representatives. Wrexham joined the partnership most recently and have supported the expansion of the project around the consideration of alternative routes into physics-related careers, especially with regards to apprenticeships. The following section describes the evaluation methodology used to gather evidence around the aims of the project.

2. Methodology

The evaluation methodology used is a Mixed Methods approach. There are a mixture of sources of both quantitative and qualitative evidence from different participants. The following table summarises all of the available data. The methodology used is based on one established at the beginning of the PMP in 2019. However, the methods and data are reviewed every year in response to the previous year's findings and in consultation with the PMP project team.

	Method	**Purpose**	**Description**
Mentors	Post-session reflections	To provide mentors a structured space in order to reflect on how the session went and what they could do to improve for next time.	Set of questions completed after delivering the session.
	Focus group	To gain insight into the experience of the mentors.	Two focus groups with mentors were held following the completion of their set of sessions with schools.
	Post-participation survey	To provide information on the aspects of the project which have had a longer term impact on mentors.	Mentors who worked with the project in cycles one to four completed a survey on their experiences of the project.
	Teaching attitudes survey	To examine long term impact of student mentors now in employment or with those who have gone into teaching	Mentors were asked about their intentions with regards to teaching and what barriers were preventing them from considering it as a career.
Mentees	Pre- and post-participation surveys	To track any changes in attitudes and intentions in relation to Physics A-level and STEM careers.	Pre-participation survey used to identify learners who are unsure about taking physics. Similar set of questions used at the end of the project to identify any change. Natural control group of non-participating learners used within schools to allow a comparison.
	Post-session reflections/feedback	To gain an understanding of their impressions of the sessions in terms of what they liked, what could be improved and what the key messages were that they took away.	Short set of questions on the session were completed at the end of the session or immediately afterwards.
	Focus groups	To gain further insight into their experiences of the PMP.	Multiple focus groups ran with mentees at one of the Awards and Recognition event.

Teachers	Post-participation survey	To provide feedback on their experiences of the project in terms of the logistics and also the impact of participation on schools.	Survey was sent to teachers following the completion of the project.
	Focus group	To gain insight into the impact of participation in the PMP with themselves and their learners.	One focus group took place with teachers who were attending one of the Awards and Recognition ceremonies.

Table 1. Data collection summary

The evidence gathered across the different methods has been analysed using reflexive thematic analysis[3] and the findings are discussed in subsequent sections. Informed consent was sought from all participants and audio recordings of focus groups were used to generate transcripts and data collection adhered to BERA's ethical guidelines[4].

2.1 Learner survey details

In terms of quantitative measures, descriptive statistics have been used to summarise the responses to the pre- and post-participation surveys amongst all learners and those participating. For the post-participation survey a natural control group has been used of learners in the same schools. The pre- and post-participation responses were only used if learners responded to both. This allowed for paired t-tests. The results discussed in the report for the mentee and non-mentee groups are statistically significant, with a p-value <0.05 and there was a response rate of 47% amongst the mentees, which is a significant increase from 2021-2022 where the response rate was 20%.

Responses to the surveys were from schools who participated in the project. Some schools had responded but then for multiple reasons were unable to continue. The responses from non-participating schools were then excluded from the dataset.

The gender split of the survey respondents is below. The gender of learners is asked for due to the project's aims being to increase interest in physics amongst female learners. In this question respondents were able to self-describe. Due to the smaller number of responses where self-description was used, these have been combined with the 'prefer not to say' category, which when combined make up 3% of the over 1900 responses in the pre-participation survey. In 2023 there was an increase in responses to the post-participation surveys from mentees and this will be another priority for the next set of cycles of mentoring.

[3] Braun, V., Clarke, V. (2019) Reflecting on reflexive thematic analysis, Qualitative Research in Sport, Exercise and Health. 11:4, 589-597

[4] British Educational Research Association (BERA) (2018) Ethical Guidelines for Educational Research, fourth edition, London. Retrieved from https://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2018

	Pre-participation survey		Post-participation survey			
	All		Mentees		Non-participating learners	
	n	%	n	%	n	%
Female	915	48.0%	92	60.9%	101	53.2%
Male	932	48.8%	57	37.7%	81	42.6%
Prefer not to say/self-described	61	3.2%	2	1.3%	8	4.3%
Total	1908		151		190	

Table 2. Gender of learners responding to surveys

The following tables describe the year group split and the current or intended qualifications of the learners, depending on their year group.

	Pre-participation survey		Post-participation survey			
	All		Mentees		Non-participating learners	
	n	%	n	%	n	%
Year 8	4	0.2%	0	0	0	0
Year 9	477	25.0%	46	30.5%	82	43.2%
Year 10	789	41.4%	85	56.3%	95	50%
Year 11	638	33.4%	20	13.2%	13	6.8%
Total	1908		151		190	

Table 3. Year group of learners responding to surveys

	Pre-participation		Post-participation			
	All		Mentees		Non-participating learners	
	n	%	n	%	n	%
Triple Award Science/Separate Science	697	36.5%	103	68.2%	55	28.9%
Double Award Science	894	46.9%	39	25.8%	114	60%
Single Applied Science	66	3.5%	2	1.3%	5	2.6%
Double Applied Science	102	5.3%	2	1.3%	10	5.3%
Unsure - not made options choices yet	139	7.3%	5	3.3%	2	1.1%
BTEC Science	10	0.5%	0	0	4	2.1%
Total	1876		151		190	

Table 4. Science-related qualification of learners responding to surveys

As in previous years, the uptake of the different qualifications continues to follow the same pattern: e.g. higher proportion of mentees taking triple science. This is due to the targeted nature of the scheme.

2.2 Mentor teaching attitudes survey details

A new teaching attitudes baseline survey has been used with mentors for cycles seven and eight, with the following tables summarising who has responded. The key findings from the survey are discussed in section 5.1 on the mentors' attitudes to teaching.

University	n	%
Swansea University	11	35.5%
Aberystwyth University	5	16.1%
Cardiff University	15	48.4%
	31	

Table 5. Which university do you attend?

Undergraduate	25	80.6%
Postgraduate	6	19.4%
	31	

Table 6. Are you an undergraduate or postgraduate student?

Foundation	1	4.3%
First year	6	26.1%
Second year	6	26.1%
Third year	9	39.1%
Sandwich year	1	4.3%
	23	

Table 7. What year are you in?

The following discussion sections now examine the attitudes and intentions of learners and mentees and the impact of participation on mentors and schools.

3. Learner attitudes towards physics, routes into physics and careers

The project has gathered responses from over 1,900 learners in years eight to eleven across Wales. This section summarises the findings from the pre-participation survey and gives an overview of the attitudes of the learners. To begin with we examine whether attitudes towards physics has moved year to year during the course of the project amongst participating schools. Table 8 summarises the pre-participation responses since the beginning of the project in 2019.

	I definitely will	I probably will	Unsure at this stage	I probably won't	I definitely won't
Cycle 1	8.7%	7.4%	18.3%	24.5%	41.1%
Cycles 2 & 3	5%	12%	29%	27%	27%
Cycle 4	3.8%	20.2%	29.8%	22.6%	23.8%
Cycles 5 & 6	4.4%	11.7%	30.6%	25.8%	27.5%
Cycles 7 & 8	3.9%	11.1%	33.4%	25.0%	26.7%

Table 8. Pre-participation responses from learners across all years of the project to date

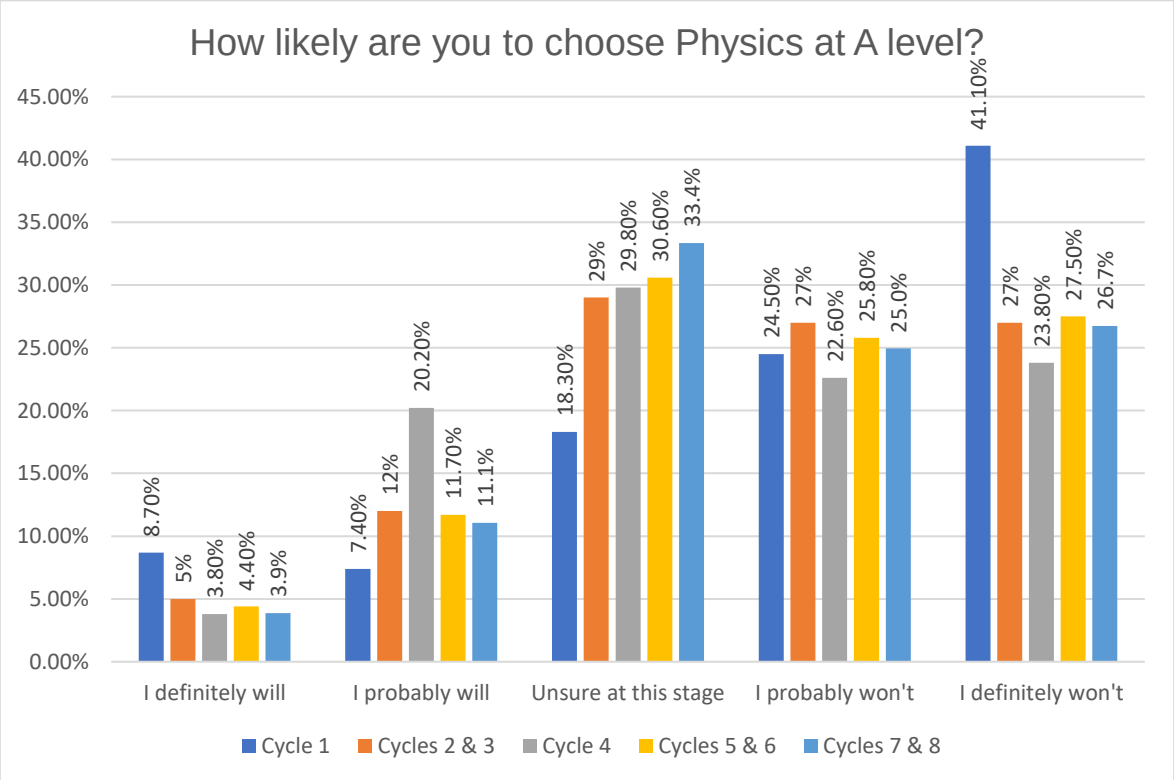


Figure 1. Pre-participation survey responses to "How likely are you to choose Physics at A level?"

Looking at the attitudes in the most recent two years (Cycles 5 & 6 and cycles 7 & 8) there has been a similar level of learners considering Physics A-level, however there seems to have been a small shift away from probably or definitely not towards being 'unsure'. It will be interesting to see if this shift consolidates over cycles 9 & 10 in 2023/2024. This can be explored in the coming year's evaluation of the project with a focus on whether there has been a wider attitudinal change in schools who have been participating over multiple years.

The initial indications based on this year's data are that the returning schools have a more positive attitude towards Physics at A-level, as is shown in Figure 2. Around two thirds of responses came from schools who have participated in 2022 and 2023 for the first time, with the remainder coming from those whose schools have been part of the project for longer.

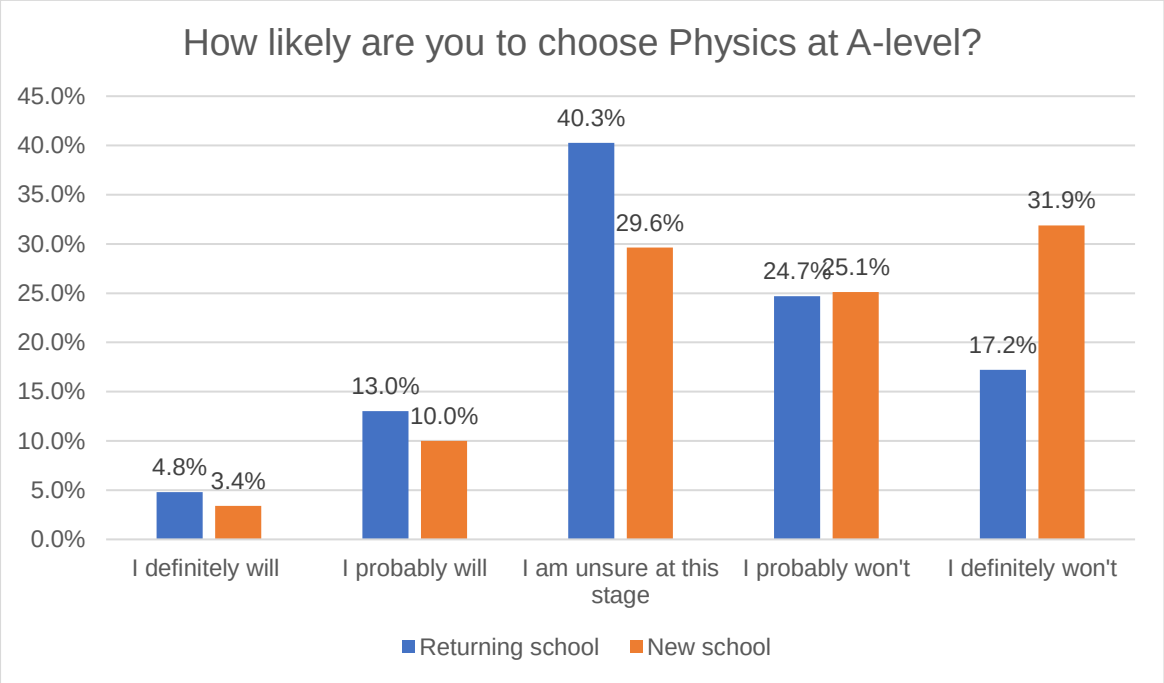


Figure 2. Pre-participation responses by whether the school is returning to the project or is participating for the first time to "How likely are you to choose Physics at A-level?"

Figure 2 shows that schools who have been participating for longer than one mentoring cycle have a much lower level of uncertainty amongst respondents and have more positive attitudes in general than those who are joining the project for the first. This split will be explored further in the coming year as there are various reasons this could be occurring.

The following figures show the intentions in relation to A-level by gender.

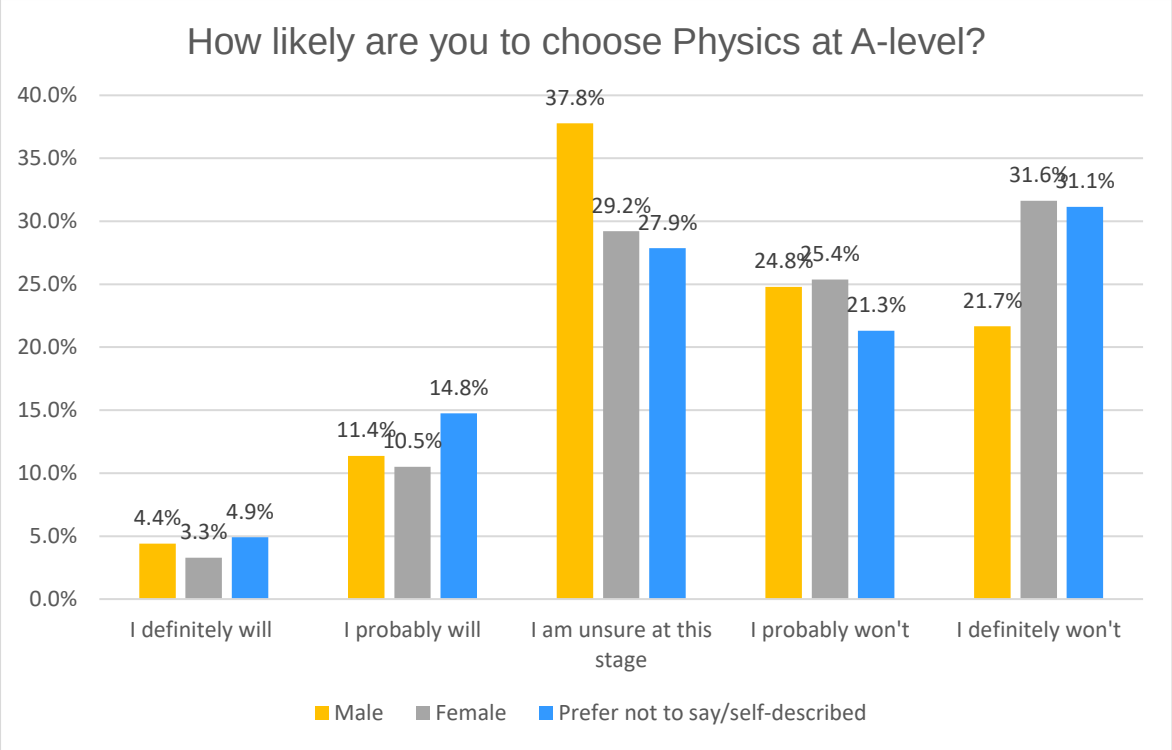


Figure 3. Pre-participation responses by gender to "How likely are you to choose Physics at A-level?"

As can be seen, female learners are less likely to choose Physics A-level than male learners. This is examined further within each category in Figure 4 below.

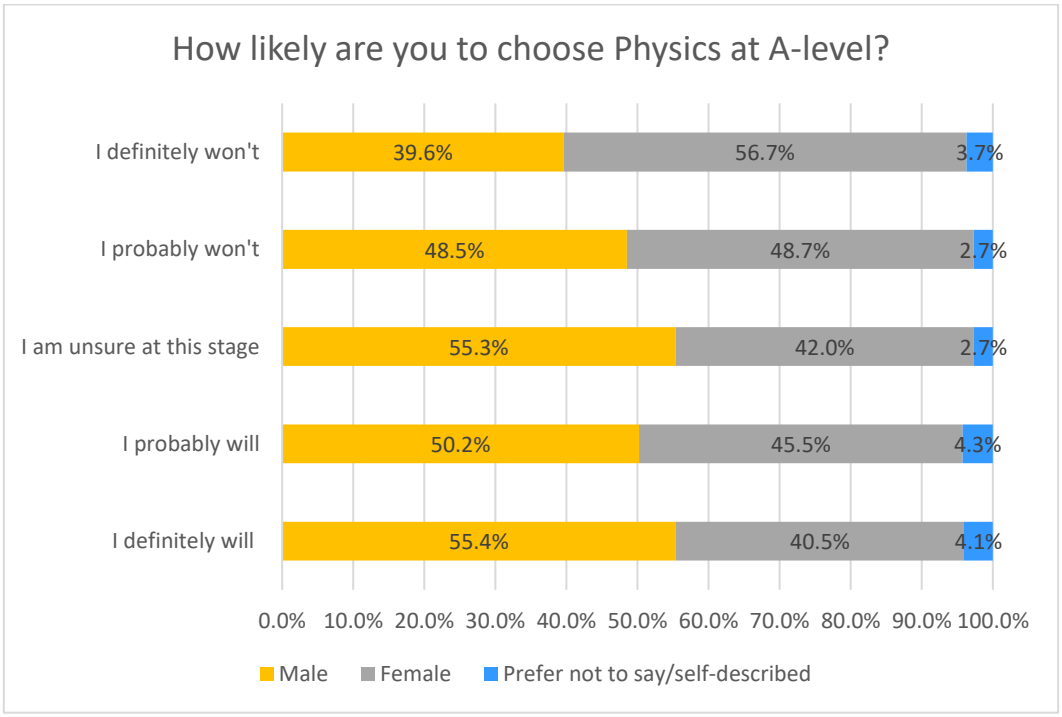


Figure 4. Pre-participation responses by gender to "How likely are you to choose Physics at A-level?"

When compared with cycles 5 & 6 there is an increased proportion of female learners indicating they definitely or probably will choose Physics at A-level in 2022-2023. The proportion of female learners indicating 'probably will' in cycles 5 & 6 was 35.5% and 'definitely will' was 34.9%, these have grown by 10% and 5.6% respectively. These are significant increases and again, it will be of interest to see if this growth stabilises in the responses to the cycle 9 and 10 pre-participation survey. This aspect of increased likelihood amongst female learners can be explored with schools as part of the evaluation of the upcoming mentoring cycles.

Additional questions relating to further education and apprenticeships were included in the pre-participation survey for the first time, reflecting the expansion of the project and its interest in highlighting the range of routes available into a physics-related career. The following figure shows the levels of likelihood across a range of routes.

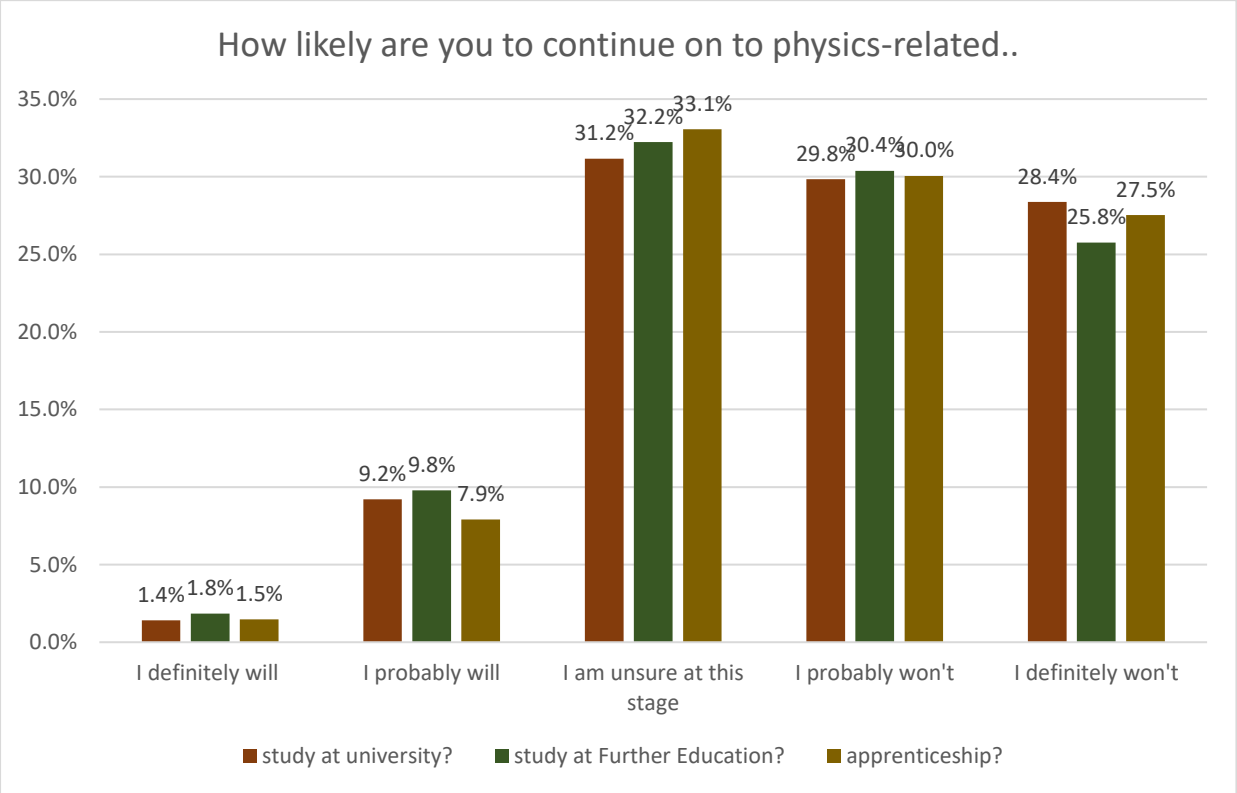


Figure 5. Responses to pre-participation survey "How likely are you to continue on to physics-related.."

There are similar levels of likelihood that learners 'definitely will' go onto physics-related study at university and further education or into an apprenticeship. With around one third of learners indicating uncertainty around their options in relation to university, further education and apprenticeships there is an opportunity to provide more information and guidance through the mentoring sessions. Section 4.2 examines the changes for mentees and the non-mentee control group in relation to these destinations.

In addition to the routes into physics-related careers, learners were also asked about their intentions in relation to a career involving science. Overall, less than 50% of learners have a career in mind.

	n	%
Yes	900	47.2%
No	402	21.1%
I don't know	606	31.8%
	1908	

Table 9. responses to pre-participation survey question "Do you have a career in mind?"

Again, these results are considered in terms of gender. In contrast to the results around the likelihood of choosing Physics at A-level, female learners are more likely to be interested in a career involving science.

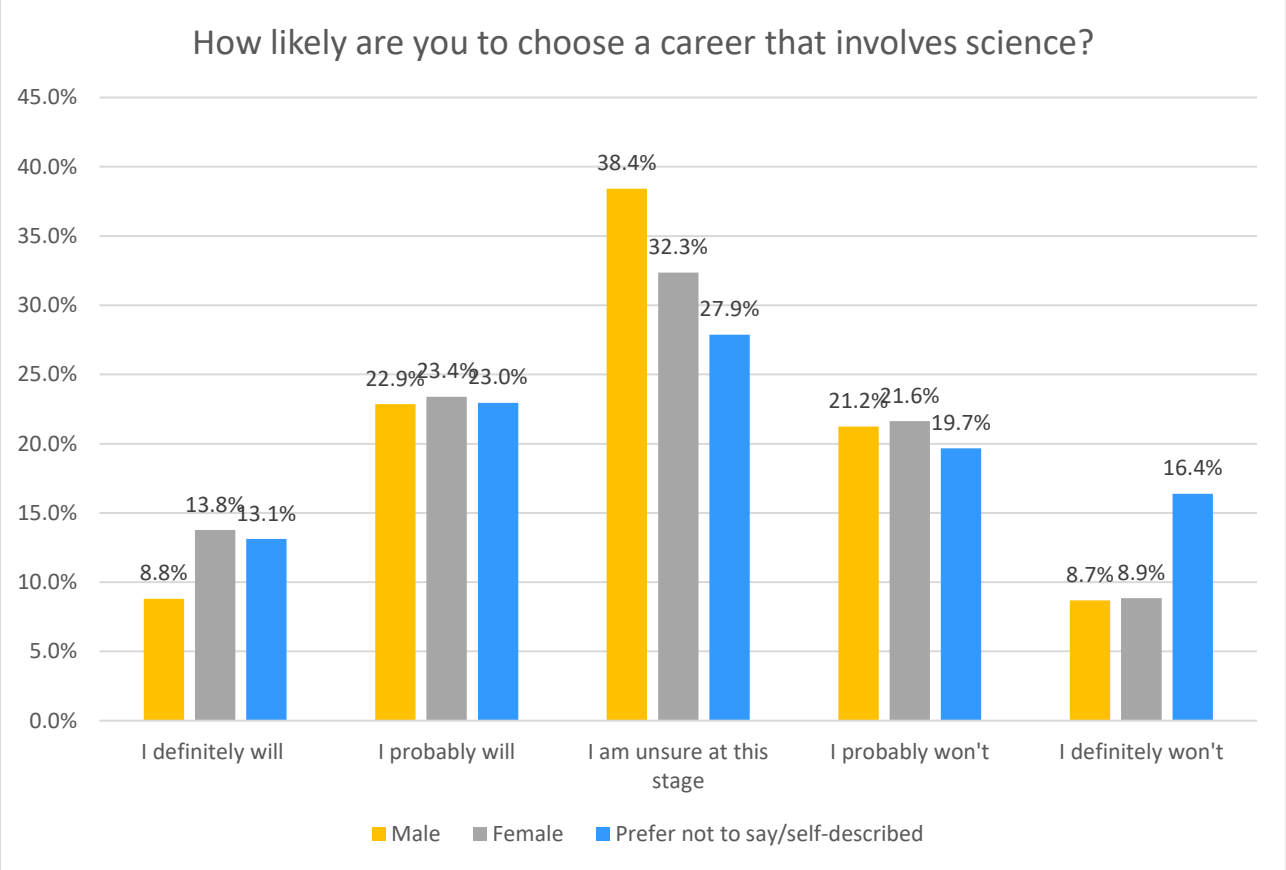


Figure 6. How likely are you to choose a career that involves science?

The results from the pre-participation survey are consistent with those from previous years, with some small shifts occurring.

4. Mentee attitudes towards physics and science-related careers

We now examine the evidence of impact on mentees following participation in the project.

4.1 Impact of participation on mentees: Physics A-level

Following participation in the mentoring project there has been a positive shift in attitudes amongst mentees, especially in terms of those indicating they 'definitely will' choose physics at A-level where there was a 3.3% increase. The table and figure below summarise the changes.

	I definitely will	I probably will	Unsure at this stage	I probably won't	I definitely won't
Pre-participation	4.6% (n=7)	21.2% (n=32)	48.3% (n=73)	19.2% (n=29)	6.6% (n=10)
Post-participation	7.9% (n=12)	20.5% (n=31)	49.7% (n=75)	14.6% (n=22)	7.3% (n=11)
Difference	+3.3%	-0.7%	+1.3%	-4.6%	+0.7%

Table 10. Pre- and post-participation survey responses from mentees to 'How likely are you to choose Physics at A-level?"

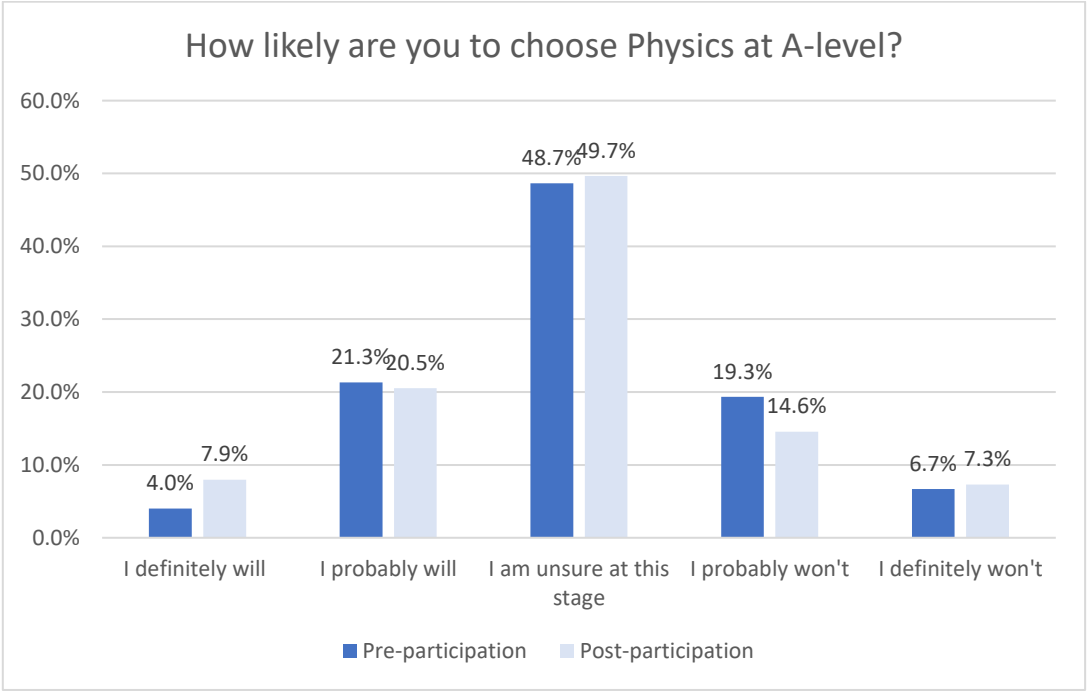


Figure 7. Pre- and post-participation responses from mentees to the question "How likely are you to choose Physics at A-level?"

When compared with the non-mentee group, there were clear differences between them and the mentees. Across the 'definitely will' and 'probably will' categories, there was a decrease in interest amongst non-mentees of 6.4% whereas there was an increase in interest amongst mentees of 2.6%.

	I definitely will	I probably will	Unsure at this stage	I probably won't	I definitely won't
Pre-participation	5.8% (n=11)	14.2% (n=27)	33.7% (n=64)	21.1% (n=40)	25.3% (n=48)
Post-participation	6.8% (n=13)	6.8% (n=13)	25.3% (n=48)	22.6% (n=43)	37.9% (n=72)
Difference	+1.1%	-7.4%	-8.4%	+1.6%	+12.6%

Table 11. Pre- and post-participation survey responses from non-mentees to 'How likely are you to choose Physics at A-level?"

Year on year, the project has demonstrated consistent increases in interest towards physics amongst mentees. We can now look at the pre- and post-participation data for the two groups of learners. The following figure shows the differences between the mentees and the non-mentored control group.

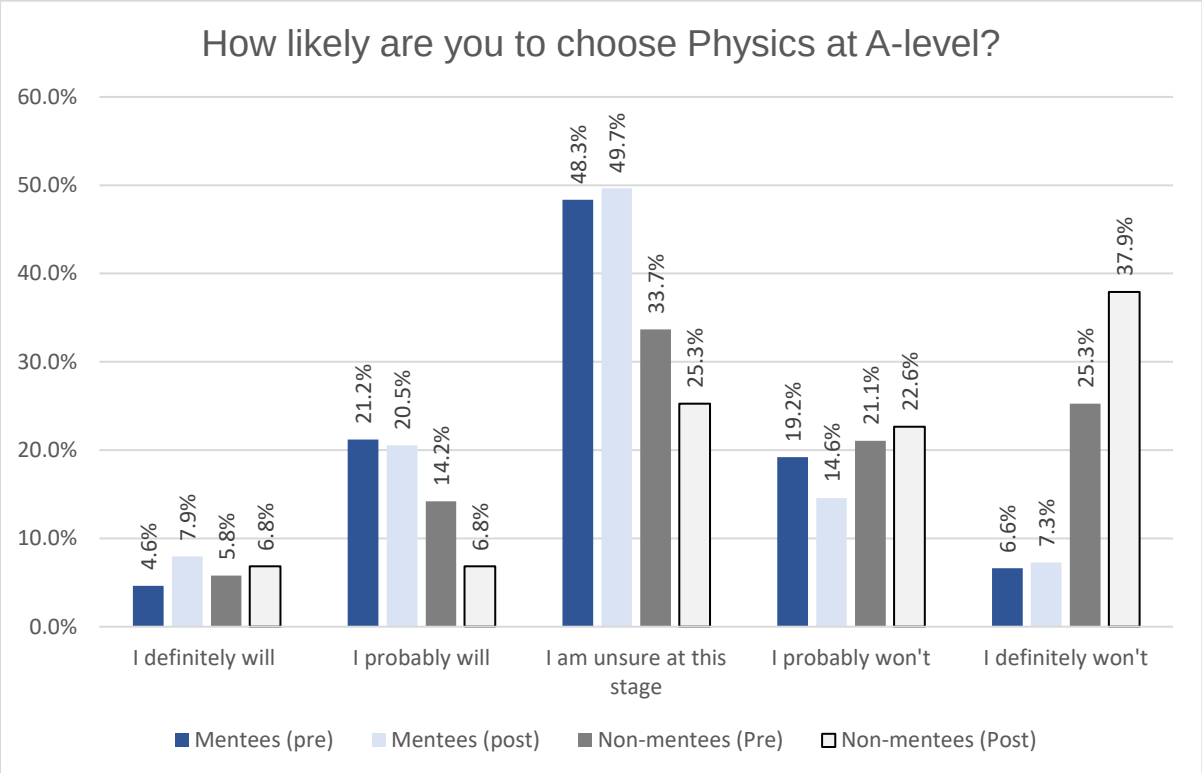


Figure 8. Comparing results from mentees and non-mentored learners

Overall in Figure 9 we see a similar pattern of movement found in previous years where there is a growth in the categories on the left of the chart for mentees whilst non-mentees shift to negative attitudes.

We can examine the data for further insights to see where mentees moved from in terms of their attitude towards physics A-level. Figure 10 shows the movement between the two surveys. Each band of 100% is the post-participation position of the mentees and then the colour coded categories within the band show the pre-participation response of the mentees and therefore where they shifted from.

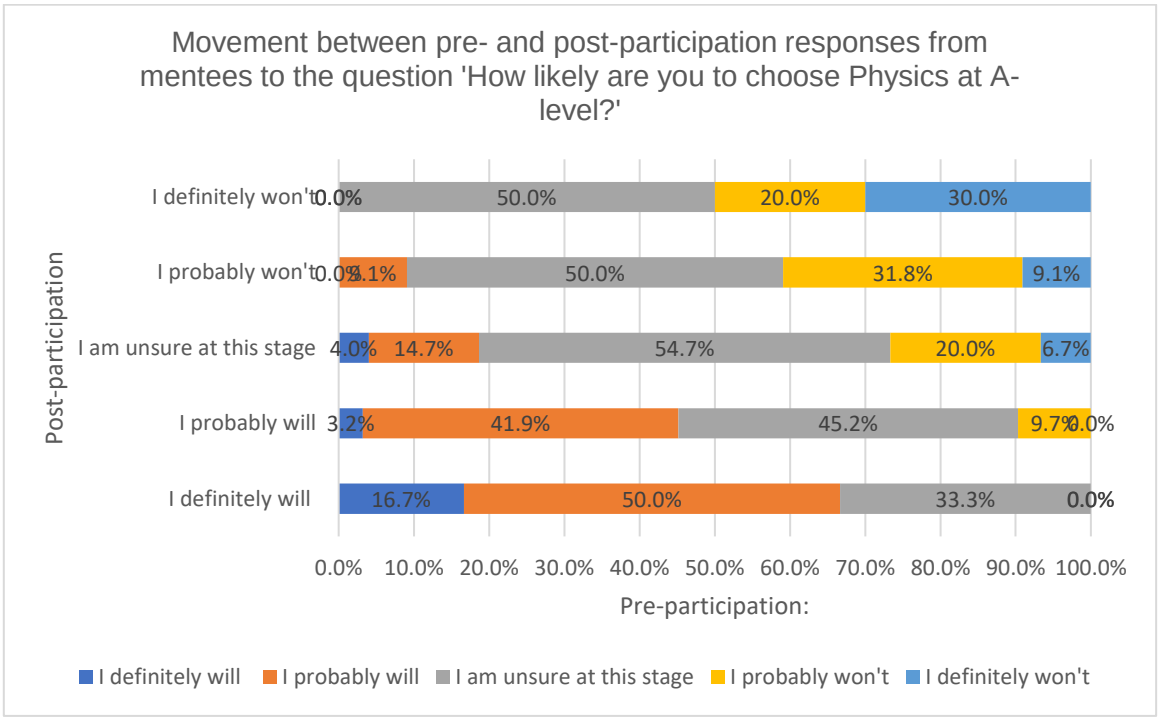


Figure 9. Movement between pre- and post-participation responses from mentees

- "I definitely will": within this category, 16.7% had already responded 'definitely' will whilst the remainder moved from 'I probably will' (50%) and 'unsure' (33.3%).
- "I probably will": a small proportion moved from 'definitely will (3.2%) with over 40% staying as 'probably will' and over 45% moving into this category from 'unsure'. Significantly, almost 10% of those who responded 'probably will' in the post-participation survey were originally 'probably won't'.
- "I am unsure at this stage": As would be expected, those who were unsure moved from all four other options, with over 50% remaining unsure. A higher proportion moved up into 'unsure' from 'probably won't' and 'definitely won't' compared with those who became more uncertain, moving from 'definitely will' to 'probably will'. Almost 30% moved from 'probably won't' and whilst around 20% became more certain about not taking physics.

- “I probably won’t”: As indicated, a small proportion moved from ‘probably will’ and 50% moved from ‘unsure’ and others moved from ‘definitely won’t’.
- “I definitely won’t”: Around 50% came from ‘unsure’ and 20% from ‘probably won’t’ indicating the increased certainty amongst some mentees as they make an informed choice, even if the result was not choosing physics A-level.

The responses show the importance of selecting learners to participate. Apart from a small proportion moving from ‘probably won’t’ into ‘probably will’, those responding ‘probably won’t’ or ‘definitely won’t’ in the pre-participation survey remained unsure or in those same categories with only small shifts.

We can now examine the responses by gender and year group as there are some differences between these groupings of mentees.

		I definitely will	I probably will	Unsure at this stage	I probably won't	I definitely won't
Male	Pre-participation	1.8% (n=1)	36.8% (n=21)	40.4% (n=23)	19.3% (n=11)	1.8% (n=1)
	Post-participation	12.3% (n=7)	24.6% (n=14)	47.4% (n=27)	8.8% (n=5)	7.0% (n=4)
	Difference	+10.5%	-12.3%	+7.0%	-10.5%	+5.3%
Female	Pre-participation	6.5% (n=6)	12.0% (n=11)	52.2% (n=48)	19.6% (n=18)	9.8% (n=9)
	Post-participation	5.4% (n=5)	18.5% (n=17)	50.0% (n=46)	18.5% (n=17)	7.6% (n=7)
	Difference	-1.1%	+6.5%	-2.2%	-1.1%	-2.2%

Table 12. Pre- and post- participation responses by gender

As can be seen from Table 12, in the ‘definitely will’ category, a higher proportion of male mentees moved into this grouping. Female mentees had a greater increase in the ‘probably will’ category. When considering the gender split of the post-participation responses of ‘definitely will’ this is very close to the pre-participation gender split, showing some consistency. The next set of figures show the differences between the three year groups, with the largest movement into ‘definitely will’ coming from Year 11 learners.

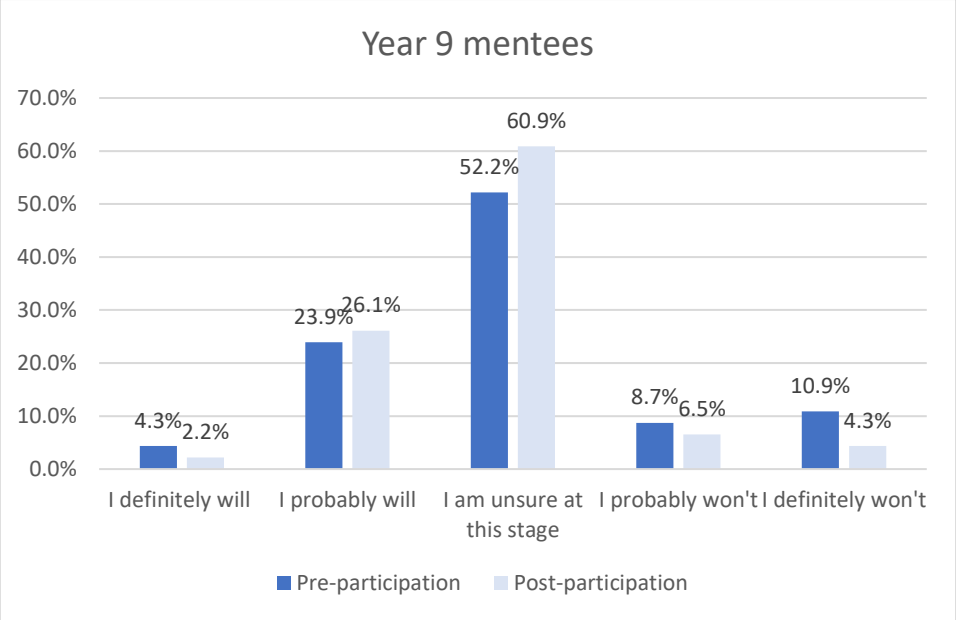


Figure 10. Year 9 mentee responses

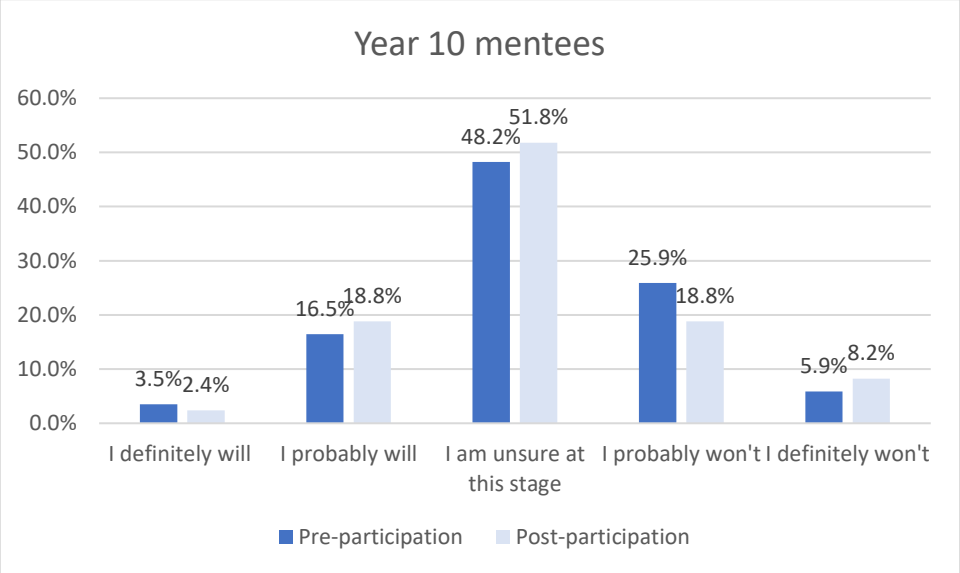


Figure 11. Year 10 mentee responses

There is a similar pattern of movement between the year 9 and year 10 responses across the first three categories. However, when examining Figure 13 and the year 11 mentee responses on the following page, there are distinct differences.

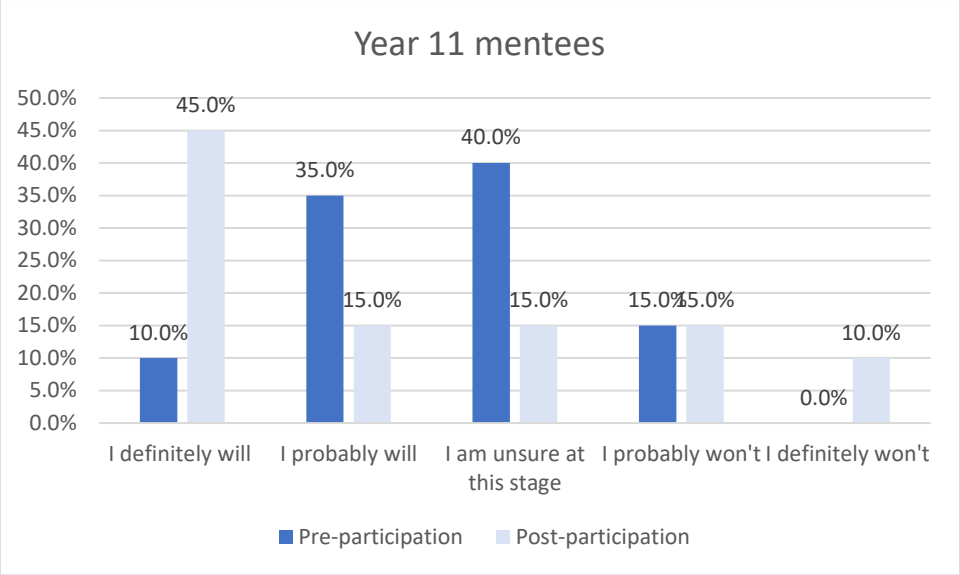


Figure 12. Year 11 mentee responses

Amongst the year 11 learners there is also a significant drop in those 'unsure' and this reflects the different stage of schooling they are at as they are expected to be moving towards more concrete choices when compared with the younger age groups.

We can now move onto to explore further findings in relation to the mentoring, such as career intentions.

4.2 Impact of participation on mentees: Mentee attitude towards careers and routes into careers

We now go on to consider the responses from mentees in relation to routes into careers. The first pairing relates to university study (maroon/pink), the second pairing relates to further education (dark green/light green) and the third pairing is apprenticeships (brown/light yellow). The darker colour in each pair is the pre-participation response and the lighter colour is the post-participation response.

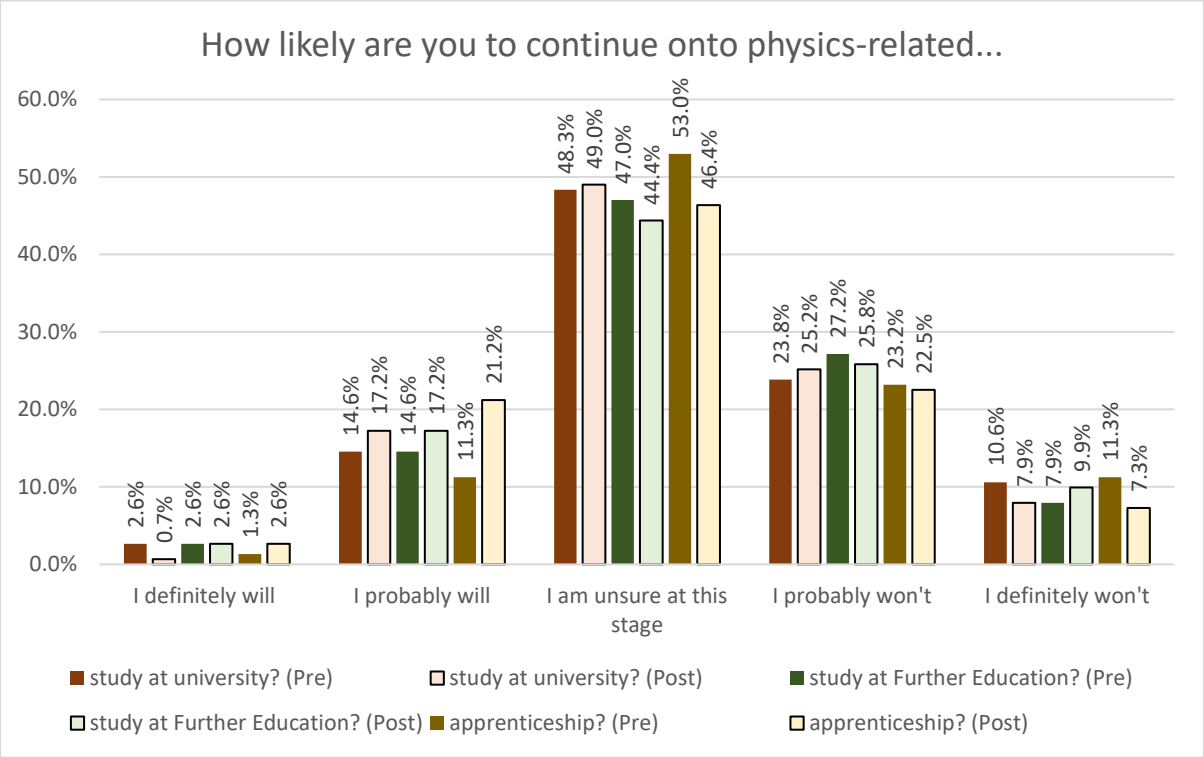


Figure 13. Mentee responses to the question around routes into physics-related study

There are small changes in relation to 'definitely will' but there are clearer increases in 'probably will' for all three routes. The largest being a 10% increase in likelihood of those 'probably' considering an apprenticeship. When examining the control group, there was only a 0.5% increase in those who responded they would 'probably' choose a physics-related apprenticeship following the post-participation survey. This is an especially positive outcome for the Physics Mentoring Project given the increased emphasis on alternative routes in cycles 7 & 8 and it seems as though these messages are coming through.

We can now review the mentee responses to whether they are likely to go into a science-related career. The results by gender are listed below, showing that a higher proportion of female mentees were interested in a science-related career compared with male mentees.

		I definitely will	I probably will	Unsure at this stage	I probably won't	I definitely won't
Male	Pre-participation	10.5% (n=1)	40.4% (n=21)	35.1% (n=23)	10.5% (n=11)	3.5% (n=1)
	Post-participation	21.1% (n=7)	43.9% (n=14)	26.3% (n=27)	5.3% (n=5)	3.5% (n=4)
	Difference	+10.5%	+3.5%	-8.8%	-5.3%	0%
Female	Pre-participation	29.3% (n=6)	32.6% (n=11)	29.3% (n=48)	6.5% (n=18)	2.2% (n=9)
	Post-participation	34.8% (n=5)	25.0% (n=17)	26.1% (n=46)	8.7% (n=17)	5.4% (n=7)
	Difference	+5.4%	-7.6%	-3.3%	+2.2%	+3.3%

Table 13. Pre- and post-participation responses of mentees by gender on likelihood of progression into a science-related career

Unsurprisingly, the mentees started with a strong interest in science-related careers and there were still increases in interest across both male and female mentees.

The following table outlines the different sectors identified by the mentees in their post-participation survey. Mentees indicated their intended career and these were then coded against Careers Wales sectors[5] with the following additions: sport and vet.

[5] Careers Wales (2023) *Job Information* https://careerswales.gov.wales/job-information/industry

	Female mentees	Male mentees
Accountancy and financial services	3.8%	0.0%
Armed Forces and Security	0.0%	4.0%
Business	0.0%	4.0%
Construction	0.0%	8.0%
Creative Arts and Culture	5.7%	8.0%
Digital Sector	0.0%	12.0%
Engineering	3.8%	8.0%
Environmental Conservation	1.9%	0.0%
Health	37.7%	12.0%
Legal sector	0.0%	4.0%
Media and publishing	3.8%	4.0%
Public services	18.9%	4.0%
Science and research	9.4%	12.0%
Sport	1.9%	4.0%
Teaching and education	7.5%	8.0%
Transport and logistics (pilot)	0.0%	8.0%
Vet	5.7%	0.0%

Table 14. Career interests of mentees by gender

There is a more even split across the top three most popular sectors for male mentees (digital sector, health and science and research) whilst the health sector is by far and away the most popular amongst female mentees. There were a lot of medical-related careers listed, from surgeon to GP. In the second most popular sector for female mentees, forensic science was highly popular. Overall there are very clear differences in interests between male and female mentees.

There are further insights available into why mentees increased their interest in science-related careers. In addition to the mentors sharing information about jobs, mentees also benefitted from hearing about the mentor's own journey to university and this helped some mentees "*realise what's out there*" (Mentee reflection). In some schools, mentors ran the physics careers session at the start and for others it came at the end, demonstrating the responsiveness of the mentors to the interests of the mentees. Overall, the feedback from mentees has been that having the opportunity to reflect on their own career options has been very helpful.

> *"I definitely enjoyed this session, as it both supported my hopes that a physics degree would be helpful in future and was just generally fun."*
>
> *"Thank you for teaching us about physics and how it can be used in our future careers, this has been very fun :)"*

> *"I've learnt that physics is a part of every career. Rethinking what my choices will be for 6 form, considering taking physics for A level again."*
>
> *"I found it useful to discuss my dream career and find out if physics is a part of that career."*
>
> (Mentee reflections).

There were also a few comments from mentees where they recognised that *you "don't always need A level physics to go down that [physics-related career] path"*, showing that the messaging about alternative routes into physics-related careers was being heard.

The awards and recognition ceremonies held in university venues also had an impact, with one teacher commenting:

> *"Having the celebration event at USW was an excellent feature this year, thank you! I saw at least 3 of the 8 pupils realise that they could consider higher education, or at the very least, explore apprenticeship programmes."* (Teacher exit survey)

For some mentees, this will be there first visit to a university and one teacher who attended the Cardiff event commented that for their learners it was the first time some of them had visited Cardiff and that in and of itself was a strong motivating factor for participating in the whole project. For one teacher in the focus group, they commented that being at the university helped to reinvigorate them and gave them added enthusiasm about physics, for example being with "like-minded people" was a strong benefit.

In the focus groups, mentees talked about the different influences on them with regards to choosing their A-levels and careers, with guidance from family, friends and teachers being talked about as major influences. The main feedback about the mentoring sessions was that it helped mentees get more of an insight into what physics involves and it was especially helpful having university students as mentors. The mentees highly valued their perspective and felt that they had better and more up to date guidance for them about what the student experience would be like, particularly when compared with their teacher.

One school reported having their highest ever A-level physics uptake following participation in the programme and the teacher felt that there had been a "*Really big impact [on mentees]. They are more aware of how physics can vary after they leave school"* (Teacher exit survey).

Even in the cases where mentees may not go on to a physics or science-related career, the experience has encouraged mentees to *"think about my future*" and for some they *"have learnt that I definitely want a career in science"* (Mentee reflection).

> *"[I learnt that I] Should choose whatever options I'm most comfortable with and happy with and that physics is useful for many things in the future".* (Mentee reflection)

> *“for example one mentee mentioned that she was interested in studying medicine in the future, but now was also curious about the use of physics in medical technology after discussing how different physics skills can be used.”* (Mentor reflection)

The next section goes on to consider whether mentees have an increased confidence and level of engagement in relation to physics and whether they now feel a sense of belonging in the subject.

4.3 Impact of participation on mentees: Increased confidence, sense of belonging and engagement with science

The findings discussed in this section mainly draw on qualitative data from the mentor and mentee post-session reflections, the teacher exit survey and the focus groups with mentees, mentors and teachers.

Enjoyment of teamwork and the opportunity to get to know peers they have not previously spent time with was a recurring theme within the mentee reflections. There were also clear indications of increased knowledge of physics-related careers and across a significant majority of the mentees, there were comments in their post-session reflections about their increased understanding of the connection of physics to the world around them.

> *"Mae'n diddorol gwybod bod ffiseg yn rhan mawr o'n bywyd heb i ni ei wybod"*
>
> *("It is interesting to know that physics is a big part of our life without us knowing it.")*
>
> *"I think these lessons have helped me to see a different side of physics and how it is part of daily lives and is involved in things/jobs you wouldn't think about."*
>
> *"I enjoyed the session and it has me thinking more and more about physics"*
>
> *"I have learned that physics is more fun than you think it is. It's very entertaining and [you] learn a lot of stuff without realising it was needing physics involved"*
>
> (Mentee reflections)

Mentees enjoyed the mix of activities, the interactivity with each other and the mentor and discussions about what physics is. Another important aspect for mentees was being able to share their own ideas and opinions on things.

The mentors used a range of different activities to support the sessions, from making paper airplanes and rockets to brewing tea and trying to pop balloons. A range of physics topics were covered in the sessions, including aspects such as quantum mechanics. The role of mathematics was also discussed by mentors and was used explicitly in some activities, such as codebreaking. Mentors encouraged the mentees to develop their experimental skills along with teamworking and communication and there were many comments about how mentees felt they had begun to see what it means to *"think like a physicist*". Mentees were also encouraged to develop their self-reflection skills. In some cases, the engagement with mentees was such that they went away still thinking about the physics in the session: *"I will probably go home and do more research about this [practical activity on friction]"* (Mentee reflection). Comments from teachers reinforced this impact:

> *"It has improved their communication skills, their knowledge of physics and their understanding of higher education/careers."* (Teacher exit survey)

Mentees enjoyed their interactions with the mentors, with collaboration and co-operation being common positive comments. Mentees felt the mentors "*listened to us*" (Mentee reflection).

> *"They are very nice people. They are co-operative with us and they do good class discussions. They also plan to do lessons we will enjoy."*
>
> *"The mentors made it fun by letting us participate a lot".*
>
> (Mentee reflection).

Mentors also worked to ensure the sessions with mentees were inclusive:

> *"Everyone had the opportunity to get involved and the mentors made the lesson fun and interactive*". (Mentee reflection)

Some mentees explicitly commented on being able to spend time talking with "like-minded physics enjoyers", which will have contributed to mentees feeling a sense of belonging with their group. Continuing this theme of belonging, in order to ensure mentees were comfortable in the session, mentors worked with their groups in the first session to set ground rules for working together and to allow the mentees to lead on how they wanted to interact. For some, this meant being able to respond to questions and quizzes anonymously via Kahoot or Mentimeter, with one mentor observing that they felt this "took the pressure off" mentees having to respond in front of everyone. Over the course of the sessions, mentors observed that the mentees became more comfortable and as a result were more confident in speaking up.

When considering all of the mentee reflections across all schools and sessions, the tone of the comments from the mentees was overwhelming positive with only a small handful of mentees commenting that they didn't like something. Suggested improvements to the following sessions were also very constructive and pragmatic and I would say that this perhaps reflects the mentoring style where the mentors have established early on that they want to hear about the mentees' opinions and ideas.

With regards to the delivery mode, some mentors commented on the difficulties associated with online delivery of sessions. For any practical work, they needed greater co-operation from the teacher. E.g. organising the mentees into groups and ensuring they had any equipment they required. Feedback was also an issue for both practical and discussion-related activities as the mentors could see what was going on within the groups but couldn't necessarily hear and teachers or a group spokesperson would have to report back to the mentors who were observing. However, based on the comments within the reflections, the mentors worked hard to react and adapt to any technical issues and they also worked hard to amend the session in response to the engagement and interest levels from the mentees. One teacher reported a

drop-off in engagement from their learners due to the technical difficulties experienced during the online sessions.

In terms of engagement in lessons and confidence in relation to physics, in the focus groups mentees reported feeling more able *"to now understand more to do with physics and what we do in actual physics lessons"* and that they were more focussed in the lessons themselves due to being able to make connections between what they were studying and the world around them, including future career opportunities. There was further evidence of this increased engagement and confidence of mentees from teachers in comments shared in their exit survey. When asked about the impact of the mentoring project on their learners, there were several comments from teachers around confidence, with a small number of examples below:

> *"More positive attitude towards physics and science more generally."*
>
> *"It has given them more confidence."*
>
> *"Some showed more confidence in class and others are now more likely to take physics at A-level."*
>
> *"They have become more confident in their ability in science, and has made more of the mentees think about taking scientific subjects at GCSE and beyond."*
>
> *"Increased self-confidence. Given them a broader idea of physics in the real world and further study."*
>
> (Teacher exit survey)

One of the teachers in the focus group had received feedback from colleagues that the mentees were showing more confidence and interest in other lessons such as biology, chemistry and English, with the mentees "*taking charge a bit more*" (Teacher focus group). In terms of the development of confidence, mentors observed this building over multiple weeks and one mentor commented that they felt this was down to having the opportunity to work in a small group and receive more attention. This mentor observed that they felt the mentees were able to try something without being worried to fail in front of a large group of their peers. Instead, they felt comfortable with their fellow mentees and took risks.

For the teachers, there were benefits to them in participating. They were able to develop and improve their relationship with universities in Wales and improve their understanding of the degree courses available to their learners. The improved relationships have resulted in schools taking part in other events and activities beyond the PMP with the universities. Teachers reported different impacts on their own practice. For one teacher *"Seeing the pupils in a different setting helped my own teaching"* and for another, *"Improved my own transferable skills (time management, organisation, etc)"* (Teacher exit survey). For another teacher who participated in the focus group, they commented:

> *"[being involved with the PMP] does get you to reevaluate your teaching resources and how you prep certain things and how you deliver certain things".*

Overall, teachers see the project as something positive for their learners. Around 70% (n=9) of respondents to the exit survey agreed or strongly agreed that the project has been effective at improving mentees' intentions to take Physics at A-level. 23% were neutral (n=3) and one respondent disagreed (~8%). The teacher who disagreed had had a negative experience with the online version of the programme.

> *"It is an excellent programme to enrich the experience of our learners. It brings Physics to life and allows learners to see real life applications."* (Teacher exit survey)

> *"The project is great in inspiring students and giving recognition to students who do not normally think about triple science at GCSE or any of the science at a higher level, and it has had an impact on the students involved this year."* (Teacher exit survey)

One teacher commented in the exit survey that they would like to see a longer term commitment to the project being funded and in the focus group one teacher said that they felt that once they participated in one or two more cycles of mentoring the benefits would begin to embed a bit further. One teacher summed up the benefits of participation in the project:

> *"It's an excellent project to raise the profile of Physics. It provides students with the opportunity to see Physics in a different light. Being able to communicate with mentors is extremely beneficial and they are closer to the ages of the students who take part in the project. The mentors echo what we as teachers are trying to convey but I feel that this has a big impact as students see the mentors more as a peer than a teacher."* (Teacher exit survey)

The aims of the project fit well with what teachers are wanting to achieve themselves in schools. Two teachers who participated in the focus group also noted drops in uptake of physics at GCSE and A-level following the COVID-19 pandemic, so in addition to wanting to increase confidence levels in science, raise awareness of the benefits of physics and address the gender imbalance in uptake, the numbers more generally had been seen to fall in these schools. There was also a consensus amongst those in the focus group that the topics in GCSE physics could be a bit "*dry*" so they feel it is a challenge to show the relevance of physics. The following section now goes onto consider the experiences of mentors.

5. Impact on Mentors

5.1 Mentors: attitudes towards teaching

This section summarises the context around teacher recruitment in Wales and looks at mentor attitudes towards teaching, drawing on evidence from PMP project evaluations to date. In Wales there are a range of routes to becoming a physics teacher. This includes undergraduate study along with postgraduate or salaried work-based training via the Open University[6]. There are of course financial considerations when choosing how and where to train. In addition to tuition fee support and loans, there are some non-repayable schemes across the nations of the UK. These include:

- England: £29,000 scholarships administered by the IOP and funded by the Department for Education.[7]
- Scotland: £20,000 career change bursary for those transitioning from another career who plan to move into a priority subject such as physics.[8]
- Wales: £15,000 is available as a "ITE Priority Subject Incentive" for those who plan to go into teaching.[9]
- In Wales, the numbers going into teacher training have fluctuated over the past decade. Table 15 shows the number of students registered as a first year on Initial Teacher Education courses in Wales and shows the situation across the sciences.

	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
Physics	40	35	30	30	25	25	20	15	20	10	35
Chemistry	35	40	40	40	35	20	30	20	25	20	45
Biology	85	85	70	55	30	35	35	40	30	20	50

Table 15. First years on ITE courses in Wales by subject and year[10]

[6] Open University (2023) *Study a PGCE with The Open University.* Available: https://www.open.ac.uk/courses/choose/wales/pgce?cid=dis-7038109848
[7] IOP (2023) *IOP Teacher Training Scholarships 2023-24.* Available: https://www.iop.org/about/support-grants/iop-teacher-training-scholarships
[8] STEM Bursary Scotland (2023) *Bursary criteria and eligibility.* Available: https://stembursaryscotland.co.uk/
[9] Welsh Government (2023) *Initial Teacher Education (ITE) Priority Subject Incentive: guidance for students 2022 to 2024.* Available: https://www.gov.wales/initial-teacher-education-ite-priority-subject-incentive-guidance-students-2022-2024-html#:~:text=The%202022%20Scheme%20comes%20into,(QTS)%20in%20specified%20subjects.
[10] StatsWales (2023) *First years on ITE courses in Wales by subject and year.* Available: https://statswales.gov.wales/Catalogue/Education-and-Skills/Schools-and-Teachers/teachers-and-support-staff/initial-teacher-education/students-in-Wales/firstyearsonitecoursesinwales-by-subject-year

There are ongoing issues in the UK and internationally in terms of teacher recruitment, which are not limited to physics[11]. According to the Royal Society of Chemistry's Science Teaching Survey[12], in Wales around 57% of schools reported being "understaffed" in terms of physics teaching roles. This compares to 19% in Scotland and 50% in England. However, whilst physics is generally regarded as a priority subject across the UK, education is devolved to the national parliaments and there is not a uniform approach taken to addressing recruitment issues. Organisations such as the Institute of Physics works across the different nations of the UK in order to promote teaching as a career as it is linked to their strategy of ensuring there is a specialised physics teacher in every school in the UK[13], something which is not currently the case. The motivations for having specialised physics teachers is to secure the flow of pupils into post-16 study and higher education[14].

The Physics Mentoring Project (PMP) aims to "Promote the teaching career to undergraduate and postgraduate university students"[15]. Indeed, a strong motivation for involvement for students is the potential to get experience working with schools. For example, consistently over seventy per cent of mentors year to year are considering a career in teaching[16] and in subsequent years this continued to be a motivation with mentors expressing the hope that involvement in the PMP "will help me to decide [about a teaching career]"[17].

In terms of evidence for whether mentors have progressed into teaching careers, there are some who have gone on to complete a PGCE or similar but these numbers are not known in detail currently due to the difficulties of tracking alumni destinations. Indeed, there are some instances where mentors have decided a teaching career is not for them, which is also a very valid outcome, as again the project is supporting them in making an informed decision. There has also been the effect where postgraduate students have felt more confident in their abilities to take on additional teaching responsibility with undergraduates. Due to their experiences

[11] European Commission (2013) *Study on Policy Measures to improve the Attractiveness of the Teaching Profession in Europe*. Luxembourg: European Union. Available: https://ec.europa.eu/assets/eac/education/library/study/2013/teaching-profession2_en.pdf
[12] Royal Society of Chemistry (2022) *The Science Teaching Survey 2022.* Available: https://www.rsc.org/new-perspectives/talent/the-science-teaching-survey/2022/impact-of-understaffing/
[13] IOP (2023) *Strategic Plan.* Available: https://www.iop.org/strategy#gref
[14] Gill, T., & Bell, J.F. (2013) What Factors Determine the Uptake of A-level Physics*? International Journal of Science Education*, 35:5, 753-772
[15] Thomas, L. (2021) *Physics Mentoring Project Annual Evaluation Report*. Available: https://physicsmentoring.co.uk/wp-content/uploads/2021/10/Physics-Mentoring-Project-Annual-Evaluation-Report-September-2021.pdf
[16] Thomas, L. & Rushton, L. (2019) *Physics Mentoring Project/Prosiect Mentora Ffiseg Interim Evaluation Report.* Available: https://physicsmentoring.co.uk/wp-content/uploads/2019/09/InterimReport_final_v2.pdf
[17] Thomas, L. & Rushton, L. (2020a) *Physics Mentoring Project/Prosiect Mentora Ffiseg Interim Evaluation Report*. Available: https://physicsmentoring.co.uk/wp-content/uploads/2020/02/Physics-Mentoring-January-2020-interim-report_v2.pdf

with the PMP some mentors have expressed increased interest in education-related careers such as science outreach and engagement[18].

Around 80% of responses to the teaching atttiudes mentor survey were from undergraduates and 20% from postgraduates. Undergraduates were asked if they knew what they planned to do on graduation, with around 70% indicating they had a clear idea of what they wanted to do. Of those who responded yes, three quarters planned to go into a job or career whilst one quarter planned to undertake further study or stay in academia. In terms of teaching, there were a range of attitudes reported, with over 20% indicating they were 'very likely' or 'likely to go into a career teaching physics. Figure 15 shows the full distribution of these results.

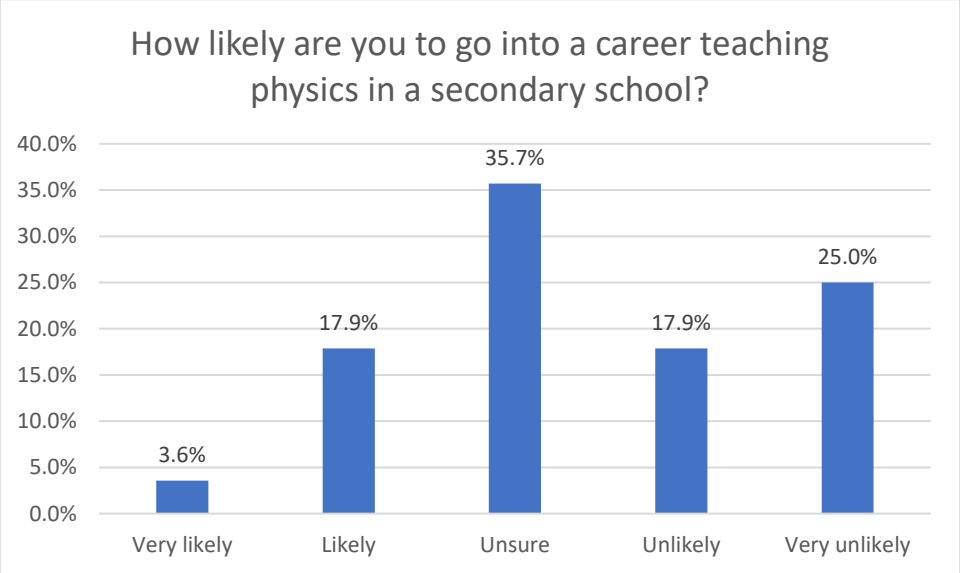


Figure 14. Likelihood of mentors going into a teaching career.

Mentors were also asked about their attitudes towards teaching in Wales, with around 44% saying it was something they would consider whereas around 28% said they were unsure or would not consider it.

In terms of perceptions of teaching, mentors were asked to identify the top three qualities needed by teachers. The three most popular were: patience (14.5% of responses), good communication skills (12% of responses) and being knowledgeable (9.6% of responses). Following on from this they were asked what might attract them into a teaching career. The reasons were categorised as follows and illustrated by selected quotes:

- Sense of fulfilment: "*Passing on knowledge and my enthusiasm for physics so the next generation can see the wonders of physics.*"

[18] Thomas, L. (2021) *Physics Mentoring Project Annual Evaluation Report*. Available: https://physicsmentoring.co.uk/wp-content/uploads/2021/10/Physics-Mentoring-Project-Annual-Evaluation-Report-September-2021.pdf

- Improved remuneration and working conditions, e.g. holidays. However low pay was also an issue.
- Helping to fulfil a need to teach in a certain school or with a particular age group, e.g. sixth form only, "*If there was a need*".
- Opportunity to continue working in field related to my subject: *"If I got to do a lot of programming", "Continuing a profession until age prevents continuation in that current capacity, and then teaching in that profession."*
- Being successful in a challenging role*: "Stable job, challenging", "Being good at it, enjoying it".*

The final question concerned barriers to choosing a teaching career and these were commonly seen as:

- Behavioural issues and the challenges related to engaging pupils in learning: *"Bad behaviour from children", "Having to persuade students to want to learn"*
- Working conditions, e.g. high workload and low salary: *"Low salary, limited career progression", "Quite long hours and an in-person workday."*
- Lack of fulfilment: *"Lack of sense of fulfilment (from the potentially repetitive, scripted nature of the curriculum)".*

There are a range of impacts which the Physics Mentoring Project has on mentors in relation to teaching attitudes. It provides an opportunity for undergraduate and postgraduate students to experience a school setting and gain a better understanding of what a career in teaching is like. As part of the mentor exit survey, around 16% of respondents (n=5) indicated they were considering a career in teaching. However, around 38% of mentors are still uncertain about what career they will go into. Feedback from the baseline survey where mentors from previous years had already decided against teaching, they instead planned to focus on related areas such as science outreach or university teaching, which reflected the positive experience they'd had working with the mentees. In the focus group, one mentor commented that teaching was something "*that you can sort of always go into*" so there wasn't an urgency for them to consider it straight out of university but it would be something they would "*think about at some point*". This person also felt daunted by the responsibility teachers have to their classes and that whilst they enjoy working with young people and would do it again, it's something they'd rather do "*for a few hours, a few weeks, and not have that sort of permanent sense of this [responsibility]"* (Mentor focus group). Another message arising from mentors in the focus groups is the continuing perception that teachers are underpaid and that there is limited career progression. This aspect can continue to be tracked in the next set of cycles.

5.2 Impact of participation on mentors

In general, there are many benefits to mentors from participating in the PMP and these include[19]:

- Improved confidence in their own abilities.
- Valuable experience to include on CV which can be used as a basis for future employment opportunities. This also includes a broad set of experiences to refer to in job interviews.
  "I think mentoring will be helpful with getting me ready for the world of work not just working with younger people" (Cycle 2 and 3 mentor).
- For those interested in teaching it provides direct experience of working in schools.
  "Mentoring helped me understand a bit more about what teaching will be like and the work needed" (Cycle 2 and 3 mentor)."

85% (n=27) of mentors reported via the mentor exit survey that they found the workload 'manageable' or 'very manageable' to deal with alongside their other commitments. Two respondents found the workload 'unmanageable' but unfortunately did not elaborate as to why this was the case. As has been established in previous cycles, mentors found the support, advice and guidance provided by the project team to be very helpful.

For cycles 7 and 8, mentors were asked to identify the employability skills the project helped them to develop. The top five were: presentation skills (14% of responses), working with young people (13% of responses), communication skills (12% of responses), leadership skills (11% of responses) and organisational skills (11% of responses).

One of the reasons the mentoring programme is successful is the mentor engagement with training. One mentor commented on the impact of training in that *"Training was very beneficial and really helped in making the session go smoothly"* (Mentor reflection) and the top-up training was well received as it "helped to reinforce" the messaging and approach to be taken as part of the mentoring (Mentor focus group), especially where the mentors may not have had a school in the first cycle and therefore it may have been a few months between the training session and going into their first school.

In February 2023 the PMP held a celebration and networking event for mentor alumni and teachers. Alumni were asked to share their thoughts on what the longer term benefits of participating have been. These were recorded as vox pops, either in pairs at the event or

[19] Thomas, L. & Rushton, L. (2020b) *Physics Mentoring Project Final Evaluation Report*. Available: https://physicsmentoring.co.uk/wp-content/uploads/2020/06/Final-report_Physics-Mentoring_June_2020_final.pdf

individually afterwards. Alumni commented about how the employability skills they developed are still used and confidence in their communication skills was commonly used:

> *"Confidence in public speaking and the confidence in articulating points of that has come on leaps and bounds because of the Mentoring Project"*

Another aspect are the benefits they've had from having an awareness of the Science Capital Teaching Approach and this was something which also featured in the alumni feedback in the 2021 PMP evaluation where one alumni commented:

> 'The Science Capital Teaching Approach […] was something which I didn't appreciate fully until I went into a school and interacted with students who weren't particularly thrilled by physics... when I was in high school, I loved the science, and being taught from a textbook about theory suited me quite well. Some of the students I interacted with didn't have that learning style. It completely changed how I think about getting a point across, both in my job and other volunteering activities elsewhere, and how to relate something to a student to help them understand it.' (Thomas 2021).

Mentors once again received excellent support, advice and guidance from the project team, with feedback being very positive about the interactions they had, with issues being resolved in a timely manner.

6. Recommendations and Conclusion

This section makes two recommendations to the project team. This is based on feedback from participants for cycles 7 and 8. There are of course other aspects which we encourage the PMP team and stakeholders to review and reflect on but we would encourage particular attention to the following points.

- Review the use of the post-session reflections.
  The reflection responses from mentors to the cycle 7 and 8 sessions were narrative descriptions which helped to paint a picture of what went on in the sessions and how the mentees engaged. However, for cycles 9 and 10, we would recommend reviewing the guidance for the post-session mentor reflections and encourage mentors to comment on how they have personally found the experience in terms of their own personal development. Similarly for mentees: what do the mentors think the mentees have taken from the experience? Not all mentors completed this reflection and the importance of recording their reflections should be emphasised to mentors. This especially supports the reflective practice encouraged as part of the Science Capital Teaching Approach.
- Review the support available for mentors and schools running the sessions online.
  Consider what other support and advice is required for mentors and schools to ensure that the online sessions are as effective as possible. Review feedback from teachers about barriers to engagement with online sessions in cycles 7 and 8. For example, one school reported a drop-off in participation due to the technical difficulties experienced during the sessions and due to the lack of impact on the mentees, the school are opting not to continue to participate in cycles 9 and 10. Examine whether there a way for the project to provide more detailed support to the mentor and school to respond to any issues arising.

The Physics Mentoring Project model continues to show year on year positive effects across those participating. The project has been successful in increasing interest in physics at A-level and in highlighting opportunities for alternative routes into physics, such as apprenticeships. Mentees have increased their awareness of links to their own lives and have carried their experiences from the project into the classroom where they have shown increased confidence and engagement in lessons. Mentees have also shown increased interest in science-related careers. There are indications that returning schools are developing positive cultures of physics as their learners' attitudes seem to be more positive than those who are joining for the first time. Schools and teachers are benefitting from being able to build links with universities and other teachers. Mentors continue to have significant impact on the mentees through the high quality sessions delivered and through the relationships formed across the sessions and they themselves are showing skills development, enhancing their employability.

About the authors

Ondata Research collaborates with clients to help them understand project impact, whilst also providing mentoring and support through the phases of project development and delivery.

Laura Thomas

Laura has extensive experience with a range of education projects across formal and informal education. In addition to evaluation she is experienced with project and resource development, delivery and training for a variety of organisations such as schools, science centres, museums, education charities, universities and professional bodies. She is undertaking PhD research relating to professional learning of teachers after having completed an MRes in Educational Research with the University of Stirling.

Produced for:

Ondata Research

PHYSICS MENTORING PROJECT | PROSIECT MENTORA FFISEG

Ondata Research LTD 10 Douglas Terrace, Stirling, FK7 9LL
info@ondata.org.uk www.ondata.org.uk 07887920426

Company number: SC621169 (Registered in Scotland)