



Article

Support Priorities of Autistic University Students and Careers Advisors: Understanding Differences, Building on Strengths

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Abstract: *Background:* The number of autistic individuals attending university and entering the workforce is growing, but there is a persistent employment gap. Higher education careers services offer students help to secure employment post-graduation. This research sought to identify barriers to and facilitators of success with regards to career advisors' practice in helping autistic students prepare for job interviews and secure employment. *Methods:* A mixed-methods participatory research design incorporating surveys, co-creation workshops, and interviews with stakeholders was employed. *Results:* Quantitative results showed differences in what advisors and students/graduates viewed as the biggest barriers to employment, with students/graduates rating stress and professional qualifications significantly higher and advisors rating interacting with clients/customers significantly higher. Gender differences were also found. Qualitative results revealed the biggest barriers to be inflexible employers, interview stress, diagnostic disclosure, and confidence; facilitators included an individual focus, clear communication, strengths-based approach leading to self-insight, and mock interviews. *Conclusions:* Practices identified for better serving autistic students included discussing disclosure options, building confidence, reducing stress through a strengths-based approach, and mock interviews, following up to identify autism-friendly employers, focusing on the individual rather than the diagnosis, and communicating clearly with students/graduates.

Keywords: autism; employment; university students; careers advisors



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1. Introduction

Increasing numbers of autistic students now enter post-secondary education, often with success [1,2]. However, upon graduating they face an employment gap compared with non-autistic peers. In the UK, for example, only 55% of Bachelors-level graduates with autism were employed on a permanent contract, as compared with over 70% of non-disabled graduates; this figure is unchanged for autistic graduates with a postgraduate degree [3]. More autistic graduates are also on fixed-term or zero-hours contracts or in non-graduate employment [3]. This suggests a well of untapped potential, including among highly skilled and degree-holding autistic adults.

Employment can be a source of identity and purpose, helps build social connections, and can lead to economic independence and material well-being [4]. Conversely, unemployment is associated with poorer physical and mental health and higher mortality [4]. A meta-analysis of the effect of unemployment on mental health found a significant difference in multiple indicator variables, including anxiety, self-esteem, and distress. Additionally, it found psychological problems among the unemployed were more than double those among the employed [5]. These findings apply to working-age people in general, but neurodiverse individuals may additionally be especially sensitive to the lack of daily structure, security, and identity that comes with unemployment [6].

There has been very little research on factors that impact the employment outcomes of autistic university students or on what can be done to aid their transition to the labor

market. This research therefore investigated one aspect of the university-to-work trajectory: the provision of careers advice services to autistic university students and recent graduates, including the challenges faced by autistic students/graduates in securing employment, and the role careers advisors play in mitigating this process, such as preparing autistic students for job interviews. The core research question was therefore: what barriers and facilitators to finding graduate employment are experienced by autistic university graduates and what careers advice practices form barriers to or facilitate successful graduate employment?

A systematic review carried out in 2014 found a lack of available research on employment outcomes produced by pre-graduation transition services for autistic secondary-school students [7]. This is notable, considering that on average, young autistic adults who had secured employment (37.2%) eight years after high school worked only 24.1 h per week—the lowest of all disability groups included in the study [7]. Without research on what kinds of transition and preparation programs work for autistic students/graduates entering the labor market it is difficult to improve their employment outcomes.

For autistic students attending post-secondary higher education (HE), even less research is available on the transition to work, or on what can be done to aid their transition to the labor market. One scoping review from 2018 identified only 15 papers on the topic of transition planning and support for autistic students moving from university to employment and identified a “marked lack of discourse” on this transition period [8].

Employment can involve complex and continuously changing social dynamics, which presents a unique challenge for autistic individuals. Social communication differences can contribute to employment difficulties: supervisors have indicated ineffective communication impacts performance and autistic employees themselves have listed communicating in the workplace as a major difficulty [9]. Other barriers to successful employment include sensitivity to sensory inputs in an office environment, scheduling and structure in the workplace, and self-efficacy [10,11].

On the employer side, a major obstacle is negative attitudes towards (potential) employees with autism. Lack of understanding by coworkers and employers was reportedly one of the biggest barriers to employment [10]. Some employers fear that hiring autistic employees will incur greater costs due to extra training and supervision or to a lack of productivity compared with non-autistic colleagues. However, Scott et al. [11] found that autistic employees actually showed above-standard work performance and were equally or more productive than non-autistic colleagues.

Careers services at universities are heterogenous but typically provide assistance with CV preparation, give internship advice, link students to employment opportunities, and help students prepare for job interviews. The form of careers services provided at universities will vary based on national and university policy and on funding. Autistic students may need service accommodations and different advice from careers advisors than “neurotypical” (non-autistic) students. In all of the countries included in this research, broadly similar laws and policies related to disability discrimination in education and work are in place, but in other countries legal and policy frameworks may be lacking, limiting accommodations and opportunities alike. Research into what elements of career advising practice need to be adapted, and how to do so, is necessary to support effective transition to the workforce and close the employment gap.

Job interviews can be challenging for neurotypical and neurodiverse people (those with autism and similar neurological conditions) alike, as they require acute reading of body language and social cues. Social skills and behavior influence how the interviewer perceives a potential employee and ultimately whether or not the job is offered [12]. Due to differences in social understanding and behavior that characterize autism, this can be a particularly challenging element of the job-seeking process [12,13].

2. Materials and Methods

This research utilized mixed methods: surveys, workshops, and interviews. The data were collected sequentially, with quantitative data already having been collected by the

IMAGE Project, and new qualitative data collected through interviews and workshops. Analysis of the quantitative data further informed qualitative data collection and analysis. Additional integration of findings occurred at the interpretation phase of data analysis.

This study formed part of the IMAGE Project, an Erasmus+-funded research partnership between five European universities, including Leeds Beckett University, University of Helsinki, Vrije Universiteit Amsterdam, Medical School Berlin and Université Fédérale Toulouse Midi-Pyrénées [14]. The project aimed to improve the employability of autistic higher education students, reduce barriers to employment, and improve employment-related service provision, including careers advice. The IMAGE Project was developed through a participatory design process involving autistic students/graduates, careers advisors, academics, and employers.

2.1. Quantitative Methods

Surveys were used to gain an overview of the employment difficulties facing autistic students/graduates, and careers advisors' roles in addressing these. One questionnaire was directed towards autistic students and graduates. The second was directed towards higher education (HE) professionals, including careers advisors and employers. These surveys were widely distributed through student, higher education, and other professional networks in the five countries, as well as through organizations for autistic adults that were partners in the larger research project. Regarding autistic participants, university students and graduates of working age (18 to 65) were eligible to take part. See Table 1 for participant demographics. General questions were followed by separate additional questions for academic advisors, employers, and academic managers/policymakers. Both closed and open questions were used, including a series of "Frame Stories" used to elicit responses to hypothetical careers advice situations. Survey data was anonymized before analysis. Means and standard deviation were derived to better reflect skew amongst responses.

The Mann–Whitney U test was used to analyze these data as there were two independent samples and the dependent variable was ordinal but not normally distributed. Using SPSS 21 (Armonk, NY, USA: IBM), the answers from the two populations to question sub-sections *Barriers to Employment* and *Workplace Strengths* were compared. Additionally, the sub-sections on *Employability*, *Discrimination*, and *Confidence* within the student/graduate dataset were analyzed to compare differences between male- and female-identifying respondents.

An exploratory factor analysis (EFA) was run on Stata Statistical Software 17 (College Station, TX, USA: StataCorp LP) for both groups. This was performed to identify the most important or heavily weighted items in each dataset. The sub-sections of the questionnaire analyzed included *Barriers to Employment*, *Discrimination*, *Awareness*, *Workplace Strengths*, and *Confidence*. The cut-off values used for determining the applicability of an EFA were Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy of 0.500 and a Bartlett test value of $p < 0.05$ for significance. A cut-off value of 0.400 was used for factor loadings. A sensitivity analysis was then performed on each factor to determine if cross-loaded variables should be eliminated, based on whether their removal improved or worsened the internal consistency reliability for the factor, as measured by Cronbach's alpha. Thus, some cross-loadings were maintained whereas others were not. Orthogonal varimax rotation was used to clarify the structure.

2.2. Qualitative Methods

The qualitative methods employed were virtual co-creation workshops and interviews. Co-creation is defined as "the joint, collaborative, concurrent, peer-like process of producing new value, both materially and symbolically" [15]. Workshops aimed to obtain a broader perspective than the interviews as they included other HE professionals in addition to careers advisors and autistic participants.

Table 1. Demographics of participant groups.

	Autistic Students/Graduates (<i>n</i> = 103)	HE Professionals (<i>n</i> = 154)	Careers Advisors (<i>n</i> = 44)
Gender			
Male	46.6%	35.7%	15.9%
Female	49.5%	62.3%	84.1%
Non-binary	3.9%	1.9%	0.0%
Age			
Mean Age	35.58	44.03	46.4
ASD diagnosis			
Formal diagnosis present	83.5%	1.9%	0.0%
Country			
UK	14.6%	53.9%	70.5%
Finland	0.0%	11.7%	2.3%
France	11.7%	7.8%	9.1%
Netherlands	18.4%	1.3%	2.3%
Germany	49.5%	20.1%	13.6%
Other	5.8%	5.2%	2.3%
Position			
Careers advisor		28.6%	100%
Academic tutor		20.1%	
Employer		17.5%	
HE manager or policymaker		12.3%	
Other		21.4%	
Employment status			
Student	29.1%		
Part-time employee	18.4%		
Full-time employee	28.2%		
Freelancer	7.8%		
Unemployed	16.5%		

Participants were recruited through email, social media, and targeted outreach to careers, HE professionals, and autism-related groups, including organizations of autistic adults that were partners in the larger research project. Questions discussed included whether careers advisors should go out of their way to support students and why; the biggest difficulties in the transition from university to work; diagnostic disclosure; barriers and drivers of success in employment and interviews; imagined scenarios and corresponding positive examples of career advising; and the format of materials to be produced by the IMAGE Project. The co-creation workshops were key to the participatory design of the study.

The first workshop took place in March 2020 and included three autistic students and two careers advisors. The second workshop took place in May 2020 and included one academic, one external careers advisor, one HE careers advisor, and one autism researcher. The interviewees included four HE careers advisors, one autistic graduate student, and one executive director of an autism employment network based in the United States. The Frame Stories included positive examples from 139 HE professionals and negative examples from 121 HE professionals.

Semi-structured interviews with careers advisors, autistic students/graduates, and other experts in the field of autism were conducted to provide further context to the quantitative and workshop results. Participants were found through contacts of the IMAGE Project and outreach to university careers advising offices, student and autism organizations, and disability platforms in the Netherlands and the United States. Participants in this research were limited to the Netherlands and the US for reasons of language and practicality; however, the IMAGE Project also conducted interviews and workshops in other countries on related topics. Interviews were thematically coded using ATLAS.ti 9 (Berlin, Germany: ATLAS.ti Scientific Software Development GmbH), starting with a literature-based codebook developed prior to the interviews but leaving room for emerging codes. Additionally, responses to the Frame Stories in the HE questionnaire were coded using this same method.

3. Results

3.1. Quantitative Results

Quantitative results substantiated the difficulties for autistic university students/graduates in securing employment and the barriers to facilitating successful employment interviews for autistic participants. The results are presented regarding sample demographics (see Table 1), with further data under the subheadings *Barriers to Employment*, *Workplace Strengths*, *Employability*, *Discrimination*, *Confidence*, and *Exploratory Factor Analysis* (EFA). Within each section we discuss the general findings and where applicable contrast the views of students/graduates and HE professionals, as well as reporting the results of the gender analysis.

3.1.1. Barriers to Employment

The *Barriers to Employment* sub-section was rated on a five-point Likert Scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always. Of the HE professionals, only careers advisors completed the Barriers questionnaire. All students/graduates completed the *Barriers* questionnaire.

Autistic students/graduates' responses in order of highest mean Likert rating were: *Problems with stress and its emotional and physical implications* (mean/M = 3.83, standard deviation/SD = 1.183), *Problems with the sensory environment at the workplace* (M = 3.77, SD = 1.104), *Problems with work processes put in place by the employer, work structure or hierarchies* (M = 3.33, SD = 1.271), *Problems with job interviews* (M = 3.29, SD = 1.257), and *Problems with the expected work pattern of their work place* (e.g., *personal working rhythm*) (M = 3.28, SD = 1.224). For careers advisors, responses in order of highest mean Likert rating were: *Problems with job interviews* (M = 3.68, SD = 0.471), *Problems interacting with [their] employer during the employment process* (e.g., *via telephone*) (M = 3.43, SD = 0.545), *Problems with the formal application process, such as with finding adequate positions or writing job applications* (M = 3.27, SD = 0.788), *Problems with the adjustment phase to a new job* (M = 3.25, SD = 0.651), and *Problems with support at the work place* (e.g., *regarding contact persons*) (M = 3.23, SD = 0.677).

The only overlapping barrier among the top five items with the highest means was *Problems with job interviews*. Amongst careers advisors, 31.8% thought it was often a barrier and 68.2% thought it was always a barrier. This compares with 25.2% and 20.4%, respectively, among students/graduates. See Table 2 for additional detail.

When comparing responses between male- and female-identifying respondents among autistic students/graduates using the Mann–Whitney U test, there were no significant differences for any items.

3.1.2. Workplace Strengths

The *Workplace Strengths* sub-section (see Table 3) was rated on a five-point Likert Scale: 1 = doesn't apply, 2 = doesn't really apply, 3 = neutral, 4 = kind of applies, 5 = applies. All HE professionals and all students/graduates completed the *Strengths* questionnaire.

Table 2. Barriers to employment with a significant difference in mean rank between students/graduates and advisors.

Barrier with Significant Difference in Mean Rank	Autistic Students/Graduates (<i>n</i> = 103)	Careers Advisors (<i>n</i> = 44)
<i>Problems with sensory environment in the workplace</i> (<i>p</i> = 0.000)	Mean = 3.77 Standard deviation = 1.104	Mean = 3.11 Standard deviation = 0.579
<i>Problems with stress and its emotional and physical implications</i> (<i>p</i> = 0.000)	Mean = 3.83 Standard deviation = 1.138	Mean = 3.05 Standard deviation = 0.645
<i>Problems interacting with [their] clients/customers</i> (<i>p</i> = 0.026)	Mean = 2.80 Standard deviation = 1.166	Mean = 3.20 Standard deviation = 0.553
<i>Problems with the formal application process, such as with finding adequate positions or writing job applications</i> (<i>p</i> = 0.026)	Mean = 2.81 Standard deviation = 1.291	Mean = 3.27 Standard deviation = 0.778
<i>Problems with (their) professional qualifications for a position</i> (<i>p</i> = 0.034)	Mean = 2.39 Standard deviation = 1.285	Mean = 1.84 Standard deviation = 0.776
<i>Problems with the expected work pattern of their workplace (e.g., personal working rhythm)</i> (<i>p</i> = 0.048)	Mean = 3.28 Standard deviation = 1.224	Mean = 2.95 Standard deviation = 0.608

Table 3. Workplace strengths with a significant difference in mean rank between students/graduates and advisors.

Workplace Strength with a Significant Difference in Mean Rank	Autistic Students/Graduates (<i>n</i> = 103)	Careers Advisors (<i>n</i> = 44)
<i>Emotional control (e.g., no sudden angry outbursts, stable emotional life)</i> (<i>p</i> = 0.001)	Mean = 2.86 Standard deviation = 1.138	Mean = 2.36 Standard deviation = 0.995
<i>Perseverance (e.g., being able to work on a task for a long time, high frustration tolerance)</i> (<i>p</i> = 0.002)	Mean = 3.83 Standard deviation = 1.130	Mean = 3.40 Standard deviation = 1.123
<i>Personal initiative (e.g., springing into action of one's own accord, entrepreneurial spirit)</i> (<i>p</i> = 0.003)	Mean = 2.96 Standard deviation = 1.154	Mean = 2.51 Standard deviation = 0.909
<i>Detail-oriented (e.g., concentrating on singular aspects in work tasks, finding specific details in general summaries)</i> (<i>p</i> = 0.004)	Mean = 4.67 Standard deviation = 0.617	Mean = 4.44 Standard deviation = 0.749
<i>Retentiveness (e.g., high memory performance)</i> (<i>p</i> = 0.018)	Mean = 4.15 Standard deviation = 0.923	Mean = 3.92 Standard deviation = 0.875
<i>Flexibility (e.g., adaptability, willingness to try new things and to adapt to change)</i> (<i>p</i> = 0.021)	Mean = 2.41 Standard deviation = 1.106	Mean = 2.06 Standard deviation = 0.857
<i>Focus (e.g., concentrating on a specific task for a long time)</i> (<i>p</i> = 0.023)	Mean = 4.29 Standard deviation = 0.996	Mean = 4.06 Standard deviation = 1.024

Here, autistic students/graduates' first three responses in order of highest mean Likert rating overlapped with those of the HE professionals: *Detail-oriented* (*M* = 4.67, *SD* = 0.617 vs. *M* = 4.44, *SD* = 0.749), *Systematic thinking* (*M* = 4.51, *SD* = 0.652 vs. *M* = 4.09, *SD* = 0.931), and *Logical thinking* (*M* = 4.48, *SD* = 0.726 vs. *M* = 4.08, *SD* = 0.860). Students placed *Stability* in fourth place (*M* = 4.43, *SD* = 0.824), followed by *Reliability* (*M* = 4.43, *SD* = 0.847). HE professionals' fourth- and fifth-highest-rated strengths were *Focus* (*M* = 4.06, *SD* = 1.024) and *Stability* (*M* = 4.05, *SD* = 0.866). Using the Mann–Whitney U test to compare the groups, there was a significant difference in mean rank for seven items with significance levels of 0.05.

When comparing responses between male- and female-identifying respondents among students/graduates using the Mann–Whitney U test, there were significant differences for four items, as shown in Table 4.

Table 4. Workplace strengths with a significant difference in mean rank male- and female-identifying students/graduates.

Workplace Strength with a Significant Difference in Mean Rank	Female (<i>n</i> = 48)	Male (<i>n</i> = 51)
<i>Fine motor skills</i> (<i>p</i> = 0.001)	Mean = 3.04 Standard deviation = 1.184	Mean = 2.33 Standard deviation = 0.973
<i>Empathy</i> (<i>p</i> = 0.009)	Mean = 3.04 Standard deviation = 1.010	Mean = 2.49 Standard deviation = 1.189
<i>Stability</i> (<i>p</i> = 0.037)	Mean = 4.31 Standard deviation = 0.803	Mean = 4.61 Standard deviation = 0.695
<i>Logical Thinking</i> (<i>p</i> = 0.046)	Mean = 4.42 Standard deviation = 0.613	Mean = 4.63 Standard deviation = 0.631

3.1.3. Employability

The *Employability* sub-section was rated on a five-point Likert Scale: 1 = doesn't apply, 2 = doesn't really apply, 3 = neutral, 4 = kind of applies, 5 = applies. When comparing responses between male- and female-identifying students/graduates using the Mann–Whitney U test, there was a significant difference in mean rank for only one item: *I feel I could get any job so long as my skills and experience are reasonably relevant* (*p* = 0.013; female [*n* = 48], *M* = 3.00, *SD* = 1.255; male [*n* = 51], *M* = 2.37, *SD* = 1.183).

3.1.4. Discrimination

The *Discrimination* sub-section was rated on a five-point Likert Scale: 1 = doesn't apply, 2 = doesn't really apply, 3 = neutral, 4 = kind of applies, 5 = applies. When comparing responses between male- and female-identifying students/graduates using the Mann–Whitney U test, there were no significant differences for any items.

3.1.5. Confidence

The *Confidence* sub-section was rated on the same five-point Likert Scale as the *Discrimination* sub-section. When comparing responses between male- and female-identifying respondents among students/graduates using the Mann–Whitney U test, there was a significant difference in mean rank for only one item: *How would you rate your understanding of your own difficulties and challenges* (*p* = 0.017; female [*n* = 48], *M* = 4.06, *SD* = 0.665; male [*n* = 51], *M* = 3.43, *SD* = 1.315).

3.1.6. Exploratory Factor Analysis

For the student/graduate dataset, the Bartlett test of sphericity showed a chi-square of 4589.060, with degrees of freedom of 2485 and a *p*-value of <0.001. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was equal to 0.529.

For the HE dataset, the Bartlett test of sphericity showed a chi-square of 23,433.371, with degrees of freedom of 1596 and a *p*-value of 0.000. The KMO was 0.869.

Both datasets had significant values for the Bartlett test and KMO values over 0.500, so the EFA was calculated. In the student/graduate dataset, 22 factors were identified with an Eigen value over 1. In the HE dataset, 13 factors were identified with an Eigen value over 1. However, one factor was eliminated due to containing only one item that was cross-loaded at a higher loading (greater than 0.200 difference) on a different factor, leaving 12 factors in total. See Appendix A (Table A1) for a table of all exploratory factor analysis results.

3.2. Qualitative Results

In this section, results are provided regarding barriers to and facilitators of successful job interviews and employment. Within each section, we discuss the themes that arose from workshops, interviews, and Frame Stories responses with regards to each major barrier and facilitator.

3.2.1. Barrier: Inflexible Employers

The inflexibility of employers was a theme that arose in both workshops and interviews. It was noted in multiple interviews that financial incentives for hiring autistic employees were not sufficient motivation. A long-term employee of a US-based autism foundation with considerable experience in the area of employment support, hereafter described as “the expert autism-service interviewee”, said: “I think it’s two ways. I think people have to have financial incentives to hire, they [also] have to have ethical ones... they really have to feel that this is their social responsibility.”. This was reinforced in one workshop with anecdotes of autistic employees being hired only for the duration of government benefits extended to companies hiring disabled employees and then being let go. Employer inflexibility also extends to workspace accommodations, with many respondents mentioning office spaces being overstimulating.

Both Frame Stories responses and interviews emphasized the importance of a good supervisor, with “bosses can be intolerant” reported as an issue and “employee training” as a necessity. Meanwhile, many of the positive employment experiences described by the student interviewee had to do with an understanding supervisor, and the expert autism-service interviewee mentioned the necessity of a good supervisor match for maintaining employment. Underlying all barriers outlined in this section is a basic lack of understanding of the benefits of a diverse workforce and autistic employees and inflexibility with regards to accommodations—despite laws mandating non-discrimination in hiring, which in the countries included in this research includes providing reasonable workspace accommodations, and in most includes compensating employers for hiring people with additional needs.

3.2.2. Barrier: Stress in an Interview

According to interviews, the experience of interviewing for a job was viewed as stressful for all students but was potentially more stressful for autistic students. The expert autism-service interviewee described interview practice as a means to reduce anxiety to a “functional” level. One careers advisor had previously run stress-reduction workshops for students to assist with this.

Stress levels could be dependent on the type of interview taking place, with careers advisors mentioning video pitches, personality tests, and meetings with multiple people as non-traditional formats they had seen cause additional stress. The expert autism-service interviewee described this as a systemic problem, saying “interview processes that really exclude people on the spectrum, they’re autism non-friendly. I think that’s a major barrier”.

3.2.3. Barrier: Diagnostic Disclosure

Anxiety may be further exacerbated by the fact that autistic students/graduates must decide if and when to disclose their autism diagnosis during the job-search process, which could affect how they are perceived by the employer. Most careers advisors interviewed suggested disclosing prior to or during the job interview. For example, one participant said: “When people know, maybe they wouldn’t mind that there is less eye contact or that maybe someone needs more time to answer a question. But if they don’t know, then they might notice, let’s say, some weird behaviour . . . I think it would be better for the student that they’re open about it”.

However, a student/graduate applicant may be concerned about fitting in and fear being stereotyped. As the student interviewed said, they may prefer “just to be treated like any other person”. Therefore, disclosing might not seem so clear-cut—particularly if

employers are not well informed, as was suggested by interviews and workshops. As the student interviewed stated: “there’s still the thing that a lot of people don’t know what autism is really”.

A careers advisor also described this struggle regarding whether to disclose, stating: “When do you say you have a disability? And . . . is it necessary to tell them? . . . Will you be able to function well, you don’t need to mention it. However, if you do need more guidance, then it’s good to mention in your job interview”.

The expert autism-service interviewee supported this, stating: “If you disclose, I think people can be reluctant . . . you have a stigma and people can’t look beyond that”. In the workshops, the discussion on disclosure focused more on the individual and participants agreed it ultimately depended on the student/graduate and the field of employment to determine what the best choice was.

3.2.4. Barrier: Confidence

A challenge mentioned in four of the interviews was confidence and self-belief. One advisor stated that even after linking a student with a recruiter who was interested, the student hesitated: “I had to kind of push her and really, give her the confidence that they really wanted to speak to her because she didn’t believe that such a company would be interested in her at all . . . A barrier in this case was her not being confident enough yet”.

Another advisor stated that “They are very afraid they won’t fit in or will fall short”. The student interviewed also expressed this hesitation, saying “I’m hesitant . . . about whether I’m good at things just because I have this label”.

3.2.5. Facilitator: Individual Focus

A major theme that arose from the workshops, interviews, and Frame Stories responses was the need to focus on the individual, placing an emphasis on the diversity of those on the autism spectrum. “Do not assume” and “no two individuals are alike” were recurring refrains. When interviewees began to describe the characteristics of autism, they all paused to reiterate how uniquely autism could present in each individual. In the Frame Stories responses, the most frequently occurring piece of advice was that each autistic person was unique and different, and a negative example frequently mentioned was making assumptions or stereotyping. The student interviewee expanded on this, stating: “I think you noticed I haven’t used the word ‘disorder’ yet in this whole interview. I like to use the word ‘classification,’ because that’s what it is. And people have their good things, their good qualities, and their lesser qualities”.

The workshop discussions touched on this theme slightly less often but it did come up during the discussion of disclosure and strategies. Due to the frequency with which this theme reoccurred across the qualitative data, it appears to be the “subjective norm” among HE professionals involved in this research. It underlies all other facilitators that emerged and directly impacts the intention and practice of careers advisors.

3.2.6. Facilitator: Clear Communication

Clear communication emerged as a must from both the Frame Stories responses and all interviews. Many of the Frame Stories responses included phrases such as “unambiguous language” and “clarity of instruction”. The student interviewed described a positive experience in interview preparation due to the clarity of the task and instructions, which illustrated what autistic respondents are looking for: “When they explained how to write a motivation letter, they really gave some concrete things of how you have to do it . . . and they also did things like that for the interview. Just having them written out nicely, like clearly and well organized, it can really help to put them in your mind”.

Careers advisors also expressed the importance of clear lines of communication, and an important element of that is asking the individual their communication preferences—do they need multiple forms, such as verbal and written, do they prefer visuals, and so on. Another piece of this is listening, which also came up in the Frame Stories responses with

some frequency: advisors must hear what the individual wants and needs and proceed from that rather than doing something simply because of a diagnosis.

3.2.7. Facilitator: Strengths-Based Approach and Building Self-Insight

One facilitator brought up in Frame Stories responses and interviews was using a strengths-based approach. The positive Frame Stories included advice such as “work toward strengths” and “valuing perseverance, unique strengths”. One careers advisor suggested that colleagues should: “go into their specific qualities and see what strengths they have, maybe because of their autism”.

Using a strengths-based approach connects to the idea of self-insight, or the ability to assess one’s own abilities and needs, which was brought up in two of the interviews. The need for advisors to help students understand their own needs and strengths was deemed essential by the expert autism-service interviewee: “If you can’t do those assessments . . . it’s not going to work, and I think the same is true for self-assessment”. One of the advisors also stated that “another important factor is that students have enough self-insight so they know what their qualities are, their motivation”. The ability to know one’s own strengths and needs was seen as a precursor to then focusing on those strengths and leading with them in interviews and applications. Building on this idea, it was brought up in the second workshop that an intake meeting and “frank discussion” on the student’s needs and abilities should take place, potentially leading to the creation of a profile for the student that could be passed to employers. It was suggested that this would lend itself to “open and honest communication”, linking back to the theme of “clear communication”. This could also help build confidence, identified above as a barrier.

3.2.8. Facilitator: Mock Interviews

Mock interviews or roleplay were described in interviews as an effective preparation method. Whereas this strategy may also be utilized for non-autistic students, having additional iterations of it for autistic students who needed it was seen as useful by the expert autism-service interviewee: “We do it three times. They have practice interviews, they are taped, and then the person gets an evaluation and suggestion. And then we send them out—we have people in the world out there—and they do real live interviews as if they were applying for a job”.

Another advisor stated: “And we’re always saying, ‘Okay please, beforehand, do this interview with a roommate or someone else who can give you some feedback as well’”. This seemed in some way to be a stress-reduction technique, linking back to the barrier of stress.

4. Discussion

This study examined barriers and facilitators for obtaining graduate employment as perceived by autistic students/graduates and careers advisors working with this population. This section discusses and contextualizes the findings reported in the previous section.

4.1. Interviews and Social Communication

The literature on job interviews also often cited as barriers within the workplace for autistic adults after the interview as a barrier identifies the social aspects of interviews as a major hurdle. Social difficulties are experienced [12,13,16–19]. It is therefore surprising that social difficulties came up infrequently in interviews and workshops as a barrier. Although this could be due to the lack of student interviewees, there was no such lack when it came to the quantitative data.

Unsurprisingly, career advisors reported *Problems with job interviews* as a barrier to employment: this had the highest average Likert rating. Additionally, *Problems interacting with employers* was within the top five most highly rated barriers. These perceptions contrasted with those of students/graduates: *Problems with job interviews* was only the fourth highest average rating and *Problems interacting with employers*—and in fact all barriers

related to social issues—were not in their top five. Continuing this theme, advisors rated *Interacting with clients/customers* significantly higher on average than students/graduates.

Why is there this difference in the perception of social communication issues as a barrier to interview success and employment? Is it possible that careers advisors, when considering barriers, are relying on stereotypes of autism-related deficits and overstressing the social difficulties autistic individuals will face? This could be supported by a University of Cambridge study, which cited careers advisors' lack of understanding of autism as a barrier [20]. On the other hand, could this reflect a lack of self-insight on the part of autistic individuals? Supporting this second possibility, one literature review found that autistic individuals may be less able to engage in accurate self-perception within social-emotional areas [21]. If the root of this difference in perception of barriers lies with advisors inadvertently relying on stereotypes, then the solution lies in re-emphasizing the focus on the individual and the perspective of neurodiversity; if, however, it is rooted in a lack of self-awareness, then advisors can work with students to build insight. In either case, this finding lends itself to further research comparing autistic students' perceptions of their interview challenges to those of other stakeholders in order to gain perspective on this and other potential differences.

4.2. Anxiety and Stress

Anxiety and stress emerged from both interviews and questionnaire data as barriers to interview success and securing employment. Careers advisors acknowledged that job interviews could be particularly stressful for autistic students, especially considering how many different types of interviews are conducted and how autism unfriendly they can be. Additionally, *stress* as a barrier to employment had the highest average rating among students/graduates.

This is not surprising, as it has previously been found that autistic individuals often experience greater anxiety compared with neurotypical peers [22,23]. In a survey conducted by Sarrett [24] on navigating job interviews, anxiety was the third most common difficulty reported by autistic respondents. However, stress was not in the top five employment barriers rated by advisors. In fact, there was a significant difference in mean rank on this barrier, with students/graduates rating it higher on average. It appears that although advisors and much of the literature point to social communication issues as the biggest interview and employment hurdle, autistic students/graduates may identify stress as the bigger issue. If this is the case, it could influence advisors' practice with regards to interview preparation: rather than focusing on things such as eye contact, stress management techniques could prove more useful. By reducing anxiety, social aspects such as eye contact may even improve without having been the focus of preparations.

Stress in an interview can be further exacerbated by a student's decision regarding whether or not (and if so how and when) to disclose their autism diagnosis to a potential employer. Disclosure can be a challenging topic, particularly considering there is evidence of greater stigma in the workplace associated with mental health and cognitive disabilities compared with physical disabilities [25]. Johnson and Joshi [26] found that fear of stigma often prevented autistic adults from disclosing at work. Despite this, all careers advisors interviewed were proponents of early disclosure to employers.

The student interviewed, however, proposed a more pragmatic approach: disclosing not by using the label of "autistic" but by expressing their own specific needs. This was echoed by an advisor in a workshop, who agreed that the "personal needs and preferences" approach works best with employers. The student also noted that disclosure would be a good topic for advisors to incorporate into their interview preparation techniques: "Also a thing that would be really nice, to go about some things about how you can do disclosure and especially in a way that doesn't put people off".

The decision to disclose one's autism diagnosis, and when, will vary depending on the individual and the situation; however, it is an important part of the employment process for autistic students and careers advisors should be prepared to discuss it. This is one barrier

that careers advisors can have a clear impact on, starting with talking through options with students and tailoring solutions to their unique situation.

4.3. Inflexible Employers

Another systemic barrier for employment identified was inflexible employers. This aligns with previous findings that employer concerns over cost and productivity could affect the employment prospects of autistic individuals and that a lack of understanding by coworkers and employers was also a significant barrier [10,27]. Sarrett [24] found that autistic employees actually wanted to disclose but only in the presence of an understanding and aware employer, something that based on these findings and the surrounding literature is not always easy to find.

Although this may be a difficult challenge for careers advisors to address directly, they can make an effort to be aware of and informed about employers that are open to neurodiverse candidates. They could also be more active in following up on whether their autistic students obtain or maintain employment post-interview, as many of the advisors interviewed said that after preparation they were no longer involved. If they knew more about students' outcomes, they could learn which employers are more or less accommodating towards autistic candidates and thus help students better prepare for or avoid inflexible employers.

4.4. Confidence and a Strengths-Based Approach

Apart from inflexible employers, confidence emerged as a barrier to successful interviews. This also appeared in the quantitative results: there was a significant difference between advisors and students/graduates in rating *Problems with professional qualification for a position*, with students/graduates rating it higher than advisors on average. This is supported by evidence that autistic individuals may have lower self-efficacy—a measure of one's perception of one's ability to be successful at a task—than neurotypical peers [28,29].

However, confidence may not be a barrier only on the side of the autistic student/graduate. When looking at the differences between HE professionals and students/graduates in their ratings of *Workplace Strengths*, 16 of the items had a higher mean rating from students/graduates: they rated these strengths as more applicable to themselves than advisors did. Rather than reflecting a lack of confidence on the part of students, this reflects a lack of confidence by HE professionals in the strengths of their autistic students. If HE professionals—and this group included careers advisors—do not have confidence in their autistic students, then how can the students themselves be expected to build their confidence? It appears that confidence exists as a barrier on both sides, and HE professionals should perhaps review their own implicit biases regarding autistic students in order to better help them on the road to employment.

Careers advisors can also play a more active role in helping autistic students gain confidence and self-efficacy. It has been found that high self-confidence in one's ability to do well in a job interview is associated with increased engagement and more effective communication during interviews [30,31]. Accordingly, autistic students need to be given opportunities to gain confidence by career advisors when preparing for employment opportunities. According to previous research, in order to improve self-efficacy, individuals must master the task, and practicing interviewing skills would thus be more likely to improve self-efficacy than interventions intending to alter behavior perceived as maladaptive [28,29,32]. This dovetails with another finding from the qualitative results: consistently, mock interviews or roleplays were brought up as a successful strategy for interview preparation. The expert autism-service interviewee reported videotaping interviews and providing performance feedback, a strategy that has been shown to be effective in improving interviewing skills and employment outcomes [33]. Other virtual means of roleplaying and practicing interview skills have also been found to be effective for autistic adults [12,13,34–38]. Although some of these virtual methods may not be practically applicable for careers advisors, the basic technique of repeating roleplay activities, videotaping students, and giving feedback

certainly are. Practicing interview skills could serve to not only build confidence but also to reduce stress for students.

Another strategy for helping autistic students build confidence and secure employment is helping them build self-insight and from there moving towards a strengths-based approach. This is supported by suggestions published in a college counseling journal, which deemed working with autistic students to identify strengths and weaknesses to be a “foundational consideration” of employment preparation [39]. In fact, much like the student profile suggested in the workshops, the use of a personal profile is recommended in which strengths and weaknesses are listed in different areas of the student’s life, such as the emotional, physical and social domains [33,39]. By working with students to build self-insight, advisors can then take a strength-based approach by helping students lean into their strengths and emphasizing their successes. Some characteristics of autism can be characterized as positive traits for employment, for example restricted or repetitive behaviors and interests, increased ability to focus for lengthy periods of time, and pattern identification [28,40]. By emphasizing a student’s individual strengths and re-framing characteristics of their autism in a positive light for employment, advisors can help students better prepare for both interview questions and obtaining employment. In accordance with this finding, one of the final outputs of the IMAGE Project was an employability toolkit for students/graduates that stimulated them to identify skills and experience that could enhance their prospects [41].

This strengths-based approach is also promoted by the neurodiversity movement, which advocates that autism is simply a human variance, characterized by different sensory, communication and social skills that may or may not be advantageous [42–48]. This is in line with the overarching theme of a focus on the individual as a success facilitator. Rather than viewing students through the lens of their autism, careers advisors and HE professionals reported the necessity for viewing each student as unique and working with them on their individual needs and capabilities.

Although this was found to be the subjective norm among respondents, research respondents may have had a special interest in this topic and thus more background knowledge and awareness than average. This positively reflects on these careers advisors’ and HE professionals’ understanding, but their emphasis on it may also indicate that their coworkers are not always so knowledgeable. Nevertheless, this finding could be an underlying factor for other facilitators of success. Without casting aside stereotypes and the deficit model of autism, careers advisors will not be able to work from a strengths-based approach or help students with their unique needs throughout the employment process. As with all students, each autistic individual comes to careers advising with a specific profile of skills, needs, and background, and this has to be acknowledged by careers advisors.

4.5. Clear Communication

This extends to the final facilitator for successful interview preparation identified: clear communication. Communication challenges are acknowledged as an element of autism [16,49–52]. Clear communication is not limited to using unambiguous phrasing and coherent instructions, although these are important. It also includes discussing with the student how they prefer to be communicated with. In keeping with the individual focus as an overall success facilitator, each autistic student/graduate will be different in their preferred methods of receiving and expressing information. It is up to the careers advisor to adapt their communication style to that of the student/graduate, who may face innate communication challenges. This element, much like the individual focus, is important to maintain throughout the careers advising process, as a breakdown in communication could hinder success.

4.6. Gender-Based Differences

The gender analysis revealed very few significant differences. Male-identifying respondents rated themselves significantly higher in items on Factor 6: *Orderly and thorough*

worker. Female-identifying respondents rated themselves significantly higher in items on Factors 3, 12, and 15: *Confidence in employment outcome*, *Fine motor skills*, and *Creative strengths*. This is somewhat in line with findings supporting the empathizing–systemizing theory of typical sex difference, which asserts that typical females on average are likely to score higher on empathy, whereas typical males on average are likely to score higher on systemizing [53]. Alternatively, it could reflect the impact of gendered expectations and socialization [54].

4.7. Addressing the Issues Identified

The barriers identified in this research are broad and often systemic in nature. The facilitators of success identified are not their mirror images: instead, they are narrower and more specific. Some would argue that this pattern of overarching barriers and narrower strategies indicates an unsolvable problem that is too big to fix with the strategies available. However, this is the nature of many persistent societal issues. Sweeping change and significant reform are neither quick nor easily implemented. By identifying narrow but actionable strategies that can be utilized by key stakeholders, positive change can be gradually achieved, one strategy at a time. Additionally, many of the abovementioned strategies are also useful for neurotypical students/graduates, which may make them easier to adopt even by less-aware careers advisors or by those who are not—or who do not know they are—working with autistic clients.

4.8. Strengths and Limitations

The quantitative sample included respondents from multiple countries, with a variety of positions and backgrounds. It is notable that the largest group of careers advisors were UK based, likely because university careers advice is more developed as a standard service in the UK than in other European countries. This may lead to more careers advisor involvement with larger groups of students in the UK, including students with autism, and therefore more interest in or knowledge of the needs of this group. The largest group of autistic students/graduates was from Germany, possibly because careers advice as a university service was least well developed in that country. This disparity may have had an impact on responses. However, no important differences were seen between the survey responses of autistic students/graduates from different countries.

The EFA gave greater insight into what was being measured by the different questionnaires in the two populations and allowed a deeper understanding of results by making it possible to place quantitative differences into the context of overarching factors. In the EFA, the HE dataset produced a Heywood case. This occurs when communality is equal to 1. This could be due to too many or too few common factors, not enough data, or an inappropriate model. Because the maximum likelihood method was used, a variable with high communality would be given a high weight, and this could result in a Heywood case. The legitimacy of factor models with a Heywood case is contested by factor analysts [55].

Another possible limitation is the quantitative comparability of the two groups. The Likert scores were not dichotomized, perhaps making the results less meaningful. Additionally, one could argue it is only logical there are differences, as the two groups approach the questions from different perspectives. Furthermore, the responses are primarily from people with an interest or specialty and thus may not reflect the views of less experienced, less interested professionals.

A limitation in the qualitative data was the lack of student interviewees. Despite extensive outreach, there were minimal responses. Thus, the majority of the interviews are from the perspective of careers advisors. Many additional interviews were carried out with students/graduates as part of the larger IMAGE Project, and the results reported here are congruent with those findings [14,56,57].

5. Conclusions

The transition from university to employment is an understudied but vital period for determining the long-term employment success for autistic adults. This research contributes to an understanding of the barriers to both negotiating job interviews and securing employment, as well as illustrating practices careers advisors can utilize to facilitate success for this group. It was found that confidence, inflexible employers, disclosure of autism diagnosis, and stress were major barriers, whereas a focus on the individual, clear communication, and strategies including mock interviews and a strengths-based approach were found to be facilitators of success. Further research directed towards the differing perceptions of barriers during this transition period between stakeholder groups including careers advisors, autistic individuals, and employers is needed to gain a broader understanding of the most important areas for taking action.

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Appendix A

Table A1. Analysis of Factors Identified in Students/Graduates Dataset.

Factors	Items	Loadings	Cronbach's Alpha	Items Removed Due to Sensitivity Analysis
Factor 1: Barriers	<i>Problems with support at the workplace</i>	0.7797	0.8839	<i>Problems interacting with your employer during the employment process (0.4391)</i>
	<i>Problems with the expected work pattern of the workplace</i>	0.7617		
	<i>Problems with stress and its emotional and physical implication</i>	0.7242		
	<i>Problems interacting with (their) superiors</i>	0.7216		
	<i>Problems with work processes put in place by employer, work structures, or hierarchies</i>	0.6983		
	<i>Problems interacting with (their) colleagues</i>	0.6980		
	<i>Problems with physical or verbal bullying</i>	0.6420		

Table A1. Cont.

Factors	Items	Loadings	Cronbach's Alpha	Items Removed Due to Sensitivity Analysis
	<i>Problems with the sensory environment at the workplace</i>	0.6337		
	<i>Problems with the adjustment phase to a new job</i>	0.5940		
	<i>Problems with agencies, departments, or public institutions</i>	0.4426		
	<i>Problems with the cognitive requirements of (their) workplace</i>	0.4285		
	<i>Problems interacting with (their) clients/customers</i>	0.4242		
Factor 2: Teamwork skills	<i>Flexibility</i>	0.8057	0.8314	<i>Organizational skills (0.4018)</i>
	<i>Social skills</i>	0.7911		
	<i>Teamwork</i>	0.7841		
	<i>Empathy</i>	0.6630		
	<i>Multitasking</i>	0.5960		
	<i>Personal initiative</i>	0.5313		
	<i>Verbal skills</i>	0.4860		
Factor 3: Confidence in employment outcome	<i>How confident do you feel about the process of applying for a job?</i>	0.8120	0.8406	N/A
	<i>How well prepared do you currently feel for possible a job interview?</i>	0.7546		
	<i>How confident do you feel about searching for a job?</i>	0.6653		
	<i>How confident do you feel about identifying whether a job is suitable for you?</i>	0.5916		
	<i>Problems with the formal application process, such as with finding adequate positions or writing job applications?</i>	−0.5817		
	<i>How would you rate your understanding of your own strengths?</i>	0.5645		
	<i>I am generally confident of success in job interviews and selection events</i>	0.5421		
	<i>I feel I could get any job so long as my skills and experience are reasonably relevant</i>	0.4186		
Factor 4: Discrimination due to diagnosis	<i>People ignore me or take me less seriously just because I have autism/am autistic</i>	0.8246	0.8031	N/A
	<i>Others think that I cannot achieve much in life because I have autism/am autistic</i>	0.8134		
	<i>People discriminate against me because I have autism/am autistic</i>	0.8080		
	<i>People often patronize me or treat me like a child just because I have autism/am autistic</i>	0.7834		
	<i>Problems that involved others dealing with your diagnosis</i>	0.4011		

Table A1. Cont.

Factors	Items	Loadings	Cronbach's Alpha	Items Removed Due to Sensitivity Analysis
Factor 5: High status university or degree	<i>My university has an outstanding reputation in my field(s) of study</i>	0.8168	0.7942	N/A
	<i>Employers specifically target my university in order to recruit individuals from my subject area(s)</i>	0.8098		
	<i>The status of my university is a significant asset to me in job seeking</i>	0.7943		
	<i>Employers are eager to employ graduates from my university</i>	0.7535		
Factor 6: Orderly and thorough worker	<i>Logical thinking</i>	0.8207	0.7942	N/A
	<i>Systematic thinking</i>	0.8074		
	<i>Stability</i>	0.6477		
	<i>Detail-oriented</i>	0.4985		
	<i>Comprehension</i>	0.4869		
	<i>Reliability</i>	0.4835		
Factor 7: High demand for skillset	<i>People in the career I am aiming for are in high demand in the external labor marker</i>	0.8235	0.8086	N/A
	<i>There is generally a strong demand for graduates at the present time</i>	0.7934		
	<i>There are plenty of job vacancies in the geographical area where I am looking</i>	0.7740		
	<i>My degree is seen as leading to a specific career that is generally perceived as highly desirable</i>	0.5930		
	<i>My chosen subject(s) rank(s) highly in terms of social status</i>	0.5037		
Factor 8: Difficulties with interview process	<i>Problems with job interviews</i>	0.7121	0.8232	<i>I am generally confident of success in job interviews and selection events (−0.5057)</i>
	<i>Problems interacting with your employer during the employment process</i>	0.4570		
Factor 9: Focus and concentration	<i>Focus</i>	0.7268	0.6708	N/A
	<i>Powers of concentration</i>	0.4726		
	<i>How would you rate your understanding of your own strengths?</i>	0.4353		
Factor 10: Ability to do repetitive tasks	<i>Repetitive tasks</i>	0.8017	0.5674	N/A
	<i>Reliability</i>	0.5828		
Factor 11: Useful skillset	<i>The skills and abilities that I possess are what employers are looking for</i>	0.7680	N/A	N/A
Factor 12: Fine motor skills	<i>Fine motor skills</i>	0.8404	N/A	N/A

Table A1. Cont.

Factors	Items	Loadings	Cronbach's Alpha	Items Removed Due to Sensitivity Analysis
Factor 13: Disclosure	<i>Disclosing your disability</i>	0.7911	0.3911	N/A
	<i>How would you rate your confidence with disclosure of your autism diagnosis?</i>	0.7667		
Factor 14: High academic achievement	<i>I regard my academic work as a top priority</i>	0.7764	0.6630	N/A
	<i>I achieve high grades in relation to my studies</i>	0.7044		
Factor 15: Creative abilities	<i>Creative solutions</i>	0.7838	0.4466	N/A
	<i>Visual skills</i>	0.4667		
Factor 16: Low demand for skillset or qualifications	<i>Problems with your professional qualifications for a position</i>	0.7513	0.4419	N/A
	<i>My chosen subject(s) rank(s) highly in terms of social status</i>	−0.5090		
Factor 17: Retentiveness	<i>Retentiveness</i>	0.8207	0.3094	N/A
	<i>Nobody would be interested in getting close to me because I have autism/am autistic</i>	−0.4409		
Factor 18: Math proficient and organized	<i>Numbers</i>	0.6807	0.4323	N/A
	<i>Organizational skills</i>	0.4210		
Factor 19: Selectivity of degree	<i>A lot more people apply for my degree than there are places available</i>	0.7900	N/A	N/A
Factor 20: Personal control	<i>Emotional control</i>	0.7619	0.4863	N/A
	<i>Perseverance</i>	0.4357		
	<i>Visual skills</i>	0.4058		
Factor 21: Physical labor	<i>Physical labor</i>	0.8288	N/A	N/A
Factor 22: Client interaction problems	<i>Problems interacting with your clients/customers</i>	0.6216	N/A	N/A

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