UNIVERSITY *of* STIRLING

Impact for Access Research

So you want to be... in the professions?

An investigation into the barriers and influences of gender and access to higher education

BE THE DIFFERENCE

Contents

Introduction

This research was carried out as part of a Scottish Funding Council (SFC) Impact for Access funded project which sought to better understand how widening access and gender influences access to higher education and subject choice. This builds on experience and research across the Scottish higher education sector in breaking down barriers to university.
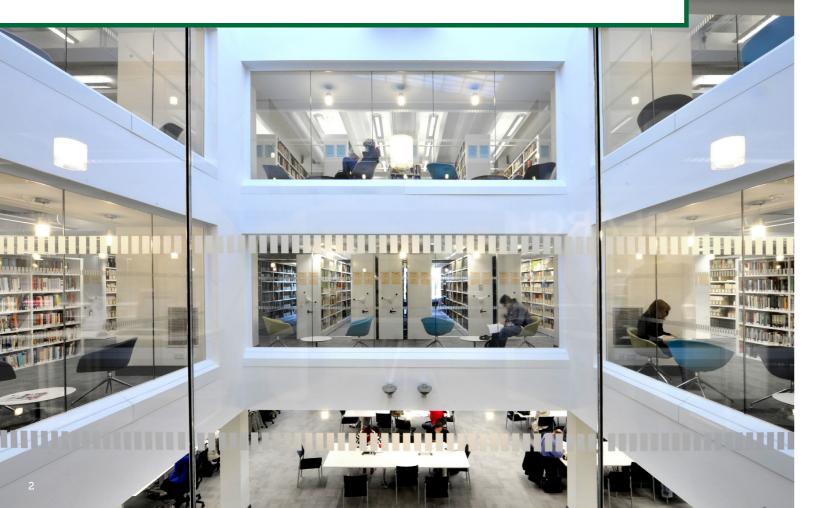
This research was informed by three key publications in 2016 – the Commission on Widening Access Report, the SFC Gender Action Plan and 'Whose job is it anyway?' by the Higher Education Academy (HEA). The Commission on Widening Access, published in March 2016, articulated the aims of the Scottish government for access to universities (and colleges) for students from a disadvantaged background. SFC's Gender Action Plan, published in August 2016, established targets for gender balance in intakes to Scottish universities. The Higher Education Academy publication 'Whose job is it anyway?' analysed the further education (FE) and higher education (HE) sectoral approach to tackling gender imbalance at subject level. These three documents informed and influenced this research.

This study sought to better understand the experiences of young people enrolled in schools with low-progression to higher education, to explore their views of education and access to university, alongside their perceptions of gender and how this influences their education and career intentions. The understanding gained from this study will help to inform outreach activity at the University of Stirling and across the sector.

This research study will enhance the evidence base available to Scottish HE sector relating to gender imbalances in subject areas. To aid further research in this area, the report also sets out the methodological approach and through the project website will provide further materials to support the continued analysis of widening access and gender research.

This research was supported by a range of outreach sessions with pupils from low-progression schools in the Forth Valley region. The events tackled widening access and gender imbalance. The broader project included the development of a range of supporting materials to enable improved access and reduced gender imbalances.

This report was entirely informed by the experiences and perspectives of young people as they progressed through the senior phase in education and engaged with the University of Stirling widening participation and outreach team. This research study will contribute to the existing research in this field through the articulation of young people's views.

Background and Context

The University of Stirling and Widening Access

The University of Stirling is committed to promoting equality and diversity and widening access, and our commitment to excelling in these areas is set out in our Strategic Plan 2016-2021. As stated in our Strategic Plan, the University of Stirling is a place where ability, not background, is valued. The University believes everyone with ability should have the opportunity to access higher education, and has pioneered different entry routes to university study. It capitalises on the transformative nature of a learning experience at Stirling, and wants to broaden the horizons of all of our students. The University of Stirling provides an inclusive environment and actively promotes equality and enriches students' lives by encouraging them to experience and understand the different cultures, beliefs and traditions of their fellow students, teachers, and through their academic development.

The outcomes associated with the Strategic Plan will be achieved by:

- Building on our strong record for widening access, contributing to national priorities, and ensuring a high level of degree completion for all students

- Achieving Athena SWAN institutional Silver and a departmental Gold award

The University of Stirling's approach to widening access is characterised by a commitment to partnership working: with local schools and education authorities, with Forth Valley College, and with sector-wide organisations. This approach allows the University to extend its reach and embed its influence and impact on young people in education across the region and nationally.

Activities with schools include information sessions in schools, campus visits, workshop days and tailored support in connection with widening participation organisations such as Lothian Equal Access Programme for Schools (LEAPS) and Scottish Wider Access Programme (SWAP).

The University of Stirling has a close relationship with Forth Valley College. At the core of this activity is the dedication from both the College and the University to provide opportunities for young people across the Forth Valley region for post-16 study and skills development.

The pre-established relationships and strong record enhanced the research activities carried out as part of the Impact for Access project.

The University's Equality Outcomes established in 2013 and revised in 2017 committed the University to concerted efforts to reduce the gender pay gap, improve the staff gender balance and improve the student gender balance. This study builds on ongoing work across these commitments and on the University's Athena SWAN activity. The University has held an Institutional Bronze Award since 2012 and Bronze Departmental awards for Biological and Environmental Science and Health Sciences. The Equality Outcomes and Athena SWAN awards are underpinned with comprehensive action plans which have informed this study.

The University's public engagement also enhances widening access and equality and diversity through engagement with the local, national and international community. This includes activities specifically related to academic disciplines, such as conferences for young people e.g. Science Grrl a festival for girls from local schools to encourage them to get into science. This event in particular showcases the intersectionality of widening participation and diversity which is an important element of this study.

Commission on Widening Access

The Scottish Government established the Commission on Widening Access to consider and advise how to achieve the ambition set out by the First Minister in November 2015 that *"a child born today in one of our most deprived communities will, by the time he or she leaves school, have the same chance of going to university as a child born in one of our least deprived communities."*

The Commission considered access to be *"fundamentally about fairness, as a social good, compatible with academic excellence and an economic good".*

The report proposed 34 recommendations to support Scotland to achieve equal access for those from deprived backgrounds or with care experience.

The following recommendations were of particular interest to this study:

Recommendation 2	By 2018, the Commissioner for Fair Access, working with experts, should publish a Scottish Framework for Fair Access. This authoritative, evidence based framework should identify the most impactful forms of access activity at each stage of the learner journey, from early learning through to higher education and provide best practice guidelines on its delivery and evaluation
Recommendation 4	Universities, colleges, local authorities, schools, SFC funded access programmes and early years providers should work together to deliver a coordinated approach to access which removes duplication and provides a coherent and comprehensive offer to learners.
Recommendation 16	Universities, working with schools, should take greater responsibility for the development of the pool of applicants from disadvantaged backgrounds by delivering academically based programmes to support highly able learners, who are at risk of not fulfilling their academic potential.
Recommendation 17	SDS and schools should work together to provide a more coordinated, tailored offer of information, advice and guidance to disadvantaged learners at key transition phases throughout their education.
Recommendation 19	The Commissioner for Fair Access should commission research, within three months of appointment, to assess how student finance impacts on the participation of disadvantaged learners in higher education.
Recommendation 31	The Scottish Government and the Scottish Funding Council, working with key stakeholders, should develop a consistent and robust set of measures to identify access students by 2018.

The Commission also set targets to drive forward the delivery of equal access in Scotland:

- By 2030, students from the 20% most deprived backgrounds should represent 20% of entrants to higher education. Equality of access should be seen in both the college sector and the university sector

To drive progress toward this goal:

- By 2021, students from the 20% most deprived backgrounds should represent at least 16% of full-time first-degree entrants to Scottish universities as a whole

- By 2021, students from the 20% most deprived backgrounds should represent at least 10% of full-time first degree entrants to every individual Scottish university

- By 2026, students from the 20% most deprived backgrounds should represent at least 18% of full-time first degree entrants to Scottish universities as a whole

- In 2022, the target of 10% for individual Scottish universities should be reviewed and a higher level target should be considered for the subsequent years

Gender Action Plan

The SFC's Gender Action Plan was published in August 2016. The Gender Action Plan was developed in support of the Developing the Young Workforce: Scotland's Youth Employment Strategy (DYW) and the Scottish Government's Economic Strategy and following request from the Scottish government.

The Plan recognises that the gender imbalances in Further and Higher Education are reflective of the inequalities also experienced throughout the wider education system and society as a whole. It notes that no one area or sector has created these imbalances, but that all sectors should take steps to challenging it.

The Gender Action Plan established a series of aims and objective for colleges and universities. The three priority areas highlighted in the Plan are:

- Gender imbalances in the subject areas that are most unbalanced
- The gap between genders in participation in undergraduate study
- The gap between genders in retention and completion

The following subject have be identified as the subjects with the most prominent gender imbalances in higher education:

Under-representation of Women:	Under-representation of Men:
Architecture, Building and Planning	Social Studies
Engineering	Nursing
Technologies	Training Teachers
Computer Sciences	Psychology

Alongside the priority areas, the Plan commits SFC to a range of actions to support addressing gender imbalances. These are:

- An enhanced evidence base
- Tackling gender stereotypes
- Enhanced partnership working

Higher Education Academy - Whose job is it anyway?

The SFC commissioned the Higher Education Academy to undertake research on the approaches universities and colleges across Scotland were employing to tackle gender imbalances. The final report, '*Whose job is it anyway?*', was published in March 2016.

The HEA research sought to "assess what approaches work best and why in terms of achieving sustained change in relation to gender imbalances". This study sought to gather the views and opinions of young people to help inform these approaches.

The HEA research found that the approaches across the sector to reducing gender imbalance in the student intake could be categorised into five areas:

- Infrastructure
- Influencing the influencers
- Raising awareness and aspirations
- Encouraging applications
- Supporting success

The author highlighted parents, current students, educators and careers advisors as key 'influencers' in shaping the views of young people in relation to gendered subject areas. This study sought to gain a greater understanding from young people themselves on who they viewed as influential in their decision making. This study also asked

young people for their perspective on work undertaken by universities to raise awareness and aspiration to encourage more people to go to university and in particular tackle gender imbalances.

Gender imbalances in academic literature

Assessing how gender affects young people's engagement in, and experience of, education is central to this study. The following explanations provide important context to how definitions of gender are approached in this study.

This research seeks to investigate the reasons for gender imbalances across academic disciplines, and in order to do so uses two more emerging theories for assessment: gender as a social construct and intersectionality.

Gender as a social construct

The definition of gender, and how it exists within society, is central to the issue of gender inequality in education. An essentialist approach proposes that a person's gender is determined by their biological sex, and that this can also be used to explain the different experiences of men and women[1]. This view, however, is now considered to be an outdated understanding of gender and the experiences of men and women[2]. This study bases its analysis and recommendation on the view that gender is a social construction, that society dictates certain characteristics or expectations to be ascribed to individuals dependent on their biological sex[3]. Viewing gender as a socially constructed norm provides a more analytical and comprehensive understanding of men and women's different experiences and outcomes in the educational setting[4].

Feminist theorists argue that power structures are inherent to the understandings of gender[5]. The societal system which reinforces inequality between men and women is understood as patriarchy. Patriarchal structures which exist in society today, lead to both women's inequality[6] and disadvantages for men as these structures perpetuate a destructive view of "masculine" values. Patriarchy is argued to define masculine and feminine attributes, and make socially constructed feminine traits undesirable within wide-ranging sectors of society[7].

These theories provide the societal context to the gender imbalance in subject areas at all levels of education. This study sought to explore the extent of young people's gendered assumptions in the context of education.

Intersectionality

The social constructivist view of gender recognises how social structures form and perpetuate understandings and experiences of gender. The theory of intersectionality argues that these structural forces, such as class, gender, ethnicity, age, should not be assessed as being mutually exclusive but as a combined identity and that the structural disadvantages connected to these factors are experienced simultaneously[8].

The notion of intersectionality is central to this study, as a core method for analysing how widening participation and tackling gender imbalances should be analysed in a multi-layered way. The recognition of how social circumstances shape experiences and determine life courses is central to analysing the experiences of young people in education. This theory gives structure to describing how all the aspects of an individual's circumstances will affect their experience in school, from subject choice to progression. This study sought to explore these intersectional experiences with young people directly.

1 Fausto-Sterling, 2012

2 Butler, 1993, Fausto-Sterling, 2012

3 Anthias, 2005

4 Smith, 2004 and as shown by similar analysis such as Ginige, K., Amaratunga, D. and Haigh, R, 2007

5 Hooks, 2000, Oakley, 1978, Walby, 1986 & 1988

6 Oakley, 1978, Walby, 1986 & 1988, Glucksmann, 2000

7 Walby, 1988

8 Anthias, 2005

Methodology

Methodological approach

The study took a qualitative methodological approach as research in this field has predominantly focuses on quantitative research. This study seeks to fill a gap in the research by using qualitative research methods to gain views directly from the young people. It was important to the researchers that this study provided an opportunity to discuss the views and opinions of those with lived experience of the topic. The information in this study was gathered through semi-structured interviews and a focus group.

Semi-structured interviewing was selected as the data collection method for a variety of reasons. Semi-structured interviewing allowed the interviewer to explore key points of interest to the research while also exploring the participant's areas of interest. The term 'conversations with a purpose'[9] describes a key advantage of using semi-structured interviewing; they allow for a relaxed and informal engagement between researcher and participant, but also allow the researcher to steer the interviews to address core topics. This was of benefit for this study as the young people could share their experiences relating to the research areas as they felt comfortable. Oakley discussed how qualitative interviewing helps to reduce the hierarchal nature of interviews, and encouraged a conversational style which achieved greater engagement and open discussion.[10]

This related to the key advantage of semi structured interviewing; it allowed the researcher to gain in-depth situated knowledge. Situated knowledge is understood as answers given by the participant from within their own understandings and experience.[11]

A second data collection method was selected to gain views from secondary school teachers. Focus groups were seen as particularly advantageous for this cohort as, still maintaining a qualitative methodology, a large amount of information could be gained in a shorter period of time. As adults, there was less risk of participants being influenced by others in the group than in the cohort of young people.[12]

A key advantage of using focus groups was the group interaction and discussion as it allowed the opportunity to share ideas and inspire others to share their views[13]. The researcher had a responsibility to ensure that particular participants did not dominate the conversation, and that all participants felt they had a place to share should they wish to and inspire ideas that may not have been raised in a one-to-one interview.[14]

Related to this is the notion that opposing views may also result in generating debate and conversation, arguably ascertaining a broader range of views and ideas on the subject.[15] This was seen as particularly advantageous for this study, as approaches to equalising gender imbalances in particular subject areas can be an area of strong differing views amongst practitioners.

9   Burgess, 1984 in Mason, 2007 p.62

10 Oakley, 1999

11 Mason, 2007

12 Gilbert, 2008

13 Bryman, 2012

14 May, 2011

15 Matthews and Ross, 2010

Sample

Due to the subject offering at the University of Stirling, the target subjects for Stirling's Impact for Access project differed slightly from those highlighted in the Gender Action Plan. The target subjects for the project were:

Under-representation of Women	Under- representation of Men	Under-representation of SIMD 20/40
Computing Science	Nursing	Accounting and Finance
Maths	Professional Education	Law
Sport	Social Work	

In recognition of these target subjects, there were three sample groups established for the study. These were:

- High school students (S4)
- University applicants
- Teachers from low-progression school

These groups of participants were chosen to gain information from people involved at key stages of the subject-choice cycle.

The S4 cohort were identified by widening access and outreach colleagues as a group that would benefit from engaging with outreach activities and the information gained by the activities would assist them in their decision making for S5 subjects and preparation for post-16 study. This cohort could also benefit from ongoing engagement in outreach activity beyond the duration of this project as they were at the stage of deciding on subjects which would determine their entry into University. They were also more likely to have a range of ideas on what they wanted to do following school; employment, further education or higher education.
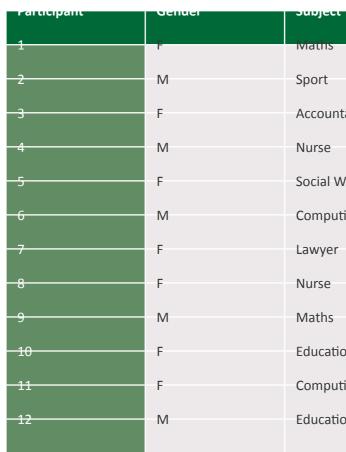
Applicants were a valuable cohort, as they were a group who were more likely to be certain on their decision to apply to particular courses and why they applied to university rather than other education or career options. Moreover, this group may be more aware, or have already experienced, a range of barriers that people face in getting access to higher education and/or traditionally gendered subjects.

Teachers were identified as a participant group in order to compare the statements of the high schools pupils with their teachers' perceptions of their interactions and decision making. The researchers investigated whether teacher's perceptions contrasted with the statements of the young people.

S4 participants

A range of characteristics were considered when sampling for S4 participants; gender, subject choice and indicators of widening access. Eight subjects were chosen for assessment and the research aim was to have a male and female pupil for each subject. This was intended to permit assessment of the variable perceptions of gender on each subject.

All students in the sample were enrolled in a low progression school. The study collected data on whether the pupils would be 'first in family' to attend university to enhance analysis but this information was not used in sampling.

Table 1: Participant List- Interviews (S4)

Participant	Gender	Subject	First in Family	No. of Interviews
1	F	Maths	N	1
2	M	Sport	Y	2
3	F	Accountancy	Y	2
4	M	Nurse	Y	2
5	F	Social Work/Sport	Y	2
6	M	Computing	-	1
7	F	Lawyer	-	2
8	F	Nurse	N	2
9	M	Maths	Y	2
10	F	Education	-	2
11	F	Computing	N	2
12	M	Education	N	2

Applicant participants

This research area captured a snapshot of the opinions of those who had already applied to the University of Stirling; to assess if gender perceptions were prominent in their decision making process and to gain their views on potential barriers to accessing higher education.

The method for obtaining these perceptions was through quota sampling and interview at University Applicant Day. The aim was to speak with a man and a woman who had applied to study the target subject areas, making the sampling method by quota, but also leaving the questions open to applicants for other subject areas. It was viewed as beneficial to speak with applicants out with the target subject areas as their views on access to university would still be of value. An amended question list was used for those not applying to target subjects to focus more on their views on access.

Teacher participants

The aim of this aspect of the research was to investigate teachers' understanding of how their pupils view gendered subjects/perceptions and to elicit their feedback on what could be done differently to tackle this.

The participants were recruited by building on existing relationships developed through widening access and outreach activity. All teachers were from one school; a low-progression to higher education school in the Forth Valley region and pupils from this school were included in the sample of S4 pupils.

The focus group intended to have five to eight teachers across a range of subject and guidance teachers, with subject teachers having knowledge of the relevant target subject areas (i.e. science, PE, computing, social subjects as school equivalents).

An information sheet about the research was sent to the key contact staff member, and then circulated to the group of potential participants. This gave the participants an understanding of the research aims and consider if they were interested in taking part. This also gave them time to consider any questions they had, and were given an opportunity to ask any questions prior to the focus group beginning.

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[16] '-' indicates participant did not declare

Ethics

The key ethical issue related to this research was in the category of vulnerable groups. As one area of data collection comes from semi structured interviews with S4 pupils, there was a likelihood that some participants were under 16; this informed the study design. A series of actions were taken to ensure that accommodations were made:

- The S4 participant and their parent or guardian signed a consent form confirming their willingness to take part in the research project. Further information about the research was included in the online application form created by the outreach team and filled out by the pupils/participant. A second consent form was issued to the participant prior to the interview beginning, giving another opportunity for the participant to ask questions and discuss the nature of the interview.

- The outreach events were be led by the outreach team, and teachers accompanied the pupils throughout this time. Initial interviews were held during the first outreach event, in a separate meeting room. Participants were permitted to invite someone to observe the interview and two researchers were present during the interviews. Both researchers had a basic disclosure from Disclosure Scotland.

- Follow-up interviews were carried out in the participants' schools. The interviews were carried out in a school meeting room or classroom and both researchers were in attendance. Another consent form was completed for this interview.

- The nature of the research meant that no sensitive material was discussed during the interviews. The nature of semi-structured interviewing also allowed the participant to shape the direction of the conversation. It was stated prior to each interview that participants were welcome to stop the interview at any point.

In addition to consideration of vulnerable groups, other ethical issues were considered for all aspects of the research:

- Confidentiality: active steps were taken to ensure that no respondent was identifiable. A coding structure was developed and therefore individual's names were not attributed to any data collected during the interview, transcriptions, data analysis and final reporting. For video recording, participants were fully informed about the use of the recordings.

- Data protection: Data was stored for the duration of the project only. Only transcriptions, videos (which were agreed to by participant) and the report were kept after the project ended.

- Consent: Ensuring that informed consent was gained was also carefully considered.[16] Consent forms/statements were issued for every research area and data collection point. Consent could be withdrawn at any point throughout the interviews and an interview could be stopped at any time at the request of the participant; this did not however occur.

Data limitations

There were two key limitations to the data and the intended approach outlined.

As detailed in table 1, it was not possible to get a male and female participant with a stated interest in each subject. We did not identify any male pupils with a stated interest in accountancy, law or social work. Although this is a recognised limitation in the study's findings, this in itself adds to the evidence base showing that there is a significant gap in the number of male pupils who consider studying these subject areas.

Using a gatekeeper (understood as a person who holds the main contact and/or relationship between the potential samples the researcher wants to study[17]) had positives and negatives. Using pre-built relationships often allowed easier access, however having direct access to potential participants would have increased the validity of the sampling. This was more pertinent an issue to the teacher's focus group and S4 participants as the communication regarding the research was promoted by the school contact rather than the researcher, whereas the applicant participants were approached at the event by the researchers.

Defining widening participation

The assessment for widening participation was based on the sample coming from target schools, which were identified as being low-progression to higher education schools in the Forth Valley region. Using school-based indicators avoided the need to request personal information from potential participants to identify their socio-economic background.

It is noted that using school widening participation indicators restricted the ability to investigate whether individual participants come from a widening access background, therefore limiting potential investigations into the effect this has. In order to have the ability to carry out analysis based on individual experience, the widening participation indicator of first in family[18] was adopted.

Consideration of gender dichotomy

This study considered gender to be a binary model (the existence of just men and women). The researchers noted that gender is a social construct, and is different from biological sex. When asking participants to categorise their gender (such as on consent forms etc.) the options were man, woman, non-binary. 'Man' and 'woman' were chosen to be inclusive of all people who identify as men or women, regardless of biological sex. Due to the nature of the project, the limitations resulted in our focus being on men and women only which meant that the research could not be fully inclusive of all gender identities.

Trans* inclusivity is critical in creating inclusive, diverse and supportive environments, and when equalities activity is being carried out, it should be aware of all protected characteristics and disadvantaged groups. It is recommended that the experiences of trans* identities in this subject area should be an area of focus in further research and development in this field.

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[18] Bryman, 2012

[19] Sheila Riddell, Sheila Edward, Ellen Boeren & Elisabet Weedon, 2013

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[17] British Sociological Association, 2002

Findings

It was of central importance to this study to find out from young people what their views were on gender and how it related to academic disciplines and occupations. Investigating the opinions of participants was critical to this study and this aspiration shaped the core questions. This study seeks to showcase the voices of the young people presented through analysis and verbatim quotes to ensure the accurate representation of their voice.

Gendered subjects and professions:

Subjects and Occupations

The majority of young people, both applicants and S4 participants, stated that they strongly considered all academic subjects should be available to all persons, regardless of gender. This was evidenced by a participant when responding to whether she believed that gendered subjects existed:

> *"I'm open-minded, I think 'yeah a boy can do that' and there are girls that think 'well if a boy can do it I can do it as well'" (Participant 2).*

These conclusions were drawn regardless of whether the participant was first in family, irrespective of gender or whether they had hoped to study a subject area which was male or female dominated.

KEY FINDING 1: The majority (71%) of young people did not view particular subjects as being designated for one particular gender.

However, the S4 participants had a different perspective when considering gender perceptions of occupations. Although the majority, again, did not believe there were men's/women's jobs, there were more who did state that certain occupations were more associated with particular genders.

KEY FINDING 2: A significant minority (45%) of respondents did think that certain occupations were more associated with a specific gender.

Investigation was carried out in follow up interviews to try and better understand why views differed between perceptions of academic study and occupations. A range of responses were given, in particular highlighting the distinction between undertaking study in a specific subject and actively carrying out the tasks associated with an occupation. This was highlighted in a response from an S4 participant, who stated:

> *"for a subject you're kinda just studying for it and you don't actually have to do it, whereas like when you're going out to do a job you have to have the qualities and the skills" (Participant 7)*

This sentiment was echoed by an applicant participant who discussed the existence of barriers for women into sport, stating:

> *"I wouldn't say [a barrier exists] to studying it but I would say that there are definitely barriers to being involved... like participation in coaching, participation in actually doing it, yeah there's definitely more opportunities for men than women" (Applicant Participant 11)*

Participants offered suggestions for how this could be challenged. Many participants said that discussing career and educational options with a broader range of people at an earlier stage in school would be beneficial to making them consider different degree programmes and occupations.

One S4 participant discussed speaking to people earlier as an opportunity to change their views on gender stereotypes:

> *"I think like when it is a man or a woman's job they're set that to think from young that it's a man or a woman's job whereas if you kinda changed it younger and told them about it when they were younger then it would all change" (Participant 7).*

This supports the suggestion in the Gender Action Plan that there is a necessity for interventions at an earlier stage in a young person's learner journey. Engagement of teachers is a crucial aspect to this, and strong partnerships with post-16 education providers and employers. Increasing the provision of outreach activity with younger year groups will assist in challenging the gendered assumptions around subject and career choice.

The view of others

The study also identified a distinction between the young people's opinions and their perceptions of societal opinion. It was observed that while the majority of young people did not recognise or support gendered subjects and occupations, they recognised that that others did. In response to being asked if they thought men's and women's subjects exist, a participant responded:

"I don't believe that they exist, but I think other people do." (Participant 9)

The recognition that young people considered other people to ascribe gender to academic disciplines and careers is significant. This distinction suggests that the participants were aware that their beliefs were in a minority and yet were confident to state their views and indicated a potential generational shift. Many participants asked for clarity when asked about the existence of men/women's jobs and subjects. An S4 participant evidences when asked:

"Q: In terms of school subjects and university courses do you think that men's and women's subject or courses exist?

A: Yeah. Well, actually, is it my opinion or is it...?

Q: Well you can tell us about both

A: I think people think that there are but personally I don't believe that there are" (Participant 9)

Throughout the study, there was evidence of cognitive dissonance: young people expressed the opinion that stereotypical views were out-dated and then expressed stereotypical understanding. The researchers observed an effort from participants to distance themselves from having stereotypical view of gender that they observed others as holding. This was characterised through making a clear generational distinction, and referring to these views as old-fashioned and/or judgemental:

"like your mum or dad still stuck in the 1960s, 1970s!" (Participant 9)

This positive gender equality commitment from young people provides an opportunity to eradicate gender imbalance in academic disciplines and occupations in time, with sufficient support.

KEY FINDING 3: Young people recognised that society viewed academic subjects and occupations as gender-specific but the majority of young people did not hold this view

Understandings of gender

Although many participants considered that a stereotypical view of gender was negative and outdated, a number of responses included stereotypical understandings. An example of this was that physical strength was seen as being integral to the type of job people were able to do, and a number of participants attributed strength to men. In response to being asked if men's/women's jobs exist, the following participants responded:

"in some areas, yeah... coal mining and stuff like that, you have to be really tough and strong" (Participant 7)

"A wee bit 'cause, like, it's more like manual labour men would do... I think it's 'cause they're like, a tougher attitude and stuff, they're physically better at doing that" (Participant 4)

The responses to these questions were notable for two reasons: the prominence of the perspective that gender dictated strength and physical ability, and that the jobs perceived as 'male' tended to be work involving manual labour and not roles requiring higher education. There would be valuable future research in the differential perspectives on the perceptions of male jobs and intersectionality between young people from high and low-socio-economic backgrounds. The importance of this is further enhanced by analysis of influencers below.

KEY FINDING 4: The perception of occupations as gender-specific often related to physicality and the perception of physicality being dictated by gender

When participants named examples of where they could see a gender-dominated discipline of occupation, it was regularly combined with a comment on how they thought this was problematic.

"we shouldn't necessarily be treated as men and women, we're all just people. So it's like, you don't have like a man's job or a woman's job, it's just a job and if you want to do it you can do it. If I wanted to be a midwife I could do it, there shouldn't be labelled as gender specific jobs." (Participant 5)

Furthermore, the findings showcased that a large number of young people were strongly supportive of gender equality and number of participants exemplified that they are active in challenging gender stereotypes:

"I think everyone's very judging like in our year- in our society everything's quite judging about stuff, but I don't feel like you should be put off by what someone else thinks" (Participant 8).

"[men and women] are the same... we can do the same stuff so I guess that's one of the reasons I want to be a pilot: to show that females can be pilots!" (Participant 1)

It could be argued that having a strong understanding of what "gender" means, and specifically that it does not dictate subject or career choices, has enabled these young men and women to be passionate about challenging gender inequality.

"you can't be defined as [...] let your gender choose what job you're gonna be like you have to choose what you wanna be, that kinda thing. It can't be y'know "aw you're a woman so you have to do that, aw you're a guy you have to do that", you can just choose what you wanna do" (Participant 12)

"you can be whatever you want to do, you don't need to be described by your gender." (Participant 8)

When asked what action could be taken to support gender equality amongst young people, one participant responded:

"Kind of explaining it all to them like, how it's not actually anything to do with gender or that just, not really kind of stereotyping and associating certain subjects with it" (Participant 4).

This indicated that young people are receptive to active tackling of gender stereotyping. This evidence suggests that a key step to tackling gendered understanding of subjects is establishing a more positive understanding of gender more broadly. The participants in this study evidenced that this is a strong understanding of this amongst a selection of young people, however ensuring that there is wide-spread activity on this will result in helping to reduce gender imbalances, but also other trends relating to gender inequality.

KEY FINDING 5: A better societal understanding of gender will decrease pressure and perceptions on young people and reduce the influence on decisions such as studying or occupation

This directly related to conclusions drawn in the HEA research which asserts the importance of students and student teachers having a strong understanding of gender in order to engender change.

Visibility of pathways:

Ensuring that young people are aware of the potential college/university programmes and careers available to them is essential in widening access activity and encouraging more men and women into gender-imbalanced subject areas and employment (in particular women in STEM).

The notion of 'visibility of pathways' was of critical importance to the study, and the research found that a solid understanding of what was available, in school subjects, degree programmes and careers, was enabling for more men and women into target subjects but also into university more generally.

The awareness young people have of what educational pathways and careers are available to them is critical in shaping their decision making; young people can't select a path they don't know is open.

What young people see and experience is central to the formation of their aspirations and planning for the future. This furthers the importance of recognising whether young people will be the first in their family to go to university, and for schools, colleges and universities to recognise that certain groups of pupils may have limited visibility of career paths or degree programmes. This correlates with the perception of male-specific job roles focussing on manual labour in our S4 participant group findings.

The focus group with teachers highlighted their recognition of the importance of increasing awareness of potential career and education pathways out with the young person's usual surroundings:

"Children often pick careers based on people that they have in their family and I think that's a big influence; they don't know other careers." (Focus group participant).

In order to assess this claim, analysis was carried out on what examples the S4 participants gave as jobs they viewed as being male/female dominated. This was to see if there was a wide-range of examples given, evidencing whether young people have a wide-ranging awareness of pathways and career options. The visibility of pathways is closely correlate with perceptions of gender.

It is important to note that young people thought that academic disciplines were not and should not be gender segregated and while they recognised some occupations were gender segregated, they did not support this.

There was a wide-range of examples given, however there was a predominance of examples which reflected more vocational roles to what constituted a male/female job and also subject area. Design and manufacture was by far the most cited example of a gender segregated subject area:

> "Well, most girls you see when people mention design and manufacture and woodwork or anything they're always like no, no, and then when you see boys and they are looking at maybe business or something you get, like, the stereotypes" (Participant 9)

Although this subject area is very relevant for careers in engineering which require a degree, this subject is more vocational than maths, technical studies or computing which were not mentioned. All occupations suggested were of a vocational nature and included seamstress, coal mining, construction and nursing and midwifery.

These findings indicate the importance of visibility of careers and subject options, with the responses showing that participants viewed gender segregation as particularly prevalent in in vocational occupations. This was greatly different from the career plans of the young people, and all participants aimed to go to university after leaving school, however the dominance of vocational subjects in their responses to questions around gender should be recognised. This related, partly, to the intersectionality of widening access and gender.

KEY FINDING 6: Gender-specific roles were largely considered to be vocational or manual roles and not roles associated with higher education study.

Many young people suggested that having the opportunity to sample or experience a range of different, traditionally gender segregated academic disciplines or occupations, would help to encourage more pupils to engage with these subjects:

> "giving people all a chance to do the same job, like same activities and not splitting them up and going "aw the boys will do this and the girls do that" - like just having everyone do the same job" (Participant 8).

> "a job that would be more, say a man's, like a job that would be kinda more for men maybe get like girls into it, see if they enjoy it" (Participant 10).

> "learning more, cause I think a lot of guys won't know a lot about nursing and probably just think aw that's a woman's job I don't wanna do that, that kinda thing, I think like you know if they learnt a bit more they might know more about it and might wanna do it." (Participant 12).

Visibility of pathways can be constrained by gender and socio-economic background; the concept of 'lived experience' is influential for students from a widening access background. In order to break this barrier, outreach activities should be oriented to offer long-term (rather than one-off) engagement whereby the surrounding of universities and certain occupations become part of their lived experiences and therefore normalised.

The importance of this is exemplified through comments from an S4 participant who discussed what he thought the barriers to universities were for young people from non-traditional backgrounds: He said:

> "I don't think many of us really know what university, like what happens at university, we just kinda hear about it from our parents and we don't really get like in depth things about it so I think people would just take like other options like college because there's like workshops and stuff for college and they tell you exactly what it entails" (Participant 7).

KEY FINDING 7: Young people welcome increased information, advice and guidance on career options and subject-choice and particularly value practical, work-based experiential learning to challenge stereotypes and increase the visibility of the range of pathways

Influencers and role models

The importance of influencers and role models in decision making is recognised. This was a core area of investigation to consider what impact influencers and role models had on the participants in relation to going to university, and on views of gender. It was also important to see how these can exist together.

Analysis of participant feedback indicates that influencers and role models are considered to have very different impacts on decision making. This section explores the finding that influencers have far greater significance than role models, and that influencer's change considerably between the stages of S4 and application to university.

Influencers

Many of the S4 participants reported that they had been supported to make their own decisions by family members, or that the views they held about their future plans had been shaped by those around them. Family and parents were most commonly referred to as having influenced the S4 participants' decision making process; in particular with what they hoped to study at university.

The following quotes highlight the importance of family in the participants' aim to go to university:

> "My mum's been like huge and helped me like she's got like loads of university books and we're just looking through all of the entry requirements" (Participant 3)

> "my sister … went to uni so she kinda helped me think about how to choose uni and what to do and my dad, well he works at [a] uni the now, yeah so helps me as well" (Participant 12).

> "I've always had it drilled into me like by my parents that they really, really want me to go to university and I think they'd be extremely disappointed if I didn't, so." (Participant 7)

The S4 participants also considered the term 'influencing' to have negative connotations and instead referred to 'support'. Many participants discussed how their family members supported them to make their decisions, by discussing their choices with them or helping them to research potential pathways for post-16 study. This was seen as distinct from family members' values, experiences and opinions influencing the views of, and decisions made, by young people.

A discussion with an S4 participant particularly highlightsed the notion of supporting through the following comments about how his family engaged in his decision making around subject areas:

> "Well my family have always supported me in whatever decision I wanted to make so they, I wouldn't say they influenced me but they guided me… like they said "you're good at computing and you're good at music so if you enjoy them you should take them"". (Participant 6).

This is dependent upon family dynamics, however, and one participant (reflective of others in the participant group) reported a stronger influence in her aspiration to become a nurse:

> "Medicine's quite big in my family like my grandad was surgeon, my gran worked with children in hospitals like was a child nurse and my auntie's a midwife so it's always been something" (Participant 8).

The majority of S4 participants mentioned influencers as being family members. This contrasted with Applicant participants, who although influenced by family, mentioned teachers more than any other group. This is an interesting development in the most influential people in the space of two years – and perhaps indicates that while teachers can be influential in young people's decision-making, their true influence is at too late a stage to be impactful on e.g. Higher subject choices.

Most applicant participants mentioned how their teachers inspired passion about the subject area, for example:

> "My history teacher when I was in Fourth Year, she was like really enthusiastic about the subject and she got me like really enthusiastic and loved it too and I carried on throughout school" (Applicant participant 4)

> "I had a teacher, a teacher at school who's my R.E teacher and my philosophy teacher so I've had him since my fourth year of school until like leaving so I'd say he's influenced me the most." (Applicant participant 9).

Another interesting comment was raised by a participant who had applied to do teaching:

> "All my teachers, they've all helped me and well influenced me to want to be a teacher 'cause they've helped me and I want to help others in the way they've helped me." (Applicant participant 3)

The reflections from the applicant group on why they applied for their courses at university were contradictory to the stated reasons S4 participants expected to apply to university; this suggests that the developmental phase from S4 to S6 and university application sees significant change in individuals' perspectives. This may suggest that teachers' influence could be increased through earlier information, advice and guidance delivered in partnership with universities and opportunities earlier in their schooling career for work-based or experiential learning. This highlights the importance of further analysis of when the key points of influence on young people can be - and by whom - to ensure that outreach work is directed where it can be most impactful.

KEY FINDING 8: The impactful influences on young people's decision–making changed considerably between S4 participants and application participants, away from family influence and onto other adults, especially teachers.

The study also sought to examine the impact of influencers on young people's perception of gender. The majority of participants strongly believed that they were free to choose subjects regardless of gender though they recognised gender bias in wider society. In the few instances where participants did report negative influence in subject-choice in relation to gender it was most often through the influence of peer groups as opposed to family or teachers.

Teachers reported strong influence of peers on young people's decision making:

> "I think there is a lot of influence from peer groups" (Focus group participant)

> "[some] aren't achieving what they could achieve in the subject because of peer pressure" (Focus group participant)

The S4 participants did refer to the influence of peer groups in the context of negative influences – encouraging them to avoid a certain pathway. One S4 participant highlighted the gender-distinction in influencing and considered female peer groups as being more supportive of women studying male-dominated subjects, stating:

> "I think … men are most likely to not take women's subjects like home ec but a lot of women are more likely to take woodwork and stuff like that now, like you see quite a lot of people doing it now, so.

> I think [male pupils] just, they don't want to be seen by their pals, like doing something that's associated with what women do." (Participant 4)

This indicates that an area for further outreach work is in relation to peer support and relationship building. The actual impact of influencers was difficult to measure over a short period of time and this would be most effective to analyse as part of a longitudinal study tracking young people through their initial perceptions, school subject choice and then university application and assessing the changing decisions and influences for each individual throughout the period.

Role models

A small number of participants stated that they had a particular role model who they aspired to be like and discussed how this had shaped their decisions. When other participants were encouraged to think about whether they had a role model they were more likely to give examples, however, very few identified role models as being central to their decision making.

Of participants who did see themselves as having role models, family members remained prominent in responses, however some mentioned people who had supported them in extra-curricular activities or individuals who were in their intended occupation.

The influence of role models in extra-curricular activities could be broad and far-reaching and not related to the extra-curricular activity but to the individual. An S4 participant spoke about the importance of his Boy's Brigade Leader in shaping his desire to study engineering at university:

> "He's the leader at my boys brigade and he does a lot of things in school as well… he works with BP and he got an MBE for the things to do with it" (Participant 9).

An S4 participant discussed how a family friend was a role model due to her occupation. She stated:

> "I know someone that […] is a woman engineer and I thought that just sounds really cool so she probably inspired me" (Participant 11)

The participant recognised that this role model had raised awareness of the opportunity of a career in this field for women - highlighting the importance of visibility of pathways - and, through talking positively about her experience as a woman in engineering, shaped the young person's decision to aspire to be an engineer.

Role models were considered to have a gender-influenced role – with participants more likely to mention role models of the same gender as themselves.

It was reflected that this should inform the development of all outreach and information sessions – so that both men and women were represented at every subject session and employability fayre, showcasing that both men and women can do any subject and that young people can see relatable people achieving in that subject area.

A participant from the teacher's focus group discussed this, stating:

> "Almost have a representative male and female so that... there'll be some males or females who maybe feel more speaking to a female or vice versa" (Focus group participant)

> "Just the fact that they can see you is important" (Focus group participant).

> "I've women P.E teachers that are very supportive about P.E and they do a lot of P.E and especially because I coach as well I have an assistant coach that's a female as well so I kind of see that as just what a boy can do a girl can do." (Participant 2).

The participants did reflect on role models in the media – however the impact of these role models was relatively limited. The participants tended to reflect on the personality of role models in the media rather than seeking to emulate their academic or career path – referring, for example to taking inspiration in success in sporting endeavours or a pop star overcoming bullying. Some participants highlighted the risk that some people celebrated in the media were not good role models.

> "some act a bit, y'know stupid and that kinda thing but some people are like really good role models. Like Richard Branson is actually a really good role model, [...] But other people, like Donald Trump is not really a good role model." (Participant 12).

The dominance of the media in influencing young people, and exposing them to a range of portrayals of the roles of both men and women can be used as an opportunity to celebrate the positive representation which occasionally occurs.

KEY FINDING 9: Role models are impactful on young people but participants (S4 and applicants) were much more likely to report family and friends as role models as opposed to prominent figures in the media. This suggests that a young person's influencer and role model will often be the same individual.

This section suggests that there is continued value in promoting role models – particularly those succeeding in traditionally gendered professions - but that the influence from role models comes particularly from those closer to the young people such as in the local community, friends, family and peers.

Conclusion

Challenging gender imbalances in subject areas is increasingly important in all Scottish education sectors. Alongside the widespread activity on widening access to higher education, there is a drive to ensure all young people in Scotland have the opportunity to choose any learner and/or career path they desire.

This research report has highlighted the developments in the sector which have recently been published, including the Commission on Widening Access and the Gender Action Plan, and showcases the importance of challenging gender imbalances in Higher Education. It has also noted how having a progressive and inclusive understanding of gender and gender relations is critical in improving equality amongst men and women in education.

As a core aspect of the University of Stirling's Impact for Access project, this research engaged with three target groups: S4 pupils from target schools, applicants to the University and teachers of subjects with a gender imbalance. The use of semi-structured interviewing allowed for views of these groups to be gained in an in-depth and contextual manner, and provided a snapshot of the experiences and opinions of a number of young people who will directly benefit from these programmes. The voices of young people are often missed in widening participation policy development, and this report sought to fill a research gap by focussing on qualitative research methods to support the quantitative findings of other research.

There are a number of key findings from the research carried out. This report investigated how young people respond to gendered assumptions relating to subject and occupations.

KEY FINDING 1: The majority (71%) of young people did not view particular subjects as being dominated by designated for one particular gender.

KEY FINDING 2: A significant minority (45%) of respondents did think that certain occupations were more associated with a specific gender.

Key Findings 1 and 2 highlight the difference between perceptions of education and occupations. Recognising that young people view the relationship between gender and study, and gender and careers differently, should help to inform outreach activities and work carried out by teachers to help inform young people about how further or higher education results in a pathway to employment.

This research has also highlighted how young people perceive gender stereotyping in wider society.

KEY FINDING 3: Young people recognised that society viewed academic subjects and occupations as gender-specific but the majority of young people did not hold this view

KEY FINDING 4: The perception of occupations as gender-specific often related to physicality and the perception of physicality being dictated by gender

Key findings 3 and 4 showcase the actions of young people to reject and challenge the stereotypical gender views, but also how the embedded assumptions about gender are still prominent in young people, with this research acknowledging that this plays a central part in perpetuation of gender imbalances. This resulted in the recommendation in Key Finding 5.

KEY FINDING 5: A better societal understanding of gender will decrease pressure and perceptions on young people and reduce the influence on decisions such as studying or occupation

Increasing the visibility of course and career options is critical to challenging gender imbalances, and whilst this is widely known across the sector, this research argues that activities to increase gender balance and fair access to HE must focus on both gender and widening access simultaneously. Recognising that the lack of visibility for certain education and career options is a product of both gender and widening participation factors.

KEY FINDING 6: Gender-specific roles were largely considered to be vocational or manual roles and not roles associated with higher education study.

The more directive use of influencers and role models will assist in increasing visibility of pathways and removing gender and widening access barriers, as identified in key finding 7.

KEY FINDING 7: Young people welcome increased information, advice and guidance on career options and subject-choice and particularly value practical, work-based experiential learning to challenge stereotypes and increase the visibility of the range of pathways

When considering how best to support young people to make competent, informed decisions it is necessary to understand who may have the most influence on that young person at the critical stage. Unsurprisingly, family has a significant impact on young people's perceptions and parents were routinely reported as the key support in decision-making – this was often distinguished from 'influencing' as this was perceived to have negative connotations. There was a marked transition however from one participant group to the other – the applicant group were much more likely to report teachers or other adults in their community as being the key influencers in their decisions around future study.

KEY FINDING 8: The impactful influences on young people's decision–making changed considerably between S4 participants and application participants, away from family influence and onto other adults, especially teachers.

Finding 8 and 9 indicate the necessity to engage with both parents and teachers to improve the support, information, advice and guidance available to young people and highlights the importance of supporting parents when their children are younger. As parents will be the key influencers and support for young people up until S4, it is critical that parents are informed and understand the range of opportunities and pathways for their children.

KEY FINDING 9: Role models are impactful on young people but participants (S4 and applicants) were much more likely to report family and friends as role models as opposed to prominent figures in the media. This suggests that a young person's influencer and role model will often be the same individual.

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