The following paper was written during LSE GROUPS 2019.

LSE GROUPS takes place during the final fortnight of the summer term. Undergraduate students are placed in small groups; these are cross-year, interdisciplinary, and group members do not know one another in advance. Each group must then devise its own research question, and carry out all stages of a small-scale research project in less than two weeks.

The overall theme of LSE GROUPS 2019 was *The Future of Work.*

This paper was submitted on the final Thursday afternoon of the project. (Students then presented their work at a conference, on the closing Friday.)

More information on LSE GROUPS, and other papers.

Papers are presented as submitted, without corrections.

London School of Economics and Political Science
tlc.groups@lse.ac.uk

Survival of the Fittest: Artificial Selection in Recruitment

How does the increasing use of artificial intelligence in the recruitment process influence candidate experience and behaviour?

LSE GROUPS Research 2019

Group 9

Jahan Balani

Stephanie Cheung

Artur Dias

Bingxing Liu

Johann Power

Savina Santha Kumar

Jiashen Yang

Abstract

This paper examines how the introduction of artificial intelligence has transformed the recruitment process. Academic literature has primarily focused on the uses and potential implications of artificial intelligence, yet there still exists a gap concerning candidates' experiences and attitudes towards the application process. This research paper uses a

combination of primary and secondary data, collected through a quantitative survey with 132 respondents and 6 qualitative interviews, to explore candidates' perception of the use of artificial intelligence in the finance and higher education recruitment processes. We find that candidates strongly believe that organisations have an ideal candidate profile and that they consequently tailor their job applications to match this perceived notion, with these findings supporting our guiding hypothesis. We interpret our findings to conclude that while A.I. provides high efficiency gains, human oversight is still needed to further improve the candidate experience and selection, which is still lacking in terms of personalisation and bias prevention.

Key words: artificial intelligence, recruitment, higher education, finance, behaviour

Introduction

With the failure to recruit top talents being the most pressing concern for organizations (Conference Board, 2018), an increasing number of recruiters are turning to artificial intelligence (A.I.), with 62% expected to implement A.I. into their recruitment processes by the end of 2019 (Deloitte, 2019). Nevertheless, using A.I. has its difficulties: in 2015, it was revealed that Amazon's machine-learning program possessed a gender bias towards men by relegating resumes that

included the word “women’s”. This generated discussions on the aspects of recruitment that are incompatible with automation, which led to many candidates describing their experience with heavily automated recruitment processes as dehumanizing due to it becoming increasingly impersonal (Forbes, 2018).

Given the lack of academic literature on candidate behaviour and experiences towards recruitment processes, this paper intends to fill this gap in the existing body of knowledge, particularly given our immediate access to students who have had experience with job applications. The research question chosen is: *How Does the Increasing Use of Artificial Intelligence in the Recruitment Process Influence Candidate Experience and Behaviour?* Our underlying hypothesis is that the increased use of A.I. will alter candidate behaviour as they try to conform to what they perceive to be the organisation’s ideal candidate profile.

This paper first assesses the existing academic literature on the topic regarding the current functions and the potential implications of A.I. usage. Next, the paper justifies the methodologies chosen, and then critically analyses the results obtained. Finally, we draw conclusions from our results and propose future areas of research.

Literature Review

The following literature review positions our paper in existing research by focusing on the applications and impacts of A.I. in the recruitment process within the finance industry. Existing research has been found to be lacking in assessing the impacts of A.I. recruitment from a candidate’s perspective, which we have sought to develop upon.

I. The introduction of A.I. in recruitment

Artificial intelligence refers to the ability of a machine to perform tasks and computations associated with intelligent beings (Copeland, 2019). In recent years, this technology has been used in the recruitment industry to filter out candidates according to a set of pre-determined characteristics that define the ideal candidate. By awarding a score to each candidate according to the degree of fit, recruiters can subsequently choose to only continue reviewing a select number of higher ranked applications (Akkerman, 2017). This revolution has been powered by the emergence of 'Big Data' as the 'Global Datasphere' has been predicted to grow from 33 zettabytes in 2018 to 175 zettabytes by 2025 (Reinsel, Grantz and Rydning 2018:3). Early data scientists were often limited by relying on "sample" data sets; however, 'Big Data' has meant that A.I. recruitment software can be supplied with vast amounts of real-time, real-life data with the computing power available to facilitate the transition to a data-first approach.

II. The effects of A.I. in recruitment: what are the benefits and implications?

Organizations such as Goldman Sachs receive approximately 250,000 student job applications annually (Financial Times, 2016), the ability of A.I. to filter through mass applications has dramatically improved hiring speed. A Deloitte (2019) report finds that the adoption of A.I. in recruitment in the finance industry, such as filtering through resumes, reduces the amount of time required to screen individual candidates by over 30-50%. According to Agrawal (2018), automation in the hiring process also reduces an organisation's operational costs and costs of prediction in the long-term by making prediction "faster, cheaper, and better", due to the standardisation of the recruitment process. Indeed, an analysis by McCarthy, Van Iddekinge and Campion (2010) appears to support this: highly structured job interviews, as would be the case with A.I. interviews, prevents the formation of potential selection biases formed by the interviewer on account of the applicant's demographic characteristics, with the most prominent being gender and race.

Faliagka et al. (2012) find that the ability of A.I. to collect data on facial and body expressions and a candidate's online presence can be used to predict their personality traits and rank them according to how well an individual's personality matches the company culture and position being applied for. Predictive A.I. software powered by big data thus results in more effective talent planning and quality hiring.

However, the legal and ethical implications of using A.I. can pose problems for the recruitment process. Not only does A.I. obscure the boundaries between what *can* and *should* be known about individuals, creating a moral problem regarding data privacy, some organisations also do not disclose information about who they track using A.I. algorithms or how the data is used. Additionally, if the data used to train A.I. reflects a longstanding and pervasive historical bias, the

outcomes produced by A.I. recruitment systems can reinforce the discrimination of certain social groups, such as was the case with Amazon, where the majority of resumes inputted belonged to males due to male dominance within the technology industry, which consequently led to a bias against females. However, Proudman (2019:7) has argued that this problem can be circumvented so long as boards attach priority to the governance of data i.e. which data to use, how to test it and whether the outputs derived are correct.

III. The future of A.I. in the recruitment process

While the consensus across literature holds that A.I. will be used in the recruitment process to replace basic manual tasks, some have foreseen ways in which A.I. can be of greater use in the future. Auer (2018) experimented with the video interviewing platform HireVue to discover if its Natural Language Processing ability can detect Deceptive Impression Management Behaviours (DIMBs), which involves candidates distorting answers to create favourable impressions to recruiters. Although there was no significant evidence of this, Auer offers that A.I. may gain the ability to do so if it can also analyse non-linguistic cues, such as tone of voice and facial expressions. This represents a potential field of development for A.I. in the future recruitment process to detect the most suitable candidates: indeed, O'Neill et al. (2013) find that job applicants who engaged in DIMBs during the recruitment process tend to be more counterproductive once gaining the job.

A.I. can also recruiters predict candidates' future performance based on their past work experience: for example, Castelli, Manzoni, and Popovič (2016) found that A.I. produces accurate indicators for service quality in banking organizations. In addition, IBM also uses its A.I.-powered tool, Watson, to identify each employees' skillsets with accurate results (Eric Rosenbaum, 2019).

If A.I. is to be used in the manners outlined above in the future, Brubaker (2018) points out that the standards of A.I. must match societal acceptance regarding privacy and ethical concerns about data mining. Such standards should also be reviewed periodically to ensure that A.I. is not used outside the realm of what it is intended for.

Methodology

We found it most appropriate to focus on students for our research project given the gap in the academic literature about candidates' attitudes towards recruitment processes, which made them the ideal target group. A mixed methods approach was chosen to supplement the quantitative data gathered by our survey with qualitative information: because we recognise that our survey can be constraining due to the close-ended nature of our questions, we wished to conduct qualitative interviews to provide individuals with the opportunity to express their opinions in more detail.

I. Survey

To inform our research question, we gathered first-hand data through a Qualtrics-powered online survey. A snowballing and convenience sampling method amongst students in the U.K. with the purpose of optimising respondent demographics and data collection. However, this paper acknowledges that the convenience sampling method employed yields non-probabilistic sampling distributions, as it was primarily distributed to the extended friends of the researchers. As such, there may be a potential bias from a socio-economic, educational and ethnic background, albeit to a minimal extent. In addition, a further bias may be introduced, as the completion of the survey was optional, hence increasing the probability of respondents with strong beliefs about A.I. completing the survey and skewing the results, which may not necessarily be indicative of the average U.K. student.

The first section of our survey gathered data on students' preference for and perception of the future usage of A.I. in the higher education recruitment process. The survey then progressed contextually, with respondents receiving differing sets of questions dependent on their answers to preceding questions, which fostered a better understanding of each sub-group of respondents. These questions covered a range of topics, including preference for the usage of A.I. in the job recruitment process, perceived notions of an ideal candidate profile in the recruitment process and respondents' tendencies to tailor applications to fit their belief of what an ideal candidate is.

II. Qualitative interviews

To complement the survey data, semi-structured qualitative interviews were conducted with two LSE career consultants, two LSE admissions officers, two undergraduate interns and one Human Resources professional in the finance industry. This enabled an in-depth exploration of the unique perspectives each interviewee had to offer with regards to their experiences with A.I. in the recruitment process while still maintaining flexibility in the conversation. Moreover, this

method “offer[s] [the] possibility of modifying responses and investigating underlying responses” (Robson 2002).

Our interviews were conducted in-person and recorded following informed consent from the respondents. All interviewees were made anonymous to preserve confidentiality given the sensitive nature of their roles. Inductive thematic analysis was used to identify both explicit and implicit ideas from the responses. (Guest, MacQueen and Namey, 2012:11), and using a coding framework, we identified four prominent themes: ‘efficiency’, ‘impersonalisation’, ‘ideal candidate’ and ‘discrimination and bias’.

The main difficulty of this method was obtaining enough interviewees. Given our interest in the higher education admissions process, we contacted the LSE admissions office for an interview, but the admissions specialists have yet to respond to our requests. We therefore interviewed student recruitment officers, who have an adequate amount of knowledge about admissions process, as an alternative.

Results and Analysis

I. AI and Efficiency

The vast number of applications received between higher education institutions, such as the LSE, and banking establishments, such as Goldman Sachs, necessitates the use of A.I. powered video interviews in banking: firms use one-way video interviews to speed up of their application process as they watch the videos on their own time. Applicants believe that using one-way interview methods is beneficial to them as survey data shows that 52.38% of respondents found pre-recorded interviews to be the most convenient interview method, while 71.34% of respondents ranked in-person interviews as the least convenient. Of the 20 respondents whom have never experienced a video-interview, 60% of them would be willing to try a one-way video interview due to them having the power to conduct the interview at any time and place of their choosing, therefore revealing an appreciation from the candidates' perspective for time and geographical flexibility. This is also reflected in the interviews conducted in the research.

In addition to this, from the interviews conducted, the career consultants confirmed that the finance industry is a big user of A.I., especially when filtering out huge application pools in the initial stages. Prominent uses of A.I. include C.V scanning for keywords and analyzing the body language of candidates during video interviews. This was highlighted by one careers consultant, who suggests that firms with a smaller capacity, and hence a smaller candidate pool, typically in the charitable sector, have less incentive to adopt A.I. in its recruitment process.

II. Unintended consequence: AI and Ideal Candidate

An unintended consequence of maximizing the cost-efficiency and flexibility of A.I. in recruitment is that it leads to a rigid definition of an 'ideal candidate', which is a set of criteria that a person must fit in order to qualify for a job. Survey data reveals that 87.95% of respondents believe that recruiters have an ideal set of personality traits for the roles they applied to. Furthermore, of those who believe there is an ideal set of personality traits, 78.05% of respondents would tailor their answers to personality test questions to match what they believe the recruiter views as ideal. An association between candidates' belief in the existence of an ideal set personality traits type candidate and the tendency to customize answers to match the perceived ideal personality type was found to be statistically significant at the 1% and 5% significance level, showing a relationship between the two variables (see Figure 1). In addition, 75.4% of respondents believe that A.I. is used to filter applicants according to personality types, with 89.58% of those respondents admitting to customizing their responses to personality test questions.

Would you ever tailor your answers to personality questions to match what you believe to be the m...	Do you believe that companies have an ideal set of personality traits that candidates should poss...		
	Yes	No	Total
Yes	61	3	64
No	11	7	18
Total	72	10	82

		Do you believe that companies have an ideal set of personality traits that candidates should poss...
Would you ever tailor your answers to personality questions to match what you believe to be the m...	Chi Square	15.35*
	Degrees of Freedom	1
	p-value	0.00

Figure 1: Crosstab between respondents' belief in the existence of an ideal set of personality traits and willingness to customize answers to match ideal set of personality traits.

Our findings show that candidates believe A.I. is used to identify candidates that fit a preferred personality type and will readily transform their behaviour to conform to the perceived notion of organization's ideal candidate profile, which corroborates with our hypothesis. Survey data also yields a strong association between respondents who have customized their answers to situational judgement questions and are successful in securing the role they applied for at a 5% significance level (see Figure 2). However, the limitation of these statistically significant findings is that the phrasing of the survey question opens the possibility that the respondents may not have customized their answers in the job application that was ultimately successful.

Do you believe that companies have an ideal set of personality traits that candidates should poss...	Have you ever customized your answers to situational judgement questions to fit what you believe...		
	Yes	No	Total
Yes	65	7	72
No	5	5	10
Total	70	12	82

		Have you ever customized your answers to situational judgement questions to fit what you believe...
Do you believe that companies have an ideal set of personality traits that candidates should poss...	Chi Square	11.40*
	Degrees of Freedom	1
	p-value	0.00

Figure 2: Crosstab between respondents' belief in the existence of an ideal set of personality traits and willingness to customize answers to Situational Judgement questions.

Ideal candidates also exist in higher education. After conducting interviews with HE admissions, it became evident that the initial admissions process entails sifting through applications to ensure that applicants meet the required grades, as well as an initial reading of personal statement for structure and content. Applicants who do not meet the required grades or have a poorly structured personal statement are likely to be rejected. We believe that A.I. could be useful in

this initial phase of the admission process, as demonstrated by financial firms adopting A.I. to find suitable candidates with ease. However, the HE admissions team is aware of the complexity of candidate profiles, as evident by the adoption of contextual analysis of grades and consideration of any extenuating circumstances to diversify the pool of applicants. One admission officer highlighted the importance of having personal statement read by someone from the same field as the interest of applicant. Since A.I. produces an ideal candidate, this research paper suggests that it should not be implemented in analysing personal statements and the contextual understanding of grades.

III. Discrimination and Bias

Inevitably, a perpetuated notion of the ideal candidate in the recruitment processes leads to discrimination against some individuals. Interviewees express concerns about A.I. not be perceptive to the diversity and uniqueness of individual candidate profiles. Careers consultants, from the interviews, highlighted that outgoing or shy individuals might lose out because of the anxiety caused by A.I., with this being supported by candidates stating they prefer to connect personally with the firms. Candidates interviewed also expressed their concerns about C.V. scanning filtering out individuals who have unique talents and video interviews filtering out individuals based on their body language.

While A.I. has disadvantages as outlined above, the interviewees appreciated the potential advantages of A.I. in removing bias and discrimination in the recruitment process. For example, a candidate said they believe A.I. can assess candidates consistently based on standardised criteria. In other words, the decisions of AI can be free of discriminatory factors such as accent and demeanor that recruiters may face.

IV. Unintended Consequence of AI: Impersonalisation

A survey by Ranstad (2017) found that 82% of job seekers prefer human to technological interaction. This research project supports those findings as more than half of the respondents identified in-person interview were their favorite interview method. Based on the survey data the preference for personal interaction by candidates is evident. The results show that candidates ranked their favorite interview methods in the same order as candidates ranked the interview methods with the most human interaction. The interviews outline several reasons for this. Interviewees talk about face-to-face interviews being more natural and flexible as it can be based on candidate’s interest when recruiters react to the candidates' answers in an interview. Candidates indicate the difficulties of choosing between firms, when the recruitment process has been impersonalized to the extent that candidates have no personal connection to firms and are unaware of the culture of firms, with another interviewee suggesting that the regular interactions and updates from a firm persuaded them to prefer this firm over others they applied.

V. Limitation of Research

Methodologically, this research paper acknowledges the concerns over possible bias or skewed results arising from the convenience sampling method used due to the short duration of the research project. Hence, it is recommended that survey findings are treated as representative of a restricted sample of undergraduates with a certain degree of (career orientation) – further research needed for a larger demographically proportional sample size to ensure generalizability in findings. Though restrictive, the findings still offer unique insight into the candidate's perspective and experience of AI in the recruitment process.

Conclusion

Our findings support that AI increases the efficiency of application processes in the finance industry and removes discrimination and bias in the recruitment process. However, our analysis shows the use of AI in recruitment leads to a crude definition of 'ideal candidate'. Although this can be cost-effective for initial assessment as argued for the H.E., it also leads to potential discrimination and bias in the recruitment process as only certain characteristics and personal traits are included in the A.I. selection algorithm. Furthermore, our analysis shows that AI impersonalises the application process as A.I. decreases the need of face-to-face interviews and distant candidates from institutions where they applied.

Overall, we argue that due to the extremely large volumes of applications that companies in the finance sector receive, A.I. will and should continue to be used. Moreover, A.I. has a positive force in the recruitment process, but more research and work needs to be done to ensure that the use of A.I. produces a positive experience on candidates by humanising A.I. and removing bias and discrimination in the recruitment process. However, we believe that A.I. will only take up the role of assistants and that human recruiters will still be essential in the recruitment process, unless A.I. advances to a stage whereby it is able to incorporate personal experiences for job applicants and detect deceptive candidate behaviours.

Bibliography

Akkerman, E. “Artificial intelligence & HR. Municipal World”, 128(7), 5-6 (2018)

A. O’Neill, Thomas & M. Lee, Naomi & Radan, Jelena & J. Law, Stephanie & Lewis, Rhys & Carswell, Julie. “The impact of “non-targeted traits” on personality test faking, hiring, and workplace deviance. Personality and Individual Differences.” 55. 162–168. 10.1016/j.paid.2013.02.027. (2013)

Brubaker, K. “Artificial intelligence: Issues of consumer privacy, industry risks, and ethical concerns” (Orde No. 10812829). Available from ProQuest Dissertations & Theses Global. (2038967424). Retrieved from https://search.proquest.com/docview/2038967424?accountid=9630 (2018)

Castelli, M., Manzoni, L., & Popovič, A. “An Artificial Intelligence System to Predict Quality of Service in Banking Organizations”. Computational intelligence and neuroscience, 2016, 9139380. doi:10.1155/2016/9139380 (2016)

Copeland, B. “Artificial Intelligence | Definition, Examples, and Applications” Retrieved from https://www.britannica.com/technology/artificial-intelligence [Accessed: 13 June 2019] (2019)

Falliagka, E., Tsakalidis, A., Ramantas, K. and Tzimas, G. “Application of Machine Learning Algorithms to an Online Recruitment System. International Conference on Internet and Web Applications and Services” (2012)

Guest, G., MacQueen, K. M., & Namey, E. E. “Applied thematic analysis” Los Angeles: Sage. (2012)

Kaji, J., Hurley, B., Gangopadhyay, N., Bhat, R. and Khan, A. “Deloitte Global Human Capital Trends. Deloitte Insights” Available: https://www2.deloitte.com/content/dam/insights/us/articles/5136_HC-Trends-2019/DI_HC-Trends-2019.pdf. [Accessed: 4 June 2019]. (2019)

McCarthy, J., Van Iddekinge, C. and Campion, M. “Are Highly Structured Job Interviews Resistant to Demographic Similarity Effects?” Personnel Psychology, 63, pp. 325-359. (2010)

McKinsey “The Economics of Artificial Intelligence” https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/the-economics-of-artificial-intelligence. [Accessed: 13 June 2019]. (2018)

Mitchell, C., L. Ray, R. and van Ark, B. C-Suite Challenge 2018: “Re-inventing the Organisation for the Digital Age” The Conference Board. https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=7691. [Accessed: 13 June 2019]. (2018)

Noonan, Laura. “Goldman Sachs attracts 250,000 student job applications” Financial Times. https://www.ft.com/content/7c862fb8-2977-11e6-8ba3-cdd781d02d89. (2016) [Accessed: 13 June 2019].

Proudman, James “Managing Machines: the governance of artificial intelligence” (2019)

Reinsel David, Grantz John and Rydning John “The Digitization of the World” (2018)

Robson, C. “Real world research a resource for social scientists and practitioner-researchers" Oxford, UK: Blackwell. (2002)

Rosbaum, E. "IBM artificial intelligence can predict with 95% accuracy which workers are about to quit their jobs. CNBC" https://www.cnbc.com/2019/04/03/ibm-ai-can-predict-with-95-percent-accuracy-which-employees-will-quit.html (2019)

Ryan, L. "The Horrible Truth About One-Way Video Interviews" Forbes. https://www.forbes.com/sites/lizryan/2018/04/09/the-horrible-truth-about-one-way-video-interviews/#4fc913b55964. (2018) [Accessed: 13 June 2019].

Volini, E., Schwartz, J., Roy, I., Hauptmann, M., Van Durme, Y., Denny, B. and Bersin, J. "2019 Deloitte Global Human Capital Trends: From jobs to superjobs" Deloitte Insights. (2019) Available: https://trendsapp.deloitte.com/reports/2019/global-human-capital-trends/from-jobs-to-superjobs.html. [Accessed: 13 June 2019].

Appendix

I. **Transcription of the interview with the HR professional**

How did you first get into HR management?

I decided to change in industries: I was before working in logistics in DHL in Shanghai, and decided to change. I wanted to try something new. I applied to study in LSE in human resources, and that's how it sort of started my career in human resources.

Basically, I started up in human resources more on a data side. I'm quite good with understanding HR data - you have different HR datasets, so you have people and all these attributes that they have, be it gender, be it how long they work in an organisation. You use this data to build stories for HR business partners to look at where can we improve HR. So that's how I started off. I moved into a HR business partner role - I had a population I looked after in technology, quite diverse role in getting involved in employee relations cases and what a general HR business partner does.

I then moved to Singapore to a bit to work for Standard Chartered more on a data analytics type role. HR has a lot of datasets you can use: you can use recruitment data, reward data, bonuses, employee relations… I was trying to bring all these data sets together to tell a story of if the company has some issues with attrition as an example with the hiring, so this was what I was doing in Singapore for a bit.

And now currently in [company X], I started as a project manager and now what I'm doing is working in the HR business partner team, trying to standardise processes and improve and simplify them. So, I can get involved with quite random stuff. That's, in a nutshell, my background.

What is the most difficult or challenging part of the recruitment process from your perspective (for company X or any financial firm)?

So, one of it is that there is not the proper importance put on hiring data. Sometimes the data that is captured by the recruitment teams doesn't fully meet data integrity standards, so what you're then using to pull a story out of recruitment is maybe not the full story, because you've not captured it originally when a person was hired in [?]. So, I guess there is maybe a little bit of a lack of investment in the past where you need more people that are maybe on Excel or be it putting information into the recruitment systems to make sure that it is accurate, so that when you do reporting, when you look at trying to find out where there are issues with recruitment, you would capture this data from the get-go. So that's one thing.

I think, also, there's more emphasis now, I think, in general in the banking industry, is that margins are getting smaller and smaller and tech companies are competing in some areas where

the banks used to do their business only. So you have Apple Pay, companies that are getting into some of the businesses that banks used to hold the monopoly in, so you are actually competing not only within the banking sector, but you are also competing against tech in some specialist areas. [Tech companies] are very innovative with how they position themselves as a company - for example, you look at Google, who are a very attractive company to work for, for what they stand for, whereas some of the larger banks are seen as a bit old-fashioned sometimes. So when you are trying to attract these companies, you want to sound very attractive - there is a bit of a mind-shift that needs to happen within the banking sector in that sense.

Given the number of diverse candidates, how do you identify the most suitable talents?

Recently, I would say, banks are paying a lot more attention to diversity and inclusion, and the reason behind that is that partly it's driven by regulatory needs. We now need to report on a yearly basis what our ratios are with females and males in the organisation, looking at pay levels. So, if these statistics don't look very attractive, then why would you want to work for one of the organisations? It's quite interesting and I have had a chat with my recruitment guy - just the language that you use in a job description can have an impact on the type of candidates you hire in in terms of if you want to attract in females into the organisation, you want to make it very clear that you have the opportunity to have more dynamic working and flexible working, which is more important for females.

We also realise that men tend to be more… [?] Because the area I support is Legal, Compliance and Risk, they are very male-centric areas - there are not many females that work in these areas within the banking sector, so to attract females into those areas, it is very difficult, and there is a lot of competition for very few females that are there. So how do you attract them? We realised that we need to be a bit more patient with them - we need more time with words. If we reach out to males and we ask "do you want to work for [company X]?", they think "yeah sure, why not", but we need to more coerce some of the females to say "by the way, [company X] can offer you *x*, *y*, *z*" and the females go "oh that's very interesting, maybe I'll apply for [company X]". So you need to be a bit more tempting to let them join the organisation. We recognise that there's differences in the languages, and you have specialist companies that will help you have the right language to attract the right candidates. So you have to even be mindful of that - I didn't even realise that myself. You would think that a job description is what it is, but the language that you use is quite important.

From your perspective, what would you say the most important/priority in the recruitment process is?

Before it used to be having a system that understands who is the client with hiring, who is the most important clients in the whole hiring process. And sometimes we tend to forget that the two important people are the people who are applying for the role and the hiring manager. So,

you need to focus on that, and that means that the hiring process is happening as what, I mentioned earlier what Google are doing, they are already going out to, I guess, data mine and look for candidates proactively instead of people applying to roles. So the recruitment process is already starting at that point, which is not yet happening in very small areas of our bank.

But I guess, before people were more interested in the speed of hire - so the time it takes to hire, get interviews done, getting the contracts out - that was considered the most important thing, and what we've realised with talking to our hiring managers now is that it's more important to hire quality candidates. So, you'd rather spend more time - 2-3 months maybe - to hire the right candidate for a role, and it's just the common saying that it's very expensive with hiring the wrong people for the company.

Do you potentially see the use of AI in the recruitment process (e.g. used for gathering data)?

To that point of using what Google has done in terms of searching the web for the capabilities and competencies that they are looking for in roles, especially that of difficult roles to hire for, to search the web and see what their background is, so from the get-go you already have this list of candidates.

Do you think there are any potential concerns when using AI for hiring?

Yes, to this point is, again to the Google point, when you are doing searches, there's this data privacy issue of why you're doing searches on some individuals who don't know they're being searched for, as an example. There's no boundary yet of doing that, and also, as an example, just in general, within companies, I know that some organisations are able to use the data that they have. Let's say, you have Outlook and you see all the meetings that people have - you can have a program to see who is spending time with who in their diary, and so capturing all this information is sensitive and is not right to have. But it's very useful to know, right? Because then you realise, "why is this person spending 80% of this time with the coffee lady?" That sort of thing. So, I think legislation is still not there in terms of monitoring and setting the guidelines for what you can do and what you can't do.

What about the bias issue? (e.g. Amazon - AI for hiring?) Can this be a potential problem?

And that's exactly the reason why, maybe, some of the banks are hesitant with doing some of these activities. I'm not saying bad things about Amazon or Google, but they sometimes are very quick to do some of these initiatives without thinking what the potential impact is in terms of data privacy or things like that, whereas we would… what would usually happen is that if we were to do something in terms of recruitment activities, we would have a discussion with our legal

department, with our employee relations department, so they would say, “hmm, you have some risks here so you shouldn’t do it” or maybe just recognising that you would have to do it in a certain manner. So, I personally don’t know if this happens so much in the tech companies and maybe it’s not so stringent, and maybe it’s just the way that the banking sector is more regulated than the tech industry.

But do you see any advantages for AI in the future?

Yes, I do. But I think it’s… my personal understanding of exactly what AI does is still… I’m struggling to see what it actually means. Because people float around the general term ‘AI’ and I don’t know… it’s almost a little bit… [?] A couple of years back a lot of people used the term ‘Big Data’ and now it’s sort of disappeared as it was the fad to talk about it. But what it does mean in terms of HR and doing things, you know, automating processes or using software that automates things, but I’ve not yet seen… The only thing I’ve only really seen it is with searches and with the algorithms they have, but besides that, I’ve struggled to see what other benefits it can actually bring.

Just to be a bit more in context - there’s video interview companies like HireVue, who use AI-powered machine-learning to assess candidates (score, candidate analysis, etc.), do you see that this could be the future of recruitment processes/widely used/accurate?

Yeah. I can see that it would potentially add some value, but to make a decision on that can be difficult. I don’t know, maybe this is a bad comparison, but as an example, if in an organisation we want to make learning and development programmes to focus on what people want for their development, we thought, we offer them self-service tools to do whatever they want, but it’s sort of come to light that you actually need to personify or be very personal with them in terms of designing these processes of what they want with their career. If you don’t form this close connection, then they probably don’t care. And so, again, how do you want to make it, I guess, you know, less human touch with a lot of things, and humans are unpredictable. You don’t know if these tools can give you accuracy in terms of hiring, and it’s interesting… A while back, while reading about how you choose the best candidate for a role in terms of interviewing, assessment centres, things like that - and usually assessment centres are the best predictors in terms of hiring individuals - but that is a method where you have a lot of interactions with the individual. And sometimes, I don’t know, I mean, a lot of times in interviews, why people get hired is because they get a good feel, a vibe, from the individual saying “I wouldn’t mind working with this individual so let’s hire him”, and not to do with the actual answers they give - it’s just the nature, mannerisms, that have also an impact, and you make that connection, and maybe with some of the AI things, you wouldn’t be able to see that. But I can definitely see that it would add value.

What do you think the attitudes [company X]/companies like [company X] will have in the future regarding the role of automation in the finance industry?

I think there is a role in terms of if you make AI still seem personal to the individual. As an example (this is very basic), if you're sending out comms and you're able to header it with individual's name saying "Hi Sam, this is what you need" and it's sounding like a personal message but it's not - if an individual doesn't realise that it's a machine sending out something, then it could be [a role?]. But how do you understand?- each individual is unique, so how do you understand these unique characteristics of individuals? And you know, the constant challenge that we have in HR is we try to do something standardised in the organisation, and then we have a certain part of the business saying "no, no, no, we want to do something unique", so it's that sort of understanding of "can we use AI somehow to tweak what we have as standardised product to provide them what they need?" I'm sure there is, eventually we'll come to that. So having that tailor-made activity that can assist with that that AI can put out there.

How is [company X] seeing its future recruitment process? Any project that is preparing it to hire for the future?

One of the key things, and this is a general thing, not only what's happening in HR, is the digitising of everything. So when everything is now, be it processes being automated more and more and you have less manual activities, meaning that you potentially need less people in recruitment because of some of the automation that takes place, and it's more streamlined in terms of when you're hiring from day one, to get systems to talk with each other so that, you know, when you come in starting on the first day, you have your IT set up, your line manager has all the information you need, so trying to make that as seamless as possible. You would think that would have happened already, but it's still not happened. So trying to make that process slick, so that people, when they start, they think "wow that's a fantastic company". So doing constant improvement in those sort of processes.

I think with whatever happens the tech companies in terms of their hiring, sort of, new approaches that they have, I think they will try out something new, and then if it seems as a success, then the banking sector will probably follow along. But we are not the risk-takers that maybe some of the tech organisations are willing to do.

Do you see [company X] as one of the most willing to change within the finance industry?

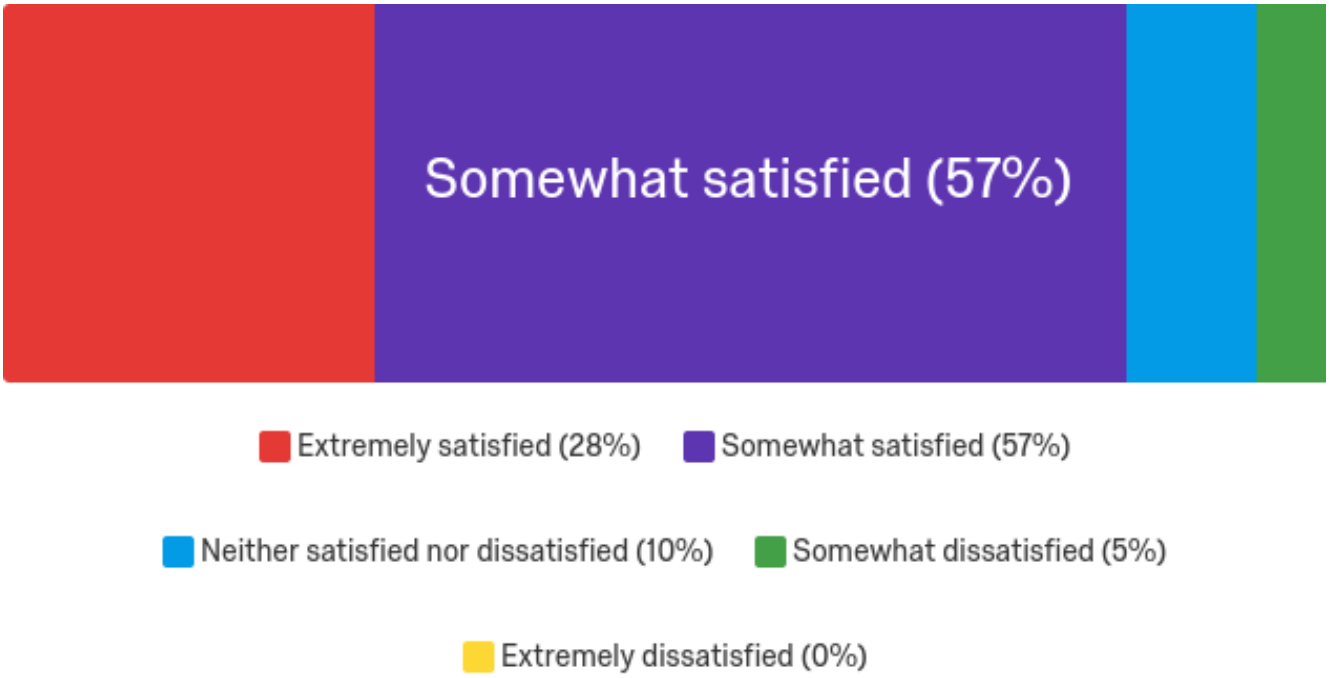
Yes definitely, constantly there's a discussion about the importance of data, especially the recognition of that and the recognition of every single person. If they feel that, let's say, their day job is copying and pasting from Excel to another file - very manual work - to challenge why they are doing something like that and to try and automate that process as much as possible. So there

is a lot of that going on, and there is a lot of, I would say, in HR and IT, to connect with start-ups to see what's going on in their companies that might help with searches. What's happening also is banks are wanting now more value for the cost. Before there maybe wasn't such stringency but there's a lot more emphasis on costs and getting value for the money.

I'm just trying to compare [company X] to some of the other banks I've worked for, and it's difficult to compare, because you have different areas that they want to focus on, and each bank have their different areas where their issues are, and as an example, Compliance, Legal and Risk has a very different function to hiring people in the Technology and Operations side of the business, because you're hiring mass hiring - so you're hiring a lot of people into those areas with similar attributes, coders, whatever. But when you're hiring into Risk functions, which is a very unique skill, how do you hire into that? You know, it might be that you need very old-fashioned type approaches where you go up to your senior management and ask "do you know anyone who might be good at this job?" and they will have some contact to say "yep, Joe over there in wherever" because there aren't a lot of people who are specialists. So sometimes it's about how you get those new innovations for the whole bank - it's difficult to do, because of very different requirements.

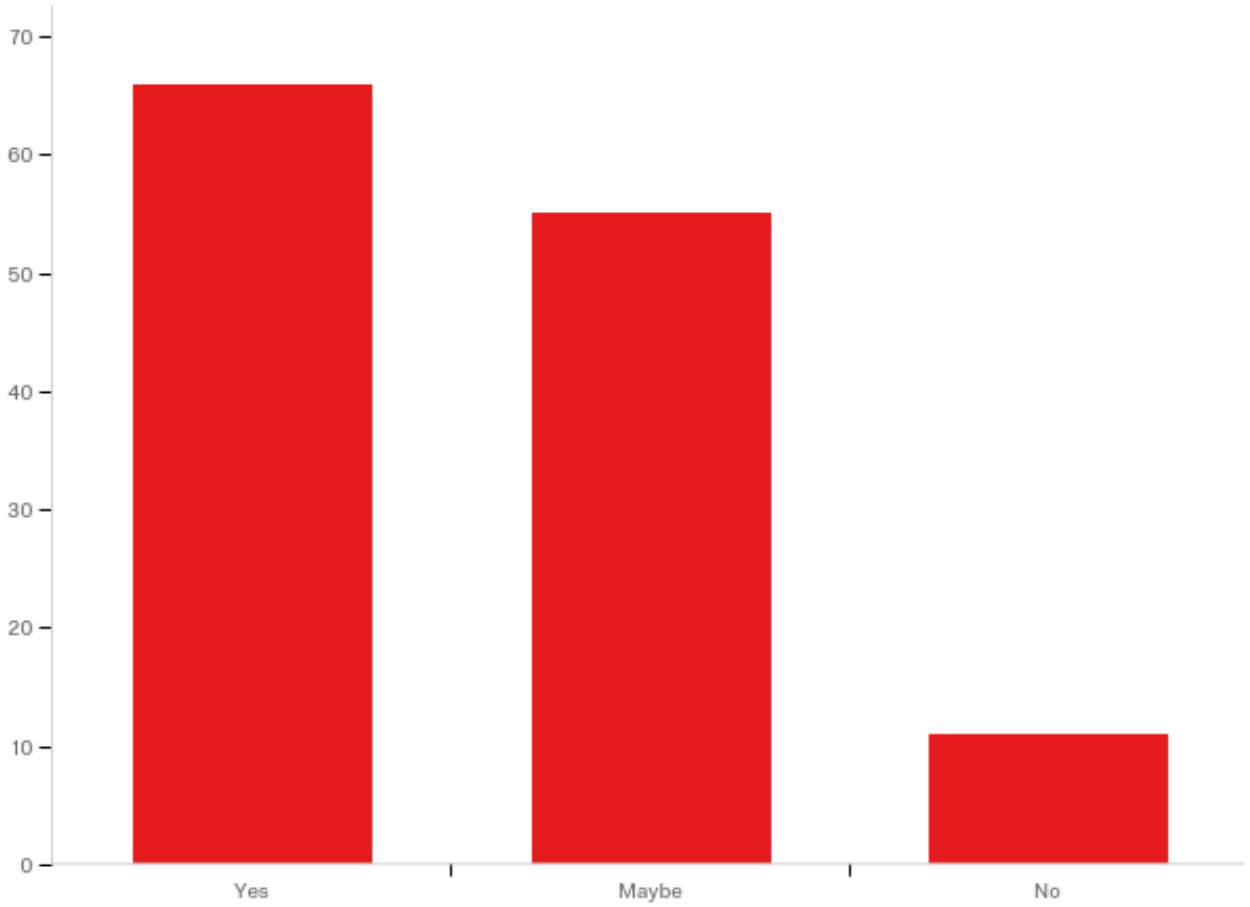
II. **Survey questions and respondents' answers**

Q2 - How satisfied were you with the UCAS application process overall?



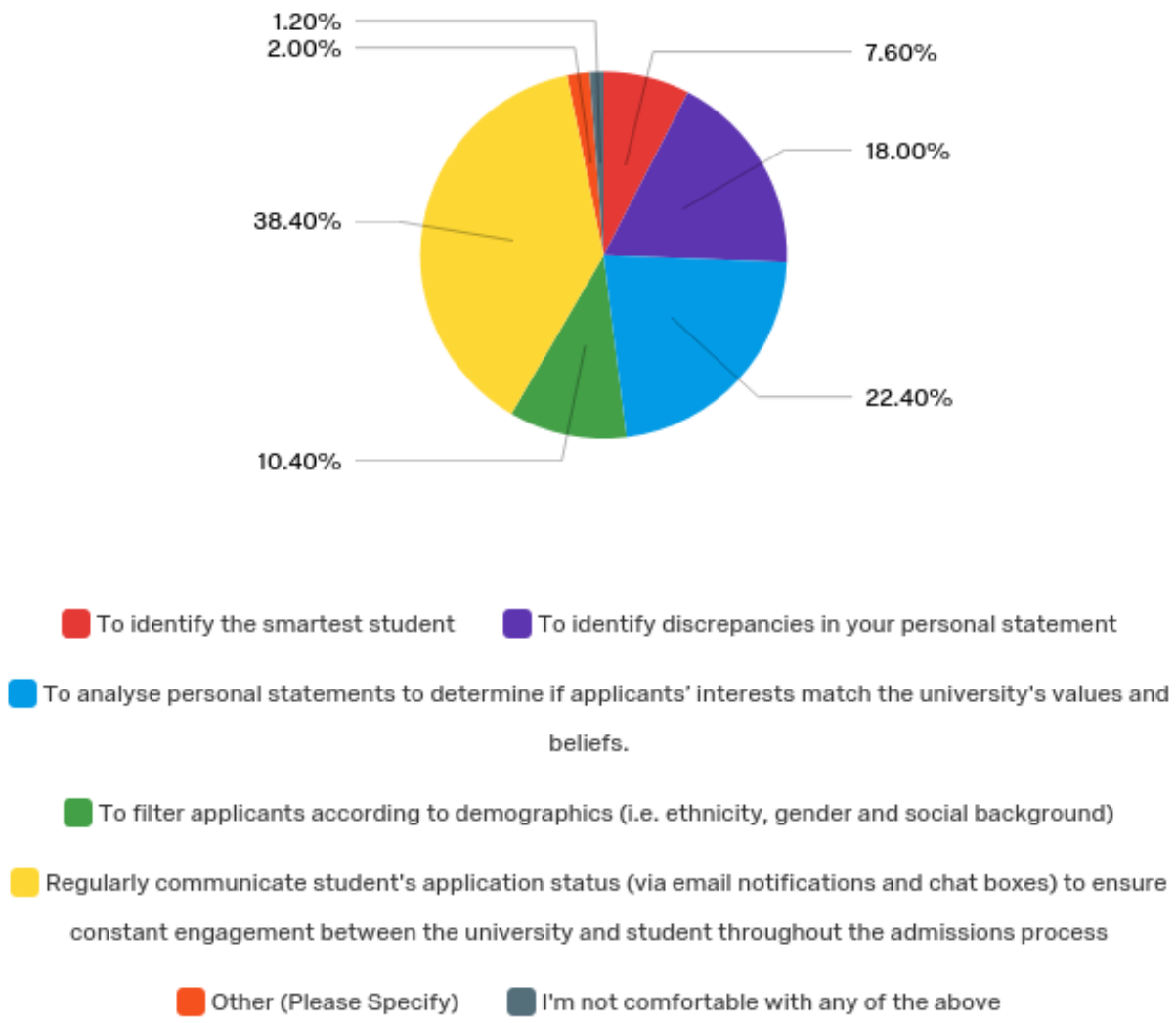
#	Answer	%	Count
11	Somewhat satisfied	56.82%	75
10	Extremely satisfied	28.03%	37
12	Neither satisfied nor dissatisfied	9.85%	13
13	Somewhat dissatisfied	5.30%	7
14	Extremely dissatisfied	0.00%	0
	Total	100%	132

Q3 - Do you foresee AI being used in future admission processes?



#	Answer	%	Count
1	Yes	50.00%	66
2	Maybe	41.67%	55
3	No	8.33%	11
	Total	100%	132

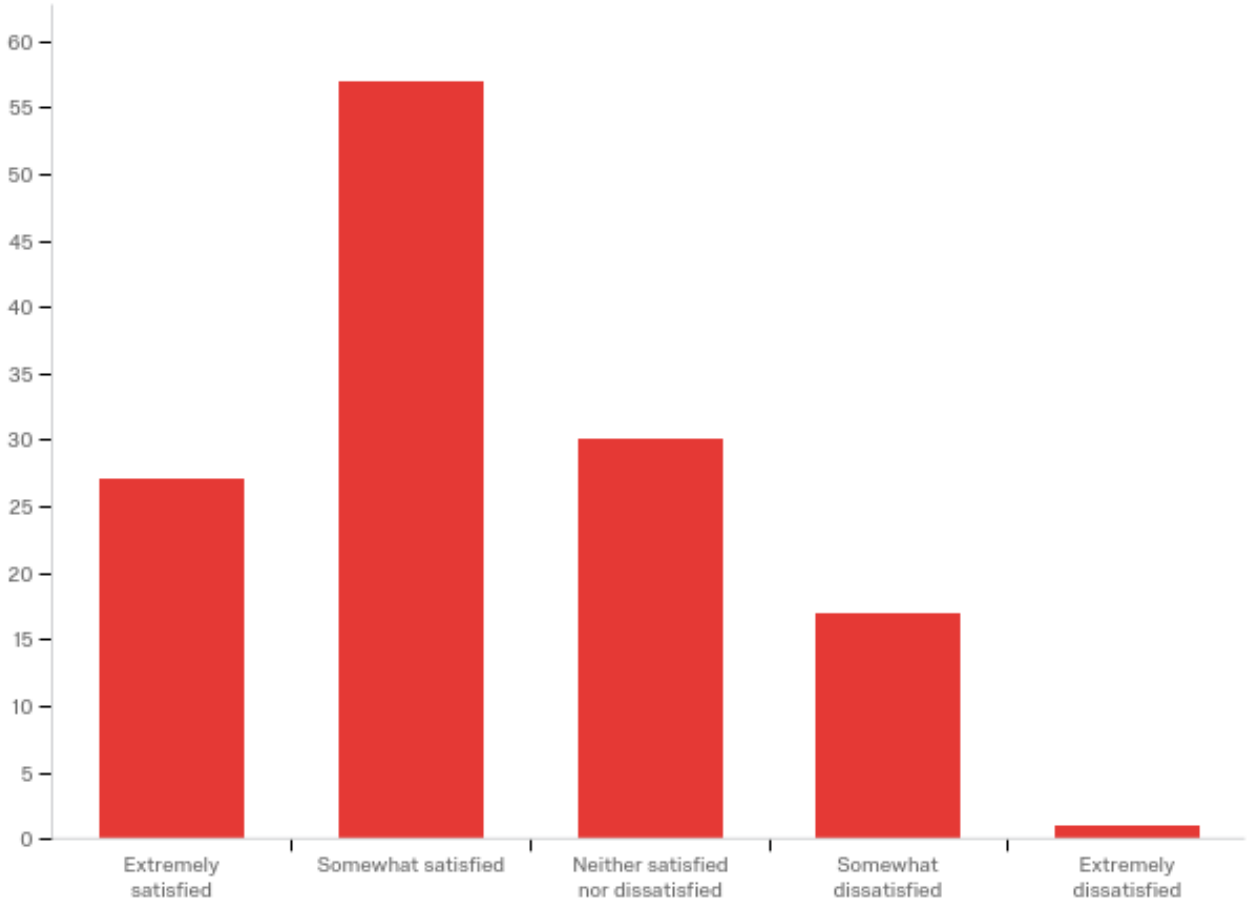
Q4 - In what ways would you want A.I. to be used in the application process? Select all that apply.



#	Answer	%	Count
2	To identify the smartest student	7.60%	19
4	To identify discrepancies in your personal statement	18.00%	45
5	To analyse personal statements to determine if applicants' interests match the university's values and beliefs.	22.40%	56
3	To filter applicants according to demographics (i.e. ethnicity, gender and social background)	10.40%	26

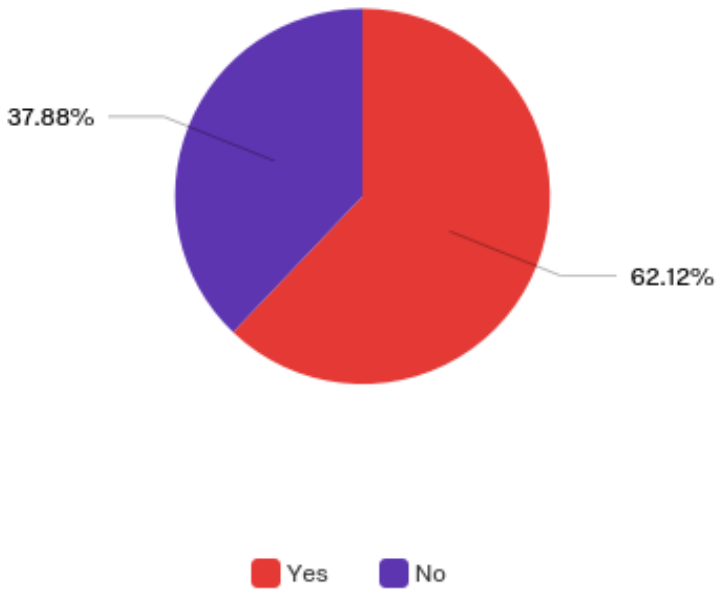
8	Regularly communicate student's application status (via email notifications and chat boxes) to ensure constant engagement between the university and student throughout the admissions process	38.40%	96
6	Other (Please Specify)	2.00%	5
7	I'm not comfortable with any of the above	1.20%	3
	Total	100%	250

Q5 - Based on the choices you made on the previous question, how do you feel about the use of AI in this context?



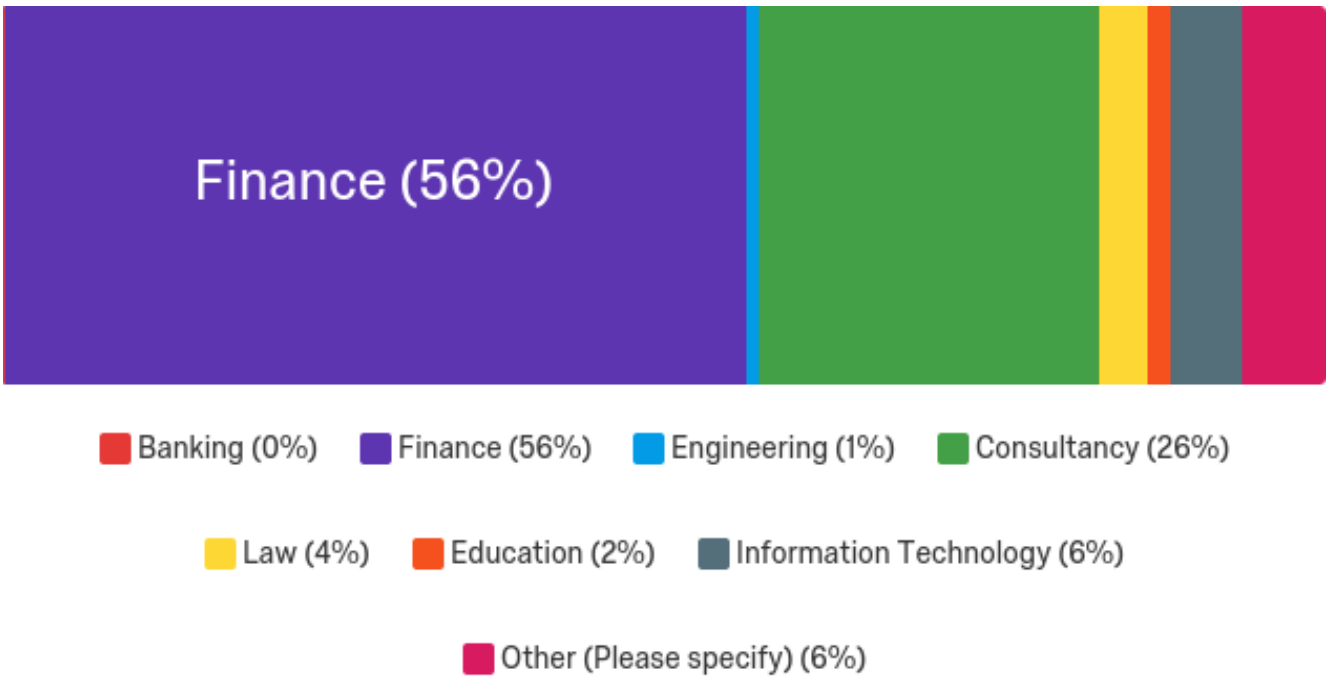
#	Answer	%	Count
1	Extremely satisfied	20.45%	27
2	Somewhat satisfied	43.18%	57
3	Neither satisfied nor dissatisfied	22.73%	30
4	Somewhat dissatisfied	12.88%	17
5	Extremely dissatisfied	0.76%	1
	Total	100%	132

Q6 - Have you ever applied for a spring week, summer internship or graduate role in the last 3 years?



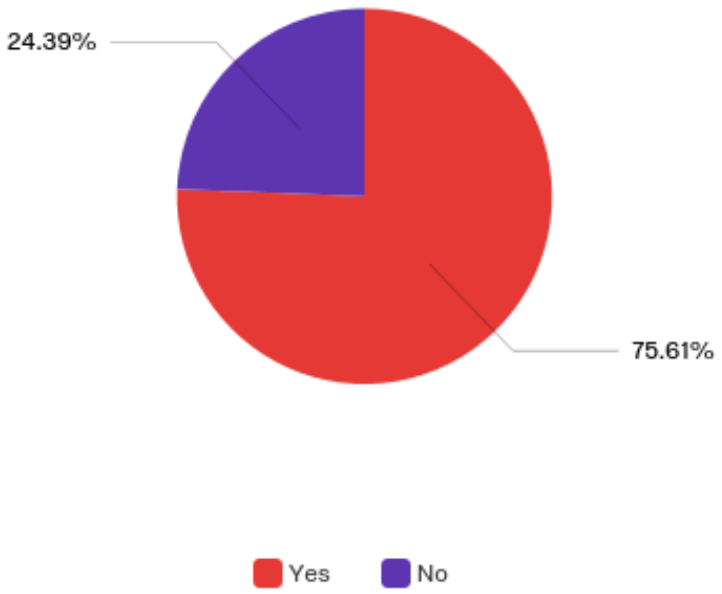
#	Answer	%	Count
1	Yes	62.12%	82
2	No	37.88%	50
	Total	100%	132

Q7 - If you replied yes to the previous question, which sector did you apply to? Select all that apply.



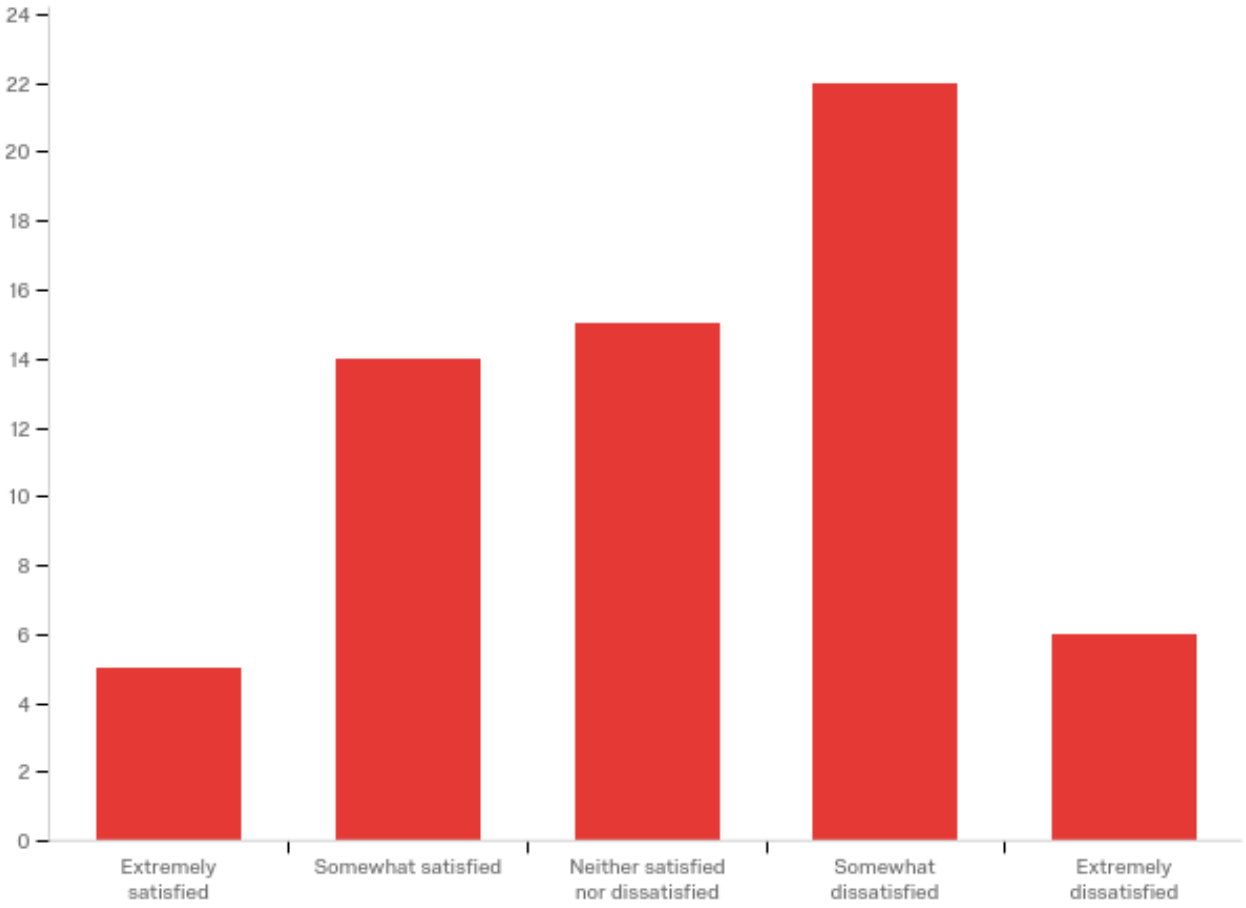
#	Answer	%	Count
1	Banking	0.00%	0
2	Finance	55.96%	61
7	Engineering	0.92%	1
3	Consultancy	25.69%	28
4	Law	3.67%	4
5	Education	1.83%	2
8	Information Technology	5.50%	6
6	Other (Please specify)	6.42%	7
	Total	100%	109

Q9 - Have you experienced a pre-recorded/one-way video interview during the recruitment process of your past application/s?



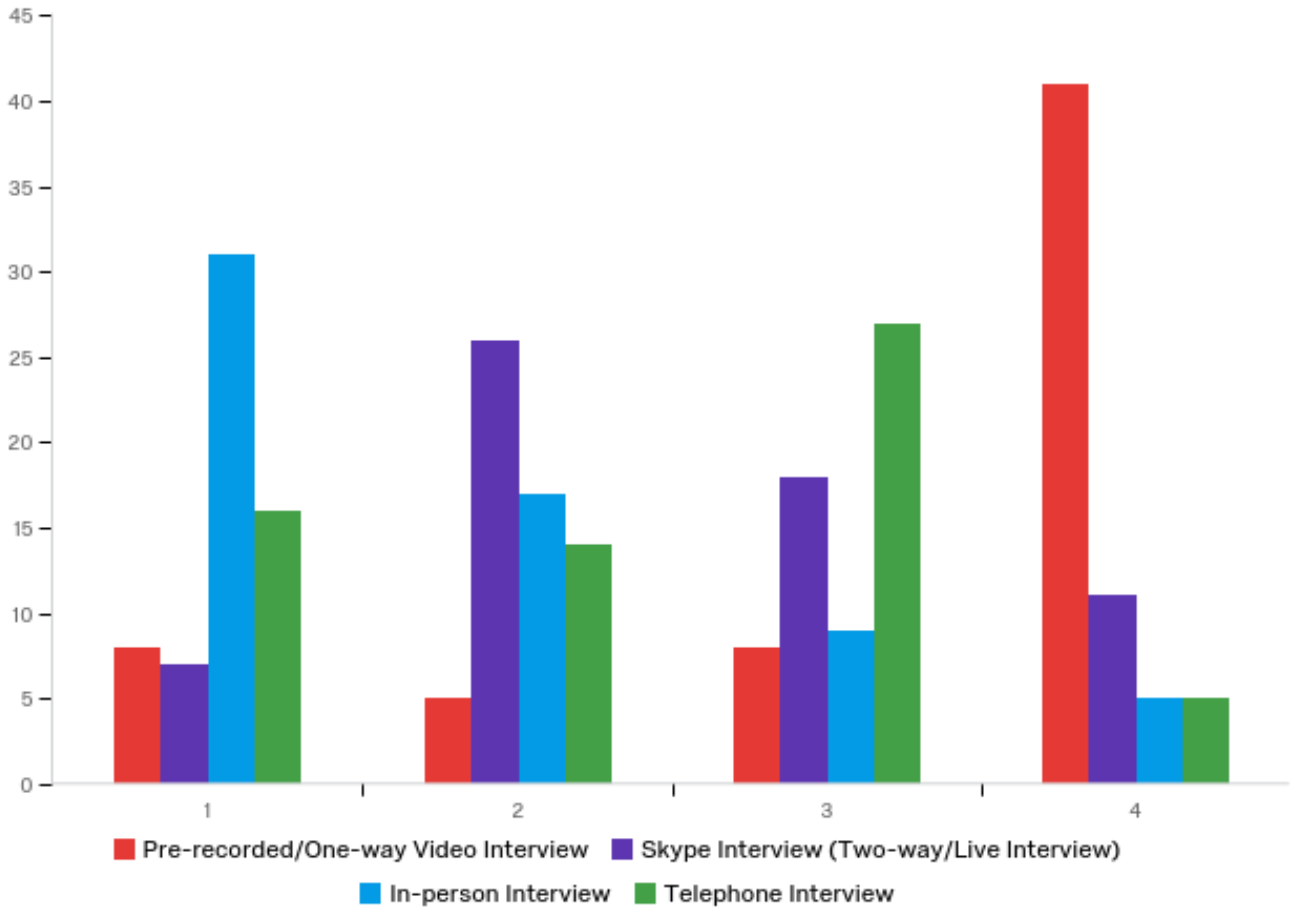
#	Answer	%	Count
1	Yes	75.61%	62
2	No	24.39%	20
	Total	100%	82

Q10 - If yes to question 3, how satisfied did you find the pre-recorded/one-way video interviews process?



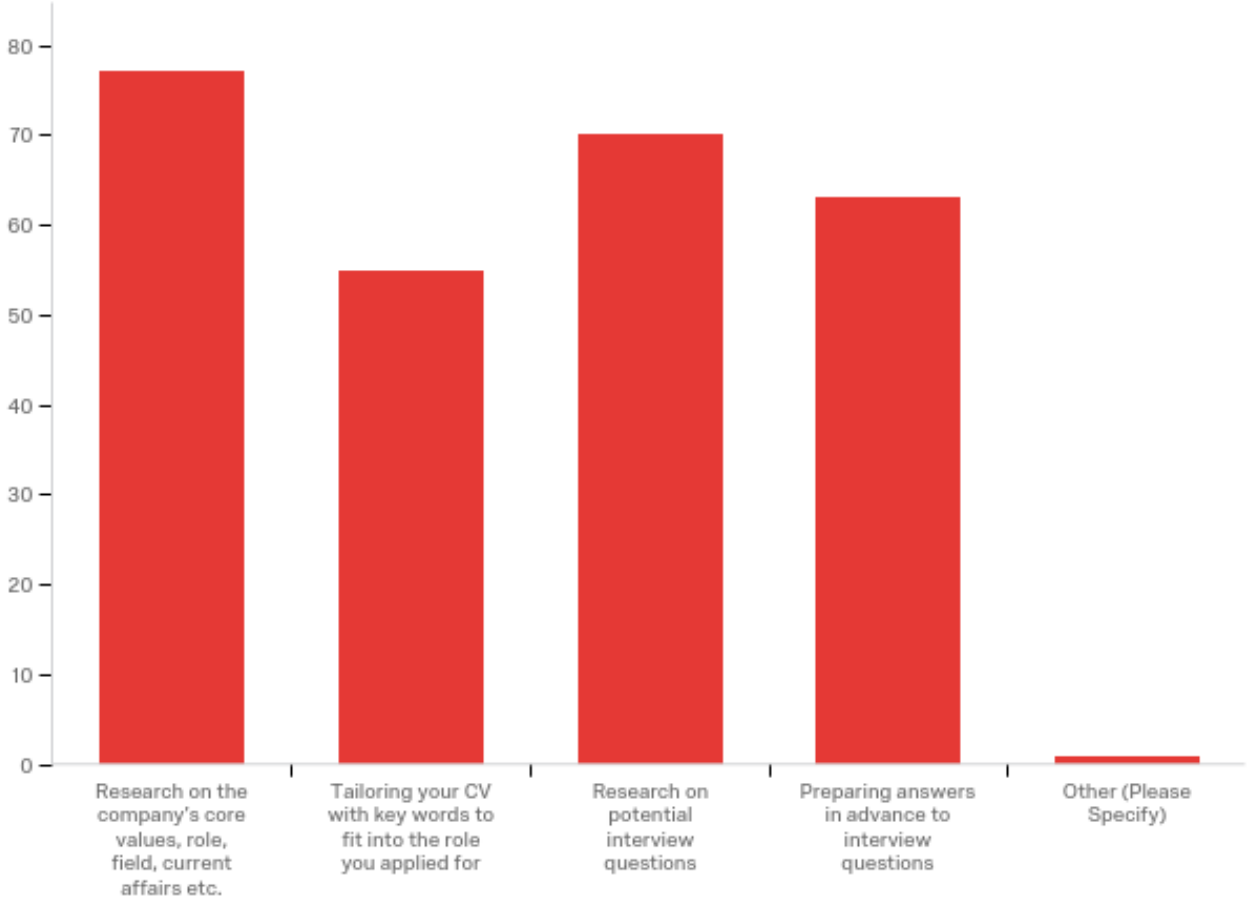
#	Answer	%	Count
1	Extremely satisfied	8.06%	5
2	Somewhat satisfied	22.58%	14
3	Neither satisfied nor dissatisfied	24.19%	15
4	Somewhat dissatisfied	35.48%	22
5	Extremely dissatisfied	9.68%	6
	Total	100%	62

Q11 - Please rank your preference for the following forms of interviews (1 is the one you prefer the most):



#	Question	1		2		3		4		Total
1	Pre-recorded/One-way Video Interview	12.90%	8	8.06%	5	12.90%	8	66.13%	41	62
2	Skype Interview (Two-way/Live Interview)	11.29%	7	41.94%	26	29.03%	18	17.74%	11	62
3	In-person Interview	50.00%	31	27.42%	17	14.52%	9	8.06%	5	62
4	Telephone Interview	25.81%	16	22.58%	14	43.55%	27	8.06%	5	62

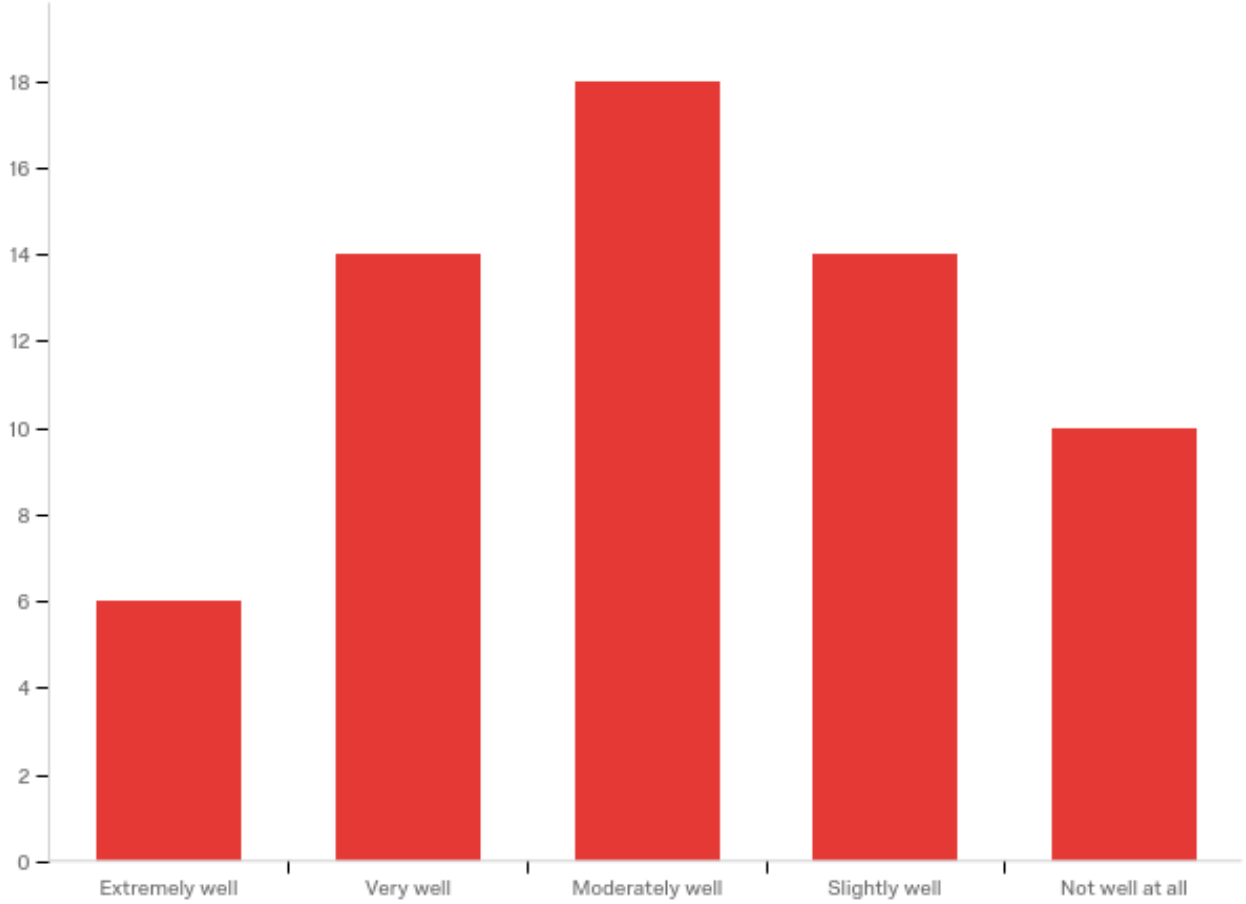
Q8 - What kind of preparation did you do for the job application? Select all that apply.



Q8 - What kind of preparation did you do for the job application? Select all th...

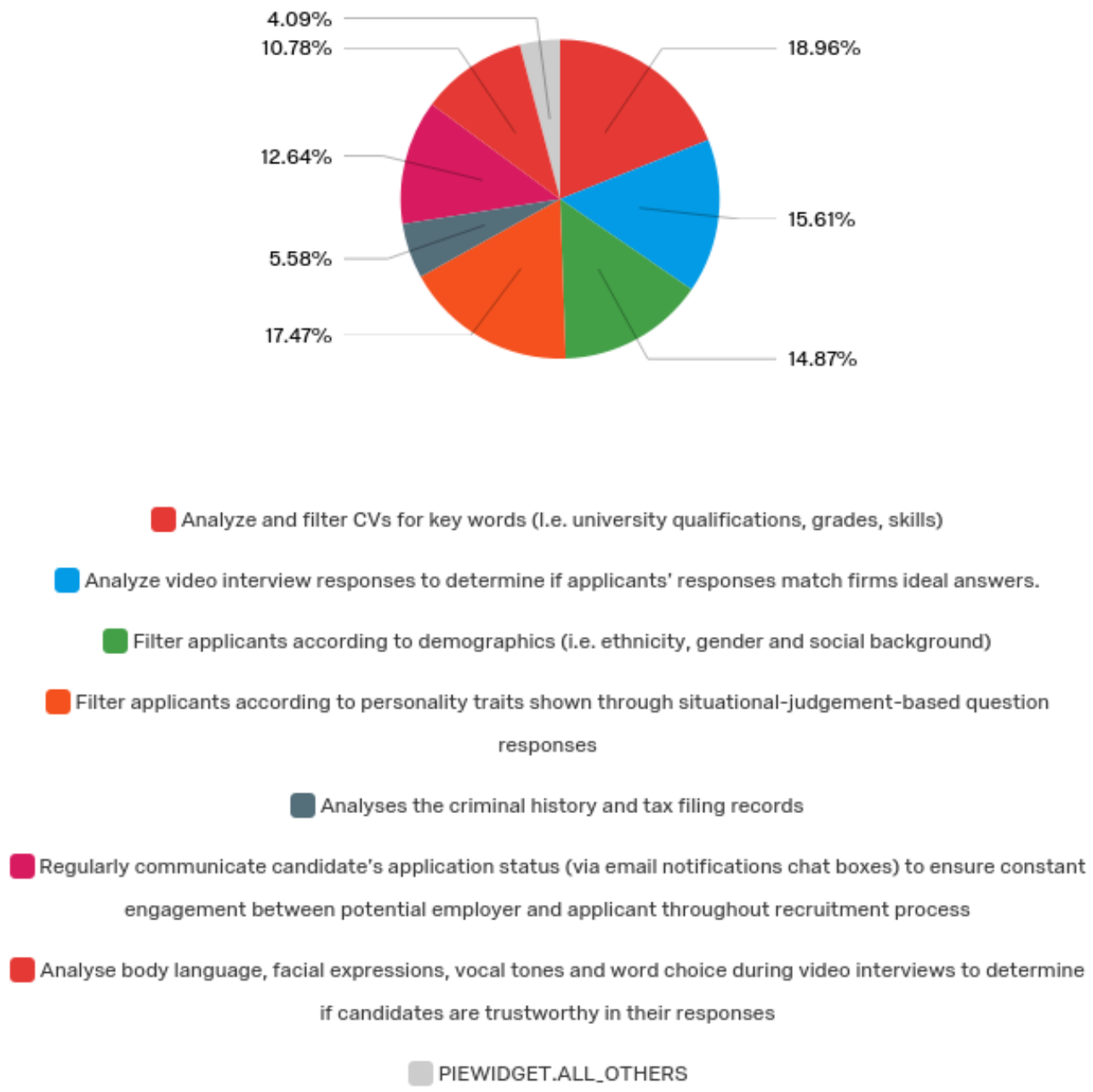
#	Answer	%	Count
1	Research on the company’s core values, role, field, current affairs etc.	28.95%	77
2	Tailoring your CV with key words to fit into the role you applied for	20.68%	55
3	Research on potential interview questions	26.32%	70
4	Preparing answers in advance to interview questions	23.68%	63
5	Other (Please Specify)	0.38%	1
	Total	100%	266

Q15 - How well do you understand the role of AI in the recruitment process at any stage?



#	Answer	%	Count
1	Extremely well	9.68%	6
2	Very well	22.58%	14
3	Moderately well	29.03%	18
4	Slightly well	22.58%	14
5	Not well at all	16.13%	10
	Total	100%	62

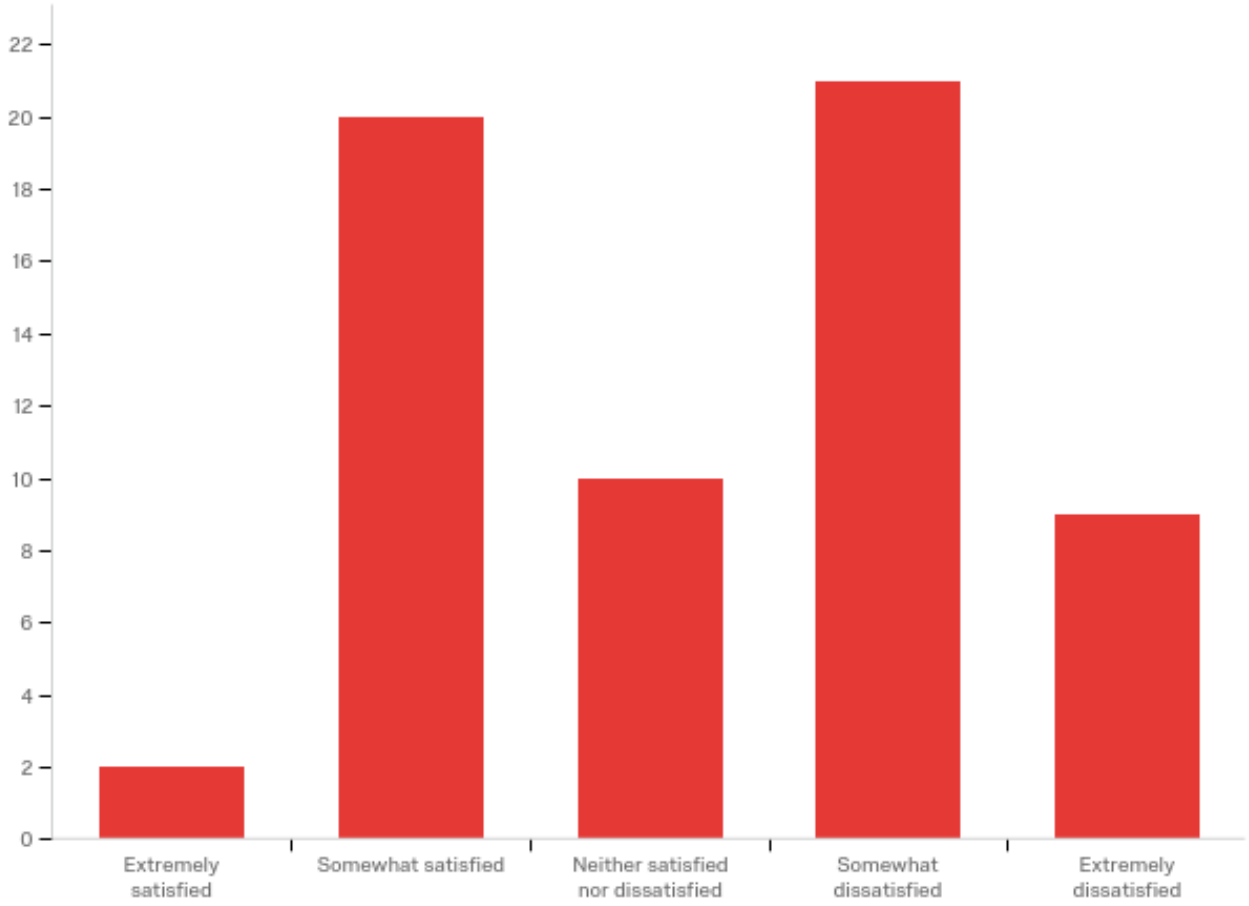
Q16 - To what extent do you believe AI is used in the recruitment process? Select all that apply.



#	Answer	%	Count
1	Analyze and filter CVs for key words (I.e. university qualifications, grades, skills)	18.96%	51

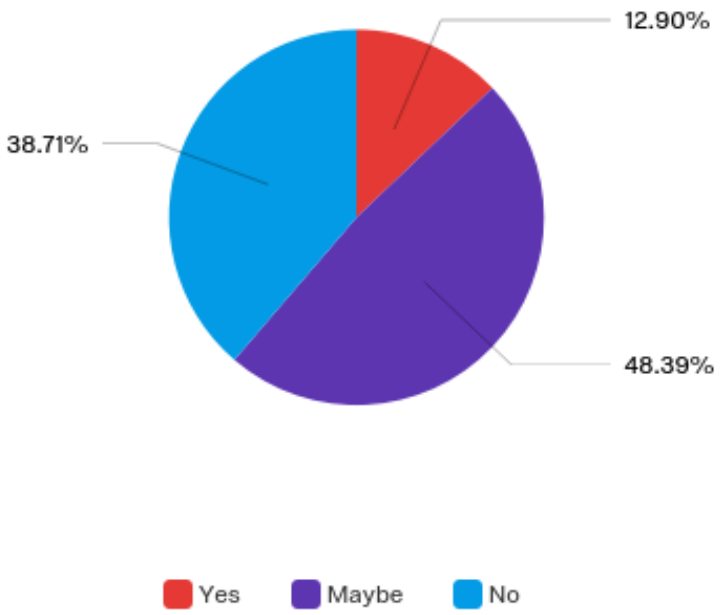
11	Predicts sexual orientation of applicants	1.49%	4
2	Analyze video interview responses to determine if applicants' responses match firms ideal answers.	15.61%	42
3	Filter applicants according to demographics (i.e. ethnicity, gender and social background)	14.87%	40
8	Analyses the political affiliation of applicants	2.23%	6
4	Filter applicants according to personality traits shown through situational-judgement-based question responses	17.47%	47
9	Analyses the criminal history and tax filing records	5.58%	15
5	Regularly communicate candidate's application status (via email notifications chat boxes) to ensure constant engagement between potential employer and applicant throughout recruitment process	12.64%	34
6	Analyse body language, facial expressions, vocal tones and word choice during video interviews to determine if candidates are trustworthy in their responses	10.78%	29
7	Other (Please Specify)	0.37%	1
	Total	100%	269

Q17 - Based on the choices you made on the previous question, how do you feel about the use of AI in this context?



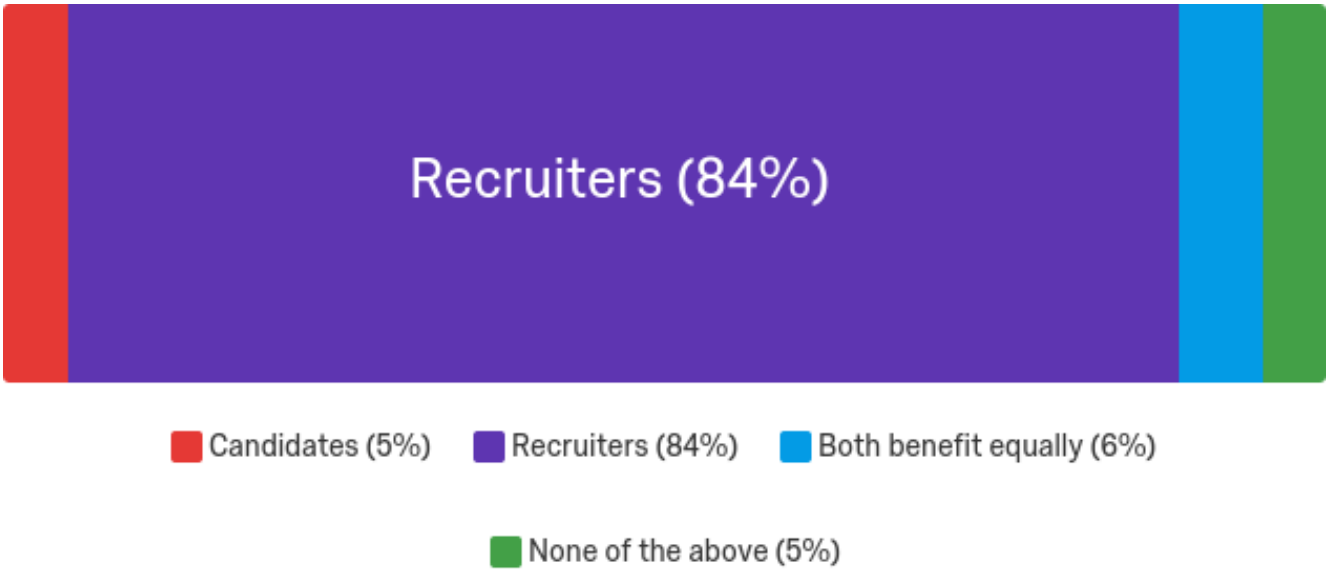
#	Answer	%	Count
1	Extremely satisfied	3.23%	2
2	Somewhat satisfied	32.26%	20
3	Neither satisfied nor dissatisfied	16.13%	10
4	Somewhat dissatisfied	33.87%	21
5	Extremely dissatisfied	14.52%	9
	Total	100%	62

Q18 - Do you feel that the use of pre-recorded video interviews enhances the candidate experience overall?



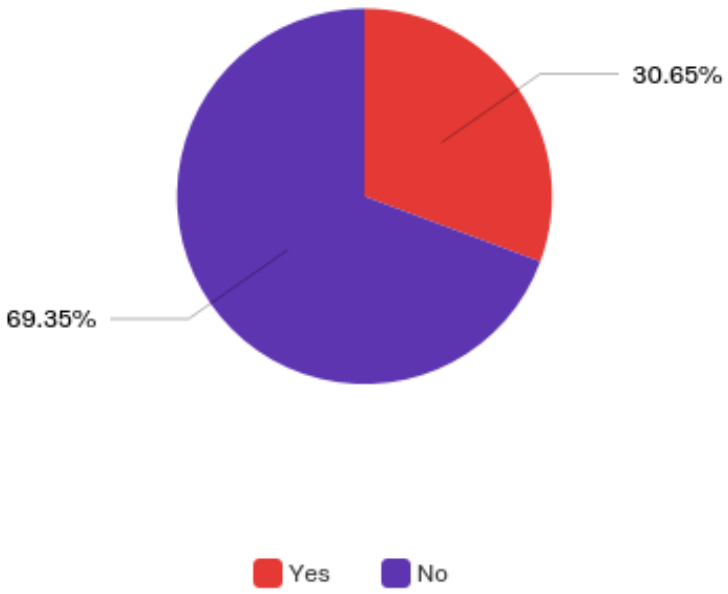
#	Answer	%	Count
1	Yes	12.90%	8
2	Maybe	48.39%	30
3	No	38.71%	24
	Total	100%	62

Q19 - Who do you think benefits the most from pre-recorded/one-way video interviews that employ AI?



#	Answer	%	Count
1	Candidates	4.84%	3
2	Recruiters	83.87%	52
3	Both benefit equally	6.45%	4
4	None of the above	4.84%	3
	Total	100%	62

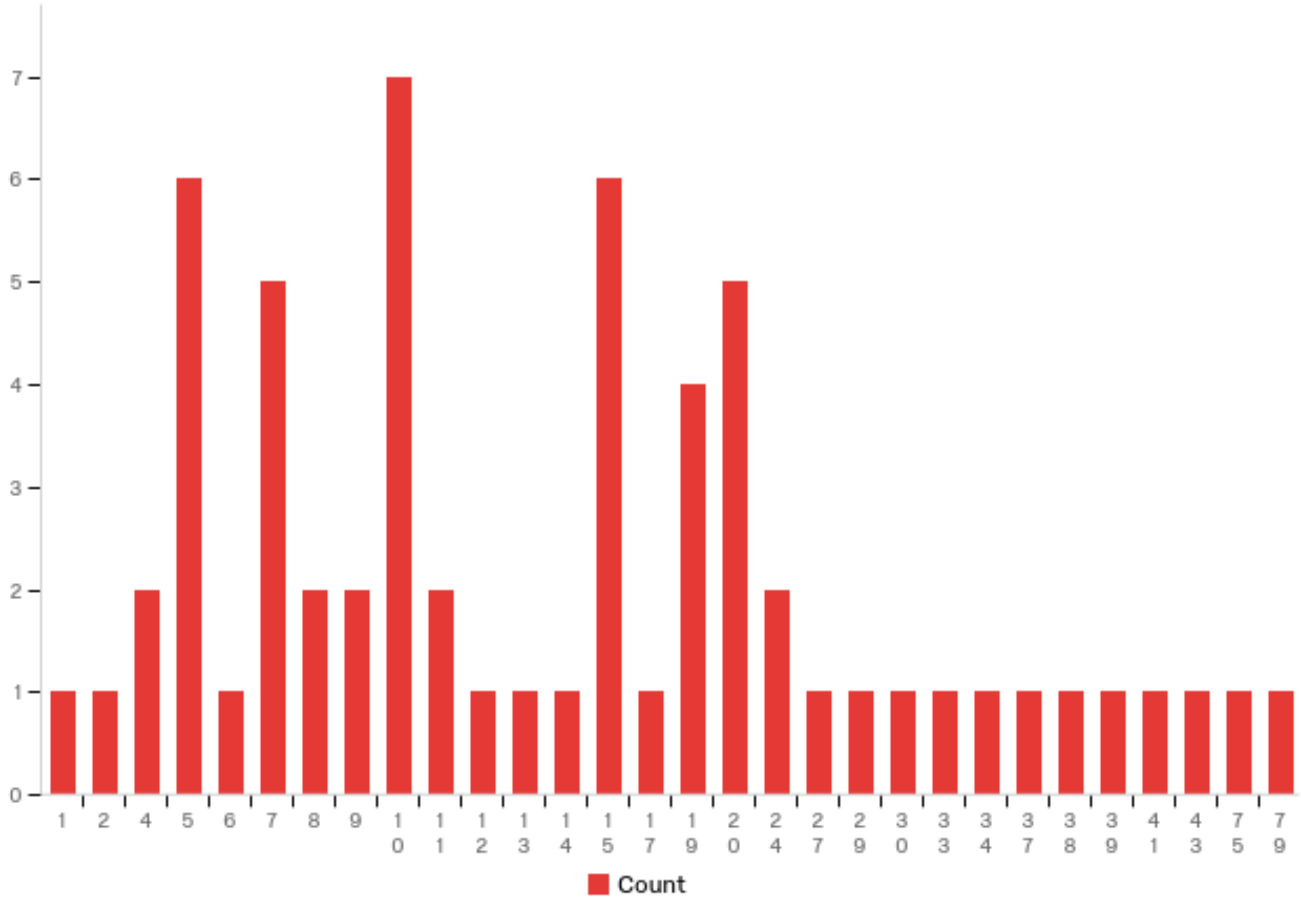
Q20 - Do you believe that all pre-recorded video interviews are viewed by a company recruiter before the application is determined to continue in the recruitment process?



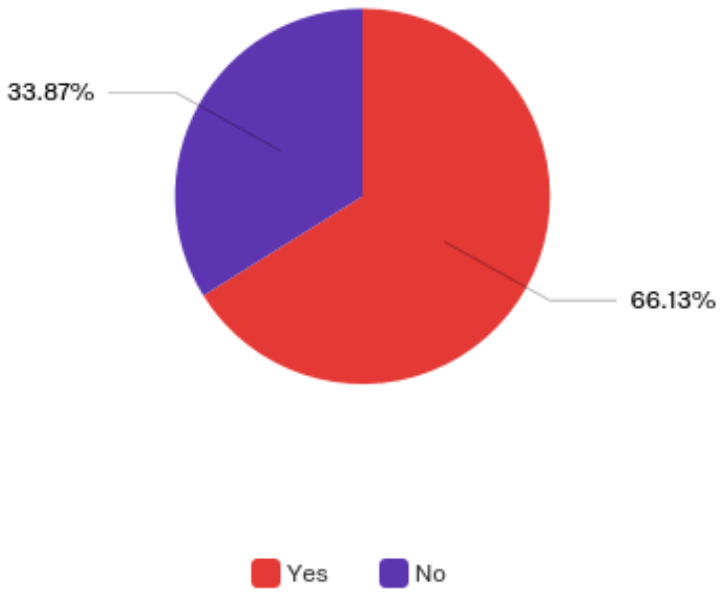
#	Answer	%	Count
1	Yes	30.65%	19
2	No	69.35%	43
	Total	100%	62

Q21 - Approximately how many applications did you make for spring weeks/summer internship/graduate role?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Approximately how many applications did you make for spring weeks/summer internship/graduate role?	1.00	79.00	17.47	15.01	225.35	62

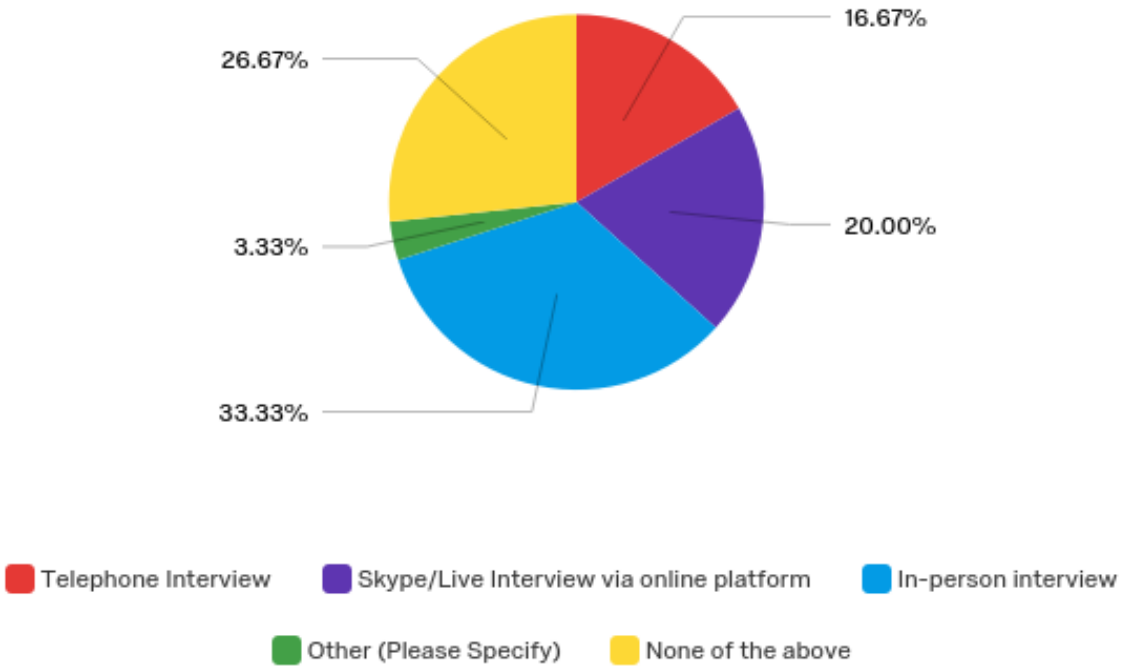


Q22 - Did you successfully secure any of the roles you applied for?



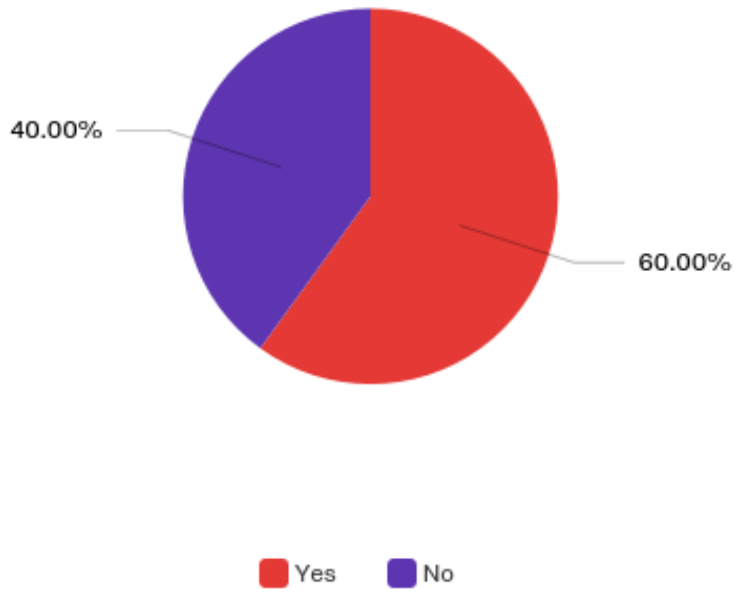
#	Answer	%	Count
1	Yes	66.13%	41
2	No	33.87%	21
	Total	100%	62

Q23 - If No, what type of interview process did you experience? Select all that apply.



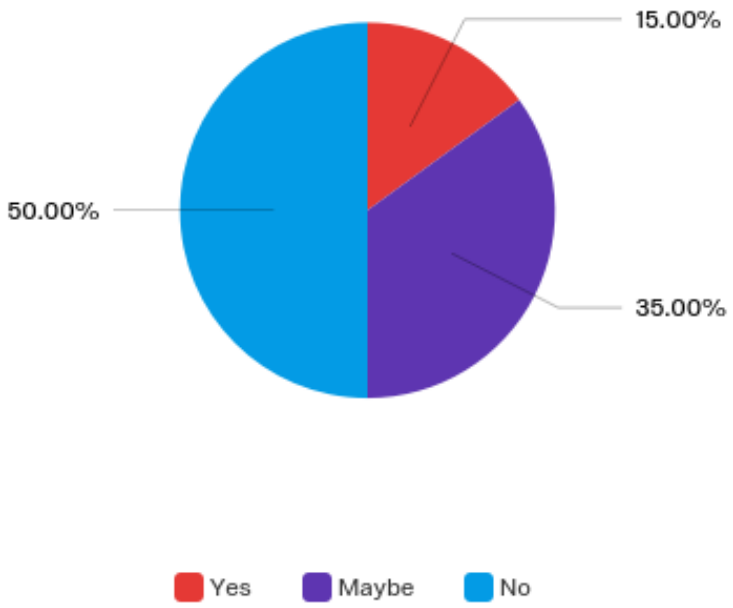
#	Answer	%	Count
1	Telephone Interview	16.67%	5
2	Skype/Live Interview via online platform	20.00%	6
3	In-person interview	33.33%	10
4	Other (Please Specify)	3.33%	1
6	None of the above	26.67%	8
	Total	100%	30

Q24 - Would you be willing to try a pre-recorded video interview platform that allowed you to have the interview at any point in time?



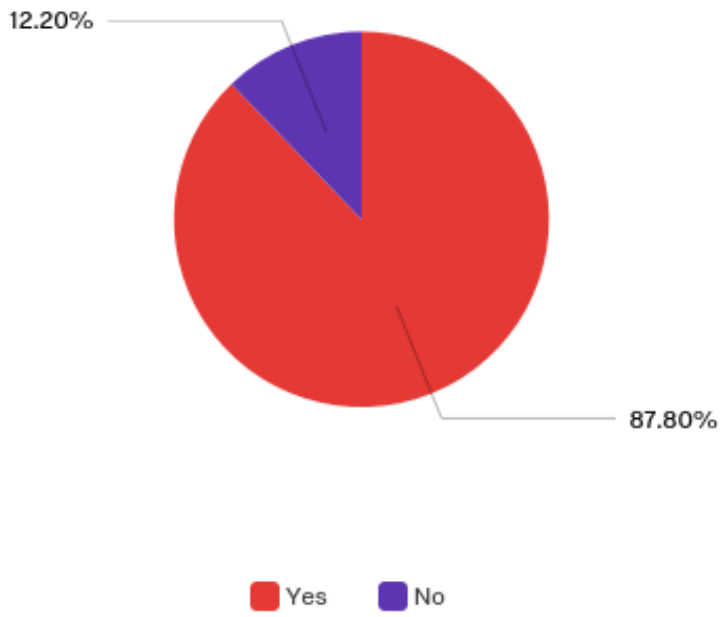
#	Answer	%	Count
1	Yes	60.00%	12
2	No	40.00%	8
	Total	100%	20

Q25 - Would you still be willing to try a pre-recorded video interview platform if it used AI to analyse non-verbal cues such as facial expression, vocal tone, and word choice to determine if you are a suitable candidate for the position you are applying for?



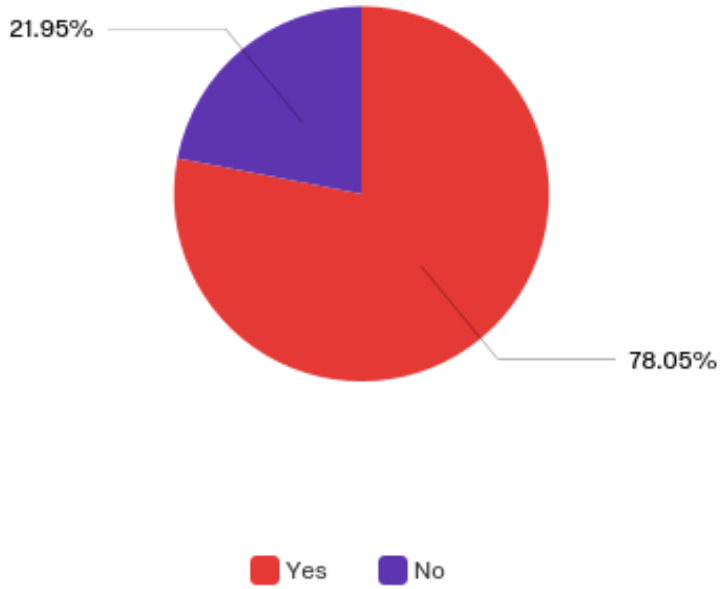
#	Answer	%	Count
1	Yes	15.00%	3
2	Maybe	35.00%	7
3	No	50.00%	10
	Total	100%	20

Q26 - Do you believe that companies have an ideal set of personality traits that candidates should possess to fit into the role recruiter for?



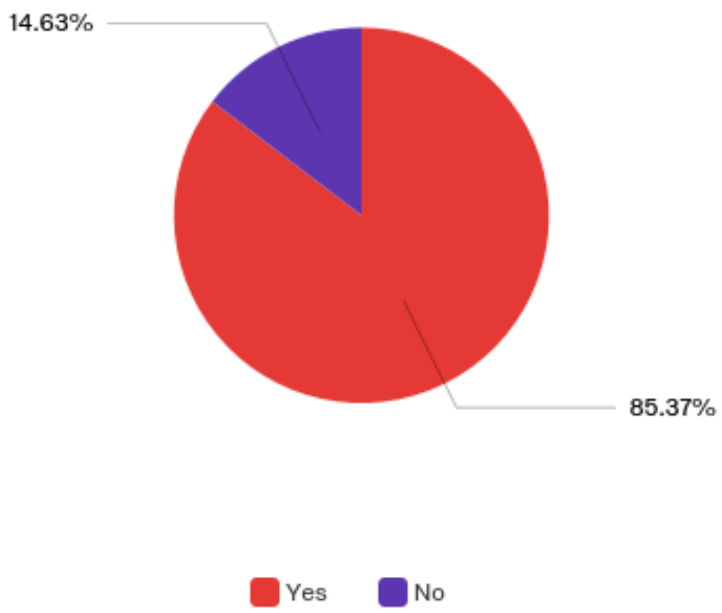
#	Answer	%	Count
1	Yes	87.80%	72
2	No	12.20%	10
	Total	100%	82

Q27 - Would you ever tailor your answers to personality questions to match what you believe to be the most desired personality type? E.g. would your answers to the previously asked personality traits questions change to suit the role you have applied for – even if it means your answers do not match your true personality



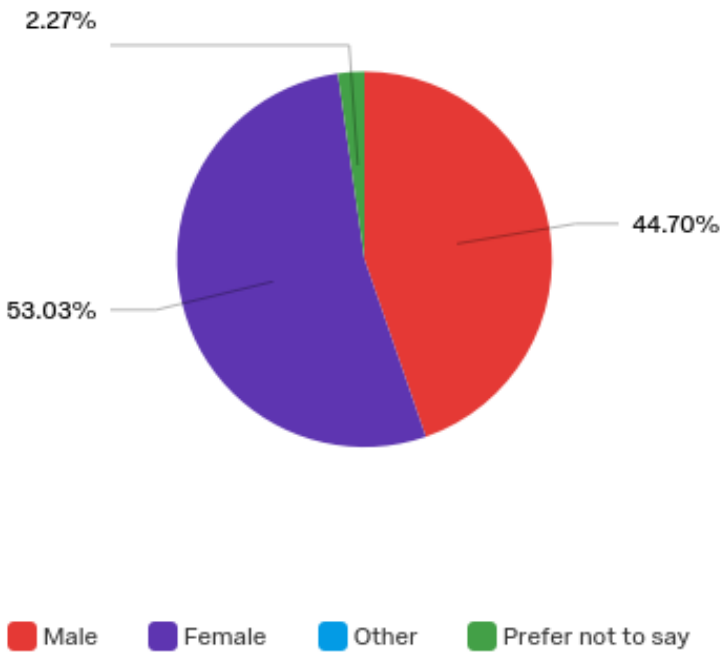
#	Answer	%	Count
1	Yes	78.05%	64
2	No	21.95%	18
	Total	100%	82

Q28 - Have you ever customized your answers to situational judgement questions to fit what you believe the company is looking for in a response?



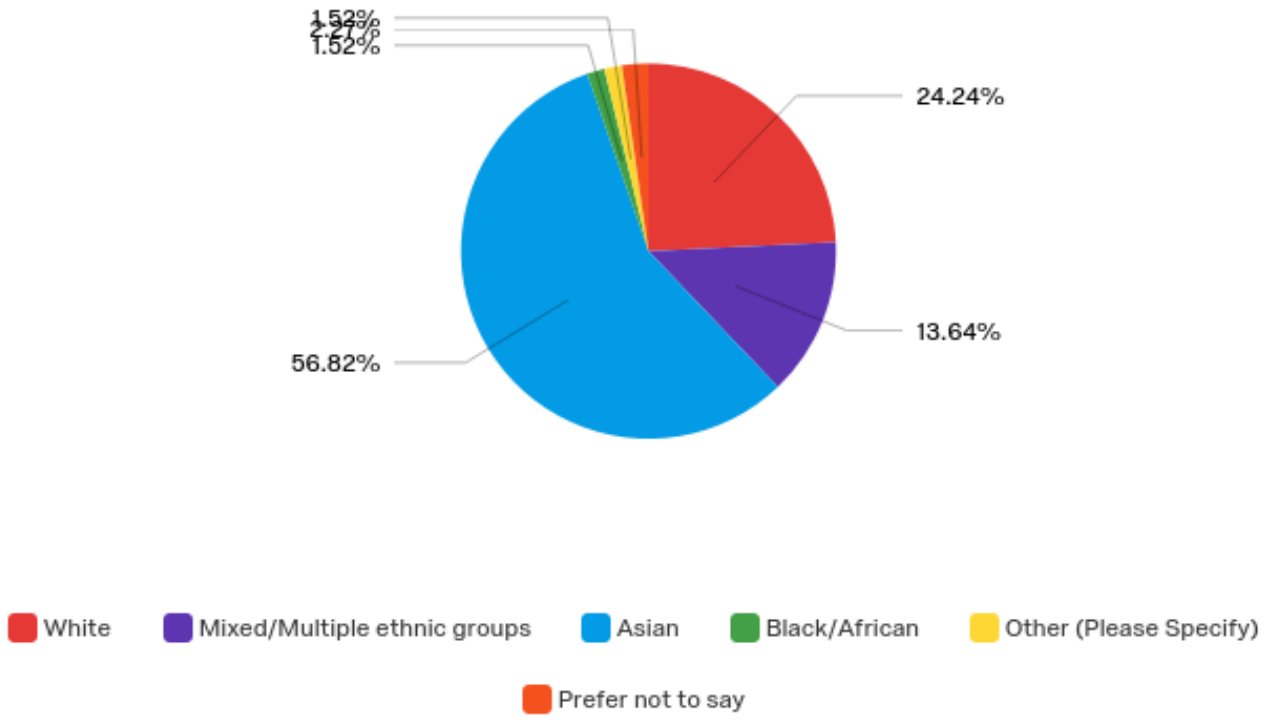
#	Answer	%	Count
1	Yes	85.37%	70
2	No	14.63%	12
	Total	100%	82

Q29 - Which gender do you identify with most?



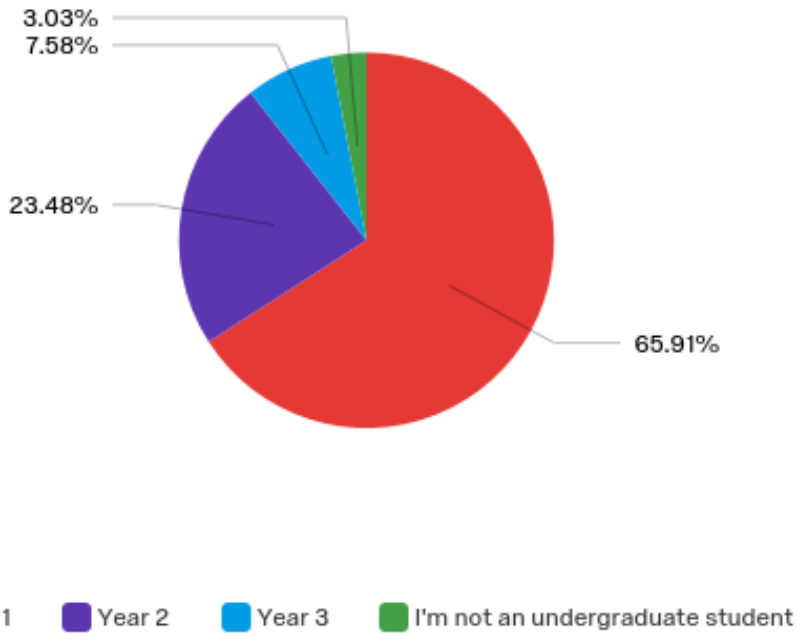
#	Answer	%	Count
1	Male	44.70%	59
2	Female	53.03%	70
3	Other	0.00%	0
4	Prefer not to say	2.27%	3
	Total	100%	132

Q30 - Which race/ethnicity do you identify with most?



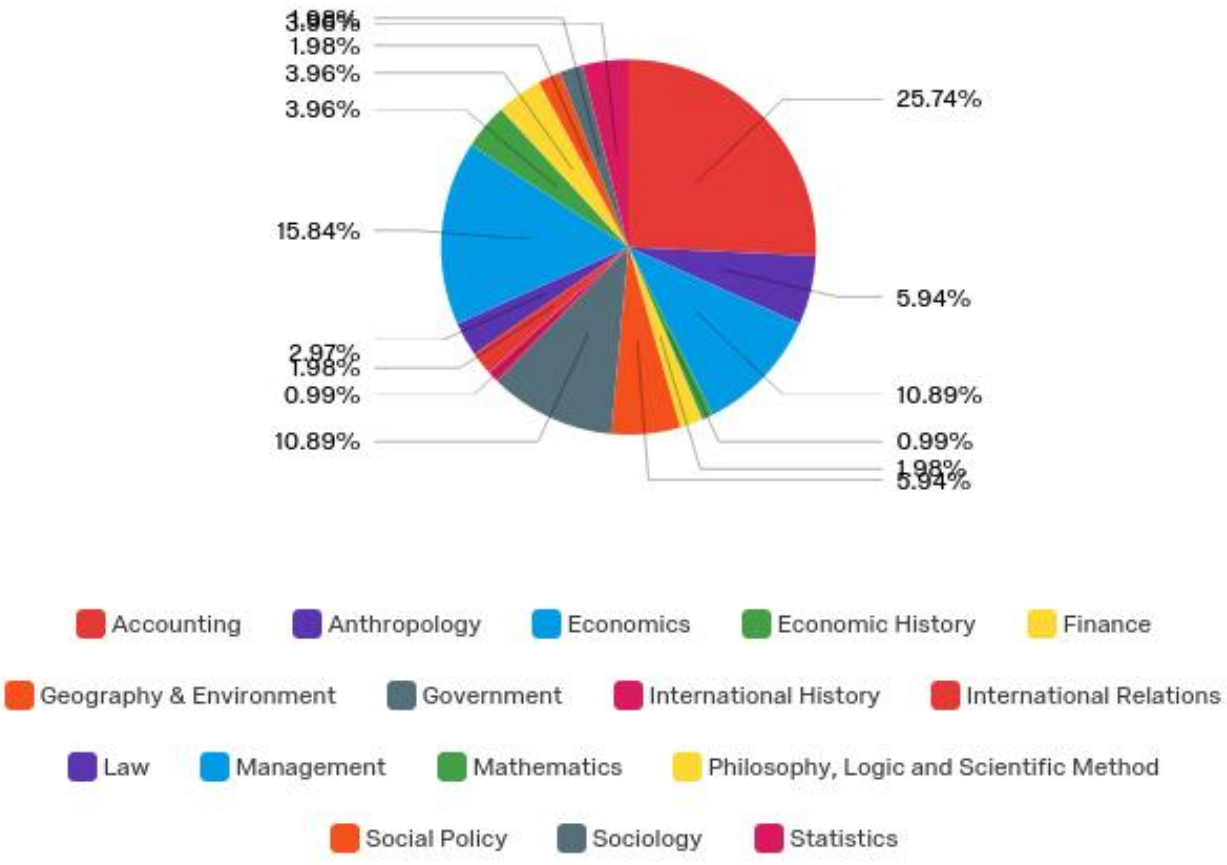
#	Answer	%	Count
1	White	24.24%	32
2	Mixed/Multiple ethnic groups	13.64%	18
3	Asian	56.82%	75
4	Black/African	1.52%	2
5	Other (Please Specify)	1.52%	2
6	Prefer not to say	2.27%	3
	Total	100%	132

Q31 - What is your current undergraduate year?



#	Answer	%	Count
1	Year 1	65.91%	87
2	Year 2	23.48%	31
3	Year 3	7.58%	10
4	I'm not an undergraduate student	3.03%	4
	Total	100%	132

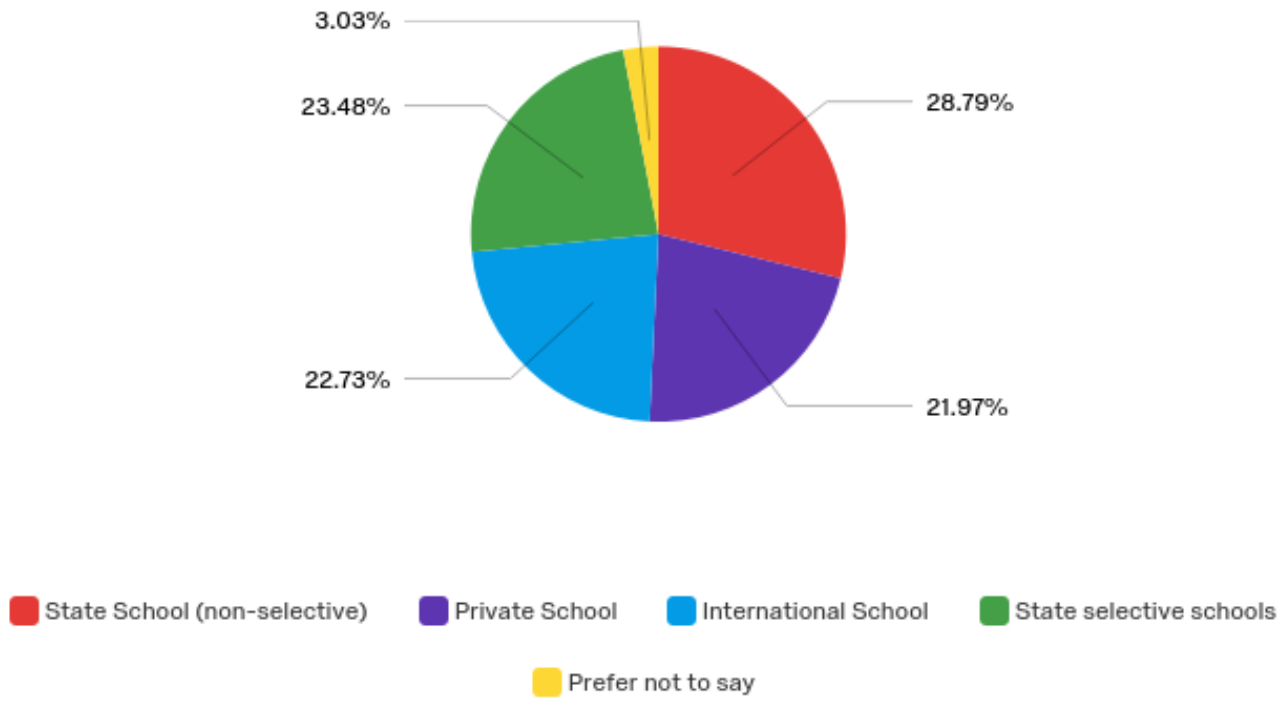
Q33 - Which LSE Department is your degree course associated with?



#	Answer	%	Count
1	Accounting	25.74%	26
2	Anthropology	5.94%	6
3	Economics	10.89%	11
4	Economic History	0.99%	1
5	Finance	1.98%	2
6	Geography & Environment	5.94%	6
7	Government	10.89%	11
8	International History	0.99%	1

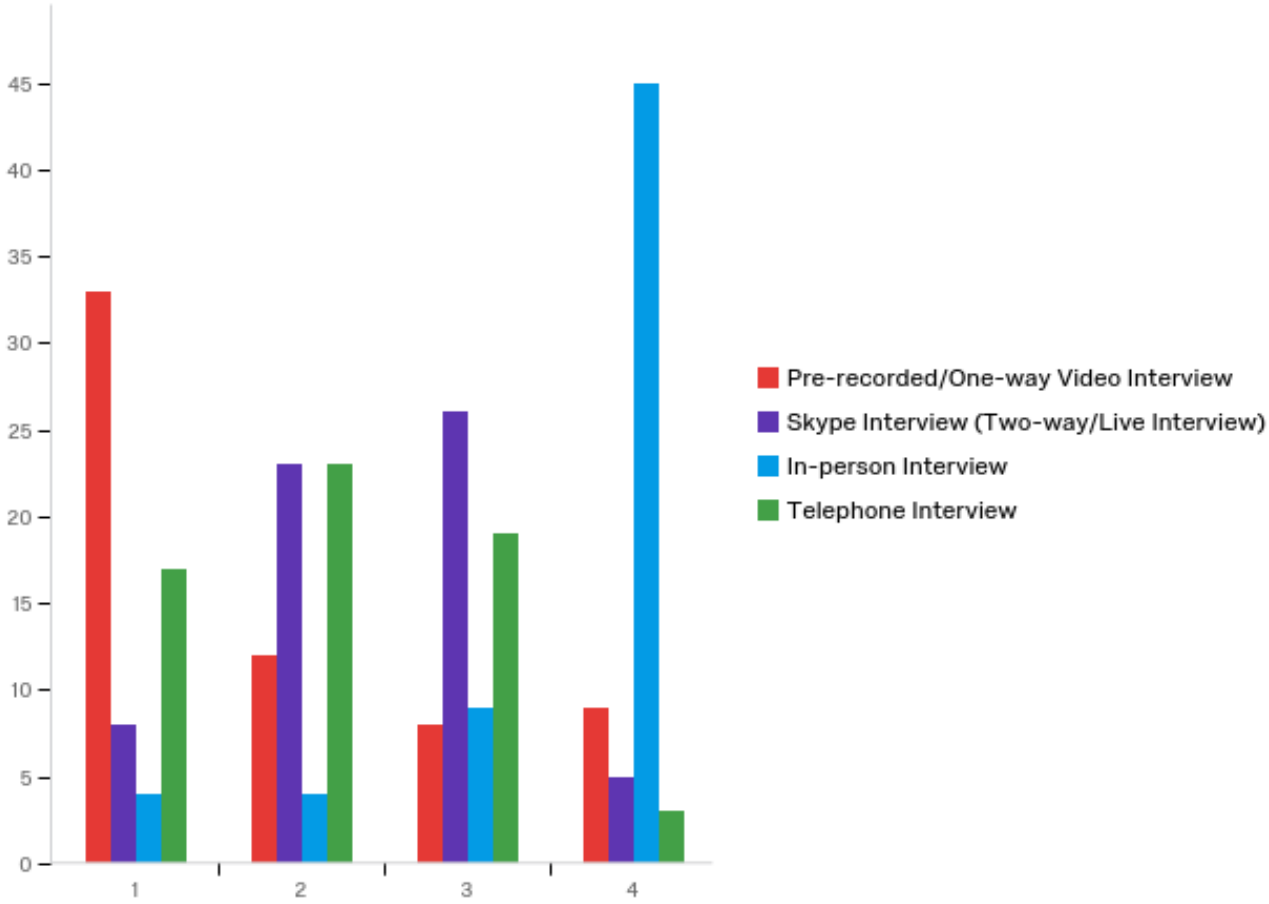
9	International Relations	1.98%	2
10	Law	2.97%	3
11	Management	15.84%	16
12	Mathematics	3.96%	4
13	Philosophy, Logic and Scientific Method	3.96%	4
14	Social Policy	1.98%	2
15	Sociology	1.98%	2
16	Statistics	3.96%	4
	Total	100%	101

Q35 - Which school type best describes your educational background?



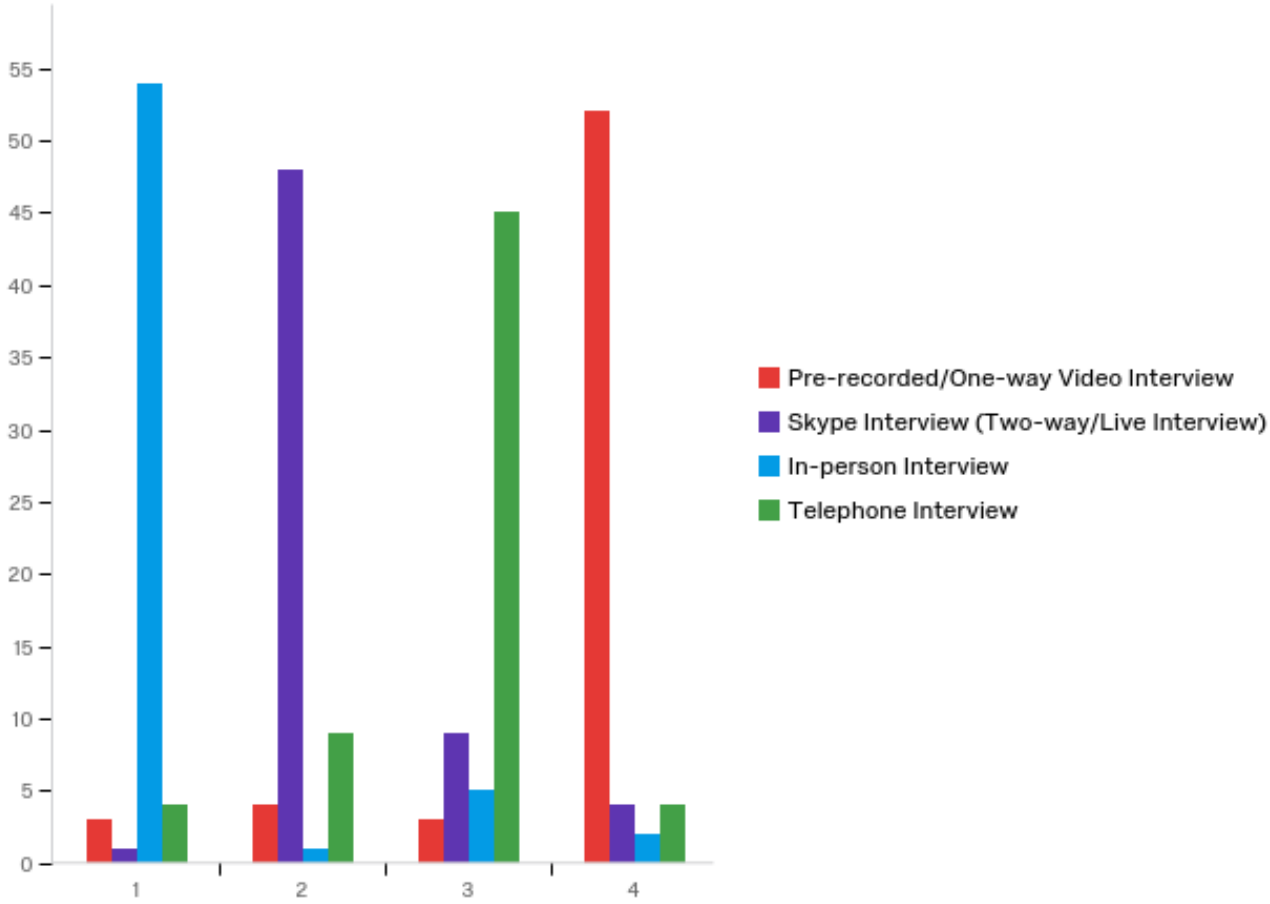
#	Answer	%	Count
1	State School (non-selective)	28.79%	38
2	Private School	21.97%	29
3	International School	22.73%	30
4	State selective schools	23.48%	31
5	Prefer not to say	3.03%	4
	Total	100%	132

Q12 - Please rank your preference for the following forms of interviews according to convenience (1 is the one you prefer the most):



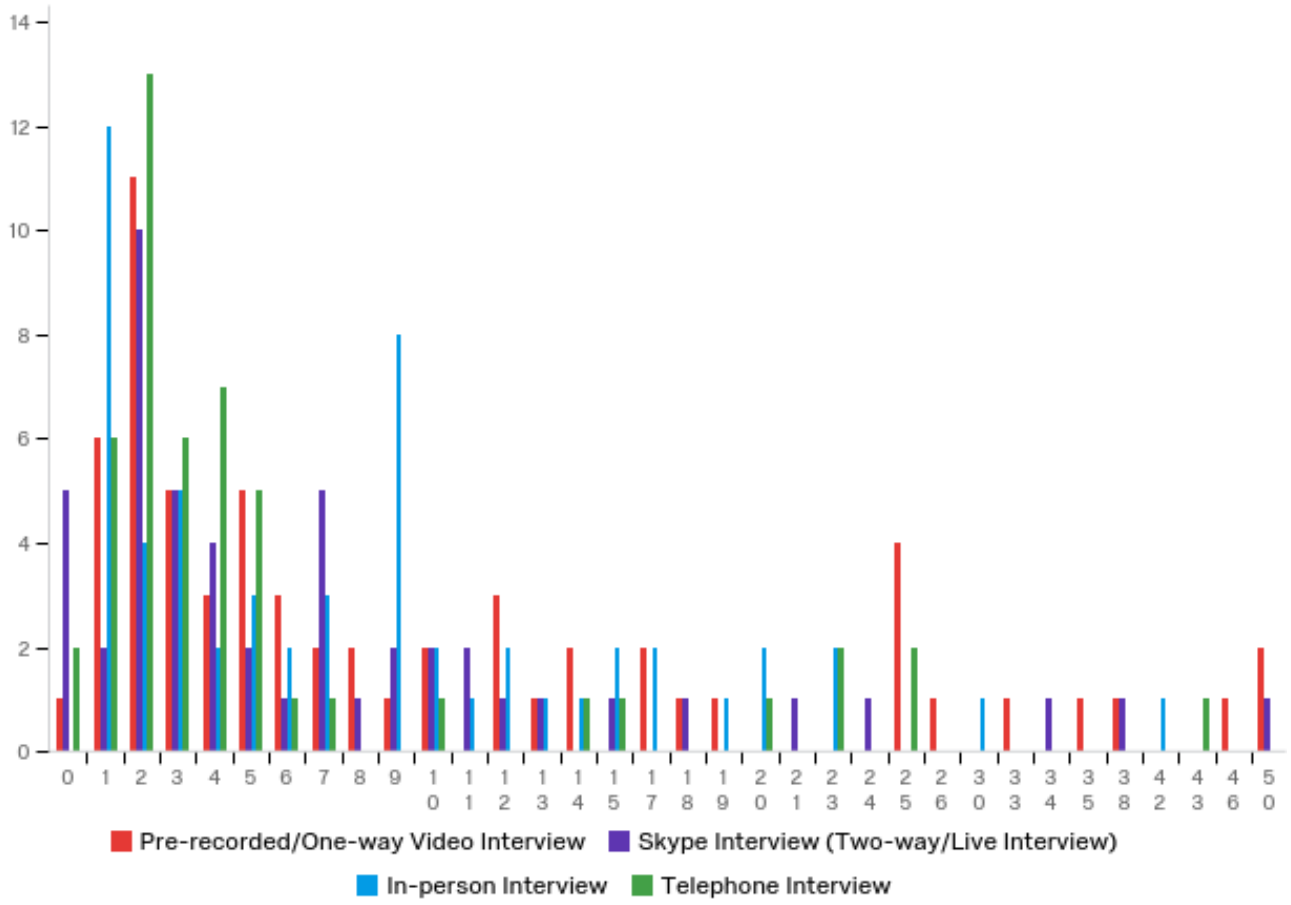
#	Question	1		2		3		4		Total
1	Pre-recorded/One-way Video Interview	53.23%	33	19.35%	12	12.90%	8	14.52%	9	62
2	Skype Interview (Two-way/Live Interview)	12.90%	8	37.10%	23	41.94%	26	8.06%	5	62
3	In-person Interview	6.45%	4	6.45%	4	14.52%	9	72.58%	45	62
4	Telephone Interview	27.42%	17	37.10%	23	30.65%	19	4.84%	3	62

Q13 - Please rank your preference for the following forms of interviews according to the level of human interaction (1 is the one you prefer the most):



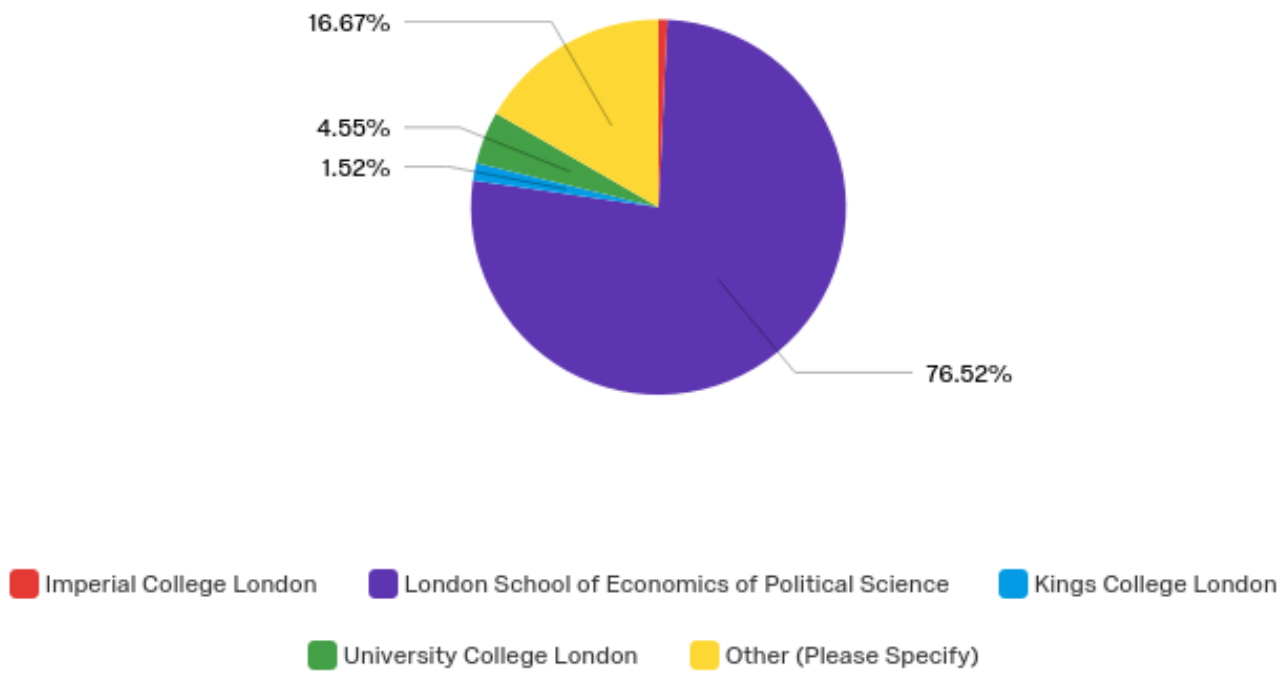
#	Question	1		2		3		4		Total
1	Pre-recorded/One-way Video Interview	4.84%	3	6.45%	4	4.84%	3	83.87%	52	62
2	Skype Interview (Two-way/Live Interview)	1.61%	1	77.42%	48	14.52%	9	6.45%	4	62
3	In-person Interview	87.10%	54	1.61%	1	8.06%	5	3.23%	2	62
4	Telephone Interview	6.45%	4	14.52%	9	72.58%	45	6.45%	4	62

Q14 - Please state the number of each type of interview you have taken.



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Pre-recorded/One-way Video Interview	0.00	50.00	11.02	12.49	155.89	62
2	Skype Interview (Two-way/Live Interview)	0.00	50.00	7.94	9.98	99.54	50
3	In-person Interview	1.00	42.00	8.53	8.15	66.46	57
4	Telephone Interview	0.00	43.00	6.28	8.41	70.80	50

Q32 - Which university do you study at?



#	Answer	%	Count
2	Imperial College London	0.76%	1
1	London School of Economics of Political Science	76.52%	101
3	Kings College London	1.52%	2
4	University College London	4.55%	6
5	Other (Please Specify)	16.67%	22
	Total	100%	132