

LITMUS

FOR SCHOOLS

from the Oxford University Careers Service

Opportunity North East: Litmus Careers Programme

2021

An overview of the
inaugural Litmus careers
information programme
for schools in North-East
England

A REPORT BY

Richard Petty
Trinity College, and

Jonathan Black
Careers Service,
University of Oxford

November 2021



TRINITY COLLEGE
UNIVERSITY of OXFORD



from the Oxford University Careers Service

The Opportunity North East (ONE) programme significantly improved pupils' career planning and engagement – more than any other factor such as gender, parental graduate status, or ethnicity.

An Oxford University study of almost 1,600 Year 10 and 11 pupils in 26 North-East schools has shown that pupils on the Department for Education's Opportunity North East ("ONE") programme of career education have better industry knowledge and are statistically significantly more focused on their future career plans than pupils not on the ONE programme. The study also showed that a pupil's engagement with post-school career plans was only slightly associated with their gender and parental university status and not at all associated with their ethnicity and free school meal status.

The study also showed that pupils with good industry knowledge also had significantly increased confidence in demonstrating key employability skills. Pupils' industry interests mirror the national picture and are quite gender specific; for example, girls are favouring healthcare, beauty and hair, education and social work, while boys are favouring engineering, construction, cars, and sports. Post-16 and post-18, boys are favouring apprenticeships or jobs while girls are favouring tertiary education.

The Litmus programme has established a standardised and simple way to collect key career intention data; these data can be used by teachers and schools to target individual pupils with personalised careers education and guidance, and by regions to deliver careers advice at scale to cross-school groups of pupils with common interests.

“The University of Oxford is only too aware of the importance of supporting school pupils in how they make decisions about their future and achieve to their potential. I am delighted that Litmus is providing useful insights which will help target careers advice and that it has started in the North East.”

GILLIAN AITKEN

Registrar, University of Oxford

Background

The annual Litmus career registration has run at Oxford University for six years; over 96% of all students record their industry interests and careers frame of mind. The Litmus programme was adapted for use in schools, and over the last few years has been completed in a *wide* variety of secondary schools by almost 10,000 pupils.

Last term, in June/July 2021, almost 1,600 students in 26 schools in North-East England completed a version of Litmus; this localised version included questions on destinations post-16 and -18, and the effect of the pandemic on career choice, as well as the standard questions on frame of mind, industry interest, and perceived employability skills. 86% of the respondents were Year 10 pupils, with Year 11 students forming the remaining 14%.

“Frame of mind” is defined here as one of four positions:

- **Postponing** any career planning while concentrating on school work;
- **Exploring** all sorts of careers and skill development;
- **Flowing** towards a traditional or familiar industry sector; and
- **Focused** on a specific role.

Many of the schools and pupils were engaged in the Opportunity North East (“ONE”) programme, and some of the analyses explore outcomes associated with ONE participation. The programme is funded by the Department for Education, and the careers element is being delivered by the North East and Tees Valley Local Enterprise Partnerships. It provides an enhanced offer of personalised advice and guidance for up to 30 young people in each ONE Vision school to help them make the best of their strengths, interests and aspirations. Participating pupils benefit from earlier, more sustained, and more data-driven careers advice and guidance than they would otherwise receive. 17 of the 26 schools with student responses participate in the ONE programme, with 43% of the total student responses coming from those in ONE schools. Background demographic information was also collected, which suggested that the sample was broadly representative of the wider school population in the region, for instance in 27.3% of respondents being eligible for Free School Meals (cf. 24.5% average in North East secondary schools) and 93.6% of them being from one of the White ethnic groups (cf. 89.5% average in North East secondary schools). 429 of the students (27%) said that one or more parent had attended university, 605 students (38%) said that neither parent had attended university, though 34% of them said they did not know.

In this report we present consolidated and anonymised data, although the individual data are available for use by schools and teachers.

“I’m grateful to Oxford University for supporting pupils and schools in our region through their Litmus Survey, and delighted that it has shown how the Opportunity North East programme is significantly benefitting young people in the North East. The Litmus Survey can really help schools to shape their careers offer, so that increasing numbers of young people find a pathway to a good job and future”

KATHERINE COWELL

Regional Schools Commissioner for the North

Member of ONE Strategic Board

Insights

Career focus is driven by industry/careers knowledge, gender, and somewhat by parents' university status

The more industry and careers knowledge pupils feel they have, the more focused and less postponing they are with their career planning. Respondents with more industry and careers knowledge are very significantly ($p < 0.001$) more focused and postponing much less than those with little or no industry or careers knowledge. Industry and careers knowledge is statistically significantly associated with gender but not parents' graduate status.

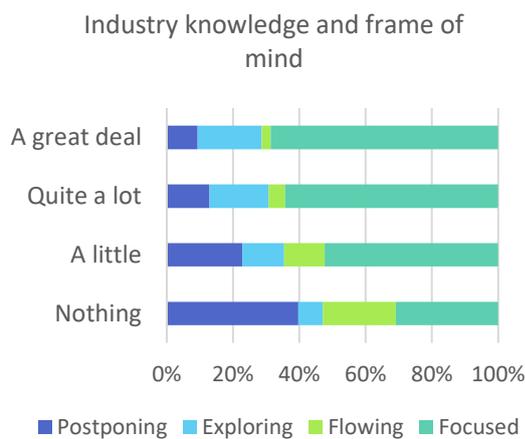


Figure 1

Industry/careers knowledge is the most important factor affecting the probability of a focused mind-set. Such industry knowledge is strongly associated with participation in the ONE programme; however, it is not possible to draw a **causal** link between ONE programme participation, industry knowledge, and career focus.

Gender is the second relatively most important factor associated with the focused mind-set even after accounting for industry knowledge. Female pupils are much more likely to be focused than males. When controlled for industry knowledge a female pupil is more likely to be focused (71%)

than her male counterpart (59%). These differences are slightly less stark when parents' university status is added to the model.

Parents' university status is the third factor affecting the focused mind-set. In total, all three factors explain up to 7% of the probability of a focused mind-set. This is a small effect and suggests that there are other factors not measured by the Litmus survey. Having non-graduate parents gives a "boost" of 9% points to girls and 11% points to boys in their focused mind-set. Looked at another way, having graduate parents, reduces focus and therefore increases exploring or postponing mindsets.

Compared with the national set of all pupils, North-East pupils' career plans are significantly more focused, and are postponing their engagement on career discussions much less. 58% of NE pupils are focused (33% national figure) and only 18% postponing (27% nationally).

There is no statistically significant (chi-sq test, $p < 0.05$) difference in frame of mind associated with either Free School Meal status or ethnicity (white v. non-white).

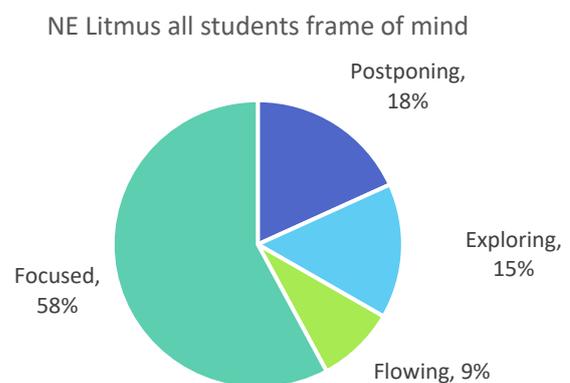


Figure 2

Compared with girls, boys state they have higher levels of industry and careers knowledge, and while this in itself should lead to boys being more focused, we observe that there is a statistically significant difference in frame of mind associated with gender (girls are more focused than boys). We also observe that the graduate status of the parent has a measurable effect: those (and especially girls) with non-graduate parents are more focused.

Mirroring the national picture, industry interests are gender specific

In the survey, respondents register their interest in up to four of 26 industry sectors. Relative interest of the North-East pupils broadly follows the same pattern as respondents from the Bradford Opportunity Area and national surveys. At the maximum, 25% of the 1,583 respondents selected healthcare and engineering, and at the minimum, less than 5% selected retail, government, charity and horticulture.

Relative to the national results, a higher proportion of North-East pupils selected healthcare, engineering, construction, automotive, and beauty, and a lower proportion selected financial services, scientific research, advertising and marketing.

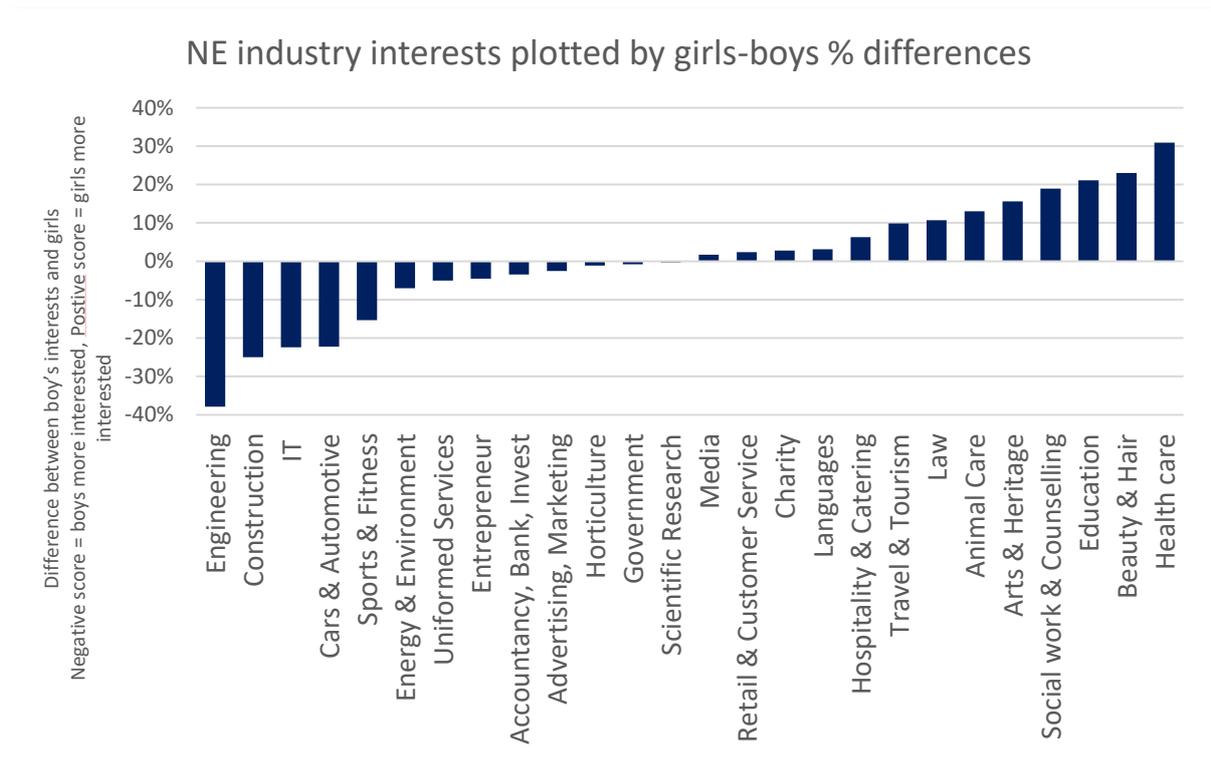


Figure 3

We observe a similar difference in interest between the genders as we see in the national data: a higher proportion of girls than boys favour healthcare, beauty and hair, education, social work, arts and heritage, animal care, and law, while a higher proportion of boys favour engineering, construction, IT, cars and automotive, and sports and fitness. The national picture is similar, subject to the overall differences mentioned above.

Good industry and careers knowledge is associated with increased confidence in demonstrating employability skills

Respondents in the survey are asked to indicate how confident they feel demonstrating each of eight employability skills: creativity, business awareness, self-management, initiative, planning, teamwork, leadership, and communication. A longer description of examples is given to the pupil for each skill.

North-East pupils feel slightly (although not statistically significantly) more confident than the national group in relation to every skill. We considered six possible drivers of skills confidence: industry knowledge, careers knowledge, having graduate parents, gender, being at a ONE school, and being a ONE intervention programme pupil.

Groups	Comms	Leadership	Team work	Planning	Initiative	Self-mgmt	Business awareness	Creativity
ONE schools								
Sex								
Graduate parents v non-graduate parents	Very significant difference							Significant difference
Considering university v not considering university								
Considering apprenticeship v not considering apprenticeship								
Considering traineeship v not considering traineeship								
Level of industry knowledge: "quite a lot" v "a little"								
Career choice confidence: "have enough" v "need a little more"								

Those pupils who report they "have enough" careers knowledge or "quite a lot" of industry knowledge are very statistically significantly ($p < 0.01$) more confident on every one of the eight employability skills than those who "need a little more" careers knowledge or have "a little" industry knowledge. Having graduate parents makes a statistically very significant ($p < 0.01$) and positive difference on just two skills out of eight (communications and initiative) and a significant difference ($p < 0.05$) on creativity.

There is no significant difference in skills confidence associated with gender, being at a ONE school, or being on the ONE intervention programme – though in these latter two, those on the programmes do score slightly and consistently higher than those not on the programmes.

Post-16 and -18, boys are favouring apprenticeships or jobs, girls are favouring tertiary education

Respondents were asked for their intended destination post-16 and post-18. At 16, more than twice the proportion of boys as girls favoured apprenticeships (26% v 12%); the difference in percentage points can be mainly accounted for by the 42% of girls favouring Sixth Form Colleges (compared with only 27% of boys).

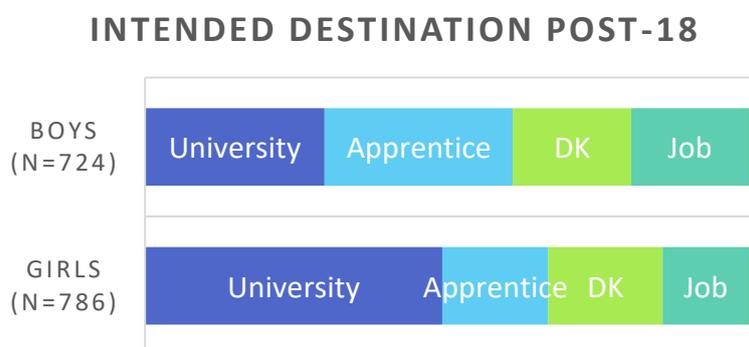


Figure 4

This overall difference of boys considering apprenticeships or jobs, and girls seeking further education is reflected in the likely destinations at 18. Boys favour an apprenticeship (31% v. 17% of girls) or employment (19% of boys v. 14% of girls); the difference in percentage points here is reflected in those favouring university: 48% of girls favour university compared with only 29% of boys.

From those 481 students who said they would not be interested in seeking an apprenticeship, 30% of the respondents overall, the most commonly cited of the 706 factors chosen were 'I don't think apprenticeships will be right for me', 'apprenticeships are not linked to my chosen career' and 'I don't know enough about apprenticeships'. Those students represented 30% of the survey respondents overall; of the ONE intervention students, a similar proportion, 28%, said they would not be interested in apprenticeships.

1,052 students (66% of the total) said they would consider going to university. Of the 532 students who said they would not consider going to university, by far the most commonly cited of the 1,054 factors chosen were 'I don't think university will be right for me' (52% of those not considering university) and 'cost' (31%). For those whose parents had not attended university, 11% cited cost, compared with 6% of those whose parents had attended; for those who were eligible for FSM, 13% cited cost, compared with 9% of those who were not eligible for FSM. 65% of students in ONE schools – almost exactly the same proportion as those not in ONE schools – said they would like to go to university.

Of those expressing a preference for university, 57% said they were considering exclusively one of the five universities in the North East region, 24% were considering only universities outside the region, and 19% were considering universities across both geographical categories. These proportions did not significantly change among those with non-graduate parents, though a higher proportion of those FSM-eligible students expressing a preference for university, 67%, were considering only universities within the region. When students in the Bradford Opportunity area were asked a similar question, a lower proportion (38%) of students there expressed a preference for a university in one of five cities nearby, which also rose among those eligible for Free School Meals (to 48%).

On a multi-variate analysis, 86% of females with graduate parents and a focused mind-set would consider going to university; however, only 74% of their male counterparts in the same circumstances feel similarly about university. In addition, only 75% of females with graduate parents but a flowing mind-set would consider going to university compared with 58% of their male counterparts.

Ethnicity, industry knowledge, ONE programme participation, and FSM status all had no statistically significant association with intent to go to university.

Traineeships were being considered by 53% of students overall, with slightly more female students (54%) considering them than male students (51%). They were slightly less under consideration by those in ONE schools (50%) than by their counterparts in other schools (56%).

The pandemic has had little effect on career plans

Around 80% of respondents reported that the pandemic has had little or no effect on where they plan to work and study; the other 20% are split equally between being much more keen and much less keen to move away.

In terms of the pandemic's effects on different aspects of Careers thinking, 'prospects', 'location' and 'giving back to the community' were those aspects which saw the highest attribution of 'no impact' from the pandemic; 'looking after people' saw a significantly greater proportion of students categorising that as 'more important'. There were no significant differences in these observations between those in ONE schools and those in other schools.

ONE programmes at the pupil level have been effective in making participants more confident about their career

Compared with those not on the ONE programme, pupils on the ONE programme report significantly higher industry and career knowledge; in turn, higher industry and career knowledge are significantly associated with more focus and more confidence in employability skills.

Given the significance of industry and careers knowledge in terms of its association with skills confidence and frame of mind, it is notable that there is a statistically significant difference between pupils on the ONE programme and those not on the ONE programme in terms of their careers knowledge. 42% on the ONE programme state "I feel very well supported with Careers" v. 25% for other pupils, and 50% on the programme state the feel they have "enough experience and knowledge to make the choices," v. 35% of non-ONE programme pupils.

“As a former school pupil from the North East, I’m really pleased that Trinity is supporting this important work. We want to do everything we can to support pupils to think about career planning and their progression beyond school – whether they might think about applying to Oxford, a different university or any other destination. The insights from the Litmus work are important in providing evidence of how we can potentially help students of all backgrounds.”

DAME HILARY BOULDING

President, Trinity College, Oxford

Conclusions and recommendations

Litmus has established a standardised and simple way to collect key career intention data from school pupils which, when allied with available demographic data, provide some useful and usable insights for targeted careers education and guidance.

The North East Litmus programme has shown that pupils are more likely to be engaging in their career plan the more industry and careers knowledge they have. There are other significant associations, including gender and parental graduate status, but schools can do nothing to change these.

More careers and industry knowledge is also associated with more confidence about demonstrating key employability skills.

Next steps

We propose the following next steps, with the support and help of the DfE and LEPs.

- Disseminate the summary findings to all 51 schools invited to take part.
- Provide more detailed, pupil-level data to each of the active 26 schools so they can use it for specific pupil interventions, if they wish.
- Confirm the benefits of the ONE programme in increasing career skills confidence and engagement.
- For schools and the Local Enterprise Partnerships, use the pupil-level details, pan-region, to form cross-school industry interest groups.
- Over 500 pupils registered to receive careers information from the Oxford University Careers Service: we are planning what would be appropriate to send them.
- Plan the repeat Litmus programme in the North East for 2021/22.
- Present the findings to other DfE regions and LEPs to explore opportunities to expand the programme.

Acknowledgements

Our thanks are due to a number of colleagues and organisations that helped considerably in the collecting and analysis:

- **gti Ltd**, providers of the software platform
- **Dr Gosia Turner**, Senior Statistical Analyst; Student Data Management and Analysis, Student Registry, University of Oxford
- **Sam Kelly**, Challenge Lead – Opportunity North East and The Department for Education Opportunity North East team.
- **The Tees Valley Combined Authority & the North East Local Enterprise Partnership**

“We are pleased to have been able to apply the Careers Service Litmus system for the benefit of pupils and schools in the North East. This exercise has shown the power of collaboration with colleagues at Trinity College, Oxford, our software suppliers gti, and in the DfE and Local Enterprise Partnerships in the region. The results have confirmed the positive effect the ONE programme has had, and point the way to even greater benefits if we were to roll this out more widely.”

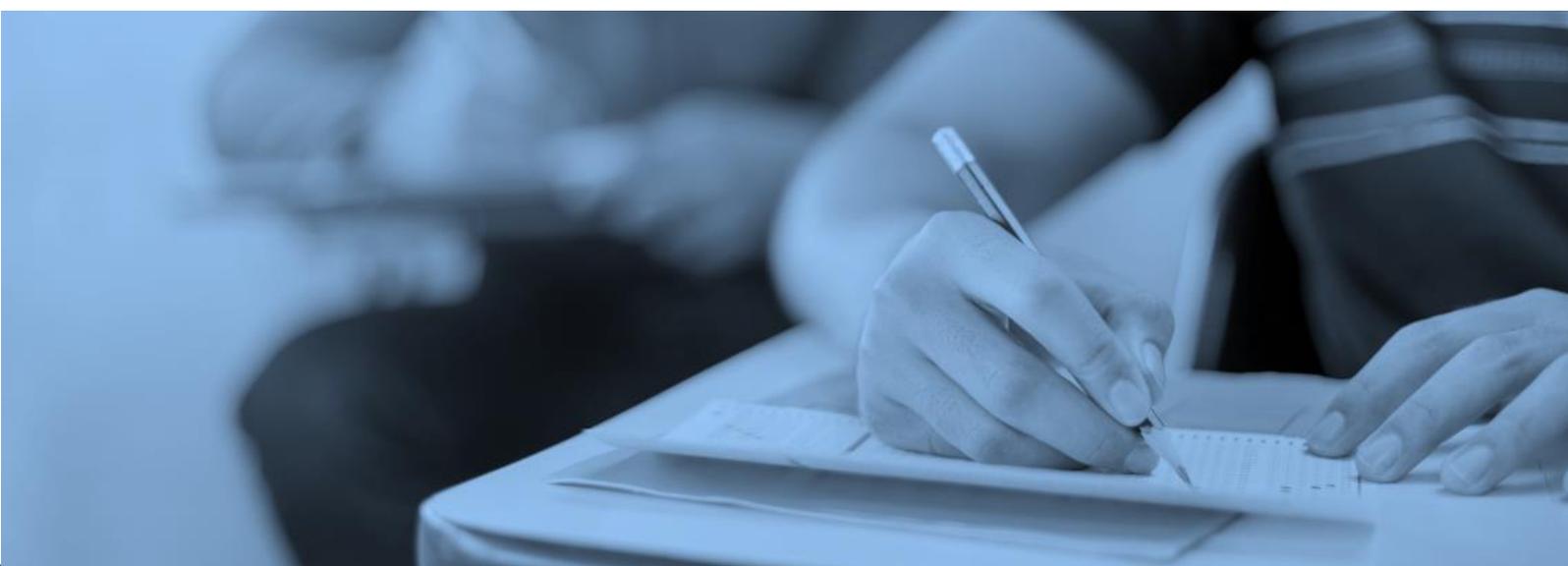
JONATHAN BLACK

Director, Oxford University Careers Service

Appendices

A closer look at:

1. The North East Litmus survey: questions and response options
2. Frame of Mind: descriptors for students
3. Frame of Mind: North East v. national dataset
4. Frame of Mind v. industry knowledge and Careers knowledge
5. Frame of Mind v. gender and parent graduate status
6. Knowledge, gender and parent graduate status and Focused mind-sets
7. Frame of Mind v. FSM and ethnicity
8. Industry Interests regionally
9. Industry Interests and gender
10. Employability skills confidence
11. Employability skills confidence: ONE intervention students
12. Destinations at 16 & 18
13. Apprenticeships
14. Universities
15. Prospective university destinations
16. Influences on industry interests
17. Perception of Careers support provided
18. Careers knowledge
19. Year group v. Frame of Mind and Industry knowledge
20. Pandemic overall impact
21. Pandemic specific effects



Appendix 1: The North East Litmus survey: questions and response options

The North East Litmus survey asks for students' demographic information and includes questions about their careers frame of mind, industry interests, and employability skills. These are followed by a host of Opportunity North East-specific questions about student's plans after school/college, their interest in going to university or doing a traineeship or apprenticeship, as well as the impact that the COVID-19 pandemic has had on their future plans for work and study.

Appendix 2: Frame of Mind descriptors for students

- **Focused:** I think I know what I want to do, but I may need some help on specific issues
- **Exploring:** I am exploring some career ideas as well as getting involved in activities such as clubs, sports and voluntary work both in and outside school
- **Postponing:** I'm focusing on school and social activities at the moment. I'll think about my career and jobs later
- **Flowing:** I haven't really thought about it but will probably do something similar to what other people I know do (eg, my family).

Appendix 3: Frame of Mind: North East v. national dataset

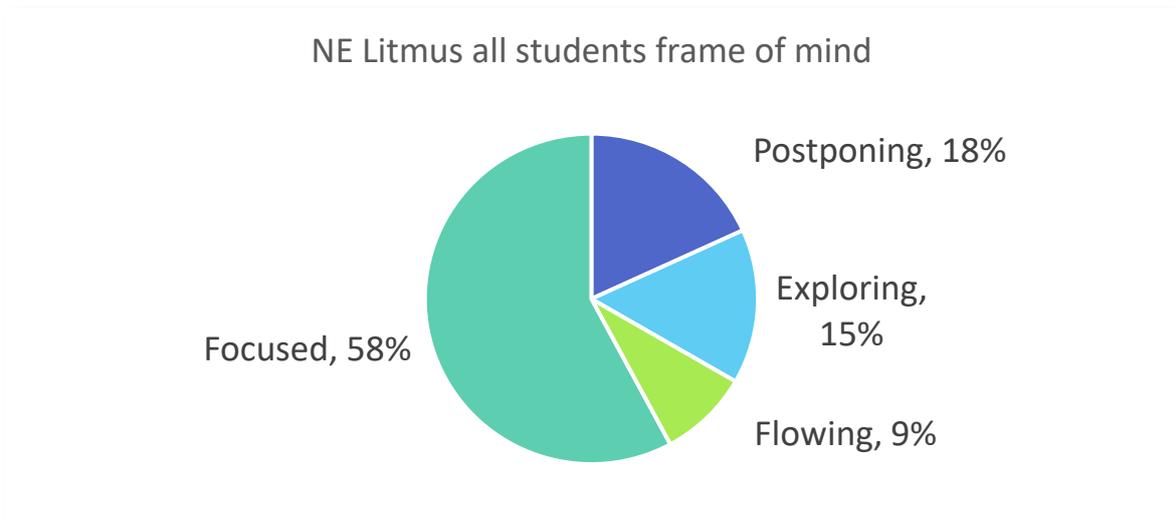


Figure 5

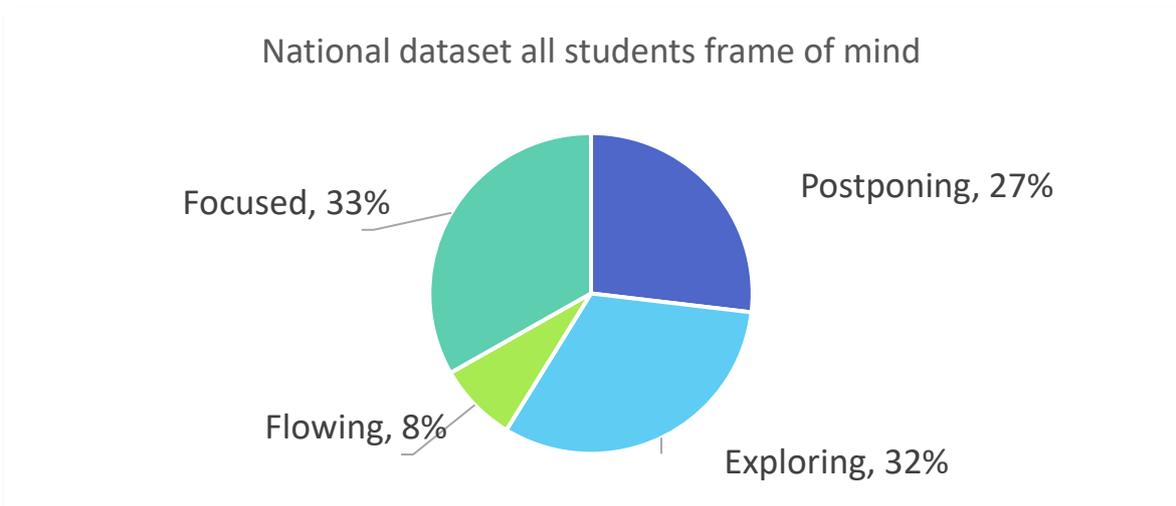


Figure 6

Appendix 4: Frame of Mind v. industry knowledge and Careers knowledge

Those pupils with more industry or careers knowledge are very significantly more focused and engaged...

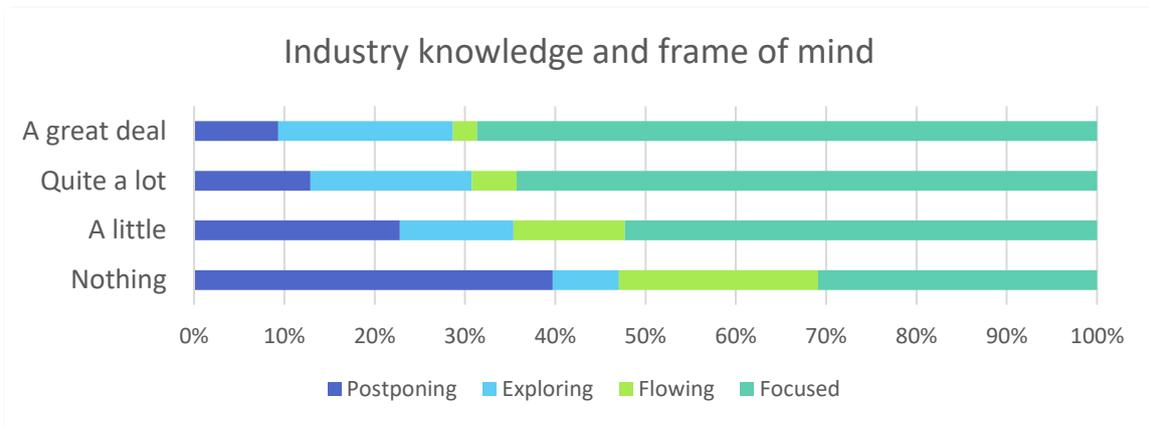


Figure 7

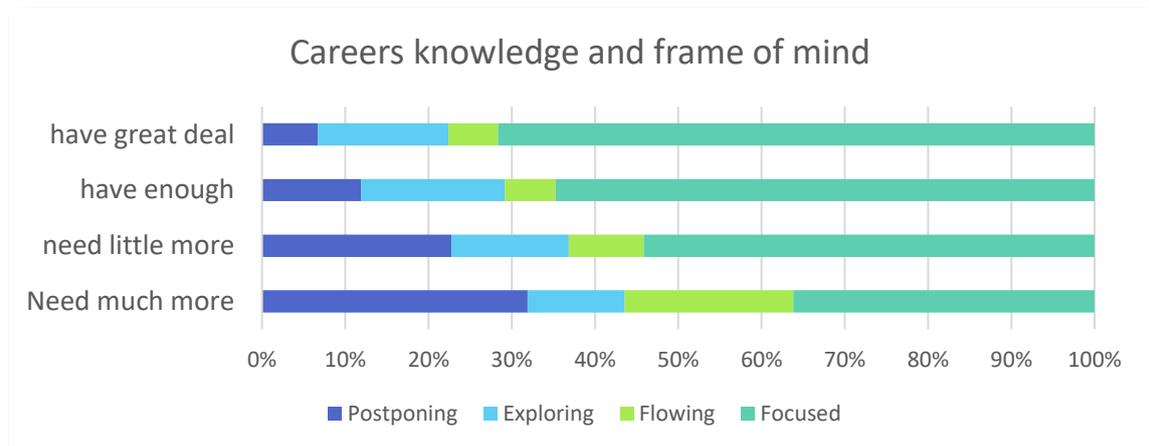


Figure 8

Appendix 5: Frame of Mind v. gender and parent graduate status

There is a significant difference in frame of mind associated with gender (girls are more focused than boys), and parent graduate status (those with non-graduate parents are also more focused) ...

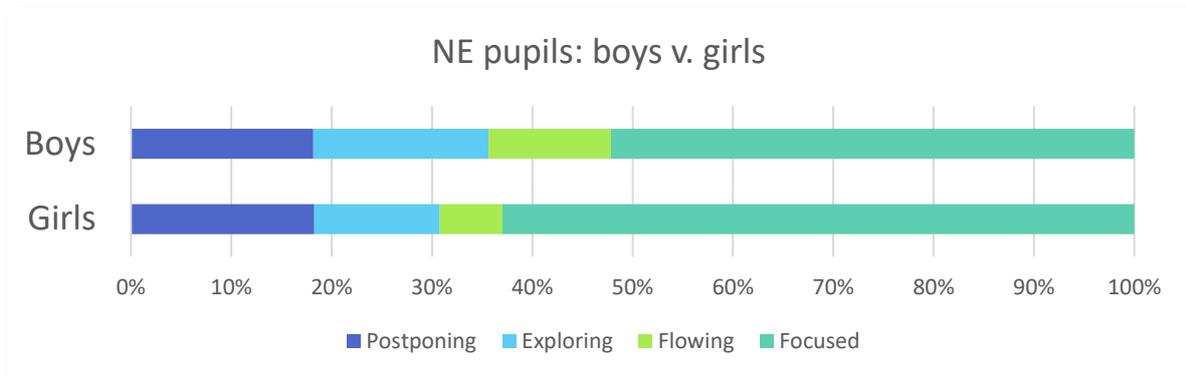


Figure 9

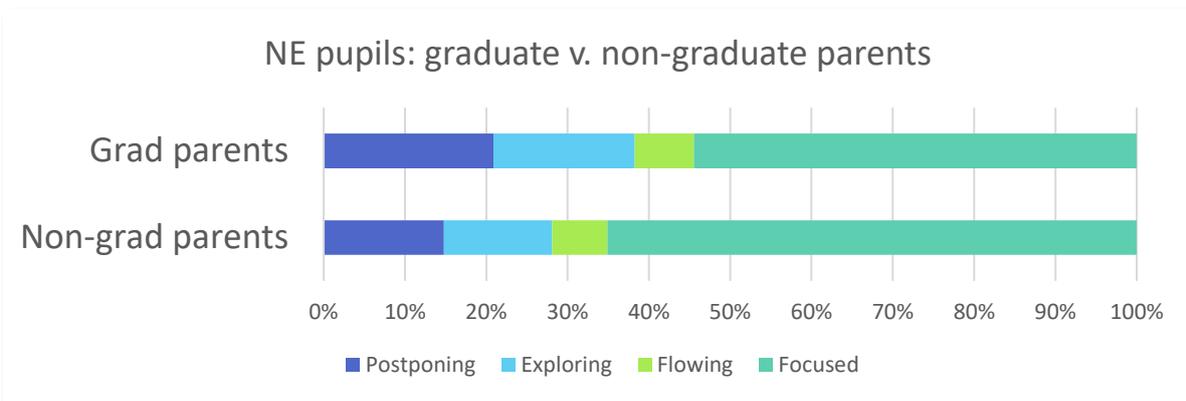


Figure 10

Statistically, having non-graduate parents focuses girls but not boys ...

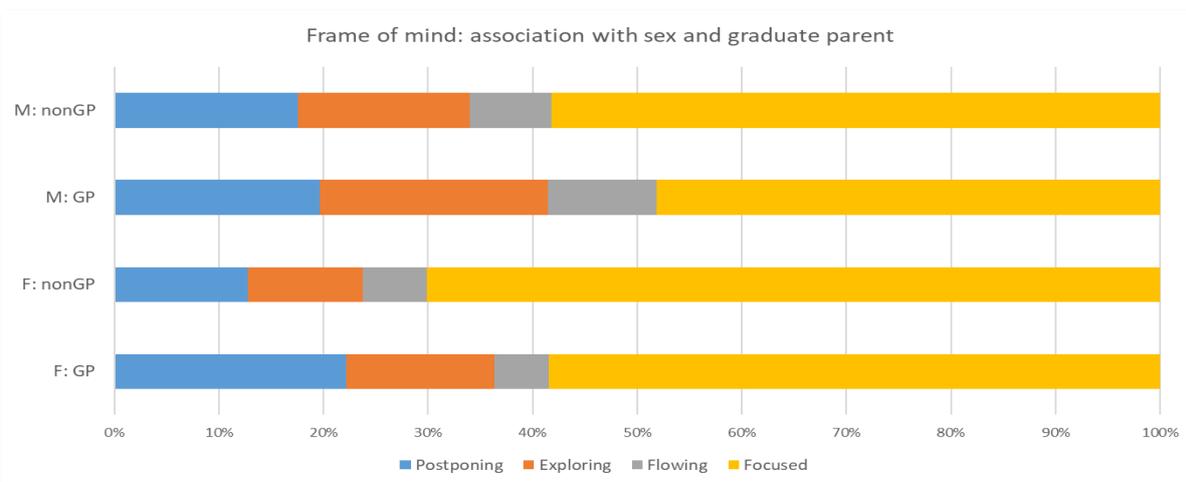


Figure 11

Appendix 6: Knowledge, gender and parent graduate status and Focused mind-sets

Industry knowledge adds ~35% points ...

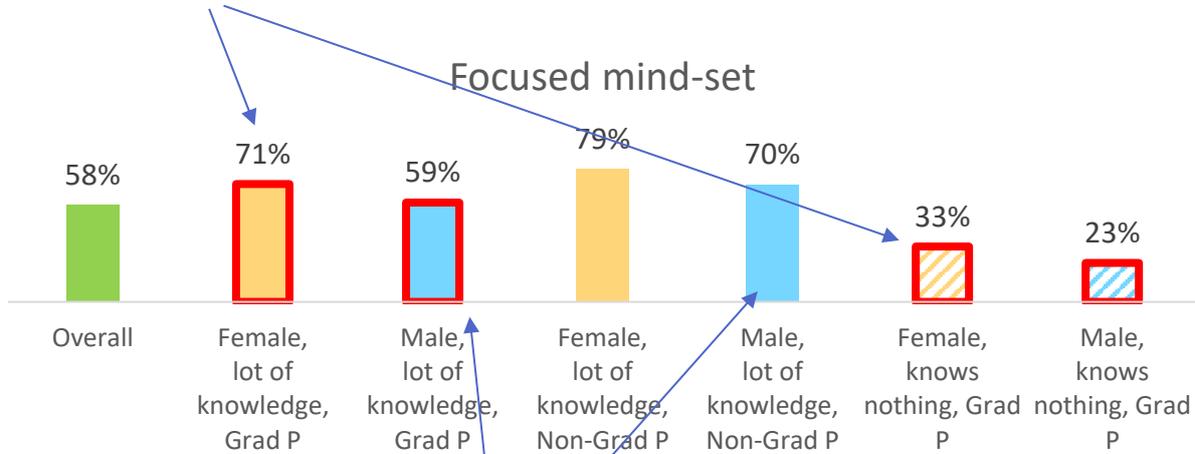


Figure 12

... non-graduate parents adds ~10% points

Appendix 7: Frame of Mind v. FSM and ethnicity

Frame of Mind is not statistically significantly associated with FSM ...

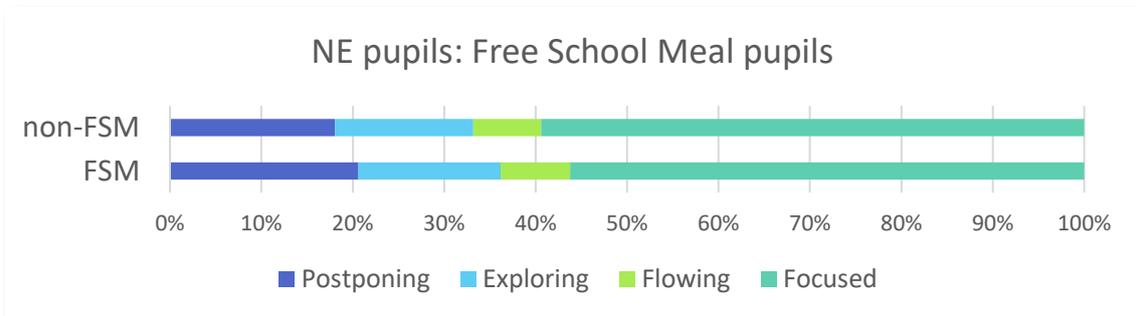


Figure 13

... or ethnicity

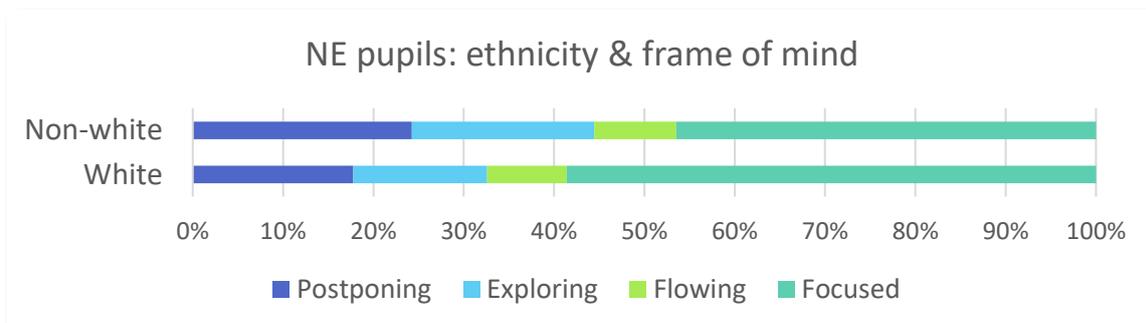


Figure 14

Appendix 8: Industry Interests regionally

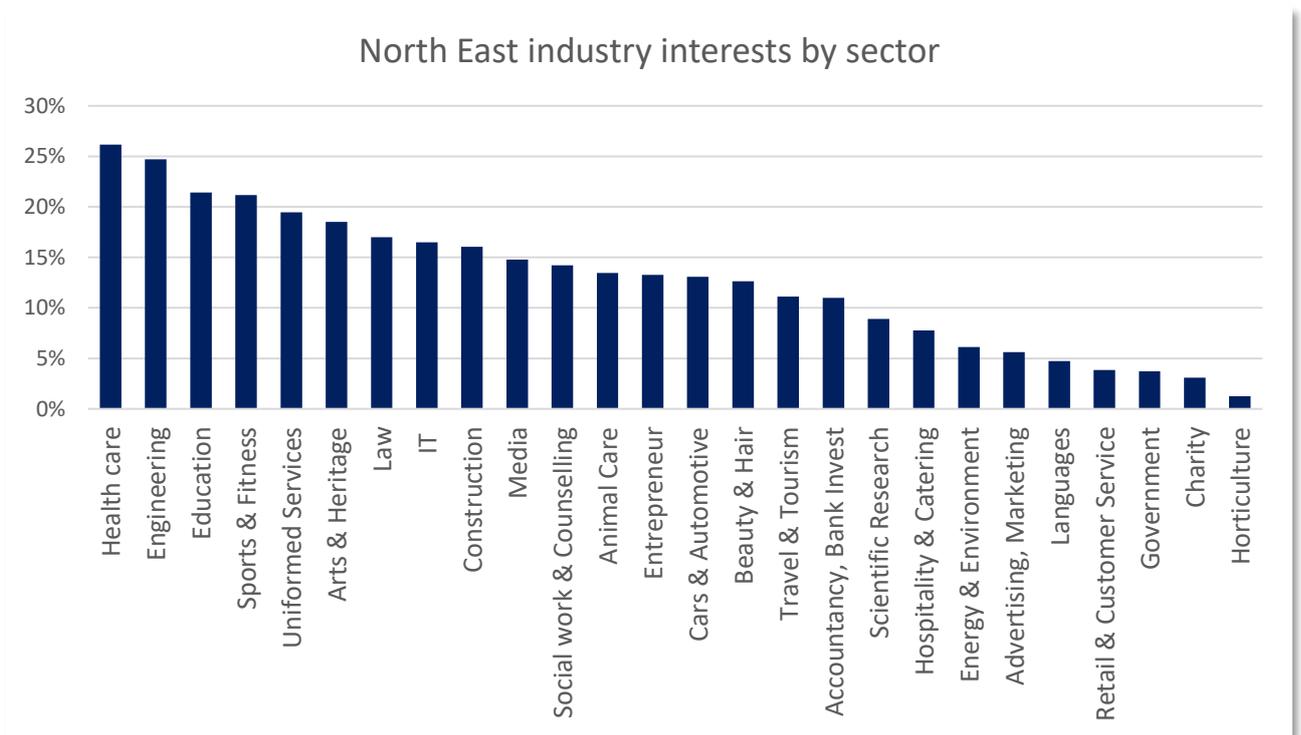


Figure 15

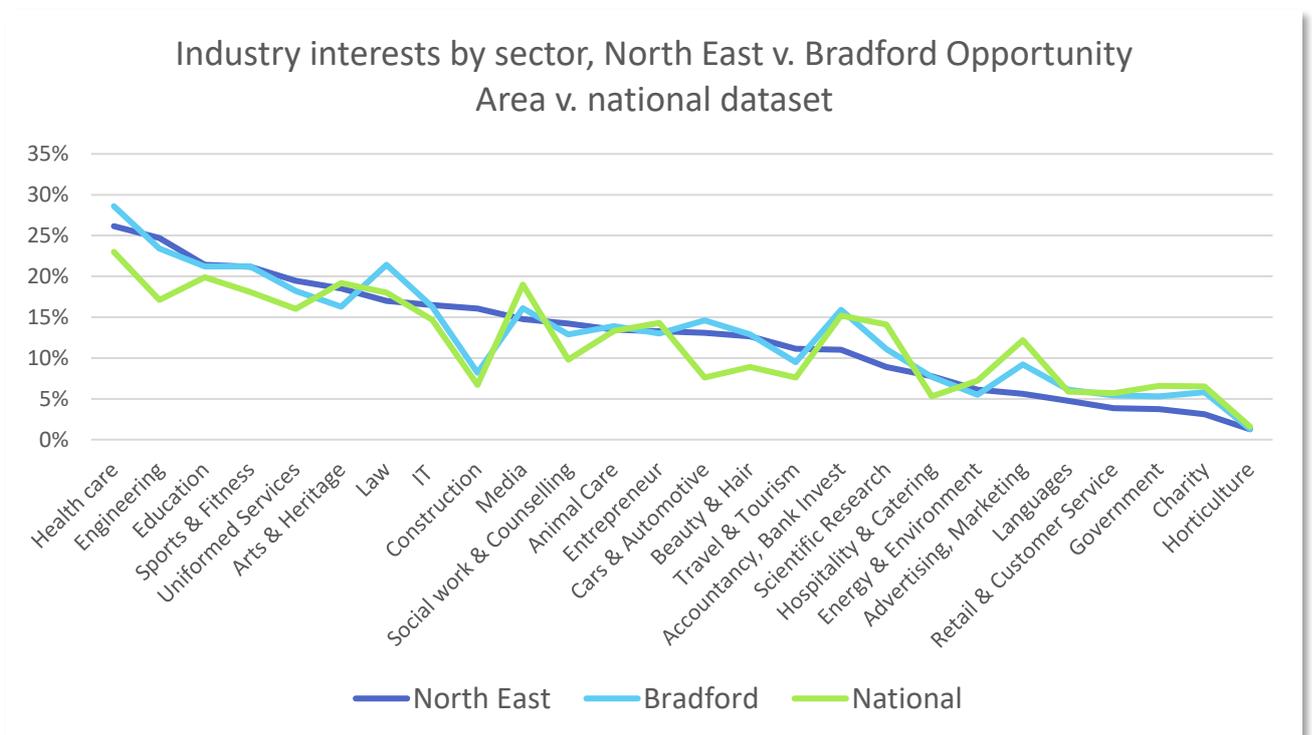


Figure 16

Appendix 9: Industry interests and gender

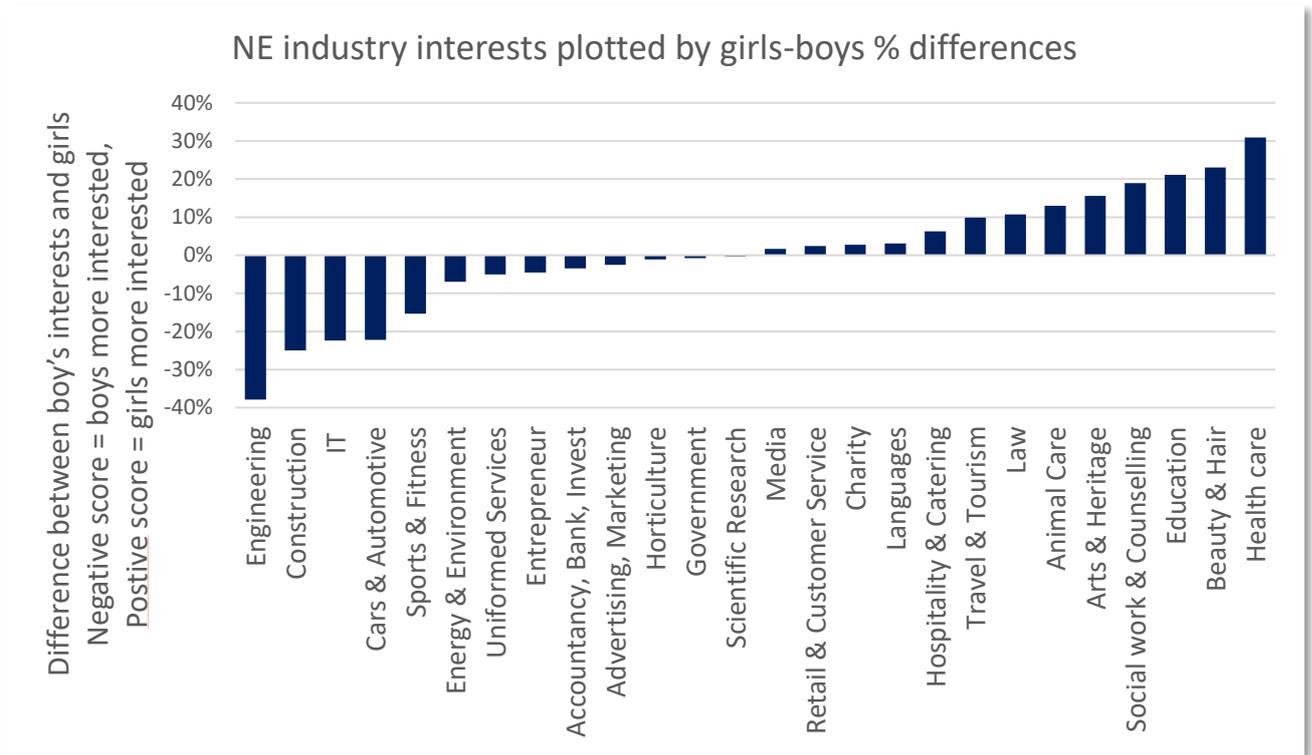


Figure 17

Industry interest differences between genders are much more marked in the North East ...

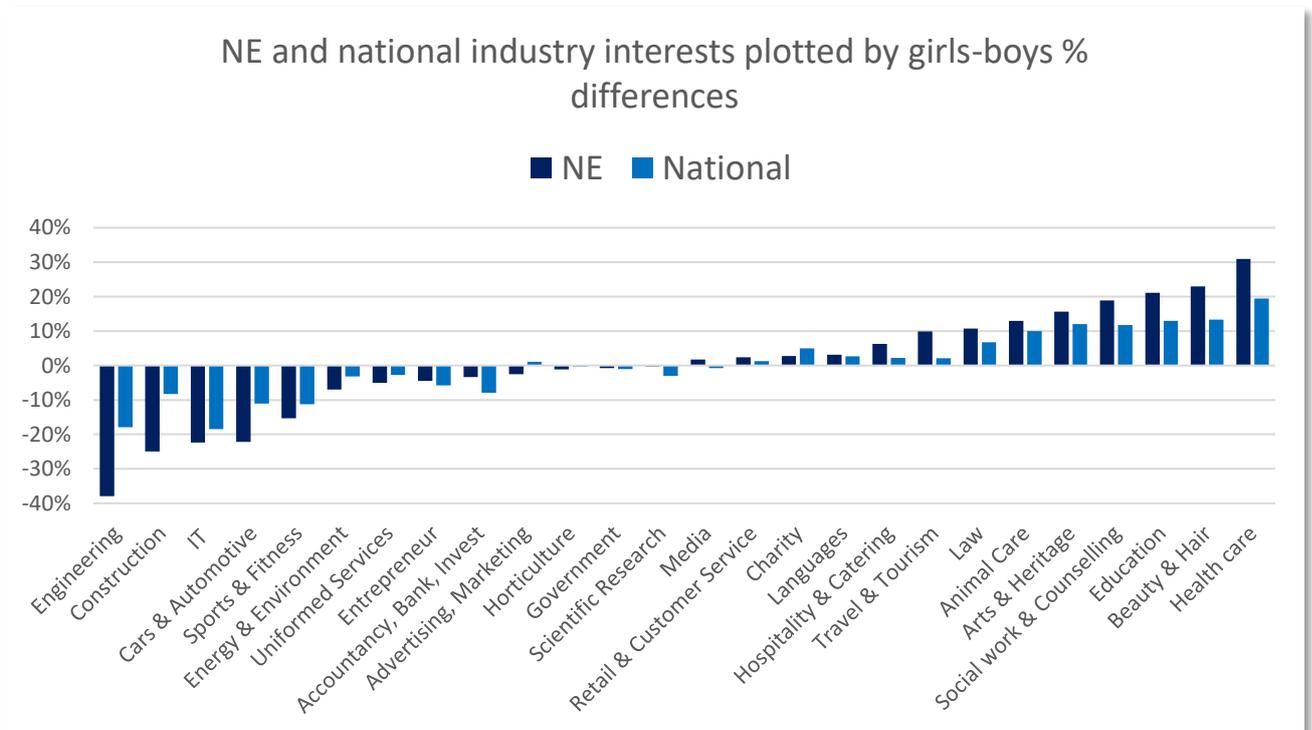


Figure 18

Appendix 10: Skills confidence

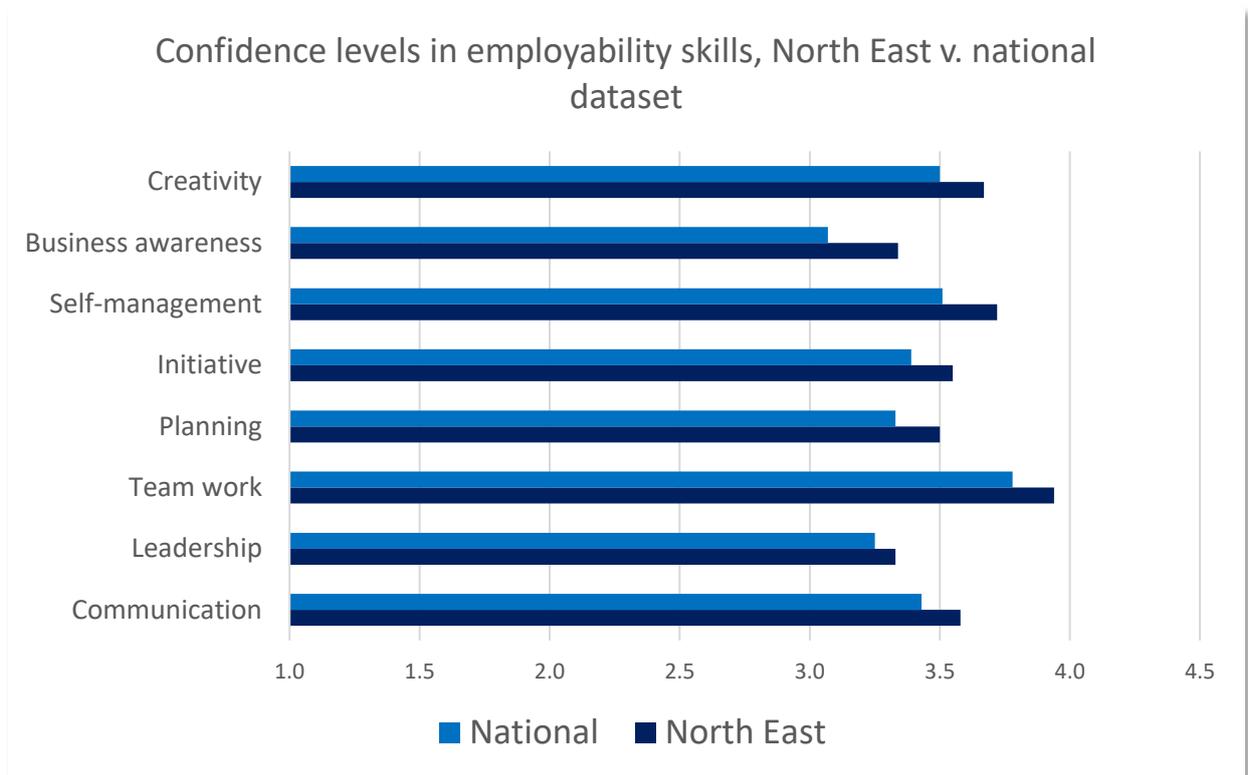


Figure 19

Insignificant differences between girls' and boys' employability skills confidence ...

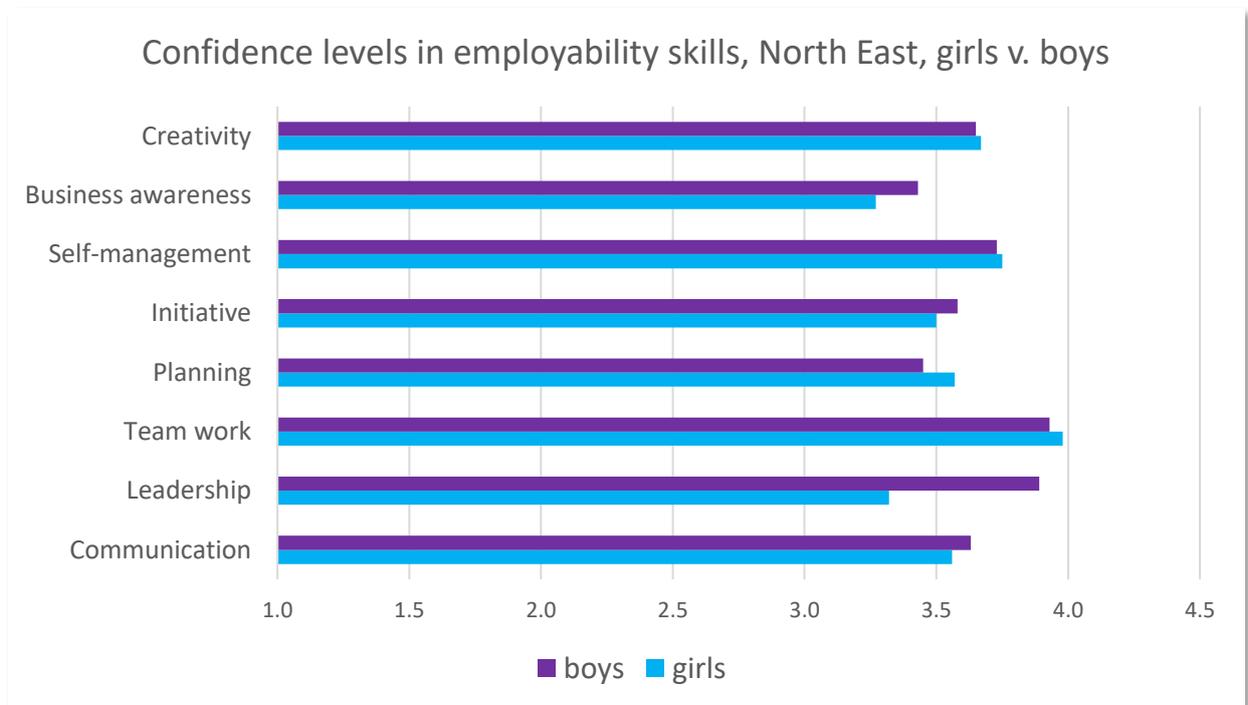


Figure 20

Appendix 11: Employability skills confidence: ONE intervention students and ONE schools

Slightly more skills confidence in ONE intervention students ...

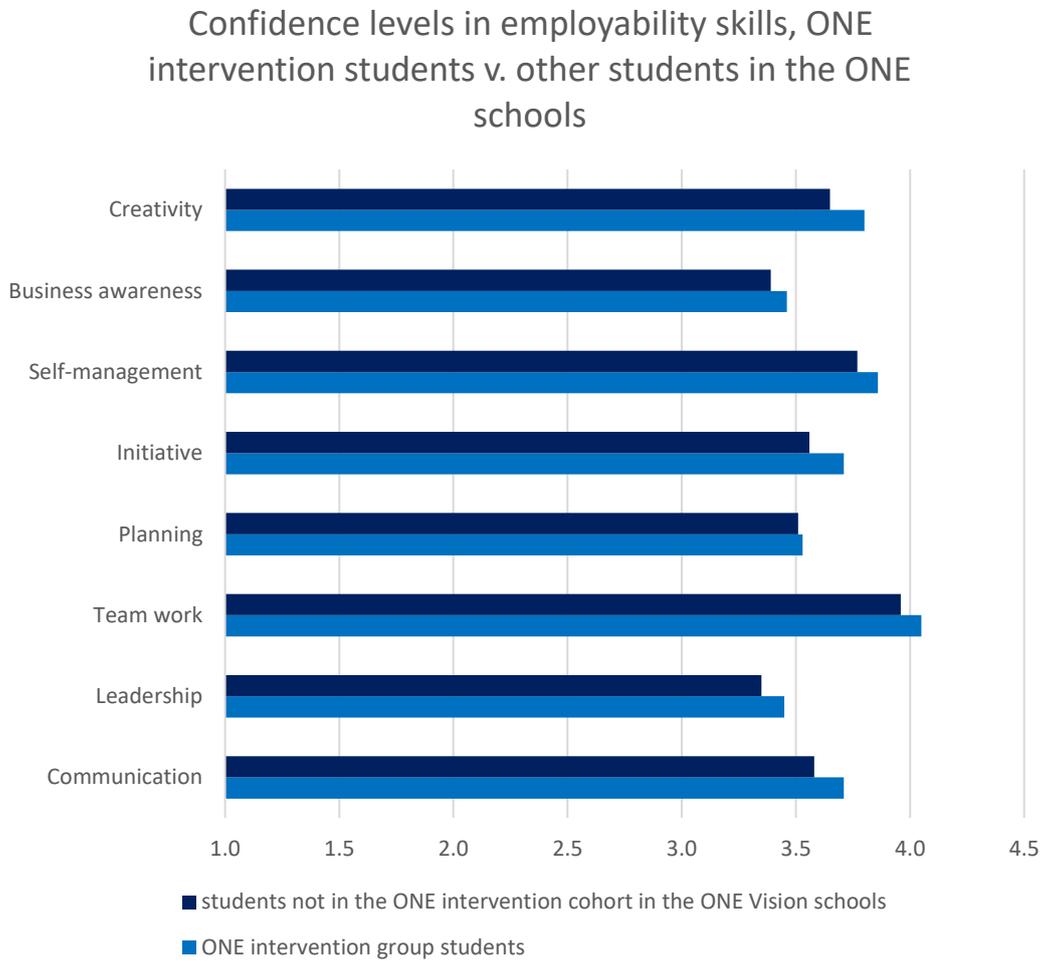


Figure 21

Appendix 12: Destinations at 16 and 18

At 16, boys favour apprenticeships and girls favour 6th form colleges ...

LIKELY DESTINATION POST-16

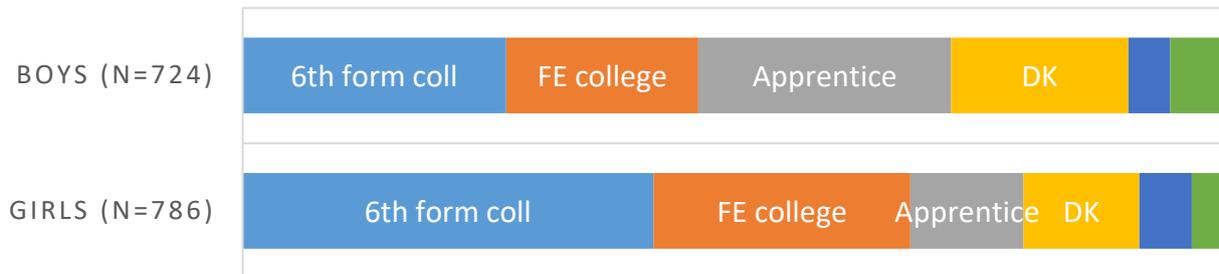


Figure 22

... carried through to their plans post 18 ...

INTENDED DESTINATION POST-18

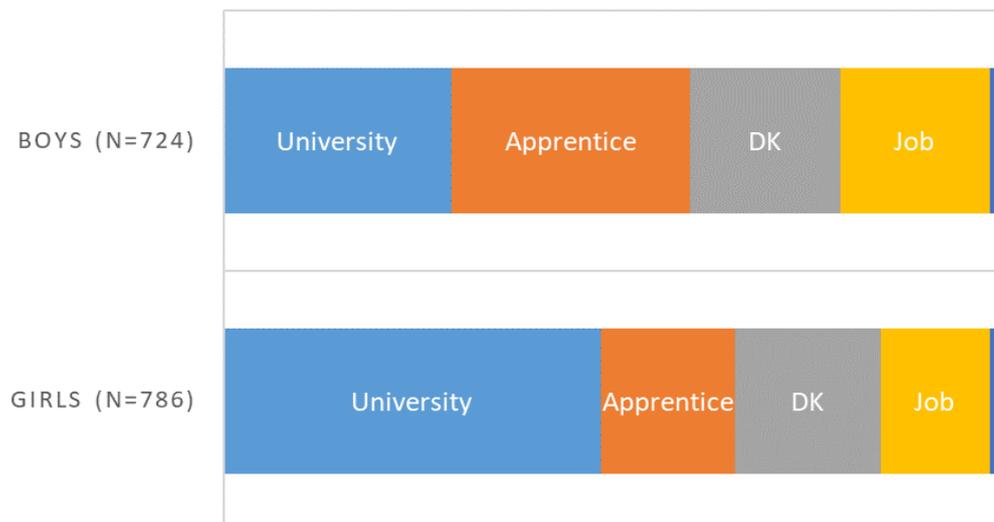


Figure 23

Appendix 13: Apprenticeships

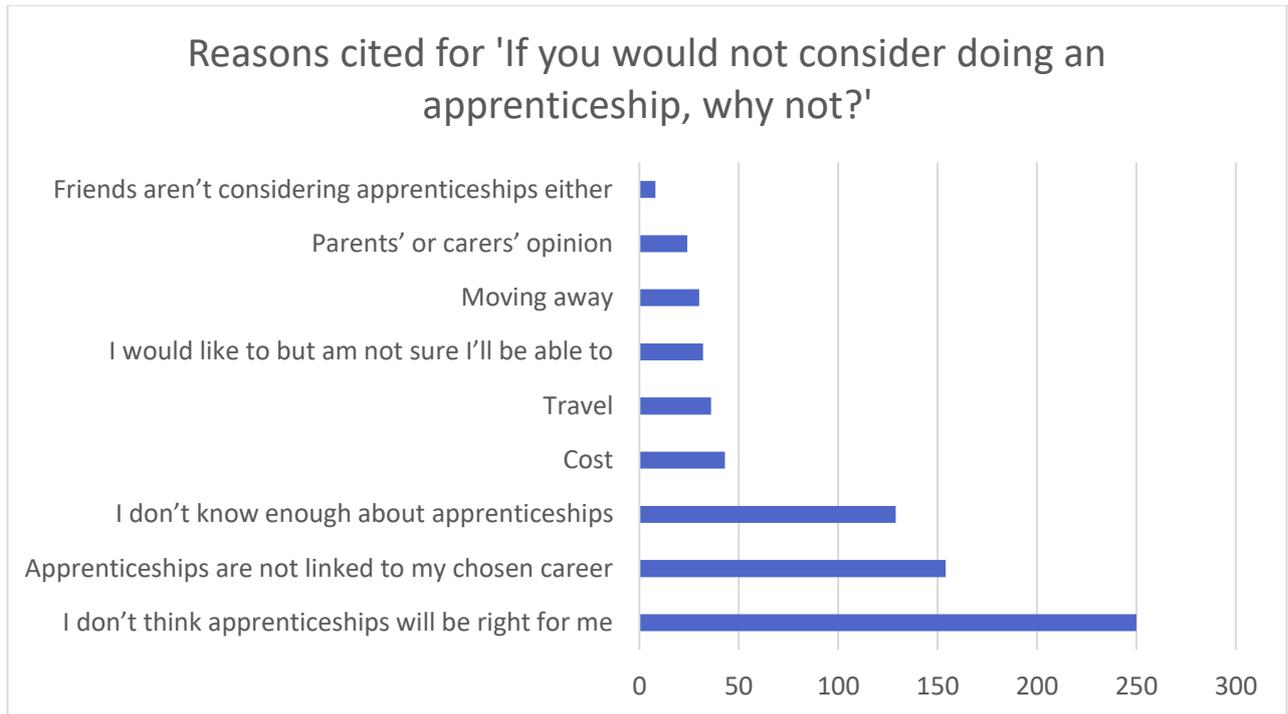


Figure 24

Appendix 14: Universities

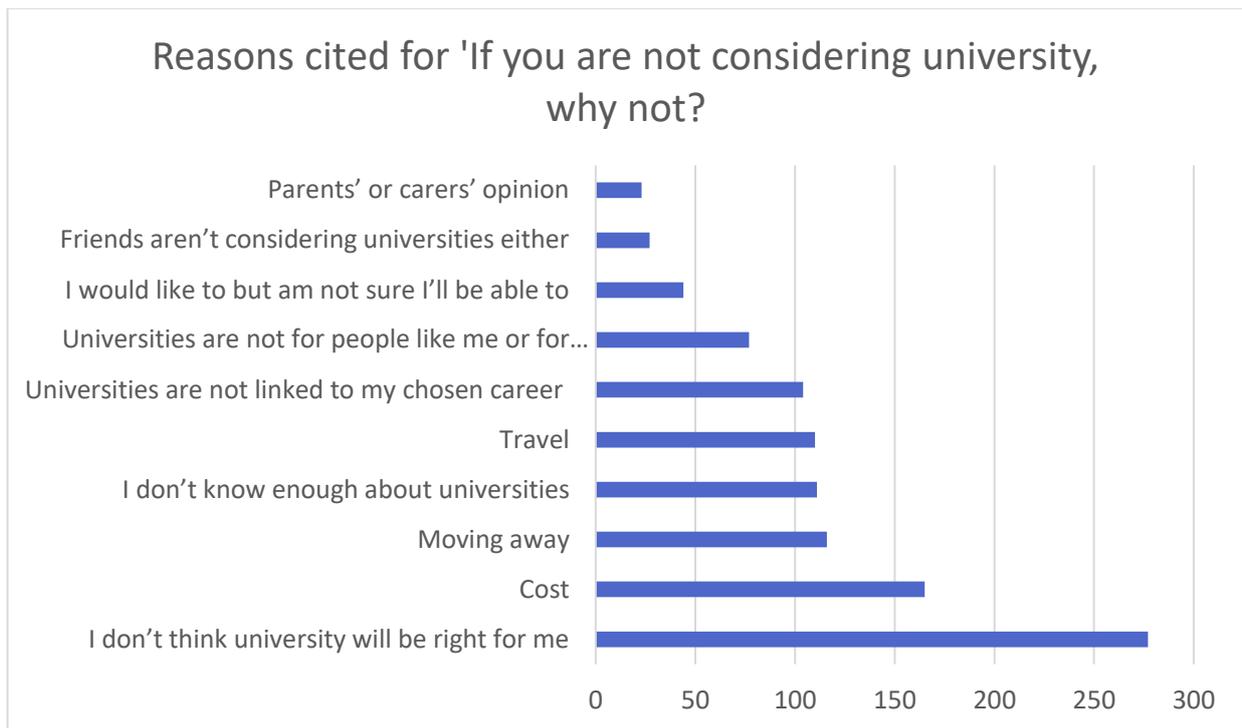


Figure 25

Post 18, the most likely group (86%) intending to go to university are career-focused females, with graduate parents ...

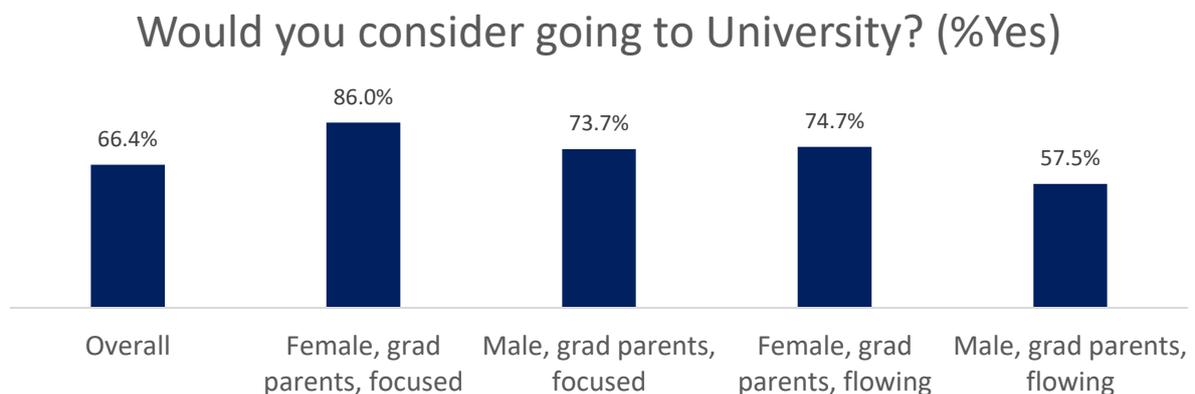


Figure 26

Appendix 15: Prospective university destinations

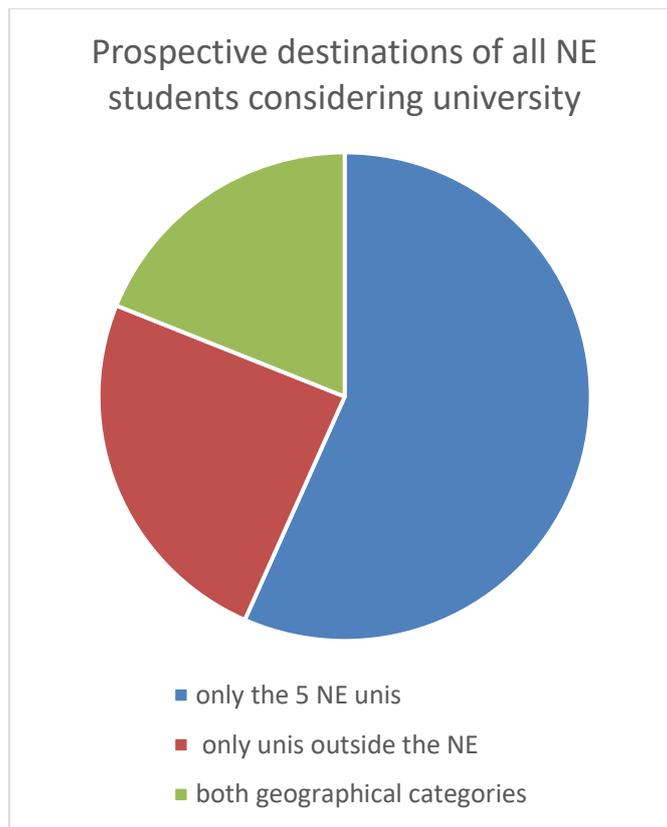


Figure 27

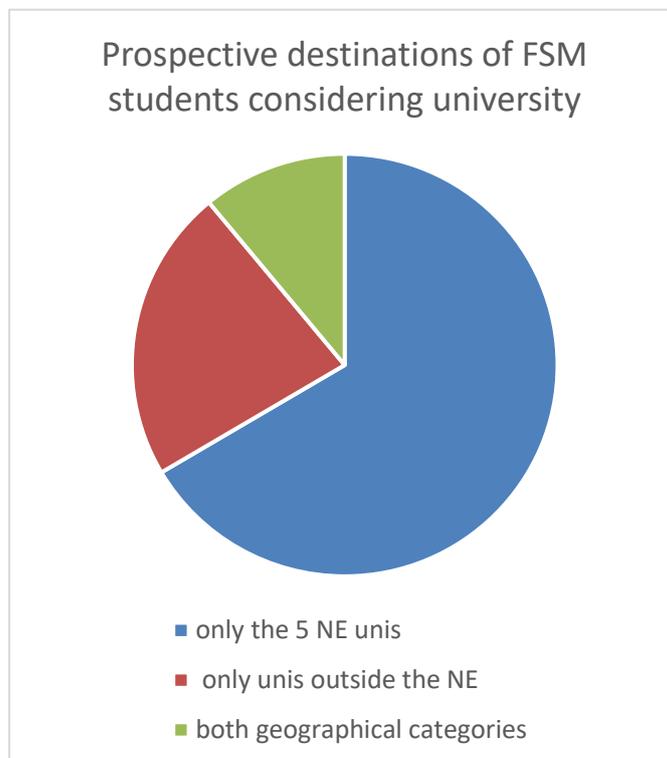


Figure 28

Appendix 16: Influences on industry interests

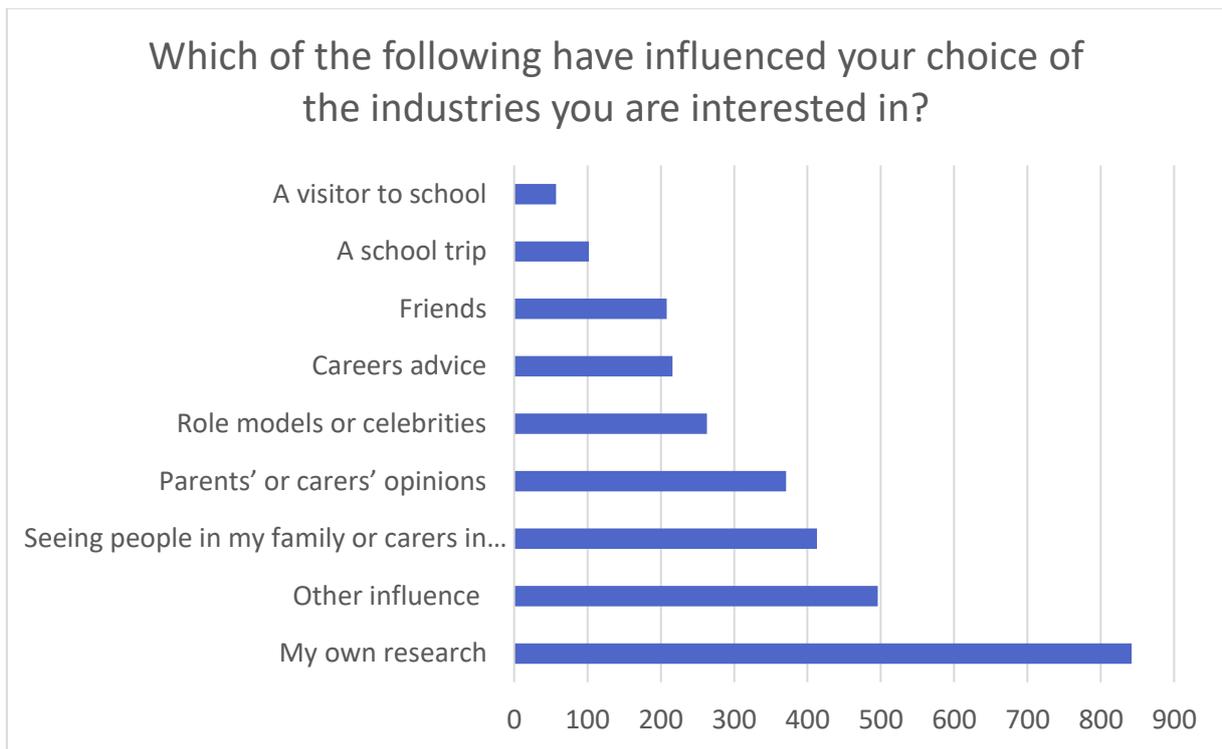


Figure 29

Appendix 17: Perception of Careers support provided

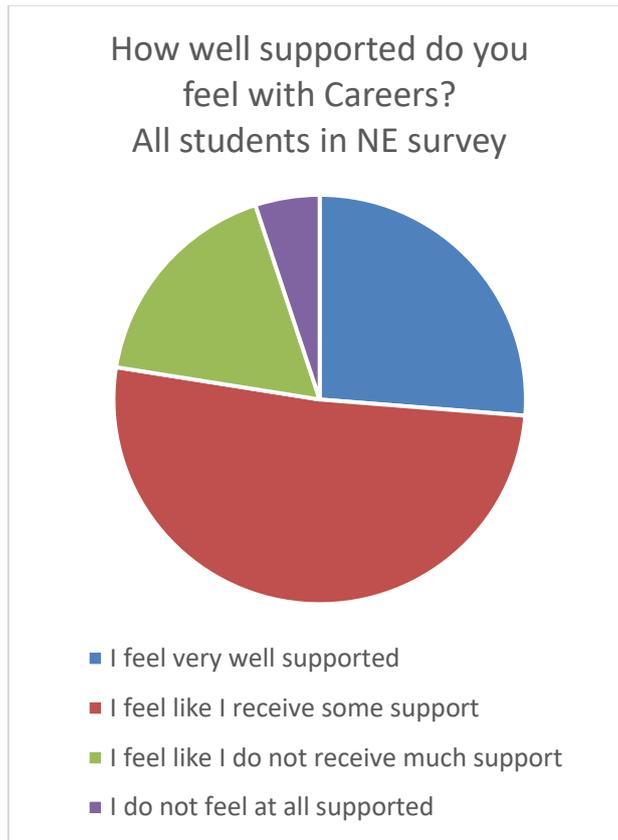


Figure 30

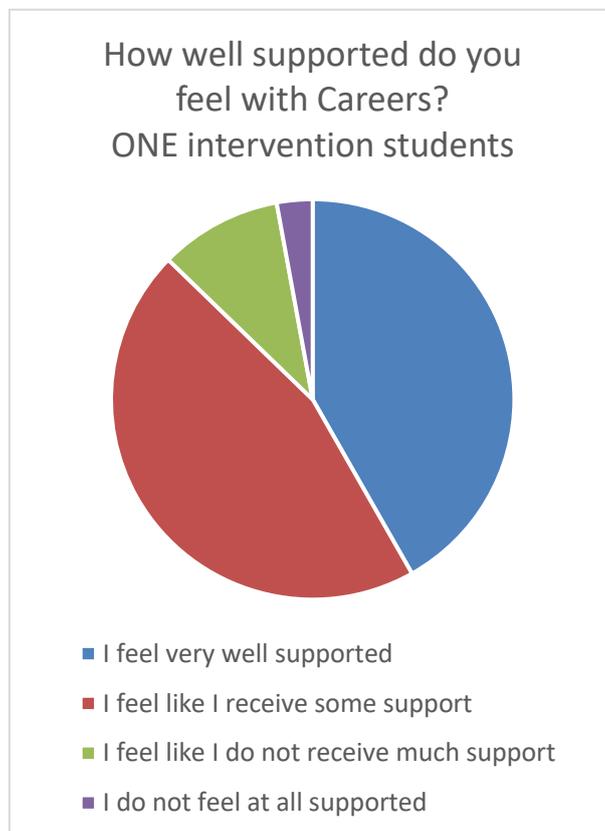


Figure 31

Appendix 18: Careers knowledge

Statistically significant different levels of knowledge in ONE schools v. other schools ...

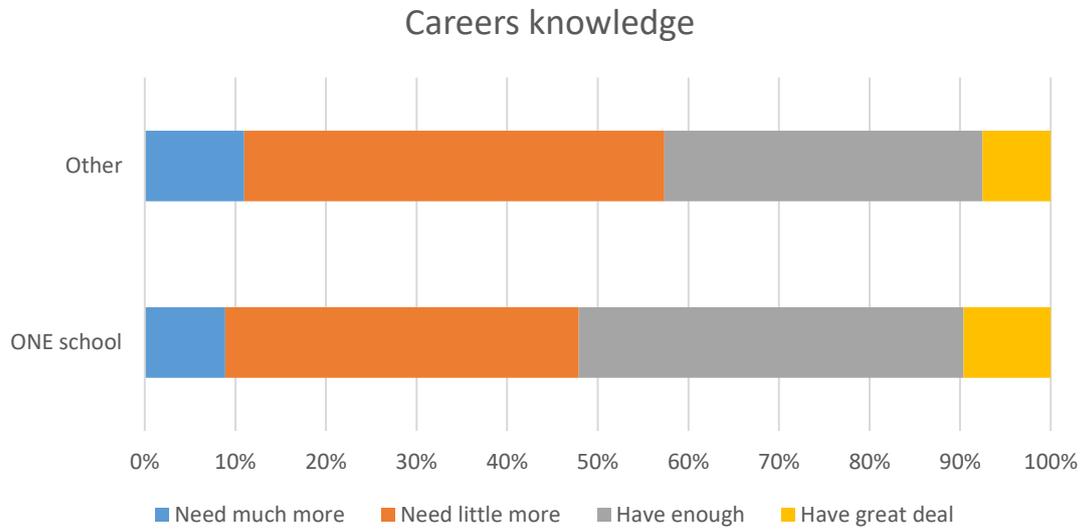


Figure 32

... and greater difference between ONE intervention students and non-intervention students ...

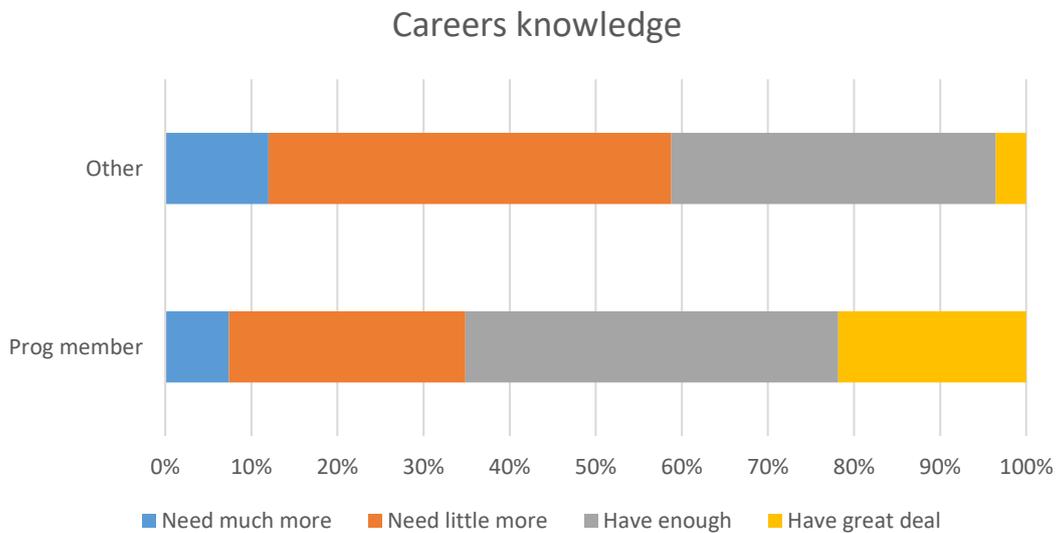


Figure 33

Appendix 19: Year group v. Frame of Mind and industry knowledge

Year 10 respondents had a similar Frame of Mind profile to their older counterparts in Year 11 ...

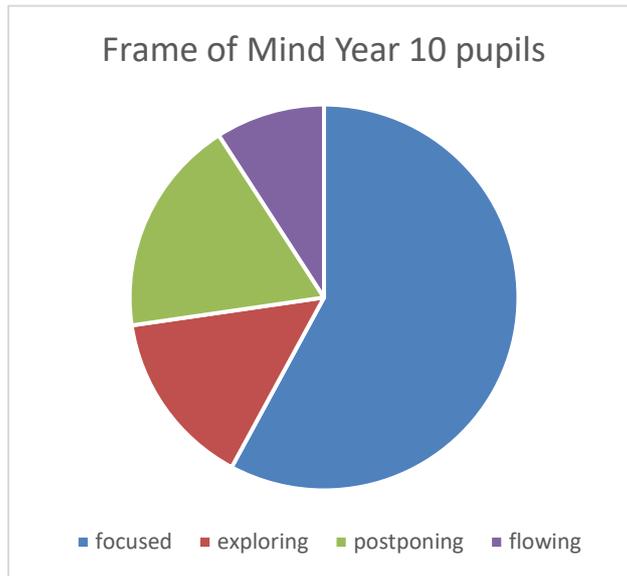


Figure 34

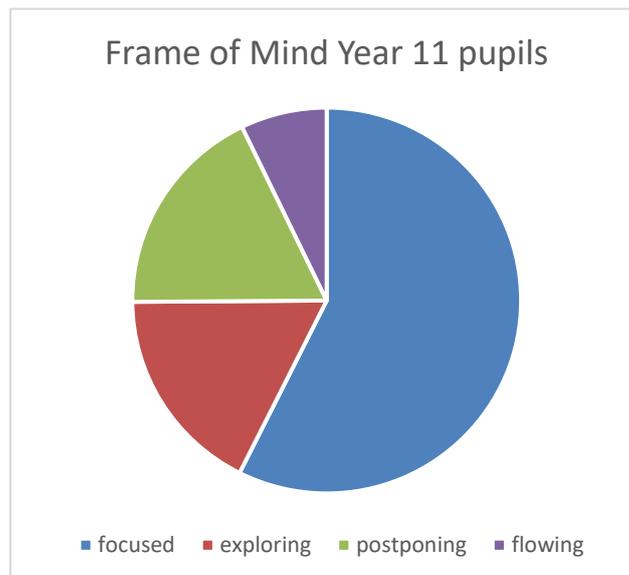


Figure 35

... and Year 10 and 11 respondents' assessment of their industry knowledge was also aligned.

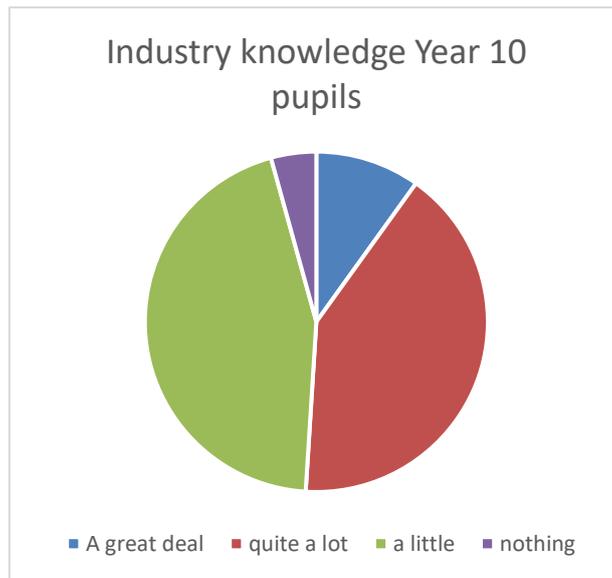


Figure 36

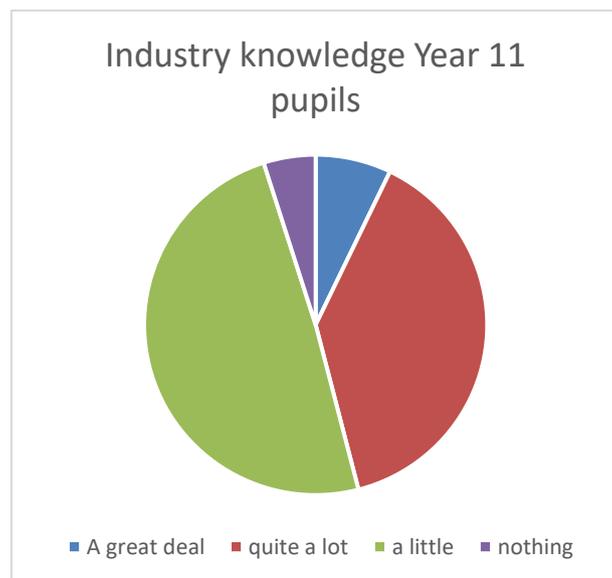


Figure 37

Appendix 20: Pandemic overall impact

The pandemic would seem to have had little or no impact on 80% of respondents ...

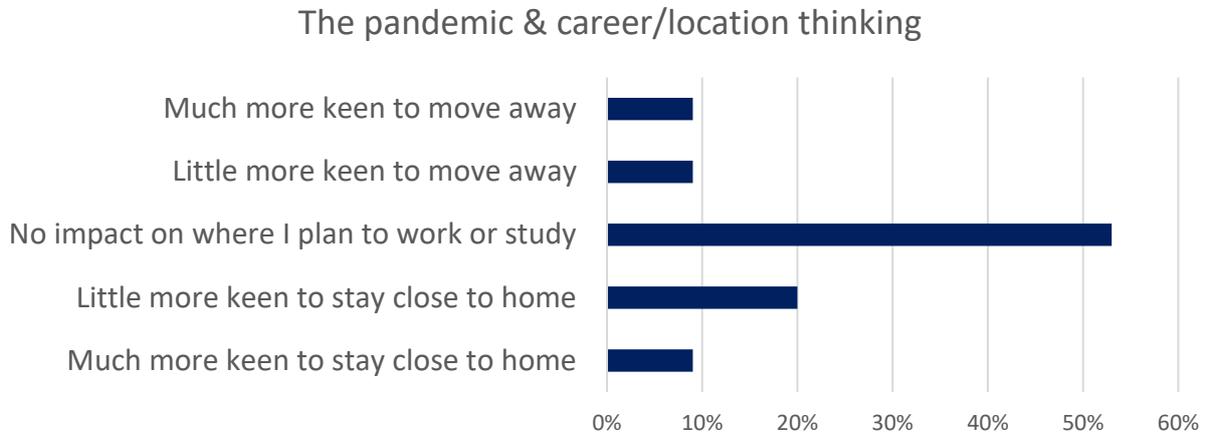


Figure 38

Appendix 21: Pandemic specific effects

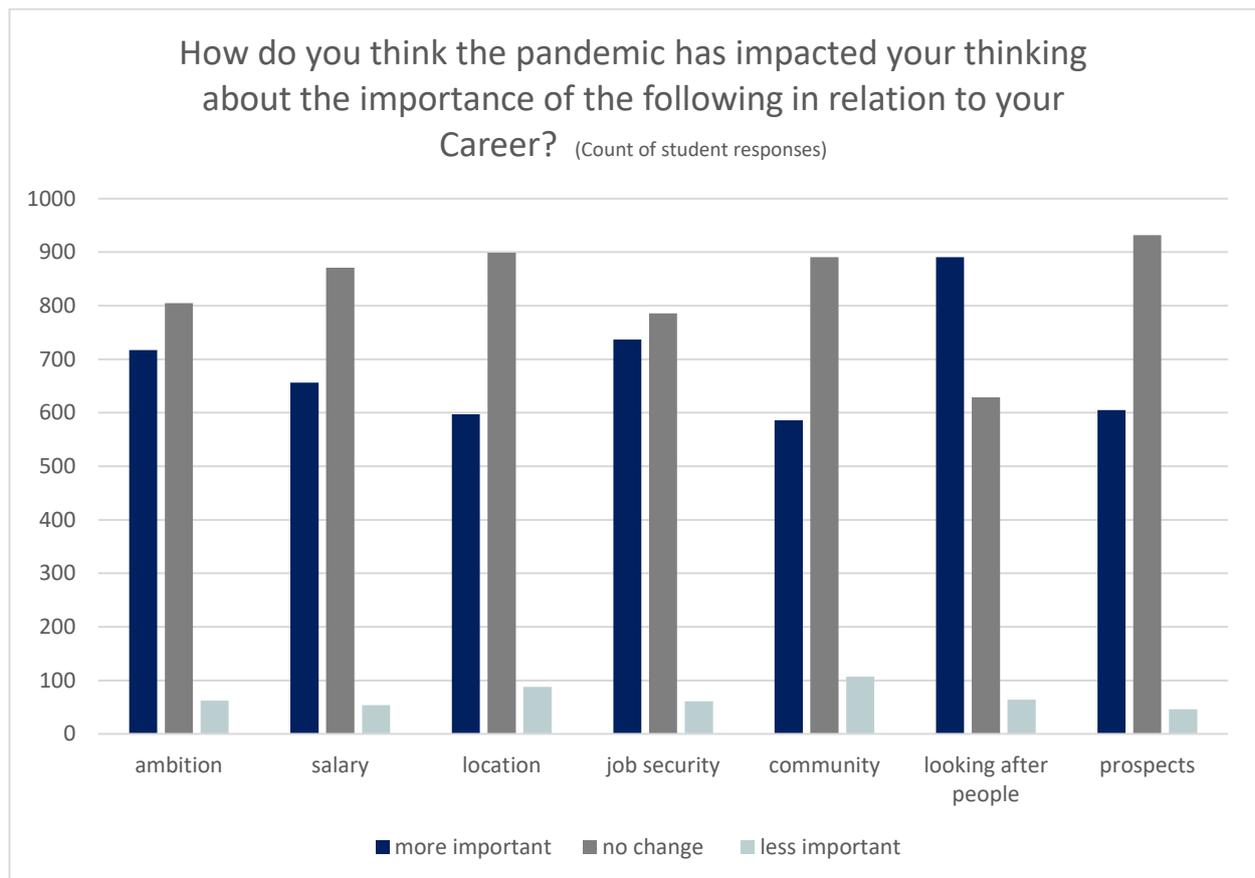


Figure 39



from the Oxford University Careers Service

FOR FURTHER DETAILS, PLEASE CONTACT:

Jonathan Black

Director, Oxford University Careers Service

jonathan.black@careers.ox.ac.uk

Richard Petty

Access & Outreach Team, Trinity College Oxford

richard.petty@trinity.ox.ac.uk

Sam Kelly

Challenge Lead – Opportunity North East, Department for Education

enquiries.opportunitynortheast@education.gov.uk

This report and the information about the Opportunity North East (ONE) programme is copyright of the University of Oxford or its licensors.

No material may be modified, edited or taken out of context such that its use creates a false or misleading statement or impression as to the positions, statements or actions of the University of Oxford.

Any enquiries regarding this report should be sent to Jonathan Black or Richard Petty.