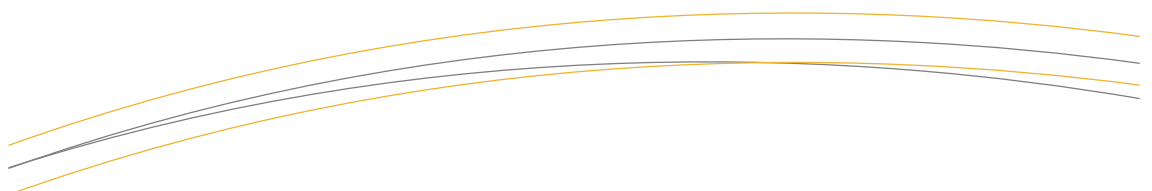


# Autism Centre for Employment

## Preliminary report to the Department of Health: Autism Innovation Fund

Report prepared by Dr Beatriz López and the ACE team



**AUTISM CENTRE FOR EMPLOYMENT**  
Department of Psychology  
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# Executive Summary

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The grant awarded from the Innovation Fund to the Department of Psychology at the University of Portsmouth has been employed in the creation of an innovative cost-effective service, the Autism Centre for Employment (ACE), dedicated to enhancing the job prospects of people with ASD without learning disabilities.

*Our mission:* We will empower and support people with ASD to help them realise their full employment potential.

*Our vision:* Employment rates among people with ASD can vastly improve by (i) increasing the efficiency of individual profile assessments; (ii) providing higher quality of support to employers in the process of making adjustments in the workplace; and (iii) raising aspirations in adults with ASD.

*Our values:* (i) people with ASD are gifted and they have a right to contribute to our society; (ii) employment services and research need to be better integrated; (iii) we are particularly committed to our regional community, but aim to share good practice with organisations nationwide.

*Main outcomes:* The main outcomes of this project are: (i) new employment specific assessment tools tailor-made for people with ASD; (ii) the project evaluation has demonstrated the cost-efficiency of the assessment tools: almost all clients (81%) reported that the employer had made the right adjustments and the amount of support needed was reduced by week 3 to an average of 1 hour a week; (iii) fifteen people with ASD have benefited from taking part in a work placement and 10 clients have been offered paid or unpaid positions since; (iv) the work placement scheme has had a positive impact not only on employees with ASD but also on employers.

*Challenges ahead:* Reaching out and support employers and society at large to overcome reluctance to employ people with ASD and also to empower adolescents and adults with ASD to achieve their full potential.

*The team:* Dr Beatriz López, Dr Niko Kargas, Dr Julie Udell and Tomas Rubin from the University of Portsmouth in partnership with Consultant Clinical Psychologist, Liz Keenan, Hampshire (Linda Burgess), Portsmouth (Dominic Dew), Southampton (Ian McDonald) and Isle of Wight (Ann O'Brien) Councils and Autism Hampshire (Karen Tempelton-Mepstead).

# 1. Background and rationale

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Research investigating employment in ASD has risen exponentially in the last 5 years. Although this research has demonstrated the effectiveness of interventions to promote employment in people with ASD (Howlin et al, 2005; Mavranouzouli et al, 2013), unemployment rates in the UK still approach 85% (National Autistic Society).

A consultation the ACE team carried out in 2014 in collaboration with the Autism Research Policy and Practice Hub (Wales Autism Research Centre) identified failure to make minor adjustments in the work place as one of the main barriers to employment (López & Keenan, 2014). This is further supported by empirical research showing that those in employment find it difficult to hold down a job (Howlin, 2000), switch jobs often and have difficulties adjusting to job settings (Hurlbutt & Chalmers, 2009).

Lack of employment has been directly linked to deteriorating mental health, social exclusion and poor quality of life (Emerson & Hatton, 2008; Billstedt *et al*, 2011). Within the ASD population, adults with ASD without learning disabilities are at a higher risk of developing mental health difficulties than adults with ASD who have learning disabilities (Ghaziuddin *et al.*, 1998). Yet, the large majority of employment programmes in the UK target adults with ASD with learning difficulties.

ACE was developed to first, address the gap in provision for adults with ASD without learning disabilities and, second to facilitate job retention by developing tools to support employers in the process of making work adaptations tailored to their employees.

## 1.1 The challenge: Barriers to implementing NICE guidelines

The latest NICE guidelines (2014) regarding supported employment programmes for people with ASD provide a series of recommendations regarding what employment programmes for people with ASD should include: 1) training in employability skills, 2) carefully matching the person to the job, 3) support for the employer and the employee, and 4) advice on making reasonable adjustments.

There are three barriers to the successful implementation of these guidelines:

- 1) Lack of integration between research and practice: Research on theoretical models of ASD has unequivocally demonstrated that ASD is characterised by unusual sensory profiles (Kargas et al, 2014; Ben-Sasson et al, 2009), executive function difficulties (Hill, 2004) and social and communication impairments (Dawson et al, 2004). However, the majority of employment programmes do not fully address how this cognitive profile may impact in the working life of employees with ASD, as instead they tend to focus on employability skills only.

- 2) Heterogeneity of the condition: Individual profiles in the ASD population vary widely (Valla & Belmonte, 2013; Kargas, López, Reddy & Morris, 2015). This variability makes generic training to employers on ASD ineffective, as each individual with ASD will require different adaptations in the work place. This is supported by the findings of our consultation (López & Keenan, 2014).
- 3) Lack of employment-specific assessment tools to identify individual profiles: In order to match the person to a job, provide person-centred training to employers and design effective plans of adaptations in the workplace, it is first necessary to identify the specific individual profile of the employee with ASD. Yet, currently there are no employment-specific tools to identify these profiles.

## **1.2. Overcoming the challenges to the implementation of the NICE guidelines**

The original aim of this project was to overcome the challenges in the implementation of the NICE guidelines by applying theoretical models to the development of employment-specific assessment tools to identify individual profiles of employees with ASD. The tools aimed to facilitate job-person matching, provide person-centre training to employers and identify individual needs in terms of adaptations required in the work place.

Specifically, the original aims of the project were to:

- 1) Facilitate the job-person matching process by developing, and piloting, employment-specific tools to identify individual profiles of employees with ASD.
- 2) Provide 8-week work placements for people with ASD without learning disabilities. The placements aimed to raise employers' autism awareness, increase the confidence of people with ASD in their ability to access the job market and also to enable the validation of the assessment tools.
- 3) Provide person-centred advice on adjustments in the work place based on the outcomes of the individual assessments.

## 2. Outcomes of the project

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This 6-month project has been extremely rewarding for all those involved despite its complexity. The project required a complex collaboration between 4 local authorities and the University of Portsmouth for the selection of participants, developing an entirely new set of tailor-made assessment tools, carrying out the assessments, producing reports for clients and employees, searching for suitable work placements, training employers and mentors, running the day-to-day service to support employers, employees and mentors during the placements and conduct an evaluation of the project. This latter task has been the most rewarding despite being the most demanding.

### 2.1 Recruitment of clients

Clients were mostly referred to ACE by the 4 local authorities involved in the project in the first 2 months of the project. Since then, we have received at least one request per week from either adults with ASD, their families or local services (i.e., Job Centre+) requesting to take part in the programme which suggests that there is a great demand for a service of these characteristics. In particular, we have received many requests from local colleges who are keen to help their students to gain work experience.

The eligibility criteria to enter the scheme were that the client was over 18 years, had no learning difficulties, no known mental health conditions, no criminal record and a willingness, and readiness, to gain employment. Forty-one people with ASD were referred to ACE during the recruitment phase. Given the time constraints we could only assess 30 people on a first-come, first-served basis.

People in charge of this phase were Dr Beatriz López, Dr Niko Kargas and the 4 local authorities.

### 2.2 Development of employment-specific assessments tools

We have developed, and piloted, a set of quantitative and qualitative tools specifically designed for work settings. For details of the assessment protocol please see Appendix 1. The assessment comprised of two stages. First, clients completed online questionnaires regarding the *individual employment profile* (career preferences and employability skills) and the *individual cognitive profile* relating to the most common known difficulties in ASD, namely social and communication skills, sensory issues and flexibility. Once these questionnaires were analysed, a face-to-face semi-structured interview with the client was conducted by a member of our team to further explore the issues arising from the questionnaires and to identify existing coping strategies.

People in charge of this phase were Dr Beatriz López, Dr Niko Kargas, Dr Julie Udell and Liz Keenan (Consultant Clinical Psychologist). The following people volunteered to provide feedback on questions and to enter the questionnaires on Qualtrics, the website used to collect data: Tracey Emery and, BSc Psychology students, Benjamin Lloyd Jones, Miguel Tiago Lopes, Caleb Mensah and Annabel Nyemecz.

Dr Kargas carried out all the face-to face assessments. Clients were given the choice of doing the interview at the university premises, over the phone or over Skype. All but one client - who preferred the phone- visited the university. Beatriz López, Dr Niko Kargas, Dr Julie Udell and Tomas Rubin prepared the Individual Employment Profile reports.

### **2.3 Matching the client to a work placement**

The original target of the project was to provide 40 placements for adults with ASD without learning disabilities. Soon after starting the project, it was apparent that this target was too ambitious for a 6-month project. It was core to our strategy to use the data obtained from the assessment to search for a suitable work placement for each client rather than identifying work placements in advance. A successful placement requires careful assessment of the client in the first instance. The process of developing the assessment tools and of carrying out the assessments left little time to find placements that would specifically match the client strengths and preferences. Thus, one lesson learned from this project is that providing good quality placements requires time.

As assessments were being completed, the ACE team started the search for work placements for each client assessed. Once we thought of a possible placement for a client, we contacted potential employers to explain the project and ask for a possible collaboration. This was the most challenging part of the project. Success rates were very low, with an average of 4 employers contacted for each client. This was partly due to the time frame of the project as some employers were willing but could not provide the placements at short notice. However, it was felt that more autism awareness is needed as some employers voiced their concerns regarding the amount of support an employee with ASD may require. The most helpful organisation was the Co-Operative who provided 3 placements, in 3 different locations, and the University of Portsmouth who provided various placements across several departments. Without exception, our clients accepted the placement they were offered which shows their commitment to find a job.

Dr Beatriz López and Dr Julie Udell were in charge of securing work placement opportunities.

## **2.4 Person-centred employer and mentor training**

The original aim was to test an innovative training protocol for employers. Employers offering work placements were to receive either generic training about ASD or person-centred training. Employers were to be randomly allocated to either of the two training protocols. Unfortunately, many employers declined coming to the university for the generic training session and therefore we only provided generic training to 3 employers. All other employers received person-centred training. This has precluded a systematic evaluation of the effectiveness of the person-centred training relative to standard generic training. All mentors received person-centred training about their particular client.

The person-centred training was based on the outcomes of the Individual Employment Profile assessment reports. We have developed two types of reports: A comprehensive 20-page report for the client and a shorter version for employers summarising any recommendations of adaptations. Please email [ace@port.ac.uk](mailto:ace@port.ac.uk) if you would like a sample of our reports. The clients had a chance to view the content of the shorter report prior to giving consent for it to be shared with mentors and employers. A member of the ACE team went over the reports with the clients, mentors and employers to ensure any queries arising from the reports were answered, and also to gather feedback from clients regarding the content.

The generic training was delivered by Liz Keenan and the person-centred training was delivered by Dr Beatriz López, Dr Niko Kargas, Dr Julie Udell and Liz Keenan.

## **2.5 Supported 8-week work placements**

We secured 18 part-time unpaid work placements for adults with ASD without learning disabilities (2 females; age range 18-54). The placements were individually tailored to the strengths, qualifications and career preferences of each client with ASD. As can be seen in Table 1, the nature of the placements varied widely. The hours of work ranged from 8 to 15 hours a week depending on the clients' and the employers' preferences. As placements were unpaid, the travelling expenses for the clients and the mentors were paid from the funding.

*Drop-out rates:* Three employees failed to complete their placements. One client had health problems that prevented him from attending work regularly and decided to terminate his placement. A second client gained sufficient confidence during the placement and hence started searching for paid employment; she has had two job interviews since and has secured a permanent volunteer position in the meantime. Due to numerous absences the employer decided to terminate the placement for the third client.



Table 1. Types of work placements

Type of work	Count	Type of work	Count
Retail assistant	3	Art gallery assistant	1
Data entry clerk	3	Mobile app developer	1
Research assistant	3	Web developer	1
Library assistant	2	Journalist	1
Administrator	1		

*Support to employers and employees:* Placements were supported by 9 volunteer mentors and 2 part-time paid mentors. Mentors and clients met prior to the start of the placement for a briefing session to discuss the needs of the client. The role of the mentors was not to help the client to perform the job but to help both employers and employees to communicate effectively so that the amount of supported could be scaled down over time. The contact times that each mentor spent with their client decreased over the course of the placements. The first week, mentors spent all the hours with the client, and this support was reduced by week 3 to an average of 1 hour a week. From then on, mentors were available on the phone if support was needed.

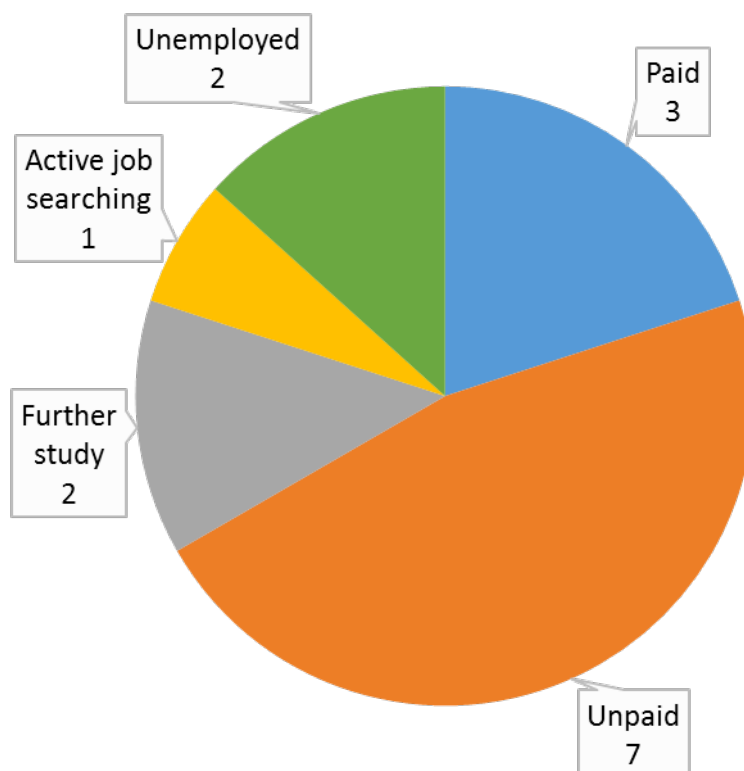
The day-to day support for the work placements was provided by Dr Beatriz López, Dr Niko Kargas, Dr Julie Udell and Tomas Rubin with the help of mentors.

## 2.6 Outcomes of the placements

The value of employees with ASD is evidenced by the number of employers that have offered paid or unpaid positions at the end of the placements (67%). As can be see in Figure 1, 20% of placements resulted in a paid position and 47% of employers agreed to continue the placement on a voluntary basis.

One client was inspired by his placement to apply for a degree at the university (if accepted will start in September 2015) and another client is seeking to apply for a FE course. ACE is actively helping a further client to secure plaid employment with the Co-Op and in the process of exploring placements for the remaining two clients.

Figure 1. Number of clients securing paid or unpaid positions



## 2.7 Outcomes highlights

Several outcomes can be highlighted:

- 1) New cost-effective, employment specific assessment tools tailor-made for people with ASD: The comprehensive online questionnaire reduces the cost of the assessment process by providing a breadth of information about the client so that the face-to-face assessment is more efficient.
- 2) New tools to support employers' in the process of making adaptations in the work place.
- 3) Fifteen people with ASD have benefited from a work experience, with 67% of employers offering paid or unpaid positions after the completion of the project and two clients being inspired to obtain further qualifications to enhance their jobs prospects.

The next two sections summarise the method employed for the project evaluation and the results of the evaluation. In particular, the results focus on the impact that the work placements has had on the employers and employees as well the evaluation of the actual work placement scheme. Dr Beatriz López, Dr Niko Kargas, Tomas Rubin developed the evaluation protocol and analysed the data from the evaluation.

## 3. Project evaluation: Method

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The evaluation forms were given to employers and clients that gave their consent to participate in the evaluation (15 clients and 14 employers). The evaluation protocol was approved by the University of Portsmouth Ethics Committee prior to the start of the work placements.

### 3.1 Continuous feedback

Given the innovative nature of the project and the reduced previous experience in client and employer support by the team, the project required continuous evaluation. Thus, for instance, feedback was taken from employers and employees on a weekly basis. The weekly diaries aimed to obtain qualitative data regarding the quality and quantity of the support provided and the most common difficulties and successes encountered in the interaction between employers, work colleagues and people with ASD. In addition, feedback from clients on the questionnaires, the assessment reports and data from the project evaluation has been used to revise the tools and reports to optimise their effectiveness for the future assessment service (See Section 8).

### 3.2 Employers' measures

Measures were taken before and after the work placement to evaluate:

- changes in attitudes towards employees with ASD and in autism awareness.
- satisfaction with scheme.
- impact of the scheme in mood (PANAS-X; Watson & Clark, 1988), self-esteem (Rosenberg, 1965) and quality of working life (QoWL; Easton & Van Laar, 2012).
- perception of strengths and weaknesses of the employee (Work Personality Profile; Bolton & Roessler, 1986).

### 5.2 Employees' measures

Measures were taken before and after the work placement to evaluate:

- changes in confidence in own abilities and on gaining employment.
- satisfaction with scheme, effectiveness of work adaptations and quality and quantity of support provided by mentors.
- impact of the scheme in mood (PANAS-X; Watson & Clark, 1988), self-esteem (Rosenberg, 1965), and quality of working life (QoWL; Easton & Van Laar, 2012).

## 6. Project evaluation: Outcomes

### 6.1 Employers' outcomes

Fourteen employers agreed to provide data for the evaluation of the project. Only 8 employers have returned their post-placement evaluation packs as placements finished just over a week ago. We summarise their data below.

#### 6.1.1 Attitudes towards employers with ASD, autism awareness and satisfaction with scheme

All employers reported that the work placement scheme had been a positive experience.

Table 2. Employers' attitudes, autism awareness and satisfaction with scheme at completion of the placement.

	Strongly agree	Agree	Total
1. My knowledge of autism has increased by taking part in this scheme.	37.5%	50%	87.5%
2. Taking part in this scheme has given me useful information of the value of employees with autism.	50%	50%	100%
3. My confidence in my ability to manage an employee with autism has increased as a result of taking part in this scheme.	50%	25%	75%
4. The training provided by ACE has helped me to support the employee with autism.	50%	25%	75%
5. Having a mentor to support the employee with autism has made me feel more confident.	12.5%	62.5%	75%
6. Participating in this scheme has made me feel better about myself.	25%	37.5%	62.5%
7. Overall this has been a positive experience for my organisation.	37.5%	37.5%	75%
8. Overall this has been a positive experience for myself.	37.5%	62.5%	100%
9. I am likely to employ someone with autism in the future.	37.5%	12.5%	50%

As can be seen in Table 2, 100% of employers found the experience to be positive on a personal level and 75% found the experience positive for the organisation. Also, 100% of employers felt that the scheme had helped them to value employees with autism, with 87.5% agreeing that the scheme helped to raise their autism awareness and 75% feeling they had gained confidence in managing an employee with ASD.

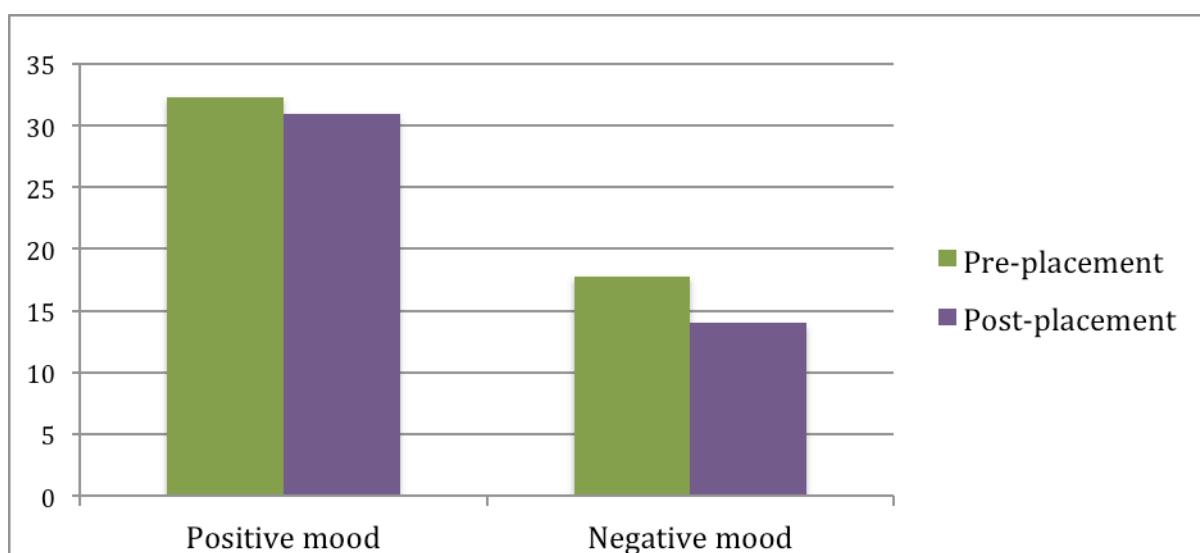
Despite these positive results, only 50% of employers agreed that they were likely to employ someone with ASD in the future. This latter result is disappointing as it reflects a 0% change over the percentage employers reported prior to taking part in the placements. These results however, need to be taken with caution as we are still waiting for 6 employers to return their questionnaires.

### 6.1.2 Impact of placements on employers' mood, self-esteem and quality of working life

The project aimed not only to benefit clients but it was hoped that employers would also benefit from taking part in the work placement scheme. With this aim in mind, we obtained measures of positive and negative mood, self-esteem and quality of working life.

As can be seen in Figure 2, there was no change in positive mood. However, there was a decrease of over 25% in reported instances of negative mood. This decrease was not statistically significant. However, this trend suggests that the work placements are of benefit not only for people with ASD but also for employers. It is predicted that its trend will become significant when data from all employers are included in the analysis.

Figure 2. Mean employers' scores on positive and negative mood pre- and post-placement.



Employers' quality of working life and self-esteem were also higher at the end of the work placements with increases of 10.5% and 3% respectively. These findings, although not significant further support the notion that providing a work placement for an employee with ASD not only has benefits for the person with ASD but also for the employer.

Table 3. Mean and standard deviations (in brackets) of employers' scores in quality of working life and self-esteem pre- and post-placement

	Pre-placement	Post-placement
Quality of working life*	3.73 (0.47)	4.12 (0.34)
Self-esteem**	22.7 (5.32)	27.37 (2.46)

\* Scores on this scale range from 1 to 5 with higher scores reflecting higher quality of working life.

\*\* Scores on this scale range from 0 to 30 with higher scores indicating higher self-esteem.

### 6.1.3 Employers' perceptions of strengths and weaknesses of employees with ASD

Employers completed the Work Personality Profile (Bolton & Roessler, 1986) which consists of statements regarding the client's observed work performance.

*Reported strengths:* A score of 4 reflects a definite strength, an employability asset. Eleven items received scores of 4 by at least 7 employers. These items are listed in Table 4. The overall average score across all items was 3.36, which suggests that employers rated employer's performance highly.

Table 4. Items rated as a definite strength, an employability asset, by at least 7 employers.

Employability strengths
1. Is appropriately friendly with supervisor.
2. Accepts work assignments with instructions from supervisor without arguing.
3. Improves performance when shown how.
4. Works at routine jobs without resistance.
5. Expresses willingness to try new assignments.
6. Carries out assigned tasks without prompting.
7. Accepts correction without becoming upset.
8. Conforms to rules and regulations.
9. Pays attention to details while working.
10. Expresses negative feelings appropriately, such as anger, fear, sadness.
11. Controls temper.

*Reported weaknesses:* Only five items were rated as potential or definite employability weaknesses (scores 1-2) by 2 or 3 employers as shown in Table 5. However, it is difficult to report on observed weaknesses as employers failed to score some items very relevant to autism. Specifically, employers failed to score items relating to group tasks and social interactions (see Table 5). This could be due to the nature of the job they performed that may have not required group interactions or, alternatively, because employers were reluctant to score their employees negatively.

Table 5. Number of employers rating items as a weakness or failing to provide a rating to the item.

Employability weaknesses	Number of employers
<i>Items identified as potential or definite weakness</i>	
1. Appears comfortable in social interactions.	3
2. Initiates conversations with others.	3
3. Arrives appropriately dressed for work.	2
4. Maintains work pace even if distractions occur.	2
5. Performs satisfactorily in tasks that require variety and change.	2
<i>Items not rated by employers</i>	
1. Works comfortably in group tasks.	6
2. Appears comfortable in social interactions.	7
3. Works comfortably in group tasks	8
4. Supportive of others in group tasks	6
5. Joins social groups when they are available	6
6. Offers assistance to coworkers when appropriate.	6
7. Is sought out frequently by coworkers.	6
8. Assumes assigned role in group tasks.	7

## 6.2 Employees' outcomes

Fifteen clients completed their placements. We report here data from the 11 clients that have returned the post-placement evaluation forms to date.

### 6.2.1 Confidence, satisfaction with scheme, and with the support provided by mentors, and effectiveness of work adaptations

Overall, 82% reported having enjoyed the experience (for a summary of results see Table 6). Almost all clients reported that the placement had helped them to feel more confident in their own skills (91%) and made them feel better about themselves (91%) This is a fantastic outcome, as it will help them to feel more confident in searching for paid employment in the future. However, just over 45% report feeling that the experience will have increased their chances of gaining employment in the future. This is most probably explained by the fact that most clients (80%) failed to secure a paid position by the end of the placement.

Table 6. Employees' evaluation of the placement and impact on confidence.

	Strongly agree	Agree	Total
1. Participating in this work scheme has helped me gain confidence on my skills.	36%	55%	91%
2. Participating in this scheme has made me feel better about myself.	36%	55%	91%
3. Taking part in this scheme has helped my chances to find work in the future.	27%	27%	54%
4. Participating in this work placement has helped me gain skills that will help me to find a job in the future.	9%	36%	45%
5. I have enjoyed taking part in the work placement.	55%	27%	82%
6. I have made friends with colleagues from the work placement	36%	36%	72%
7. My employer has made the right adjustments for me in the work placement.	36%	45%	81%
8. I would have liked more hours of mentoring support in the work placement	9%	0%	9%
9. Having a mentor to support has made me feel more confident about doing well in the work placement.	27%	36%	63%
10. The quality of the support provided by my mentor was very good.	27%	45%	72%



An important, although not specifically sought result was that the placements also helped them to feel more included as 72% of clients reported having made friends during the placements.

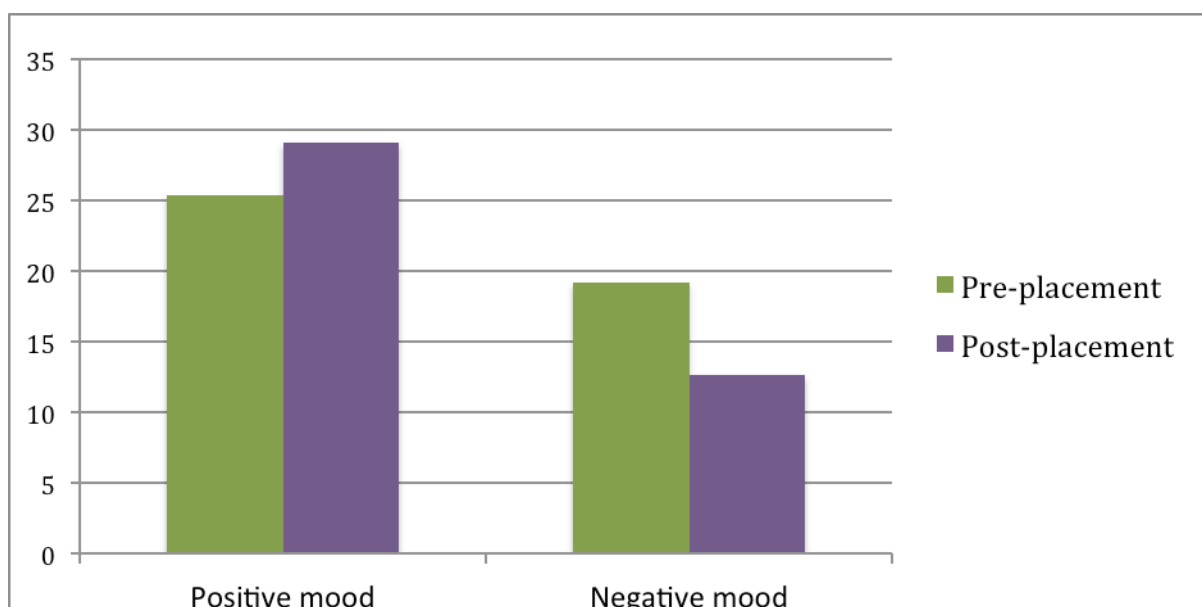
In terms of the support provided, only 1 client reported that he would have liked more hours of mentoring, 72% rated highly the quality of the support provided, and over half of clients felt the mentor had helped them to feel more confident in their work performance.

Most important for the validation of the assessment tools developed in this project, 81% of clients felt that the employer had made the right adjustments in the work place for their individual needs. This again, is a fantastic result given our previous research identifying failure to make adjustments as the main barrier to employment. This is a very promising result for the assessment tools developed by ACE although further validation is required (see Section 8).

### 6.2.2 Impact of placements on employees' mood, self-esteem and quality of working life

As with employers, the work placement had a significant effect on the employees' mood and self-esteem. Figure 3 shows the scores for positive and negative mood pre- and post-placements. A Wilcoxon test revealed that the instances of negative moods significantly decreased from pre- to post-placement ( $p < .05$ ) while instances of positive mood increased by 14.5% but this increase did not reach statistical significance.

Figure 3. Mean scores of employee's positive and negative mood pre- and post-placement.



In turn, self-esteem was significantly higher at the completion of the placement ( $W = 1.5$ ;  $p = .02$ ). We could not measure quality of working life prior to the commencement of the placement but the quality of working life of employees falls within norms for NHS and university staff (Easton & Van Laar, 2012).

Table 7. Mean and standard deviations (in brackets) of employees' scores in quality of working life and self-esteem pre- and post-placement

	Pre-placement	Post-placement
Quality of working life*	-	3.91 (0.57)
Self-esteem**	17 (4.37)	19.45 (5.95)

\* Scores on this scale range from 1 to 5 with higher scores reflecting higher quality of working life.

\*\* Scores on this scale range from 0 to 30 with higher scores indicating higher self-esteem.

### 6.3 Project evaluation highlights

Several outcomes can be highlighted:

- 1) Providing work placements has positive effects not only for employees with ASD but also for employers: Their self-esteem, mood and quality of working life was higher at the end of the placements than prior to taking part in the scheme although the increase was not statistically significant possibly due to the small sample size.
- 2) Taking part in a work placement has also had a positive effect on the confidence, self-esteem and mood of employees' with ASD with 91% reporting feeling more confident in their own skills and statistically significant increase in self-esteem and positive mood.
- 3) Almost all clients (81%) felt that the employer had made the right adjustments in the work place; a finding that suggests that the assessment tools, and subsequent report with recommendations of adjustments, are effective in identifying the individual needs of adults with ASD.
- 4) Despite the increased confidence in their skills, adults with ASD do not have great confidence in finding paid employment, probably as a result of employee's perceived poor autism awareness.

## 7. Personal and economic impact

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This has been an extremely challenging project in terms of complexity and timeline but the outcomes have exceeded our expectations. The informal feedback shows that the scheme has been a life changing experience for some of our clients. The following statement summarises what this project has meant for the adults with ASD taking part in the project:

*“I have learned that I can work again, that given the right circumstances I can be utterly professional and crack on and do a job. I’ve had self-doubt as to whether or not I would be able to work again so this has proven to me that I am still good enough that I can still give something back to society and I can feel worthy again [...] It was just an absolutely perfect placement for me”* (Client aged 54 years returning to work after a mid-life diagnosis).

We are particularly pleased with the finding that the placements had a positive effect on employers. The following quote illustrates how employers felt about the experience:

*“I would be more than willing to have this experience again; it has helped me a lot. I just think it is an amazing opportunity for both your own workforce and for the people requiring the experience themselves. Yes, I will 100% recommended it to all employers.”* (Employer)

After the consultation exercise we conducted in 2014 showing that the one of the main barriers to employment for people with ASD is failure to make adjustments in the workplace, it was clear to us that any research project aiming to enhance employment prospects for people with ASD has to necessarily include support for employers. This support cannot be limited to providing generic training about ASD but has to be specifically tailored to the individual needs of the client and the nature of the job.

Two sets of results demonstrate the cost-effectiveness of our service, and that is possible to support employers and employees at a relatively low cost. First, preliminary data shows that 81% of our clients felt that the employers had made the right adjustments in the work place, which validates the assessment tools we developed and the resulting recommendations given to employers. Second, by week 3 mentors met clients an average of 1 hour a week. This is a considerable saving over other employment programmes which offer much more intensive support to clients. Again, this finding demonstrates that the time invested in a high-quality assessment results in saving costs over time and contributes to employers and employees benefitting from the experience and hence, to greater job retention.

As an illustration of the cost-savings achieved, Mowhood and Howlin (1998) report a cost of £64,529.72 for the initial 12 months costs of a work programme supporting 8 clients with ASD. To date, we have spent £48,730 over a 6-month period to support 15 clients with ASD and to produce tools that will allow other services to replicate this cost-effective model to their practice. As the next section details, this is not the end of the journey for ACE.

# 8. The future of ACE

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## 8.1 Self-sustainability

The initial funding from the Autism Innovation Fund has made it possible to start a much-needed service. Yet, ACE needs to become self-sustainable to continue delivering its services. During the last 6-months we have developed a vast network of collaborations with local authorities and non-governmental organisations to ensure we maximize our chances of becoming a successful self-sustained service.

Our immediate plan is to work towards the commercialisation of an assessment service. We aim to provide two types of assessment services:

- Online assessment of Individual Employment Profiles: We have secured further funding from Research Autism (£45,000) to pilot an entire online version of the service so we can deliver our services nationwide. This service will be offered to local authorities and colleges. The aim is to provide these organisations with detailed background information about their clients to enhance the cost-effectiveness of their provision. We are currently in discussion with the City Deals programme (Portsmouth and Southampton) for a work placement scheme that aims to offer 1,000 work placements over 2 years from January 2016 for people with long-term conditions, including people with ASD. Securing a contract with them will guarantee a steady income for ACE from 2016.
- Full assessment of individual Employment Profiles: This service will be offered to adults with ASD, employers and young adults with ASD still in education. We have received requests to evaluate approximately 18 adults with ASD from various organisations and colleges despite not having yet set-up the commercial service so we are hopeful that this will become an additional source of income. This service will also be offered nationwide as current technology enables carrying out qualitative assessments online via webcams.

To reduce the costs of preparing Individual Employment Profile reports, we have employed a very talented adult with ASD who is working on the automatisisation of the production of some of the text in the reports so that staff costs are reduced to a minimum.

Carrying out the assessments in-house rather than commercializing the tools directly will enable us to gather large amounts of data for the development of normative data of the assessment tools.

## **8.2. Further expenditure plans**

### *Validation of tools*

The remaining funding will be partly spent on paying two part-time research assistants with ASD to work on the validation of the tools. One of the questionnaires, the sensory profile needs revision as some areas relevant to employment settings were not covered and some of the items were either not informative or redundant. We will pilot the new version as part of the project funded by Research Autism. We would also like to gather normative data of the employability profile of adults with ASD. For this purpose we are preparing an ethics application to be submitted in the next two weeks to collect data from a wide sample of adults with ASD and non-autistic adults.

### *Development of the Autism Centre of Employment website*

Funding will also be spent on the development of a professional, stand-alone, website which will host the online assessment service. This website will also be used to disseminate accessible summaries of the results of any research projects we carry out on employment and include a searchable database of all research articles in employment and autism from 1990 to date. The website will list useful organisations and programmes to facilitate job search for people with ASD. Finally, the website will include a professionally made video with interviews of clients and employers describing their experience.

### *Travels costs for continuing placements*

Seven clients will continue their placements on a voluntary basis. ACE will cover their travel expenses to and from work until the end of the funding, if required. Regional expansion: Dr Niko Kargas has just taking up a permanent position in Lincoln University and will start work on the creation of a branch of ACE to provide services on the area from October 2015.

### *Dissemination*

Accessible summaries of the results of this project will be widely disseminated to local authorities, relevant organisations and the people involved in the project. These will be distributed via our website, email and the Autism Research Network (University of Portsmouth) which includes members from national and international organisations. The members of the team will also attend public autism awareness events to publicise the service and sharing best practice.

Academic publications will also be submitted to peer-reviewed high-impact journals targeting Work/Occupational and/or Psychology academics and practitioners.

## 9. Detailed expenditure

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The original budget forecasted for the project was £65,000 and we have only spent £48,731. Most savings were made on travel to placements as we sought positions close to the clients home whenever possible. We also made saving on trainers fees as most employers could not attend the generic training. We will spend the remaining balance on the activities detailed in the previous section.

The large bulk of the expenditure to date has been devoted to salaries (£45,643). A full time Research Fellow, Dr Niko Kargas was employed to oversee the day-to-day service. Dr Kargas, assisted in the development of the tools, preparation of Individual Employment Profile reports, carried out all the qualitative assessments, supervised volunteer research assistants, delivered training to employers, dealt with general enquires, supported clients employers and mentors and kept in regular contact with clients. Dr Udell, assisted in the development of the tools, preparation of the Individual Employment Profile reports and searched for suitable work placements. Tomas Rubin assisted in the preparation of the Individual Employment Profile reports and datafiles and provided support to 4 employees/employers. Stamatina Tsiora provided support for two employees/employers. Dr Beatriz López had responsibility for the overall management of the project and forging links with organisations and local authorities. For details of expenditure of remaining balance see Table 8 below.

Table 8. Detailed expenditure to 7<sup>th</sup> August 2015.

Description	Amount
Staff Costs	28,291
Staff Costs - buyback	6,710
Casual Staff Costs	10,642
Equipment (printer and webcam)	153
Employers' training	740
Expenses for consultants with ASD, staff and mentors	377
Printing	274
Travel to placements	1,393
Misc Items (catering and marketing materials)	151
<b>Total</b>	<b>48,731</b>
<b>Remaining balance</b>	<b>16,269</b>

# 10. Acknowledgements

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We would also like to thank all employers, not just for offering a placement but for their commitment to their employees and to the project. There were so many instances of employers taking the initiative in doing the work for us! Many took the time to train the employees in matters unrelated to the work tasks (i.e., social and conversational skills).

This project would have not taken place without Linda Burgess Commissioning Lead and Adult Autism Strategy Lead Officer at Hampshire County Council. She initially alerted us of the call for the Autism Innovation Fund and brought all the partners together in a race against the clock. She has an unbelievable capacity to energise people and make things happen, always with a smile on her face. Thanks also to Ian Macdonald, Service Development Office at Southampton City Council for his help in identifying suitable employers and for Dominic Dew, Senior Programme Manager at Portsmouth City Council and Karen Warner at Portsmouth's Job Centre+ for their efforts in recruiting suitable candidates for the work placements.

I would like to thank personally Dr Niko Kargas, Tomas Rubin and Dr Julie Udell. They have been extremely reliable, hard-working and caring. More importantly though, they helped us to stay sane throughout with their giggles, dancing and positive attitude.

And last, but by no means least, thank you to all the clients who took up work placements. They could have not been a better representation of the qualities people with ASD can bring to the work place. They were an absolute joy to work with. We sincerely hope they all find the paid employment they deserve soon.

Dr Beatriz López



Date 10<sup>th</sup> August 2015

# 11. References

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- Ben-Sasson, A., Hen, L., Fluss, R., Cermak, S., Engel-Yeger, B. & Gal, E. (2009). A meta-analysis of sensory modulation symptoms in individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *39*, 1-11.
- Billstedt, E., Gillberg, C. & Gillberg, C. (2007). Autism in adults: symptom patterns and early childhood predictors. Use of the DISCO in a community sample followed from childhood. *Journal of Child Psychology and Psychiatry*, *48*, 1102-1110.
- Dawson, G., Toth, K., Abbott, R., Osterling, J., Munson, J., Estes, A. & Liaw, J. (2004). Early social attention impairments in autism: social orienting, joint attention, and attention to distress. *Developmental Psychology*, *40*, 271.
- Easton, S. & Van Laar, D. (2013). *User Manual for the Work-Related Quality of Life (WRQoL) Scale*. University of Portsmouth. UK.
- Emerson, E., & Hatton, C. (2008). *Estimating Future Need for Adult Social Care for People with Learning Disabilities in England*. Centre for Disability Report, University of Lancashire.
- Ghaziuddin, M., Weidmer-Mikhail, E. & Ghaziuddin, N. (1998). Comorbidity of Asperger syndrome: a preliminary report. *Journal of Intellectual Disability Research*, *42*, 279-283
- Hill, E. L. (2004). Executive dysfunction in autism. *Trends in cognitive sciences*, *8*, 26-32.
- Howlin, P. (2000). Outcome in adult life for more able individuals with autism or Asperger syndrome. *Autism*, *4*, 63-83.
- Howlin, P., Alcock, J., & Burkin, C. (2005). An 8 year follow-up of a specialist supported employment service for high-ability adults with autism or Asperger syndrome. *Autism*, *9*, 533-549.
- Hurlbutt, K. & Chalmers, L. (2004). Employment in adults with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities*, *19*, 215-222.
- Kargas, N., López, B., Reddy, V. & Morris, P. (2015). The relationship between auditory processing and restricted, repetitive behaviors in adults with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *45*, 658-668.
- López, B. & Keenan, L. (2014). *Barriers to employment in autism: Future challenges to implementing the Adult Autism Strategy*. Report prepared for the Autism Hub: Research Policy and Practice, Wales Autism Research Centre, University of Cardiff.
- Mavranzouli, I., Megnin-Viggars, O., Cheema, N., Howlin, P., Baron-Cohen, S. & Pilling, S. (2013). The cost-effectiveness of supported employment for adults with autism in the United Kingdom. *Autism*, *18*, 975-984.



- Mawhood, L. & Howlin, P. (1999). The Outcome of a Supported Employment Scheme for High Functioning Adults with Autism or Asperger Syndrome. *Journal of Autism: the international journal of research and practice*, 3(3), 229-254.
- Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measures Package*, 61.
- Valla, J. & Belmonte, M. (2013). Detail-oriented cognitive style and social communicative deficits, with and beyond the spectrum: Independent traits that grow into developmental interdependence. *Developmental Review*, 33, 371-398.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063.

# Appendix 1. Assessment protocol

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Assessments took place in two stages. The first stage comprised of an online questionnaire which the client completed at home or at the ACE premises. In a second stage, the client attended a face-to-face session at the Centre to undergo a semi-structured interview with a member of our team.

## **Stage 1: Employability and Cognitive Profile**

The Employability and Cognitive Profile of the client was assessed by an on-line self-report questionnaire specifically developed by the ACE team.

The Employability section of the questionnaire assessed two areas:

- Career interests: The Career Interest questions are based on Holland's Theory of Career typology (1974). According to Holland (1974) careers can be classified into six main categories: Realistic, Investigative, Artistic, Social, Enterprising and Conventional careers. The specific questionnaire used for the current report was developed by adapting a questionnaire designed by the University of Sussex Careers & Employability Centre ("Interests and Motivations", 2015). This questionnaire is aimed at prospective or current graduate students. As many of our clients do not have, or are not planning to obtain, a university degree, we adapted the scale to include careers that do not require higher-education degrees. The questionnaire contains 10 lists, each with an example of a career from each of the 6 career categories, and so it comprises of 60 items.
- Employability skills: The questionnaire used to measure employability skills was also adapted from the questionnaire designed by the University of Sussex Careers & Employability Centre ("Interests and Motivations", 2015). As with the Career Interest questionnaire, we adapted the items to include also non-graduate level skills. The employability questionnaire measured 9 skills and consisted of 89 items.

The Cognitive Profile questions assessed three areas relevant to ASD:

- Executive functioning: Executive function is broad term used for high-level mental skills that relate to the ability to maintain appropriate control over thoughts, behaviours and emotions and also the ability to manage attention and problem solving. Executive functioning was measured by use of a brief version of the Behaviour Rating Inventory of Executive Function, the BRIEF (Isquith et al, 2006), which comprises of 31 out of the 75 in the original scale. We are in the process of validating this scale. This scale was chosen as it was the most appropriate to measure executive function in a work environment as it measures 9 components of everyday executive function relevant to work environments.

- Sensory Sensitivities: Sensory sensitivities were measured with a short questionnaire, specifically developed by ACE, to assess sensitivities that could impact in a work setting. The questionnaire is based on a variety of existing sensory questionnaires such as the Adolescent/Adult Sensory Profile (Dunn et al, 2002) which were adapted to measure sensory sensitivities pertinent to work settings. The questionnaire comprised of 22 questions about Visual, Auditory, Tactile, Olfactory sensitivities and Movement ability.
- Social and Communication skills: This questionnaire was specifically developed by the ACE team in consultation with Liz Keenan, a Consultant Clinical Psychologist specialising in adults with ASD. The scale measures social and communication skills relevant to work environments. The questionnaire comprises of 29 items measuring four aspects of social interactions and communication: Non-verbal Communication, Conversational skills, Communication ability and Confidence in communicative ability. In addition the questionnaire assessed the ability to communicate via e-mail and phone, to speak distinctly and clearly and to interact with others.

## **Stage 2: Qualitative Assessment**

The qualitative assessment consisted in a semi-structured interview with a member of the ACE team lasting between one and two hours. During this interview we were able to gather information on the following:

- Information regarding employment interests and preferences and relevant experience for future employment.
- Self-report on personal experience of workplace environments.
- Existing coping strategies and potential risks in employment related situations.
- Further qualitative information relevant to the self-report questionnaire responses.
- Potential or preferred adaptations in the workplace.