THE INFLUENCE OF AN EXPERIMENTAL MANIPULATION ON COGNITIVE ASSESSMENT SCORES IN ADULTS WITH MILD INTELLECTUAL DISABILITIES: IMPLICATIONS FOR CLINICAL PRACTICE

Major Research Project and Clinical Research Portfolio

Part One

(Part Two bound separately)

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UNIVERSITY *of* GLASGOW

Faculty of Medicine Graduate School

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TABLE OF CONTENTS

PORTFOLIO PART ONE **(this bound copy)**

PORTFOLIO PART TWO **(separately bound copy)**

List of Tables and Figures

Systematic Review

Major Research Project

APPENDICES

Systematic Review

Major Research Project

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Systematic Literature Review

The relationship between employment and self-determination in adults with intellectual disabilities: a systematic review

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Running Title: The effect of an experimental manipulation on cognitive assessment

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Abstract

Background Supported employment is believed to help promote the development of self-determination in adults with intellectual disabilities (ID). Despite this assumption, there has been no attempt to draw together the empirical evidence. The aim of the current review was to determine the extent to which supported employment achieves this goal. ***Method*** A systematic search of the literature was conducted. Longitudinal and group-comparison studies comparing supported employment to one or more types of employment were included in the review. ***Results*** Eight studies were identified. Only one longitudinal study was found. The results suggested that supported employment enhanced overall levels of self-determination and autonomy for the majority of adults with IDs. There were apparent individual differences, however, and some individuals reported reduced levels of self-determination upon moving towards supported employment. ***Conclusions*** Studies exploring the relationship between self-determination and employment to date appear to have considered supported employment and employees with ID to be homogeneous in nature. Closer consideration of intra- and inter- personal factors might lead to a better understanding of what permits self-determination to develop in one individual in supported employment settings, but inhibits the development in another. It is at this level that supported employment settings will be better able to enhance self-determination in adults with IDs.

Keywords: *self-determination; autonomy; intellectual disability; employment*

Introduction

For the majority of people, being employed offers several benefits, including opportunities for social inclusion, social status, and financial autonomy (Jahoda, Kemp, Riddell, & Banks, 2008). Furthermore, being in employment reduces the likelihood that individuals will experience mental health difficulties (Paul & Moser, 2009). Being involved in purposeful daily activity impacts on how acceptable we view ourselves as adults and, perhaps even more crucially, how *others* view us. Moreover, it is of particular intrinsic value, comprising a significant aspect of our perceptions of control, autonomy and self-concept (Wehmeyer, 1995). Just as this is evident within the general population, it is no different for many individuals with intellectual disabilities (IDs), who also aspire to improve their quality of life by obtaining employment (Bass & Drewitt, 1997; Wehmeyer & Bolding, 1999).

Over the past fifteen years, there has been significant progress in policy development and in the profile of employment as a typical lifestyle choice for people with IDs (Melling, Beyer, & Kilsby, 2011). The idea that they should be given the same opportunity to work as others in society has been reinforced by key policy documents, such as *The Same As You?* (Scottish Executive, 2000), *Valuing People Now* (Department of Health, 2009) and *Working for a Change* (Scottish Executive, 2003). Supported employment, defined as "*an evidence-based and personalised approach to supporting people with significant disabilities into real jobs, where they can fulfil their employment aspirations and achieve social and economic inclusion*" (HM Government, 2010, Pg.2), has been highlighted in these policies as the best way of delivering employment to this population. Thus, families of individuals with

IDs are increasingly seeking supported employment opportunities as alternatives to more traditional forms of day care provision, such as day centres and sheltered workshops (Smyth & McConkey, 2003).

Supported employment is a person-centred approach which aims to help individuals with disabilities to realise their goals and aspirations (Scottish Executive, 2005, p.14). The 'place, train and maintain' model of supported employment is recognised as being the most commonly adopted, and most effective, means of delivering support (Melling et al., 2011). According to this model, being placed into an ordinary, competitive job is not inevitably the first step in successful training. Rather, the supported employee is taught how to accomplish a specific task, normally by a skilled job trainer, until the skill is mastered. These supports are then faded when the individual is deemed to be able to perform according to the employer's needs. More recently, there has been a shift towards the use of 'natural supports', or 'co-workers', within these settings, reflecting the appreciation of work as a social experience (Beyer, Brown, Akandi, & Rapley, 2010).

Recognising that individuals with IDs tend to be socially and economically marginalised, supported employment is considered to be an effective means of promoting social inclusion. The key aim of supported employment for people with IDs includes reducing their dependency on state benefits and earning their own income (Shearn, Beyer & Felce, 2000), as well as encouraging social integration and improved quality of life (Chadsey & Beyer, 2001; Jahoda et al., 2008; Beyer et al., 2010). Despite the apparent benefits, however, the reality is that very few individuals with IDs obtain supported employment, with current estimates ranging between 1.7%

and 11.1% (Melling et al., 2011). Furthermore, little research has actually sought to explore the impact of supported employment on the lives and well-being of individuals with IDs. However, strong theoretical links have been proposed between self-determination and employment.

The *political* interpretation of self-determination draws upon the value of autonomy, and states that individuals should have the freedom to take charge of and to control their own lives. This differs from the *psychological* interpretation of the construct, which refers to the individual being aware of their need for autonomy and feeling enabled to take advantage of opportunities that arise (Wehmeyer, 1998). As a concept, self-determination is considered to arise as a function of what an individual is able to do (i.e. cognitive ability) and the environmental opportunities that are presented to them (e.g. supported employment). Four key characteristics of self-determination are proposed to reflect self-determined behaviour (Wehmeyer, 1996). The first relates to the individual acting autonomously, according to his/her own preferences and without any undue influence from others. The second is that the behaviours should be self-regulated[1], meaning that individuals should be able to make decisions about what skills to use in a situation, how they should act, how best to evaluate their actions and, subsequently, to revise their plans as necessary. Thirdly, self-determination requires that individuals act in a psychologically empowered manner, believing that they have the required capacity to perform behaviours needed to influence their environment, and that these behaviours will result in a desired outcome. Finally, self-determined individuals are considered to be

[1] Whitman (1990) defined self-regulation as "a complex response system that enables individuals to examine their environments and their repertoires of responses for coping with those environments to make decisions about how to act, to act, to evaluate the desirability of the outcomes of the action, and to revise their plans as necessary" (p. 373).

self-realising, having an accurate image of themselves and their abilities. Given the fact that work provides people with a clear role and goals that they are responsible for achieving, along with social skills and financial autonomy, it is thought to have a telling impact on the self-determination of people with IDs who are a relatively disempowered group.

As a concept, self-determination is considered a core dimension of quality of life (Schalok, 2004). The research to date has shown that individuals who are more self-determined achieve greater social inclusion and work related outcomes (Wehmeyer & Palmer, 2003). Increased levels of self-determination have also been shown to predict other positive outcomes, such as life satisfaction (Miller & Chan, 2008). Therefore, investigating whether supported employment improves self-determination has important implications in terms of overall quality of life. The purpose of this review is to synthesise the available empirical literature, with a view to exploring supported employment as a vehicle through which self-determination may be enhanced.

Review Objectives

The main aim of the current review was to investigate the extent to which supported employment in individuals with mild-moderate intellectual disabilities enhances self-determination (and factors related to self-determination). A subsidiary aim was to determine whether supported employment enhances self-determination to a greater extent than any other type of employment.

Search Strategy

A systematic literature search was carried out using the OVID online interface to access the PsychINFO <1987-2011, March, week 3>, Ovid Medline <1950- 2011, March, week 4>, EMBASE <1967- 2011, March, week 4>, and the ERIC <1965-2011, March, week 3> databases. Search terms relating to Intellectual Disability [Learning Disability *or* Mental Retardation *or* Cognitive Disability *or* Mental Handicap *or* Intellectual Disability *or* Developmental Disability] AND employment [employment or occupation or labor or labour or job satisfaction or unemployment] AND self-determination [self-determination or autonomy or self-concept or self-efficacy or self-regulation or self-management or self-monitor or self-instruction or self-evaluation or self-reinforce or goal setting or problem solving or task performance or decision making or beliefs or values or independence or attitude or interests or empowerment or perceived control or locus of control or self-realisation or self-realization or sense of self or self-esteem] were combined in the initial database search.

A sensitivity search was also carried out. This involved screening references from identified papers, using the 'cited by' function in electronic databases and targeting searches of relevant journals, namely: *Journal of Learning Disabilities*<2000- January 2011>; *British Journal of Learning Disabilities*<2000-March 2011>; *Journal of Intellectual Disability Research*<2000- March 2011>, *Journal of Applied Research in Intellectual Disabilities*<2000- March 2011> and *American Journal on Intellectual and Developmental Disabilities* (formerly known as *American Journal of Mental Retardation*) <2007- 2011>. Additionally, the reference

section of review articles included in the search identified were hand searched in order to find other potentially eligible studies.

Inclusion and Exclusion Criteria

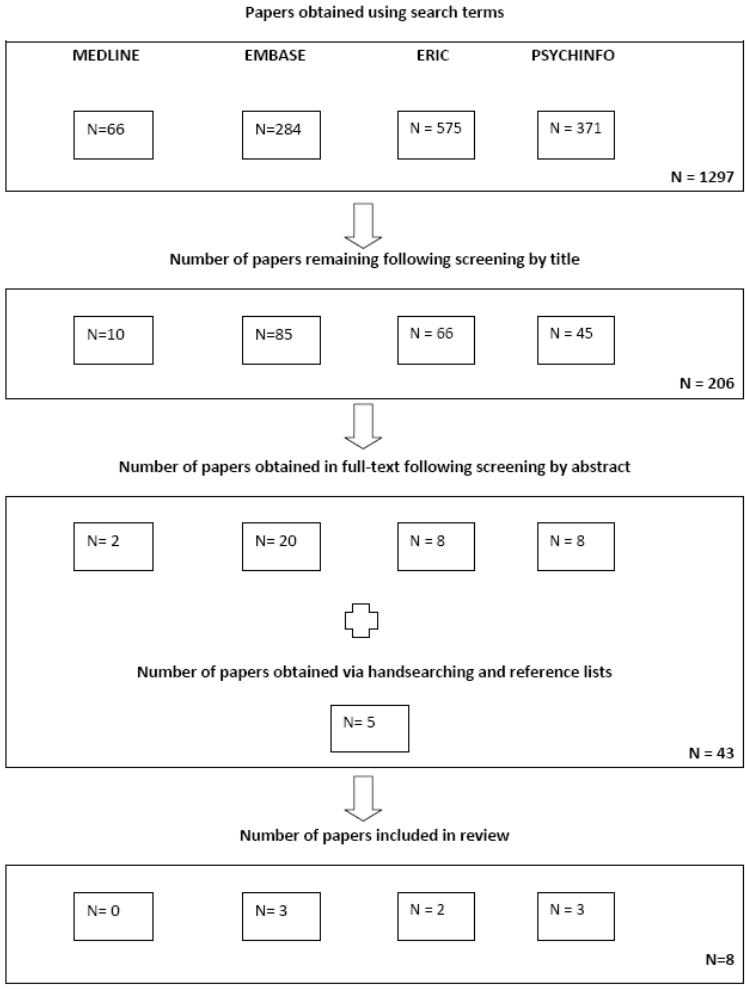
Studies were included where participants were adults aged between 18 and 65 years and had a mild to moderate intellectual disability. Longitudinal and group-comparison based studies identified from peer-reviewed journals were included if they considered self-determination (or factor(s) relating to self-determination) in relation to employment. Other study designs were excluded as they were considered less likely to address the questions asked within this review. Group based-comparison studies were included if supported employment was compared to one or more other employment setting(s). Papers were limited to English language and human subjects. Self-report of factors in relation to self-determination was a prerequisite and informant-based report was excluded. Dissertation abstracts, book chapters and conference proceedings were excluded. Only studies that included descriptive statistics or quantitative methods were included. The search was not restricted by date and included articles published up until and including the end of April 2011.

Results of Search

A flowchart of the selection process is available (see Figure 1). Electronic database searching using the search terms above resulted in a total of 1297 studies. These studies were screened by title, resulting in 206 studies being retained. The abstracts of these studies were screened according to the inclusion and exclusion

criteria above. Studies were excluded at this stage if it was clear that they did not meet the relevant inclusion criteria.

Figure 1. Flowchart of Search Process



Full-texts of the studies were obtained for 38 studies, where the abstracts either confirmed that the relevant criteria were met or where further clarification was needed. Thirty studies were subsequently excluded for one more of the following reasons: where there was duplication; where factors

relating to self-determination were not viewed as an outcome in relation to employment, where the definition of a Learning Disability (or related terms) included participants with IQs greater than 70 or because study design was unsuitable (i.e. it was neither longitudinal nor a group-based comparison study matched on at least

one relevant sample characteristic). This resulted in a total of 8 studies being suitable for inclusion. A further 5 studies were identified during hand searching and reference lists. However, 4 of these studies had either been excluded or were already included in the results obtained from the electronic search. A hand search of the reference lists of the included studies identified one further suitable study; however, this study did not meet the minimum quality rating design criteria and was excluded. Therefore, a total of 8 studies were included in the review.

Methodological Quality and Rating Criteria

When considering the most appropriate means of assessing quality, it was considered important to recognise the different designs and methods used to investigate the impact of employment on self-determination. Published guidelines, such as the CONSORT (2010) guidelines, were used as a general reference but were considered unsuitable for use in their entireties as they were developed to assess the quality of intervention studies. As such, quality criteria were specifically developed for this review, to ensure that the included studies met certain methodological criteria and as a guide to excluding those that failed to meet this standard (see Table 1 for Quality Rating Scale)

Longitudinal studies are required to make causal links between employment and self-determination. Thus, longitudinal designs were considered to be of the highest quality, followed by group-based comparisons. Consideration was also given to the following: research question and aims of the study; representation of the sample; sample demographics; quality of measure(s) used to assess self-

determination or associated factor(s); how level of intellectual disability was assessed and/or whether this was reported; whether employment settings were considered independently or combined with residential setting; and the extent to which measures were completed by the participants themselves (i.e. self-report).

For each of the review papers, scores were awarded based on the extent to which they met the criteria. Each paper was assigned a score out of a possible total score of 39 and assigned an overall quality rating. Studies scoring greater than 32 were considered '*Excellent*'. Scores of between 26 and 31 were rated '*Very good*', scores between 21 and 25 were rated '*Good*', scores between 17 and 20 were rated '*Adequate*', and scores under 16 were considered to be of '*Poor*' quality. Scores under 10 would have been considered to be of too poor quality for inclusion in the review; however, none of the studies were excluded on this basis. Each study was evaluated by the principal assessor according to the quality guidelines. A sample of 6 papers was rated by a second independent assessor, who was unaware of the principal assessor's ratings. Initial concordance was 92%. Where disagreements in ratings between assessors were evident, discussions were held until a consensus on quality score was reached. Final concordance was 100%.

Table 1. Quality Rating Scale

1. RESEARCH QUESTION	1. Clearly defined with clear aims 2 2. Partially defined with partially clear aims 1 3. No clear questions and/or no clear aims 0
2. **STUDY DESIGN (CORE criteria, weighted)**	**1. Longitudinal** **5** **2. Group comparison, matched for length of time in employment, gender, age and level of IQ** **4** **3. Group comparison, matched for three of length of time in employment, gender, age and level of IQ** **3** **4. Group comparison, matched for two of length of time in employment, gender, age and level of IQ.** **2** **5. Group comparison on one of length of time in employment, age, gender and level of IQ** **1**
3. SAMPLE REPRESENTATION	1. Geographical cohort 4 2. Random sample 3 3. Convenience sample 2 4. Volunteer sample 1 5. Unclear how sample was obtained 0
4. SAMPLE DEMOGRAPHICS	1. Age, gender, SES and level of ID reported 3 2. Any two or three of the above reported 2 3. Only one of the above reported 1
5. MEASUREMENT OF SELF-DETERMINATION	1. Standardised and/or valid and reliable measure for use with people with IDs 3 2. Measure normed for use with people with IDs, appropriate to design and adapted for use with people with IDs 2 3. Non-standardised measure, appropriate to design and adapted for use for people with IDs 1 4. Inappropriate measure in terms of design and/or people with IDs 0
6. MEASUREMENT OF INTELLETUAL DISABILITY	1. Standardised measure of IQ (e.g. WAIS) 3 2. BPVS or adaptive functioning reported only 2 3. Case` note review and/or how ID was reported 1 4. Unspecified 0
7. SETTINGS ADDRESSED	1. Employment only (or employment and living settings, but where factors related to self-determination and employment only are considered) 2 2. Employment and living, where factor(s) related to self-determination and both settings combined are assessed 1
8. INFORMANT REPORT	1. Ratings entirely subjective 2 2. Ratings partially subjective (e.g. carer help was provided) or unclear 1

Results

The results of the review are considered in four sections according to the methodological quality of the studies. Studies considered to be of the highest methodological quality are presented first.

(1) Studies rated as being of 'Excellent' quality

Only one paper, by Wehmeyer and Bolding (2001) was rated as being of 'excellent' quality (see Table 2). The authors used a within-samples longitudinal design to examine the self-determination, autonomy and life choices of 31 people with intellectual disabilities before or after they moved to a less restrictive living or working environment, while controlling for the level of impact of ID. The results showed that autonomy and self-determination scores were significantly higher following a move to a less restrictive living or working environment. Of interest was that the authors acknowledged individual variation in scores on the self-determination and autonomous functioning measures, both prior to and following a move to the less restrictive environment. It was suggested that this might reflect the different levels of support that individuals were provided with upon moving to less restrictive environments to take advantage of the opportunities available to them.

This was the only study that adopted a longitudinal design to examine the relationship between self-determination and employment, which is an apparent strength. However, direct causality can still not be attributed to enhanced self-determination and autonomy, and environment, due to the within-individuals design. A control group of individuals (matched in terms of age, gender, IQ, length of time in employment and living situation) who did not move would have increased the

strength of the findings and accounted for factors that might have contributed to changes in autonomy. A further limitation of the study was that there was considerable variability in the times between pre- and post- move interviews were carried out. For example, participants might have completed the measures at a time when they were feeling excited and optimistic about their move, or perhaps more positive having just moved to their new environment. The study would have benefited from measurements being taken at additional time points, rather than at only one point in time after moving. Finally, both the Arc Self-Determination Scale and the Autonomous Functioning Checklist have subscales, but no descriptive data at this level of analysis was reported.

Discussion

This study provides the best evidence to date that employment enhances self-determination and autonomy, despite the methodological limitations discussed above. However, that the variation in scores before and after a move highlights that moving to 'less restrictive' environments (i.e. towards supported employment) does not necessarily enhance feelings of autonomy and self-determination for all individuals. It may be that individuals

Table 2. Studies rated as 'Excellent' Quality

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Wehmeyer & Bolding (2001) Longitudinal design Quality rating: Excellent	The present study examined the self-determination, autonomy, and life choices of people with intellectual disabilities before and after they moved to a less restrictive living or working environment, while controlling for the level of impact of intellectual disability.	Residence and working environments were combined, with participants moving to community-based living settings, community-based work settings, or both.	Self-determination and autonomy were assessed. Life choices were also assessed.	Convenience sample: 31 adults (17 males and 14 females) with IDs recruited from US based agencies. Mean age = 40.8 years and mean IQ = 60.25.	Arc Self-Determination Scale (Wehmeyer & Kelchner, 1995) Autonomous Functioning Checklist (Sigafoos, Feinstein, Damond, & Reiss, 1988; Wehmeyer & Kelchner, 1995) Life Choices Survey (Kishi et al, 1988)	For self-determination and autonomous functioning, mean scores were more adaptive following a move to a less restricted environment. Out of 31 participants, 25 scored higher on post test SDS, while 20 scores higher on AFC. Only 2 participants did not improve on one or other measure.	Direct causality cannot be applied, due to lack of control group and variability in time between initial and subsequent measures. Community-based setting definition encompassed those people with supports as well as those without supports. Combined living and employment settings, thereby a possible confounding factor.

who were already quite autonomous actually felt more restricted by the supports that were available in the supported employment settings. Indeed, autonomy, by definition, equates to independence and freedom from external influence or control. Thus, for some, moving to supported employment may actually be considered a move to a *more* restricted environment. Future research could attempt to explore the differential impact of moving to employment for individuals within this population.

(2) Studies rated as being of 'Good' quality

Three studies were rated as being of 'good' quality (see Table 3). Wehmeyer & Bolding (1999) found significant differences in self-determination between people living or working in community-based settings (e.g. supported employment) and people living or working in community-based congregate settings (e.g. sheltered workshops), and between people living or working in community-based settings and people living or working in non-community-based congregate settings (e.g. day centres, institutions etc). Similar results were found for autonomous functioning. There were no significant differences found between the congregate settings on either measure. Further analysis showed that individuals in community-based living or work settings felt as though they were given more opportunity to make life choices than those in either congregate setting. A strength of the Wehmeyer & Bolding (1999) and Martorell at al. (2008) studies was that the measures used were standardised and reliable for use with people with IDs. Both studies used the Arc Self-Determination Scale to measure self-determination. However, while both studies reported that levels of self-determination were higher in community-

Table 3. Studies rated as 'Good' Quality

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Wehmeyer & Bolding (1999) Group-based matched on 3 sample characteristics Quality rating: Good	To report findings from a study designed to examine self-determination status of people living or working in environments that varied according to the degree to which the environment is considered to be "optimum"	Living and working environments were combined and participants were assigned to groups based on the following: Community-based group; Community based, Congregate; or Non-community based, Congregate	Self-determination and autonomy were assessed. Life choices and lifestyle satisfaction were also assessed.	Convenience sample. N = 273 people (153 male; 120 female) with mental retardation recruited based upon their living or work situation. Recruited across two large urban areas in NE USA, but also from Mid-West and SW. Mean age of the sample was 38.74 years and mean IQ was 61.48.	Arc Self-Determination Scale (Wehmeyer & Kelchner, 1996) Autonomous Functioning Checklist (Sigafoos, Feinstein, Damond, & Reiss, 1988; Wehmeyer & Kelchner, 1995) Life Choices Survey (Kishi et al, 1988) Lifestyle Satisfaction Scale (Heal & Harner, 1993)	Significant differences were found across all settings for self-determination and autonomous functioning. People who live or work in *community based settings* were more self-determined, had higher autonomy, more choices, and were more satisfied with life than those in *community based, congregate* and *non- community based, congregate* settings.	No description as to how IQ was measured. No causal link can be made between self-determination and environment despite accounting for IQ, since PWID who are more self-determined are more likely to live or work in community based environments. Combined living and work settings, thereby a possible confounding factor.

(Table 3 continued)

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Martorell, Gutierrez-Recacha, Pereda, & Ayuso-Mateos (2008) Group-based matched on 3 sample characteristics Quality rating: Good	The main aim of the present study was to discriminate which personal variables for people with intellectual disabilities best explain access to remunerated employment.	Employment settings only. Sheltered workshop and sheltered employment settings were compared.	Self-determination was assessed. Other variables measured include: IQ; functioning; behavioural problems; and presence of psychiatric symptoms.	Convenience sample of 179 adults with intellectual disabilities (117 males and 62 females). Mean age = 29.54 years. 110 participants were clients of a sheltered workshop, while 69 were working in sheltered employment.	Arc Self-Determination Scale (Wehmeyer & Kelchner, 1996) Weschler Adult Intelligence Scale-III (WAIS-III; Weschler, 2001) The World Health Organisation Disability Assessment Schedule- Second Version (WHO-DAS II) (WHO, 2000). The Inventory for Client and Agency Planning (ICAP) (Bruinicks et al., 1986) Psychiatric Assessment Schedule for Adults with a Developmental Disability (PAS-ADD; Gonzalez-Gordon et al., 2002).	Self-determination was higher in SE employess than in SW employees. Within the ARC subscales, autonomy and empowerment were significantly different, but self-regulation and self-realisation were not. Those in SWs had lower adaptive functioning abilities and more likely to have psychiatric disorder(s) and behavioural problems. Autonomy (ARC subscale) best explained work outcome, as did 'working skills' and 'participation in society' from WHO-DAS scale.	Assumes that self-determination is an independent variable; however, it could be a dependent variable (with people who are more self-determined seeking employment). Limited to mild-moderate ID levels, therefore not generalisable to more severe groups.

(Table 3 continued)

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Sinnott-Osswald, Gliner, & Spencer (1991) Group-based matched on 3 sample characteristics Quality rating: Good	The aim of the study was to examine differences in perceived quality of life as a result of community-based employment.	Employment based only. Measures compared between supported community employment and sheltered workshop employment.	Quality of Life, with a relevant subscale pertaining to environmental control, which included self-esteem.	Volunteer sample. 30 participants were equally split across three groups: Supported employment. 10 individuals, average age = 32.7 years (60% male and 40% female), all with intellectual disabilities. Sheltered workshop. 10 individuals, average age = 31.9 years. Gender and IQ matched with above group. Control group. 10 participants without intellectual disabilities. Also matched by age and gender.	A Quality of Life Questionnaire, which was developed by the author. Reliability was determined on a sample of 8 individuals. Re-test reliability also determined and considered conservative.	*Environmental control*- people in supported employment scored significantly higher on questions pertaining to self-esteem and independent decisions than those in sheltered workshop employment. Individuals in supported employment also scored higher in number of leisure activities, use of leisure time, involvement in activities, mobility, job skill perceptions, and perceptions of change in income	Small sample size. Control group sample results not reported. Measure not standardised. Design limits extent to which causality can be implied.

based employment settings compared to sheltered workshops, Martorrell et al (2008) examined significant differences between the groups using the ARC subscales, which Wehmeyer & Bolding (1999) did not. This analysis showed that autonomy and empowerment were significantly different between the groups, but that self-regulation and self-realisation were not.

In another 'good' quality study, Sinnott-Oswald et al. (1991) aimed to examine differences in perceived quality of life as a result of community-based employment. The results suggested that the individuals in supported employment had higher levels of self-esteem and better independent decision-making than those employed in sheltered workshop settings. Sinnott-Oswald et al's (1991) finding that self-esteem was higher in individuals with IDs in supported employment does little to clarify the subscale findings of Martorell et al's study, since self-esteem is a component which has been shown to relate to both self-realisation and autonomy. A weakness of the Sinnott-Oswald et al (1991) study was that self-esteem measurement, although subjected to reliability testing prior to use in the study, was based on one question from a scale that was developed by the author for use in the study. Thus, it may not have measured the same concept as the Arc Self-Determination Scale and Autonomous Functioning Checklist.

The small sample size in Sinnott-Oswald et al's (1991) study, in comparison to the respectable sample sizes in the other two studies, is also a weakness. A limitation of the Wehmeyer & Bolding (1999) study was that it examined both living and working environments together, and so the results cannot be explained by employment alone. An overall strength of first two studies described above is that the

groups were matched in terms of gender, age and level of intellectual disabilities. The Martorell et al (2008) study matched groups on only two variables, but was the only study to match participants in terms of living situation. The remainder of this study design improved Martorell et al's (2008) overall quality rating score.

Discussion

The design of the above studies unfortunately limits the extent to which causation can be implied. It is possible that individuals who gain supported employment do so because they are already more self- determined in the first place. As such, the extent to which it can be said that self-determination improves as a result of employment, and that one type of employment enhances self-determination more than another, is constrained by this. An interesting question was raised, however, by the subscale analysis of the Arc Self-determination Scale in the Martorell at al. (2008) paper, which showed that self-regulation and self-realisation scores of employees with IDs in supported employment were comparable to employees in sheltered workshop settings. On one hand, this effect might simply represent the idea that individuals who are more autonomous and psychologically empowered are more likely to seek out and obtain supported employment. On the other hand, however, it might indicate that supported employment settings are perhaps succeeding at enhancing autonomy and feelings of empowerment, but failing to facilitate the development of self-regulation and self-realisation in their employees.

Jahoda, Kemp, Riddell, & Banks (2008) in their review of the socio-emotional impact of supported employment in people with IDs, found that supported employment did not appear to lead to a sense of belonging or reciprocal

relationships for many individuals. Furthermore, limitations in problem solving abilities (a sub-domain of self-regulation) have been associated with difficulties in employment (Gumpel, Tappe & Araki, 2000) and reduced social integration (White & Weiner, 2004). Consequently, it may be that the social integration of supported employees in the workplace requires being a key agenda item for researchers when considering the relationship between self-determination and employment in this group. Perhaps future research could seek to research specific interventions that would permit individuals to develop problem solving skills, evaluate their own actions and develop a more accurate image of themselves and their abilities.

One further recommended area for future research might be to investigate how individuals with IDs view the natural supports that are available in supported employment environments. Cramm, Finkenflügel, Kuijsten, & van Exel (2009) found that individuals with IDs tend to view supported employment either 'as participation' (placing greater value on participation, task variety, and belonging) or 'as structure' (placing greater value on working independently, clear working agreements, and friendly co-workers). It may be that individuals who tend to place less value on social integration struggle to attain and develop relationships with their co-workers, thus limiting opportunities to develop cognitive interpersonal problem-solving skills (self-regulation). Consequently, for self-determination to be enhanced, they may require additional training in being able to express their choices, as well as training in social skills and relating to others.

Finally, it is acknowledged that many other confounding factors, in addition to support, are likely to impact on the development of self-determination in the

workplace, such as length of time in the job, hours worked (i.e. part-time vs. full-time), employee satisfaction with the workplace and the job, employee and employer personality and attitudes, and the availability of opportunities to advance knowledge and develop skills. This raises the question at an early stage of this review as to whether group-comparison designs are perhaps flawed from the outset. When considering prospective studies that address the relationship between self-determination and supported employment, it is crucial that due consideration is given to the methods that are used. In particular, subscale analyses of the measurements that are utilised should be conducted. Simply comparing total measurement scores can be misleading. If we consider the model of self-determination, it is apparent that all four characteristics (autonomy, self-realisation, self-regulation and psychological empowerment) are considered to equate to an individual demonstrating self-determined behaviour. The subscale level of analysis helps one to understand whether, and indeed where, supported employment is either succeeding or failing to enhance self-determination.

(3) Studies rated as being of 'Adequate' quality

Two studies were rated as being of 'adequate' quality (see Table 4). Jiranek & Kirby (1990) aimed to compare the psychological well-being of people with intellectual disabilities to those without disabilities, to determine the effects of employment and to compare job satisfaction among groups of people with intellectual disabilities.

Table 4. Studies rated as 'Adequate' Quality

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Jiranek & Kirby (1990) Group-based matched on 2 sample characteristics Quality rating: Adequate	Study aimed to: compare the psychological well-being of people with intellectual disabilities (IDs) to those without IDs to determine the effects of employment; to compare the job satisfaction and psychological wellbeing of young adults with IDs across different employment settings to determine whether competitive employment is more advantageous; and, to determine whether job satisfaction and wellbeing increase over time.	Employment settings only. Study assessed those with intellectual disabilities who were employed in the community, in sheltered employment, and unemployed.	Locus of control was assessed. Self esteem, job satisfaction and depressive affect were also assessed.	Convenience sample of 73 participants aged between 20 and 25. 29 participants were disabled. Of these, 14 (7 males and 7 females) were unemployed, 15 (8 males and 7 females) were in sheltered employment, and 15 (10 males and 5 females) were employed in the community. Of those who were non-disabled, 14 (7 males and 7 females) were unemployed and 15 (10 males and 5 females).	All participants completed a job satisfaction questionnaire by Winefield et al (1988)- modified Rosenberg Self-esteem Scale (Rosenberg, 1965)- modified Adult version of the Nowicki-Strickland Internal-External Scale (ANS-IE; Nowicki & Duke, 1974). Job satisfaction scale (Warr, Cook & Wall, 1979)- modified	Those in employment were less bored, less angry with the world, were less likely to be depressed, had higher self-esteem and a more internal locus of control than those who were unemployed. Competetive and sheleterd employees with IDs had similar levels of self-esteem. Regardless of employment, PWID felt more lonely, felt as though they had less control over events, were more depressed, and spent more time inactive than those without IDs. However, PWID were less angry with their work than the equivalent non-disabled group. No evidence that psychological wellbeing increased over time.	Insufficient time period for collecting longitudinal data. Did not account for IQ as confounding factor. Cannot imply causality due to study design.

(Table 4 continued)

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Beyer, Brown, Akandi & Rapley (2010) Group-based matched on 2 sample characteristics Quality rating: Adequate	The aims of the research were to compare subjective and objective quality of life, and quality of work environment for adults with intellectual disabilities in supported employment, employment enterprises and day services with non-disabled workers in supported employment. Specific hypotheses were provided.	Employment settings only. Comparisons on all variables were assessed across supported employment, employment enterprises and day services.	No direct measure of self-determination or scale measuring a factor relating to self-determination; however, a subscale within one of the measures measuring autonomy was evident. Other measures included adaptive functioning, quality of life and perceptions of the workplace.	Convenience sample of 37 people with intellectual disabilities were recruited from supported employment agencies (n= 17), employment enterprises (n= 10), day services (n=10). A control group of 17 people without intellectual disabilities was employed.	Adaptive Behaviour Scale (Nihara et al, 1993). Comprehensie Quality of Life Scale (ComQol-A; Cummins, 1997a)) and (ComQol-I; Cummins, 1997b) Work Environment Scale (WES; Moos, 1994).	Significant differences were found for both the objective and subjective QoL total scores. Subjective scores were highest among supported employees and lowest among day service attendees. In relation to work environment, positive responses indicated a level of satisfaction for all groups. Significant differences were evident between groups on autonomy between non-disabled co-workers and supported employees, employment enterprise workers, and day service attendees.	Autonomy measurement was a subscale derived from a non-standardised scale. Design limits extent to which causality can be implied.

The results suggested that individuals in competitive employment did not significantly differ from those in sheltered employment, either in levels of self-esteem or locus of control. Similarly, although using a measure of autonomy, a study by Beyer et al (2010) did not find differences between employees in supported employment, employment enterprises, and day services. Despite this, further analyses suggested that quality of life scores differed between the groups, where subjective scores were highest among supported employees and lowest among day service attendees.

In both studies, groups were matched in terms of only two sample characteristics. Thus, the study design was weak and the differences found may reflect sample characteristics rather than the impact of employment. The Jiranek & Kirby (1990) paper assessed two factors in relation to self-determination. However, the measures used may not have been suitable for use within this population. For example, the self-esteem scale used was not suitable for use with this population in its current form, showing only moderate temporal and internal reliability, and poor aspects of criterion validity (Davis, Kellett, & Beail, 2009). A weakness of the Beyer et al (2010) study was that the measure for autonomy was derived from a subscale within the Work Environment Scale. Thus, the construct may not be measuring autonomy in the same way as other autonomy scales, such as the Autonomous Functioning Checklist, that were used in other studies (e.g. Wehmeyer & Bolding, 1999). Another weakness of both studies was the small sample size, which may have increased the likelihood of a Type II error, thus reducing the likelihood of significant differences being found.

Discussion

In relation to the main review question, the study design in both papers limits the extent to which causality can be implied. There was some evidence from both of these studies that autonomy, self-esteem and locus of control did not significantly differ between the employment groups for people with intellectual disabilities. This assumption should be interpreted cautiously, however, due to the potential unsuitability of the measures used, failure to adequately describe the nature and characteristics of the employment settings, and the lack of sample matching between groups. In relation to the second aim of this review, neither study found a greater sense of self-determination to be linked to a particular type of employment.

(4) Studies rated as being of 'Poor' quality

Two papers were rated as being of 'poor' quality (see Table 5). Wehmeyer's (1994) study hypothesised that adults in competitive employment or supported work would have higher levels of internal locus of control compared to adults in sheltered work and those unemployed. The results appeared to support the hypothesis that perceptions of control are related to employment status, with individuals in sheltered employment perceiving less control than those in competitive work settings. In addition, individuals who were unemployed were found to have the least internal, and most external, levels of control compared to those who were in employment.

Griffin et al (1996) sought to examine the relationship between self-esteem and job satisfaction in adults with intellectual disabilities across two employment settings. Results indicated that those working in sheltered workshops had lower self-esteem scores than those in supported employment. Further analysis suggested that

individuals in semi-independent homes and in supported employment had the highest self-esteem scores. Both studies described above were considered to be of poor methodological quality due to only matching groups on one sample characteristic. Therefore, the study designs were weak and the differences between groups may reflect sample characteristics rather than the impact of employment. A strength, however, of the Griffin et al (1996) paper was that it examined the interactions between employment and living status, which no other study did. This revealed that individuals who lived independently, and who worked in supported employment settings, had the highest levels of self-esteem and overall life satisfaction.

Discussion

Limited conclusions can be drawn from both studies in terms of the questions asked in this review. Although self-esteem and locus of control scores were found to be higher in employees in supported employment settings compared to employees in sheltered workshops, the correlational design limits the extent to which the findings can be attributed to employment and the extent to which causality can be implied.

Table 5. Studies rated as 'Poor' Quality

Authors, Quality Rating & Design	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Wehmeyer (1994) Group-based matched on 2 sample characteristics Quality rating: Adequate	The study hypothesised that adults in competitive employment settings or supported work will have a higher internal locus of control compared to adults in sheltered work and those not working at all.	Employment settings only. Environments considered included unemployment, sheltered (full-time and part-time) and competitive employment (full-time and part-time).	Locus of control	Volunteer sample included 216 adults (mean age = 33.47). 46% were male and 54% were female.	Adult version of the Nowicki-Strickland Internal-External Scale (ANS-IE; Nowicki & Duke, 1974).	Results supported the hypothesis that perceptions of control are related to employment status, with individuals in sheltered employment perceiving less control than counterparts in competitive settings. Individuals with disabilities who were unemployed had the least internal and most external locus of control, compared to all other groups.	Level of IQ not reported and how it was assessed was undisclosed. Cannot be sure that entire sample meets criteria for intellectual disability. IQ could be potentially confounding factor. No age-matched comparison. Cannot infer causality that locus of control increases as a result of employment.

(Table 5 continued)

Authors, & Quality Rating	Research Question/ Aims	Environment considered	Variables considered	Sample characteristics	Measures	Main Findings	Main limitations
Griffin, Rosenberg, Cheyney, & Greenberg (1996) Group-based matched on1 sample characteristics Quality rating: Poor	The purpose of this study was to examine the relationship between self-esteem and job satisfaction in individuals with IDs across two employment settings. In addition, it attempted to determine the sources of self-esteem and job satisfaction.	Employment and living settings. Measures compared between sheltered workshop setting and supported employment.	Self-esteem. Job satisfaction was also assessed.	Convenience sample of two groups (sheltered workshop vs supported employment) each consisting of 100 participants, all with IDs. Of the 200 participants, 132 were male and 68 were female. Mean age was not reported but inclusion criteria stated that participants must between ages 21 and 40.	Coopersmith Self-esteem Inventory (Coopersmith, 1981), which was validated for use within the study. Vocational Program Evaluation Profile (VPEP; Rosenberg et al, 1990)-standardised for use with PWID.	Individuals in supported employment had higher self-esteem scores than those in sheltered workshops. When looking at the interaction between place of work and residential setting in reference to self esteem, those in semi-independent homes and in supported employment had the highest levels of self-esteem.	Design limits extent to which causality can be implied. Groups not matched according to age. IQ not controlled for, thus is a potential confounding factor.

Conclusion

The aim of the current review was to determine the extent to which supported employment enhances self-determination in adults with intellectual disabilities. A subsidiary aim of the review was to determine whether supported employment could be concluded as being more effective than other types of employment in enhancing self-determination within this population. Eight papers were reviewed. Seven of these were group-comparison studies, which matched participants to varying degrees, whilst only one study was identified that was longitudinal in design.

Consistent findings across the higher quality studies suggest that, for most individuals, supported employment does facilitate the development of self-determination in adults with IDs. Furthermore, the type of employment also appears to matter, with self-determination and autonomous functioning scores generally increasing as a result of moving from more to less restrictive work environments. However, it is worthy of note that this conclusion is not definitive, and it is based predominantly upon the findings of the only longitudinal study (Wehmeyer & Bolding, 2001). The higher quality group-comparison studies, that matched groups in two or three factors, found that self-determination was higher in supported employment employees compared to individuals in other employment types. However, the correlational nature of these studies makes it impossible to infer causality.

A clear limitation of the studies that were reviewed was that employment appeared to be inappropriately viewed as an independent variable that is homogeneous in nature. Yet many factors within the workplace are likely to

contribute to the development of self-determination. For example, future research might benefit from investigating the quality and levels of supports that are required to best enhance self-determination in supported employment settings, in addition to the types of interventions that may facilitate an individual's social integration within the workplace.

Participants taking part in the research studies also appear to have been considered to be a homogeneous group. However, people with IDs will bring a variety of beliefs, experiences and feelings to the workplace they enter. The finding that there is substantial variation in autonomy and self-determination scores after moving towards supported employment settings could also relate to the supports that individuals receive from others in the workplace that help them to become more autonomous.

A closer consideration of intra- and inter- personal factors might lead to a better understanding of what permits self-determination to develop in one individual in supported employment settings, but inhibits the development in another. The challenge after that would be for supported employment settings to respond accordingly, and to deliver a service that is able to provide the appropriate levels of support and intervention required for each individual. Perhaps then would be an appropriate time to re-examine the empirical evidence to determine the extent to which supported employment enhances self-determination in adults with IDs.

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Major Research Project

The effect of an experimental manipulation on cognitive assessment scores in adults with mild intellectual disabilities: implications for clinical practice

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Running Title: The effect of an experimental manipulation on cognitive assessment

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To be submitted to *Personality and Individual Differences* (see Appendix B).

Lay Summary

Psychologists sometimes ask individuals to complete a series of tests. One occasion where they might do this is when they asked to find out if someone had an intellectual disability (sometimes called a learning disability). These tests tell the psychologist what the individuals Intelligence Quotient (or IQ) is. For someone to have an intellectual disability, their IQ score must be shown to be less than 70. They must also have difficulty in day-to-day activities. It is important to find this out as it means that people who are found to have an intellectual disability will be able to access the services and supports that they need (such as health care or social work).

Sometimes, however, people do not try very hard at these tests. This means that their overall IQ score might be shown to be less than what they would be able to do if they tried harder. Some people may not try hard deliberately, perhaps because they cannot be bothered. Other people may not try very hard because they do not think that they are going to do well. Research has shown that people with intellectual disabilities may not experience very much success in their lives. Therefore, because they are used to failing in difficult situations, they may have given up trying. Our study suggests that people with intellectual disabilities may not try very hard during testing because they have become used to not trying in difficult situations.

We wanted to find out whether people with intellectual disabilities did better, or worse, on IQ tests if they were given either i) an easy or ii) a difficult task before they started the tests. We thought that their tests scores would be much worse after they were given a difficult task than when they were given an easy task. The results of our experiment found this to be true.

Our results mean that psychologists need to take steps to make sure that people with intellectual disabilities do the best they can when they are given tests. It is suggested that giving easier tests before they are given the more difficult ones. This will help these individuals to do the best that they can in a difficult situation. It will also mean that IQ scores reflect much more closely what they are actually able to do.

Abstract

Background Cognitive assessment is required to help determine whether an individual has an Intellectual Disability (ID). However, motivational influences upon performance may have an impact upon individuals' scores. Past research has shown that being told that one is failing on a task affects test performance on subsequent tasks, and that personality moderates such an effect. This suggests that intrinsic motivation can be suppressed by the experience of failure. Individuals with IDs as a group have fewer opportunities to experience success. It is therefore hypothesised that an accumulation of failure experiences may demotivate such individuals in cognitive assessment situations, and that their perceived competence on a task will affect subsequent task performance. **Methods** Twenty-five adults with mild IDs participated in a within-subjects experimental design. Perceived competence was manipulated by altering the difficulty of a task given to participants prior to a subsequent cognitive task. **Results** Participants' perceived competence on one task was found to affect their performance on a subsequent cognitive task. Significant differences were found between performance on assessment tasks that were preceded by an easy task compared to a difficult task. No relationship was found between personality-motivational constructs and the effect of the experimental manipulation. **Conclusions** Cognitive test scores in adults with IDs are affected by perceptions of success and failure on previous cognitive tasks. Clinicians undertaking cognitive assessments with this population should take steps to foster positive engagement in the process, in order to obtain more accurate test results.

Keywords: intellectual disabilities, psychometrics, assessment, adults.

1. Introduction

1.1 Definition of an Intellectual Disability

According to the current *International Classification of Diseases- 10th Edition* (ICD-10, World Health Organisation, 2007), an intellectual disability (ID) requires, firstly, that an individual's cognitive functioning, or intelligence, falls significantly below the average for a population (i.e. IQ of less than 70). Secondly, there must also be impairment in adaptive functioning (i.e. the skills to cope with activities of daily living). Thirdly, both intellectual impairment and impaired adaptive functioning must have been present prior to 18 years of age.

To obtain an IQ score, an individual must undertake a cognitive assessment. This typically consists of a battery of several cognitive tasks that measure different aspects of cognitive functioning. The sum of scores of all of the subtests is calculated. This is then adjusted to match population-based norms, resulting in an overall IQ score (Kaufman & Lichtenberger, 1999, p.63). If an individual's overall IQ is found to be more than 70, they will not be classified as having an ID, regardless of adaptive functioning, and will be ineligible to receive the supports of a specialist ID service.

1.2. Cognitive assessment- not just a case of obtaining an IQ

Cognitive assessments, however, are not only used to determine an individual's IQ. The profiles obtained by cognitive assessment can contribute to the development of an individual's clinical formulation, providing rich qualitative information in terms of their cognitive strengths and weaknesses. Such information is

particularly useful in terms of care management, treatment planning and intervention. Additionally, cognitive assessments may be particularly useful in contributing toward the diagnosis of neurological conditions (such as dementia), and may also help clarify whether brain dysfunction might best explain certain behaviours (for example, whether impaired executive functioning might explain sexual disinhibition) (Lezak, Howieson, & Loring, 2004, p.36).

Given the importance of cognitive assessment in this population, it is vital that individuals undertaking such testing are engaged in the process. Indeed, cognitive assessment relies upon the individual's active participation. Performance scores are evaluated under the assumption that the individual being tested has conformed to the instructions of the examiner to perform to their maximum capacity. For example the most recent administration manual for the *Wechsler Adult Intelligence Scale-Fourth Edition* (WAIS-IV; Wechsler, 2010) states that clinicians should encourage examinees to 'try their best'. However, there is the risk that performance may not be optimal, thus potentially invalidating test results. It is therefore imperative that clinicians understand the potential reasons for reduced effort, in order to be able to identify and implement appropriate strategies and recommendations to ensure the validity of test results.

1.3 Motivational influences on performance

Generally, reduced optimal performance might be understood in terms of influences upon motivation (Revelle, 1993, p.347). White's (1959) Model of Effectance Motivation hypothesised that individuals have an intrinsic motivation to both learn and explore, which is considered to result in an innate drive to effect the

environment (also known as ‘effectance motivation’). Feelings of competence and success are considered to derive from an individual’s ability to successfully manipulate their environment. This in turn strengthens intrinsic motivation and the inclination to try new activities and experience new situations.

Harter (1978), however, argued that White’s (1959) model was too broad, and that experiences of both success *and* failure can play a part in the development of feelings of perceived competence. Furthermore, both the social environment and extrinsic motivation can influence feelings of perceived competence. A study by Brockner (1979) provided support for Harter’s (1978) argument. Undergraduate college students were asked to undertake a concept formation task. Prior to this, however, they were asked to undertake a different cognitive task, which they were told that they had either succeeded or failed at (regardless of how they actually performed). Performance scores on the conceptual task were significantly higher when the participants were told that they had succeeded on the previous task than when they had been told that they had failed. This effect, however, was not observed in a comparison group who had higher levels of self-esteem. More recently, Fladung, Baron, Gunst, & Keifer (2010) showed that cognitive performance in adults with major depressive disorders was impaired after receiving negative appraisals about prior task performance.

Two important inferences can be extrapolated from these findings. Firstly, the results suggest that intrinsic motivation to do well is affected not only by external incentives, but also by information that is received from the social environment. Indeed, a plethora of studies have shown that an individual’s intrinsic motivation to

do well can be suppressed by extrinsic rewards, such as monetary incentives (Deci, Koestner, & Ryan, 1999; Orey, Crager, & Berry, 2000; Johnstone & Cooke, 2003). Other negative experiences might, however, be expected to have an impact on motivation. Secondly, it is suggested that the experience of either failure or success on a task impacts upon an individual's feelings of perceived competence, effecting subsequent task performance.

It has been suggested that the cognitive impairment of people with IDs can lead to repeated experiences of failure across the lifespan (Zigler, Bennett-Gates, Hodapp, & Henrich, 2002). As their attempts to succeed often end in failure, and with limited opportunities to experience success, expectancy of success and feelings of perceived competence are gradually suppressed over time. Thus, the intrinsic motivation alters from striving towards the experience of success, to the avoidance of failure (Cromwell, 1963). In relation to cognitive assessment, therefore, it is likely that individuals with IDs may not be motivated to do well, not because they are not concerned by the outcome of their performance, but because they have very little or no expectation of success.

Perceptions of failure in cognitive assessment subtests are also more likely for people with IDs who, as a group, can have significant deficits in attention, and problems with short-term memory, executive functioning, sequential processing and working memory (Pulsifier, 1996). This suggests that, in addition to becoming intrinsically demotivated, the performance of individuals with IDs in cognitive assessment may also be further compromised by perceptions of task difficulty. Comparatively, where a task is perceived to be easy, perceived competence may be

enhanced. This may then promote attempts to try harder in subsequent tasks, potentially enhancing test performance. The purpose of the current study is to explore these assumptions, for the first time, with this particular population.

1.4. Personality, motivation and performance

Despite no research having been conducted in the adult ID field, efforts to understand the performance of individuals with developmental disabilities on cognitive tasks led Zigler and his colleagues to study the personality and motivational factors that seek to explain their behaviour (Zigler & Balla, 1992; Zigler & Hoddap, 1986; Zigler, Bennett-Gates, Hodapp, & Henrich, 2002). The performance of children with developmental disabilities was compared to the performance of chronological- and mental ability- matched individuals on a variety of cognitive tasks under different social and motivational conditions (Yando & Zigler, 1971; Zigler & Balla, 1972; Harter & Zigler, 1974; Flavell, 1982; Luthar & Zigler, 1988). The results demonstrated that individuals with developmental disabilities consistently performed more poorly than both comparison groups, highlighting functioning at a level below which would normally be predicted by IQ. Indeed, such a finding has important clinical implications, since accurate cognitive assessment results are particularly important for people in this group.

It was concluded that intellectual deficits alone could not account for the differences in performance. Rather, Zigler and his colleagues agreed that the results could be attributed to particular personality-motivational characteristics that had been observed in this group during the many experimental tasks that they had conducted (Zigler et al., 2002). In particular, five such constructs were suggested and explored

in detail: *positive reaction tendency*, described as the heightened motivation of individuals with IDs to both interact with, and be dependent upon a supportive adult (Zigler & Balla, 1972; Balla, Butterfield, & Zigler, 1974); *negative reaction* tendency, which is the initial wariness shown by individuals with IDs when interacting with strange adults (Harter & Zigler, 1968; Zigler, Balla, & Butterfield, 1978); *outerdirectedness*, described as the tendency of individuals with IDs to look to others for cues to solutions of difficult or ambiguous problems (MacMillan & Wright, 1974); *expectancy of success*, which is described as the degree to which one expects to succeed or fail when presented with a new task (Cromwell, 1963; MacMillan & Knopf, 1971); and, *effectance motivation*, which is the joy of undertaking a complex task and seeing it through to completion (White, 1959). In 2002, a study by Zigler et al. described the development of the EZ-Yale Personality Questionnaire (EZPQ) as a potential measurement of such constructs. A factor analysis resulted in the addition of two new constructs: *obedience* (understanding that, in a given situation, specific instructions or directions will be followed) and *creative curiosity* (being creative, imaginative and curious about many things) (Zigler, Bennett-Gates, Hodapp, & Henrich, 2002).

Studies in the general population have investigated the relationship between personality, motivation and cognitive performance. For example, in their meta-analysis, Judge & Ilies (2002) found that a lack of neuroticism (emotional stability) and conscientiousness (goal directed behaviour and good impulse control) were the strongest predictors of cognitive performance. Additionally, a study by Rindermann and Neubauer (2001) found that several personality variables (including self-concept and motivation) showed a medium correlation with performance on intelligence tests.

Comparatively, however, there has been very little research in this area concerning individuals with IDs. This study therefore also aims to explore the potential associations between personality-motivational constructs, as proposed by Zigler et al. (2002), and the results of the main experimental manipulation.

1.5. Aims of the Current Study

The primary aim of the current study was to explore the effect of perceived competence (manipulated by task difficulty) on subsequent cognitive performance in a group of adults with mild IDs. Only adults with mild IDs were recruited to the current study for two main reasons. Firstly, as this was a research study, participants needed to understand the purpose and nature of the study to ensure that consent was valid. Secondly, the prevalence of cognitive testing is higher in this group of people with IDs, constituting about 80% to 90% of all individuals with IDs (Shalock, Lukasson & Shogren, 2007).

A subsidiary aim of the study was to explore the relationship between personality-motivational factors and the results of the primary hypothesis. By identifying the personality-motivational factors that are present in individuals who are most affected by the experimental manipulation, clinicians will be better placed to consider a variety of interventions pre-assessment to ensure the validity of cognitive assessment.

1.6. Hypotheses

It was hypothesised that:

(1) Perceived competence, manipulated by task difficulty on one task, affects subsequent performance on a different cognitive task. Specifically, cognitive test scores that are preceded by a 'difficult' task will be significantly less than cognitive test scores that are preceded by an 'easy' task.

(2) The degree to which performance on cognitive assessment is influenced by prior task difficulty is moderated by an individual's general motivational and personality styles. Specifically, increased susceptibility to the main motivational manipulation of this study will be associated with i) lower levels of effectance motivation, ii) lower levels of expectancy of success, iii) lower levels of obedience, iv) lower levels of creative curiosity, and v) higher levels of positive reaction tendency, vi) higher levels of negative reaction tendency and vii) higher levels of outerdirectedness.

2. Methods

2. 1 Design

The study employed a within-participants experimental design, with each participant completing all experimental conditions. The independent variables were 'easy' and 'difficult' tasks that were designed to influence perceived competence. The dependent variables were two cognitive tasks. Each cognitive task had a parallel form, meaning that each cognitive task could be preceded by both an 'easy' and a 'difficult' independent variable. Two dependent variables were included in the study design because cognitive assessment typically involves more than one cognitive task (see an example of the experimental design in Figure 1). The experimental

design was counterbalanced, using a Latin Square design, to control for order effects of test administration.

Figure 1. Example of Experimental Design

2.2 Sample size/ Power calculation

A literature search revealed no studies that utilized the same measures with individuals with IDs in the manner proposed by this study. However, on the basis of Brockner's (1979) study (see Section 1.3), which explored the effect of prior feedback on subsequent task performance, a moderate effect size was anticipated. Based on an effect size of 0.6, with an alpha level of 0.05 and a power of 0.8 (two-tailed), the required sample size for this study was estimated to be 19 (G*Power 3.0; Faul, Erdfelder, Lang, & Buchner, 2007). Based on this calculation, the study aimed to recruit a minimum of 19 participants.

2.3 Participants

2.3.1 Ethical Approval

The study was approved by the West of Scotland Research Ethics Committee 3 prior to recruitment.

2.3.3 Participants

A total of 25 adults with mild IDs were recruited from the West of Scotland to take part in the study. Fifteen participants were recruited from the supported learning

department of a mainstream college, and 10 participants were recruited from a supported employment centre. The socio-demographic details are shown in Table 1.

2.3.2 Inclusion and Exclusion Criteria

Participants were included in this study if they were considered to have a mild ID (IQ between 50 and 69) and were aged between 18 and 65. As this study aimed to assess cognitive performance, specific exclusion criteria were applied: history of drug and/or alcohol abuse; traumatic brain injury or a history of serious falls; current involvement in any proceedings (such as compensation claims, head injury litigation, or criminal proceedings) that might potentially influence motivation to perform well; current involvement in cognitive assessment process, or any physical condition that might lead to fluctuations in cognitive performance.

Table 1: Participant demographics expressed as mean, SD, percentage and range

Age	*Mean = 33.76 (SD = 15.55)*
Gender	
Male	*11 (44%)*
Female	*14 (56%)*
Ethnicity	
Caucasian	*n = 24 (96%)*
Indian	*n = 1 (4%)*
IQ (WASI)	*Mean= 56.52 (SD= 2.4) Range = 7 (55-62)*
Scottish Index of Multiple Deprivation (SIMD)	*Mean= 3.52 (SD= 2.6) Range = 9 (1-10)*

2.4 Measures

2.4.1 Dependent Measures:

- *Rivermead Behavioural Memory Test- Third Edition* (RBMT-3; Wilson, Crawford, Clare, Sopena, Cockburn, Nannery, Baddeley, Greenfield, &

Watson, 2008). This test has twelve subtests and is designed to assess memory skills related to everyday situations. The 'Novel Task' subtest of the RBMT-3 was used in this study, as parallel forms of the test were available. The subtest is based on a mathematical dissection of a 6 piece puzzle (a star for Version 1 and a square for Version 2, with Version 1 being a parallel form of Version 2). The puzzle is assembled in a set order by the examiner and the examinee is required to remember this. Three learning trials and a delayed trial are given. The delayed trial was not included in this study due to the specific experimental design.

- *Addenbrooke's Cognitive Assessment- Revised* (ACE-R; Mioshi, Dawson, Arnold, & Hodges, 2006). The test was originally designed to detect mild dementia and differentiate Alzheimer's disease from fronto-temporal dementia. It was revised in 2006, to produce the ACE-R (Mioshi et al., 2006). The ACE-R has five subscales each representing a cognitive domain. The anterograde memory subtest, where participants are asked to recall a name and address, was used in this study. Three learning trials and a delayed trial are given, although the delayed trial was not included in this study due to the specific experimental design. Versions A and B, which are parallel forms, were used in this study. Although there are no published data examining the ACE-R's rater reliability, it was deemed to be appropriate for use within this experimental design due to it having a similar arrangement as the RBMT-3 Novel Task.

2.4.2 Independent Measures

- *'Easy' and 'Difficult' Tasks.* The Trail Making Task (TMT; Reitan, 1958) Sample A and Part A were considered as potentially useful easy and difficult tasks, respectively. The task consists of circles containing numbers that are distributed over a sheet of paper. Sample A consists of 8 numbers, and Part A consists of 25 numbers. Participants are required to connect the numbers in ascending order. However, reliance on numeracy skills was acknowledged and it was felt that the Sample ('easy') task might be perceived as being too difficult. As such, the even numbers in both the Sample A and Part A of the TMT were replaced with squares, and odd numbers were replaced with circles. A red and blue coloured version of both tasks were used, so that each dependent variable could be preceded by both an 'easy' and a 'difficult' task. Participants were required to connect the circles and then to connect the squares within a time limit, before being asked to stop by the examiner. A 30 second time limit was used as a guide; however, this could be extended in the easy task to ensure that all participants completed the task. If a participant was thought to be on target to complete the difficult task before the 30 second time limit, the task was stopped earlier than planned (see Appendix C). This was to ensure that all participants perceived that they had not completed the task.

2.4.3 Descriptive Measures

- *Glasgow Depression Scale- Learning Disability* (GDS- LD; Cuthill, Espie & Cooper., 2003). This is a 20-item screening measure for depression in individuals with intellectual disabilities, with good test re-test reliability (r =

0.97) and internal consistency (Cronbach's α = 0.90). The presence of a depressive illness can interfere with the normal expression of cognitive abilities. Therefore, this measure will be correlated with change scores to determine the relationship between performance and low mood.

- *EZ-Yale Personality Questionnaire (EZPQ; Zigler et al., 2002)*. This is a 37-item scale and is used as a measure for investigating personality-motivational functioning in individuals with an intellectual disability. It taps into 7 personality- motivational constructs: positive reaction tendency; negative reaction tendency; expectancy of success; outer-directedness; effectance motivation; obedience; and, curiosity/creativity. Carers or relatives of the participants were asked to complete this questionnaire. While this scale is normed for a North American ID population, there are no UK norms. An adapted version of the scale (*Personal Communication with Mhairi Selkirk, Research Assistant at the University of Glasgow*) was approved by the author of the original questionnaire and was used in this study (see Appendix D).

- *Wechsler Abbreviated Scale of Intelligence* (WASI; Weschler, 1999). This is a brief, reliable and valid measure of general intelligence and is an abbreviated form of the Wechsler Adult Intelligence Scale-III (WAIS-III, Wechsler, 1997). The two subtest short-form using the Vocabulary and Block Design subtests was used. This assessment was used to gain an estimate of each participant's level of intellectual functioning to ensure that they met inclusion criteria of IQ < 70.

2.5 Pilot Study

A pilot study was undertaken with three participants. There were three reasons for this pilot: (i) to ensure that the independent measures differed significantly in terms of task difficulty. Participants were asked to rate on a Likert scale how difficult the task was and how well they felt that they had done; (ii) piloting ensured that the dependent measures were appropriate to the experimental design, and (iii) to ensure that the main study design was robust, efficiently administered, and that the administration was comparable between participants.

2.6 Main study

2.6.1 Recruitment

Standard information packs detailing the purpose of study and the relevant inclusion/ exclusion criteria were sent to both the college and sheltered workshop from which the participants were recruited. Presentations were arranged in order to inform both service providers and service users of the purpose of the study and the process. Service users who wished to take part were then able to volunteer. Potential participants who were not able to attend presentations were advised of the study by their service providers and, where interest was expressed, further meetings were arranged to discuss the study with potential participants. Convenient dates, times and locations of testing sessions were arranged in advance, in order to minimize disruption to volunteers' schedules.

2.6.2 Procedure

Participants were provided with information sheets (see Appendix E) and informed consent to take part was obtained (see Appendix F). Permission was also

required for a carer or relative to be contacted in order to obtain relevant demographic information and to complete the EZPQ. Participants were informed that they did not have to participate and that they could withdraw from the study at any time. All sessions were also video recorded in order to explore potential clinical indicators of effort during cognitive assessments of individuals with IDs. This data was gathered as part of a larger study and is not reported here.

The experimental design was administered first, as per the counterbalanced design. Participants then completed the GDS-LD measure and the WASI was also administered. The WASI was completed later in the procedure, as it was considered that it might have influenced performance in the experimental phase, should participants perceive that they have performed poorly on this assessment. The current study hypothesises that perceived competence on one task is likely to affect subsequent task performance; therefore, perceived competence on the WASI might affect test performance in the main experimental design. Following the assessment session, the nominated carer or relative of each participant was sent the EZPQ questionnaire by post and asked to return their completed forms. Participants' GPs were sent standard letters informing them that they had taken part in the study. Where depression scores on the GDS-LD suggested the possible presence of a depressive disorder, General Practitioners were advised by letter of this, with the participant's consent. A flowchart outlining the procedure is detailed in Appendix G.

3. Results

3.1 Hypothesis 1

It was predicted that perceived competence, as a result of task difficulty, would affect performance on a subsequent cognitive task. Specifically, cognitive test scores when preceded by a 'difficult' task would be significantly different to cognitive test scores that were preceded by an 'easy' task.

Mean scores and standard deviations for the Novel and ACE-R tasks when preceded by both the easy and difficult tasks are presented in Table 2. The total mean score for tasks preceded by the easy tasks (Total Easy) was calculated by summing the mean scores of the Novel and ACE-R tasks that were preceded by the easy task. The total mean score for tasks preceded by the difficult tasks (Total Difficult) was calculated by summing the mean scores of the Novel and ACE-R tasks that were preceded by the easy task.

Both the Total Easy and Total Difficult scores were checked to ensure normality. The Kolmogorov-Smirnov test showed that the data for the Total Easy score was normally distributed ($D(25) = 0.088$, $p=0.200$). However, the Total Difficult score was not normally distributed ($D(25) = 0.201$, $p=.011$). Consequently, non-parametric tests were used to analyse these data. A related-samples Wilcoxon signed rank test showed that the difference between the Total Easy and Total Difficult scores was statistically significant at the 0.05 level ($p = 0.009$) (one-tailed).

Table 2. Mean (SD) cognitive assessment scores by preceding task difficulty

	Preceding Easy Task	*Preceding Difficult Task*	*Mean Difference (Easy Preceding – Difficult Preceding)*
Novel Task	18.16 (10.18)	14.16 (8.35)	4.00 (8.68)
ACE-R	9.68 (5.45)	8.48 (4.59)	1.20 (3.46)
Total	**27.84 (11.54)**	**22.64 (10.71)**	**5.20 (9.67)**

3.2 Hypothesis 2

It was hypothesised that the degree to which performance on cognitive assessment was influenced by prior task difficulty would be moderated by an individual's general motivational and personality styles. Specifically, it was anticipated that lower levels of effectance motivation, expectancy of success, obedience and creative curiosity, and higher levels of positive reaction tendency, negative reaction tendency and outerdirectedness, would be correlated with greater change scores.

Twenty EZPQ questionnaires were returned (N = 20; 80%), hence analysis on the whole sample on this measure was not possible. *Change scores* were calculated to signify the differences between the mean scores of cognitive tasks preceded by both the 'difficult' and 'easy' tasks. This was computed by subtracting each participant's *Total Difficult* score (cognitive test scores preceded by 'difficult' task) from their *Total Easy* score (cognitive test scores preceded by 'easy' task). Visual inspection of the correlations was observed via scatter plots, to check for potential associations and trends, and whether subsequent correlational analyses were appropriate. On visual inspection, there appeared to be no linear relationship

between the EZPQ Total Score and several of the EZPQ subscales (obedience, creative curiosity, positive reaction tendency and expectancy of success).

Visual inspection, however, did suggest some evidence of relationships between change scores and the remaining EZPQ constructs (effectance motivation, negative reaction tendency, and outerdirectedness). No significant relationships were found; however, non-significant correlations were found from formal statistical analysis with Spearman's correlation coefficients (see Table 3). The relationship between change scores and depression scores on the GDS-LD was also explored and no significant associations were found.

Table 3. Correlations between Change Scores and EZPQ constructs (N = 20)

	Correlation with change score r (p)*
Effectance motivation	*-0.371 (0.053)*
Negative reaction tendency	*-0.312 (0.091)*
Outerdirectedness	*-0.335 (0.075)*

*(one-tailed)

4. Discussion

The primary aim of this study was to explore the effect of task difficulty on subsequent cognitive performance in a group of adults with mild IDs. The hypothesis that prior experience of success or failure would influence subsequent performance was supported.

A secondary aim was to investigate the motivational-personality characteristic of adults with IDs and their relationship to cognitive performance when perceived competence was manipulated. However, no significant correlations were found either for the total EZPQ or any of the subscales. Whilst none of the personality-motivational variables were significantly correlated to individual's change scores, effectance motivation, negative reaction tendency and outerdirectedness all approached significance, albeit with weak-moderate correlations. These trends suggest that individuals who derive less pleasure from undertaking complex tasks, who are more wary of interactions with strange adults and who tend to look for help to solve difficult or ambiguous problems may potentially be more susceptible to the experimental manipulation in this study. Indeed, such behaviours, particularly negative reaction tendency, may be more likely to be observed in individuals who have experienced increased levels of social deprivation, for example in institutional settings (Zigler et al., 2002).

The findings from the main question asked by this study indicate that cognitive performance in individuals with IDs is affected by prior task difficulty. The theoretical underpinnings of this finding may be best explained by the social environments in which individuals with IDs develop. Failure to experience success, due to a lack of opportunity and/or inadequate supports where opportunities were present, could, over time, reduce these individuals' intrinsic motivation to succeed. Thus, in situations where unattainable demands are placed upon the individual (such as being asked to undertake complex cognitive tasks) the motivation may be to avoid failure, and less effort is put into doing well. It may that the mechanism which leads people with IDs to try and avoid failure is one that permits them to 'save-face'.

Research in this population has already shown that, in the face of tasks that are considered being beyond their abilities, children with developmental disabilities appear to adopt maladaptive, but face-saving, strategies that hinder their functioning (Bennett-Gates & Zigler, 1999, pp. 159).

The findings suggest that cognitive test results in this group may indicate ability (under test situations), rather than capability (what they could achieve if supported). Such a social-cognitive developmental perspective has been advocated by psychologists previously. For example, in developing his theory of the Zone of Proximal Development (ZPD), Vygotsky examined the differences between what a child could achieve independently on a task (ability) compared to his/her developmental range when demonstrated in collaboration with supportive adults (capability). Finding that improved social and cognitive outcomes were obtained when individuals learn in collaboration with others and with the appropriate amount of support (i.e. the Zone of Proximal Development) he argued that observing unaided endeavours alone results in an inaccurate portrayal of development (Vygotsky, 1978). As such, working collaboratively with individuals with IDs to improve social and cognitive outcomes should be a key objective for clinicians and other professionals, particularly those working with children and adolescents with IDs. This may help to negate the suppression of intrinsic motivation and reduce the impact of perceived failure on subsequent task performance in cognitive testing situations.

4.1. Cognitive Assessment in Adults with IDs: Implications for Clinical Practice and Service Provision

For some adults with IDs, however, where intrinsic motivation to succeed may have diminished and where cognitive assessment is required to be undertaken, practical recommendations are suggested to ensure that test scores are as unaffected as possible by perceptions of failure on prior task performance. For example, the order in which cognitive subtests are administered might adversely impact on an individual's cognitive performance.

As stated earlier, individuals with IDs can have significant deficits in attention, and problems with short-term memory, executive functioning, sequential processing and working memory (Pulsifier, 1996). Administering tasks that assess cognitive functioning in these domains are therefore more likely to result in reduced feelings of perceived competence and affect subsequent task performance. One way to address this issue clinically might be to start with subtests that are more likely to be perceived as being easier, thus instilling a sense of perceived competence. Where cognitive assessment is conducted over several sessions, as is often necessary, sessions should begin with less complex subtests and end with tasks that are perceived as being more difficult or, indeed, impossible.

It is acknowledged that one most commonly used cognitive assessment batteries, the *Wechsler Adult Intelligence Scale- Fourth Edition* (WAIS-IV; 2008), recognizes that performance may result in scores that underestimate intellectual ability if subtests are administered in the standard fashion. However, whilst the manual makes specific reference to the need for adaptations for individuals with physical, language, and sensory limitations, there is no explicit reference to the adaptations that clinicians may require making for adults with IDs. The WAIS-IV administration manual specifically acknowledges that clinicians may deviate from the

standard subtest administration order, but only where clinical need is apparent. The results of this study argue that there is a clear clinical need for clinicians to be made aware of the potential for invalid assessment scores in this population if the standard subtest order is followed.

It is important to also acknowledge the service-related implications of these findings. In the general adult population, where intellectual functioning is normally well above 70, a small improvement in cognitive assessment scores is unlikely to affect the provision of services i.e. the individual is likely to remain in adult services. However, for individuals whose IQ is slightly below 70, implementing these recommendations may result in their IQ being above the cut-off for ID services. This means that ID services might be inappropriately retaining individuals and spending valuable resources on individuals who perhaps actually do not meet diagnostic criteria for an ID according to the main classification systems (e.g. ICD-10). Furthermore, should the practical recommendations described within this study be put into place, it is possible that individuals whose IQs were previously assessed as being just below 70, may find that they do not meet inclusion for ID services if retested. The negative implications of this are apparent. Individuals with IQs of 70 (and just above 70) may be just as likely to face similar challenges as individuals who meet the classification of an intellectual disability as defined by relevant classification systems (i.e. ICD-10). It is therefore imperative that these individuals are in receipt of services where their additional support needs will be appropriately met.

4.2 Strengths and Limitations of the Current Study

The power calculation for the study was based on the main experimental design. While this was appropriate for this purpose, the sample size was possibly too small to detect significant relationships using correlational analyses. A larger sample size might therefore be required to demonstrate the effect of personality on the cognitive performance of individuals where perceived competence is manipulated. Additionally, the potential sampling bias in participant recruitment further limits the inferences that can be drawn. A larger study, recruiting individuals with IDs across a number of settings, would perhaps shed further light on these issues.

A particular strength of the study was the experimental design that was used. The within-subject design was considered to have reduced the amount of potential variance that would have resulted from, for example, between-subjects designs, which have been more commonly used in previous studies exploring the impact of success and failure on task performance. It is important, however, to acknowledge the presence of a video camera during the experimental sessions. Whilst it is possible that this may have influenced the results of the present study, it can be argued that this may be equivalent to, if not less than, the additional pressures felt within a genuine test situation.

4.3 Conclusions

The results of the current study suggest that perceived competence, manipulated by task difficulty, affects test performance on a subsequent cognitive task in a group of adults with mild IDs. Limited conclusions could be drawn regarding the relationship between personality-motivational constructs, as assessed using the

EZPQ, and the experimental manipulation, perhaps because a larger sample is required for correlational analyses. As such, a clearer picture regarding the contribution of personality might be obtained by conducting a larger study, with adults with IDs recruited from a variety of settings.

Several important implications for clinical practice and future research can be extrapolated. Firstly, in cognitive assessment situations within adult ID settings (and indeed in adults settings when assessing for a potential ID), the order in which cognitive assessment subtests are delivered is likely to affect subsequent task performance. Clinicians should therefore make suitable adaptations regarding the order in which subtests are administered to reduce feelings of perceived incompetence negatively impacting upon the validity of assessment. Secondly, failure to adhere to these practical recommendations may mean that ID services are inappropriately retaining individuals who may not actually meet the criteria for an ID, at a time when resources are particularly stretched. In terms of future research, perhaps the new challenge for both clinicians and academics could be to focus on identifying ways of enhancing intrinsic motivation in a population who, despite increasing efforts to promote social inclusion, continue to be socially disadvantaged and disempowered as a consequence of their cognitive impairment.

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Appendix A: Requirements for submission to Journal of Applied Research in Intellectual Disabilities

Author Guidelines

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The topics it covers include community living, quality of life, challenging behaviour, communication, sexuality, medication, ageing, supported employment, family issues, mental health, physical health, autism, economic issues, social networks, staff stress, staff training, epidemiology and service provision. Theoretical papers are also considered provided the implications for therapeutic action or enhancing quality of life are clear. Both quantitative and qualitative methodologies are welcomed. All original and review articles continue to undergo a rigorous, peer-refereeing process.

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-Qureshi H. &Alborz A. (1992) Epidemiology of challenging behaviour. *Mental Handicap Research* 5, 130-145

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Appendix B: Requirements for Submission to Personality and Individual Differences

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The Official Journal of the International Society for the Study of Individual Differences (ISSID)

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TABLE OF CONTENTS

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Personality and Individual Differences is devoted to the publication of articles (experimental, theoretical, review) which aim to integrate as far as possible the major factors of personality with empirical paradigms from experimental, physiological, animal, clinical, educational, criminological or industrial psychology or to seek an explanation for the causes and major determinants of individual differences in concepts derived from these disciplines. The editors are concerned with both genetic and environmental causes, and they are particularly interested in possible interaction effects. Ultimately they believe that human beings are bio-social organisms and that work on individual differences can be most fruitfully pursued by paying attention to both these aspects of our nature. They believe that advances are more likely to be made by the use of the hypothetical-deductive method, though empirical data based on sound research and providing interesting new findings, would of course not be rejected simply because they might not have a good theoretical underpinning. All in all, the traditional type of work on traits, abilities, attitudes, types and other latent structures underlying consistencies in behavior has in recent years been receiving rather short shrift in traditional journals of personality; *Personality and Individual Differences* aims to reinstate it to its proper place in psychology, equal in importance with general experimental work, and interacting with it to make up a unitary science of psychology.

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Results should be clear and concise.

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Or
Thompson, J. (2006). The Mad, the 'Brut', the 'Primitive' and the Modern. A discursive history. In F. Andrada, E. Martin, & A. Spira (Eds.), Inner worlds outside (pp. 51-69). Dublin: Irish Museum of Modern Art.

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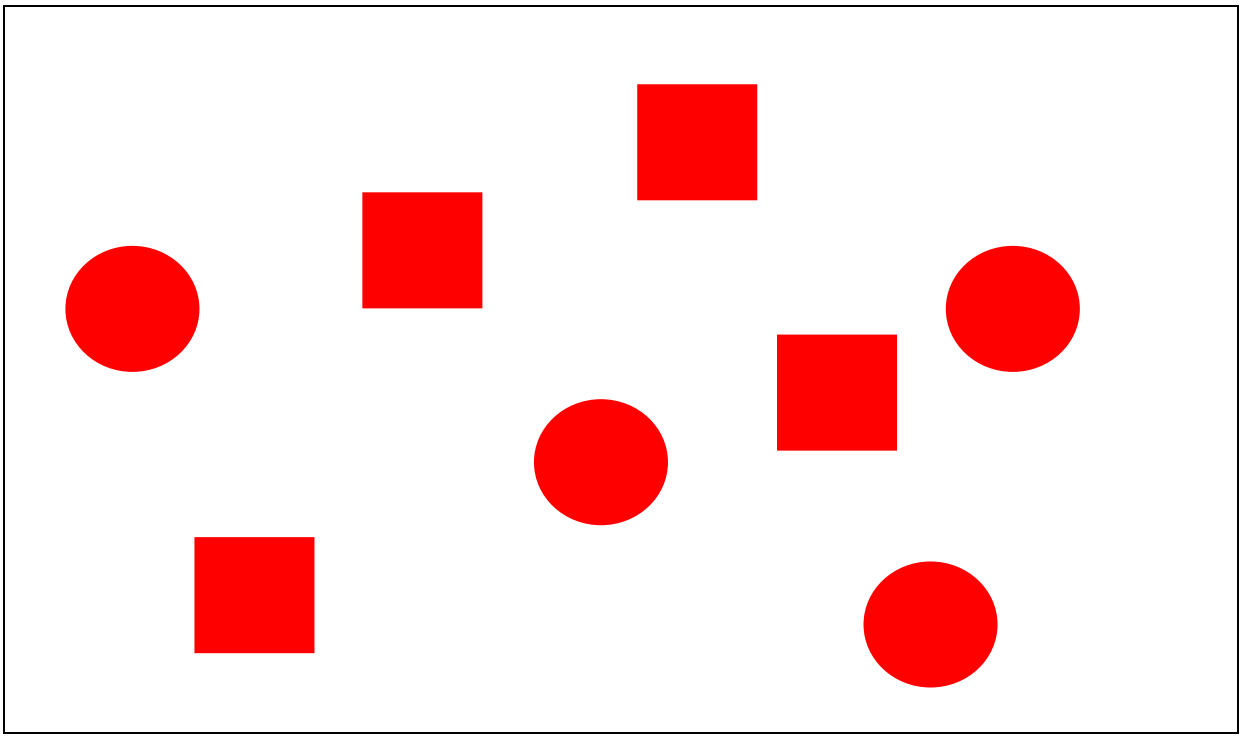
Appendix C: 'Easy' and 'Difficult' tasks and instructions

Easy Task- Instructions

Here we have some red (or blue) shapes. There are squares (point to a square) and there are circles (point to a circle). Your job is to join up all of the squares together using this pencil. The, once you have finished joining up the squares, you join up all of the circles together. Do you understand? (If not, repeat the above again). You will be timed and I will say stop when your time is up. Are you ready?

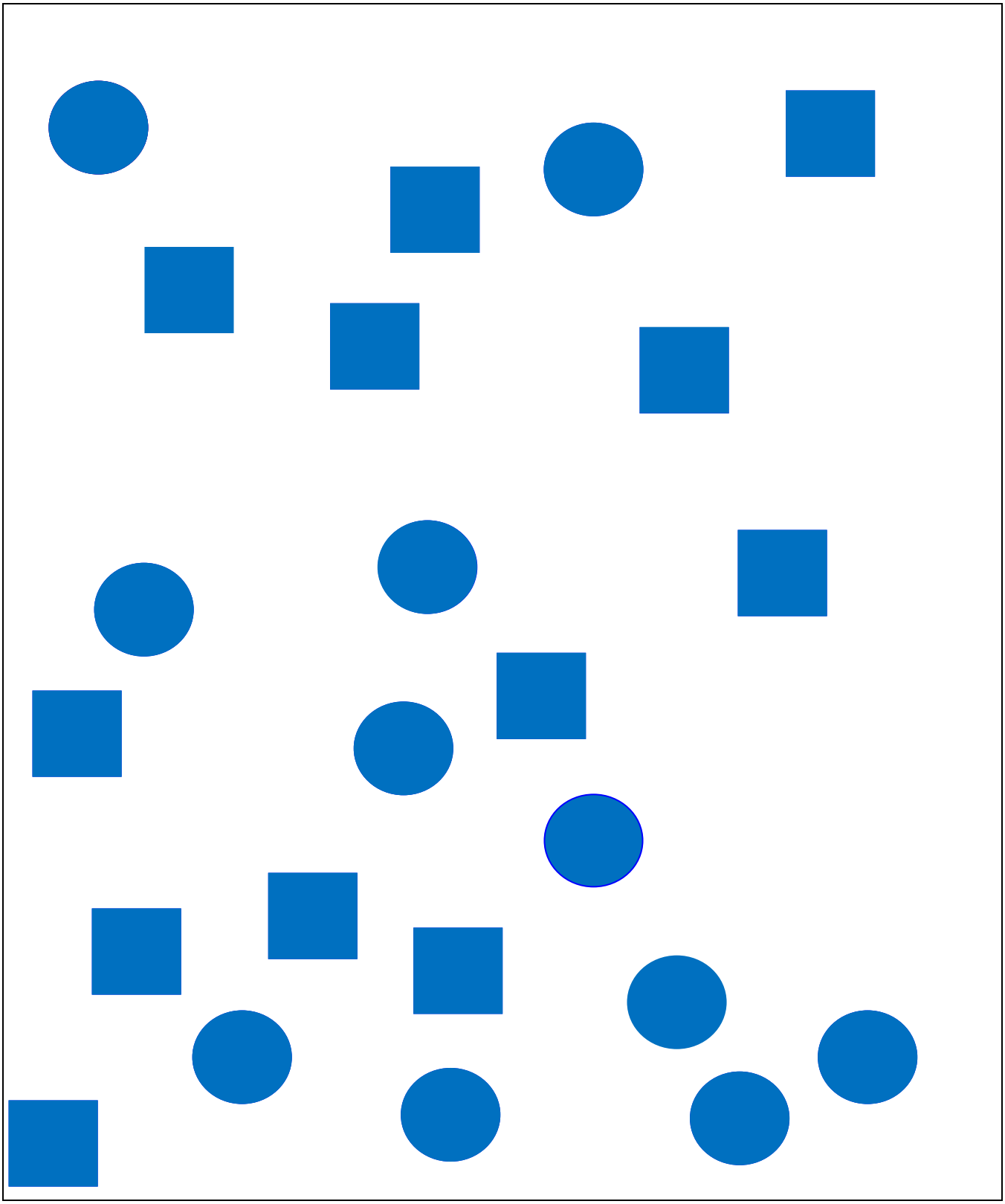
Easy Task- Task format (actual size)



Difficult Task- Instructions

Here we have some red (or blue) shapes. There are squares (point to a square) and there are circles (point to a circle). Your job is to join up all of the squares together using this pencil. Then, once you have finished joining up the squares, you join up all of the circles together. Do you understand? (If not, repeat the above again). You will be timed and I will say stop when your time is up. Most people manage to finish this task. Are you ready?

Difficult Task- Task format (actual size)



Appendix D: Adapted EZPQ Questionnaire

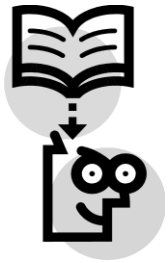
EZPQ (Adapted from Zigler et al. (2002))

	Question	Cat	Very much untrue				Very much true
1.	Individual works hard, doesn't take it lightly	EM	1	2	3	4	5
2.	Individual tends to keep thoughts, feelings to him/herself	NR	1	2	3	4	5
3.	Individual accepts social rules	OB	1	2	3	4	5
4.	Individual chooses to spend a lot of time alone	NR	1	2	3	4	5
5.	Individual imitates others	OD	1	2	3	4	5
6.	Individual is confident	ES	1	2	3	4	5
7.	Individual is too familiar with strangers	PR	1	2	3	4	5
8.	Individual is rebellious [R]	OB	1	2	3	4	5
9.	Individual shows curiosity about many things	CC	1	2	3	4	5
10.	Individual is a follower	OD	1	2	3	4	5
11.	Individual tends to withdraw and isolate him/herself when supposed to be in a group	NR	1	2	3	4	5
12.	Individual is tactile	PR	1	2	3	4	5
13.	Individual does what others say regardless of the consequences	OD	1	2	3	4	5
14.	Individual engages in tasks for the pleasure it gives him/her	EM	1	2	3	4	5
15.	Individual is easily discouraged [R]	ES	1	2	3	4	5
16.	Individual has a good imagination	CC	1	2	3	4	5
17.	Individual does something just because social custom dictates	OD	1	2	3	4	5
18.	Individual isolates him/herself	NR	1	2	3	4	5
19.	Individual is constantly seeking attention and praise	PR	1	2	3	4	5
20.	Individual is apt to pass up something he/she wants to do when others feel it isn't worth doing	OD	1	2	3	4	5
21.	Individual carries out requests responsibly	EM	1	2	3	4	5
22.	Individual wants help from others even when it's not really needed	PR	1	2	3	4	5
23.	Individual could be more friendly	NR	1	2	3	4	5
24.	Individual does not pay attention to rules [R]	OB	1	2	3	4	5
25.	Individual expects things will work out well when s/he has trouble solving a problem	ES	1	2	3	4	5
26.	Individual works hard even when no reward is available	EM	1	2	3	4	5
27.	Individual is creative	CC	1	2	3	4	5
28.	Individual usually does as asked	OB	1	2	3	4	5
29.	Individual is a self-starter	EM	1	2	3	4	5
30.	Individual expects things will work out well when s/he has new tasks to do	ES	1	2	3	4	5
31.	Individual usually doesn't trust others	NR	1	2	3	4	5
32.	Individual likes to be given a lot of direction	OD	1	2	3	4	5
33.	Individual sticks with a goal or task until it is complete	EM	1	2	3	4	5
34.	Individual seems to prefer carers to peers	PR	1	2	3	4	5
35.	Individual expects to succeed at most things	ES	1	2	3	4	5
36.	Individual completes tasks quickly	EM	1	2	3	4	5
37.	Individual observes what others are doing to guide his/her own actions	OD	1	2	3	4	5

EM = effectance motivation; OB = obedience; NR = negative-reaction tendency; PR = positive-reaction tendency; CC = creativity/curiosity; ES = expectancy of success; OD = outerdirectedness ([R] = Reversed Scoring)

Appendix E: Participant Information Sheet

How well am I doing?
A research study



Please read this information sheet.

You can ask your carer or support worker to help you.

My name is Claire. I am at University. I am learning to be a Psychologist.

I am doing a study as part of my course. I want to find out how well people think they are doing when Psychologists ask them to do tests. By taking part, you will help Psychologists to make sure that people do the best they

can.

Why have I been asked to take part?

You are being asked because you are an adult who uses services for people with a learning disability. We are looking for 25 people to take part in total.

Do I have to take part?

No. You decide if you want to.

It is OK to change your mind. It is your choice.

How do I let you know that I want to take part?

If you want to take part, you can fill in the reply sheet and give it to me, or you can send it to me using the stamped addressed envelope. You can ask somebody to help you.

What will happen if I want to take part?

I will contact you and meet with you at your day centre

or college or work.

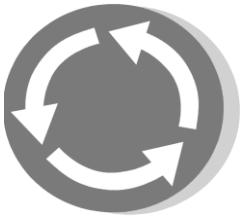
I will ask you to sign a form to say that you are happy to take part.

If you are unable to sign the form, you can tell me if you want to take part and you can choose somebody else (such as your parent or support worker) to sign the form for you.

I will ask your parent or carer or someone who knows you well to answer some questions about you.

I will meet with you for about an hour. I will ask you some questions and I will also ask you to do some puzzles.

The meeting will also be recorded using a video camera. The recordings will be kept by the research team. You will not be able to view the recordings.



What if I change my mind?

You can change your mind or stop at anytime. Nobody will be upset and you do not have to say why.

Will other people find out about what I say or do?

Anything you say will be private. The puzzles that you do will not have your name on it, so no one will know that you did them.

One other psychologist will see your video. They will not know your name or anything else about you.
I will tell your doctor or GP that you are taking part. The only time that I might have to tell someone else about what you have said is if I think that you might need some extra help. This will only happen if I am very worried about you or somebody else. If this happens, I will tell you first.

What happens to what I say and do?

I will write about what you, and the other people who take part, say and do. Other psychologists will be able to read this. A copy will also be kept at the library at the hospital so that other people can read it too.

Will I be able to find out about the results of the study?

Yes. Once the study has finished, I will send you information about it and you can ask me any questions.

You can ask me questions about this study.

You can write to me or phone me.

Claire Robinson

Trainee Clinical Psychologist

Psychological Medicine

University of Glasgow

Gartnavel Royal Hospital

Glasgow

G12 0XH

Telephone 0141 211 3920

You can talk to somebody who is not involved in this study.

If you would like to talk to somebody about what it is like to be part of a research study, you can telephone Dr Pamela MacMahon on (0141) 211 3901.

Thank you for reading this.

Appendix F: Participant Consent Form

How well am I doing?

A research study

Consent Form

Please read each statement carefully and tick the box if you agree with it.

- I have read and understood the information sheet. ☐
- I have had the opportunity to ask questions and have had questions answered to my satisfaction. I have all the information about the study that I require. ☐
- I understand that I do not have to take part and I can change my mind or withdraw at any time without giving a reason. ☐
- I agree to take part in the study. ☐
- I agree to the meeting being videotaped. I understand that this tape will be reviewed by the researchers and that I will not be able to watch this videotape. ☐
- I agree to you using the things I say in a report without my name or personally identifiable information being on it. ☐

Name of participant……

Signature……

Date……

Name of researcher……

Signature……

Date……

Appendix G: Flow chart of recruitment procedure

Stage 1: Ethical approval and pilot study

⇩

Stage 2: Recruitment& Checking of Exclusion Criteria

⇩

Stage 3: Obtain consent

⇩

Stage 4: Administration of Experimental Measures as per counterbalanced design

Participant No.	Administration Order
1	Easy 1 → Novel Star → Difficult 1 → Novel Square→ Easy 2 →ACE-R A → Difficult 2 →ACE-R B
2	Difficult 1 → Novel Star → Easy 1 → Novel Square→ Difficult 2 →ACE-R A→ Easy 2 →ACE-R B
3	Easy 1 →ACE-R A → Difficult 1 →ACE-R B → Easy 2 → Novel Star → Difficult 2 → Novel Square
4	Difficult 1 →ACE-R A→ Easy 1 →ACE-R B → Difficult 2 → Novel Star → Easy 2 → Novel Square
5	Easy 1 → Novel Square→ Difficult 1 → Novel Star → Easy 2 →ACE-R A → Difficult 2 →ACE-R B
6	Difficult 1 → Novel Square→ Easy 1 → Novel Star → Difficult 2 →ACE-R A→ Easy 2 →ACE-R B
7	Easy 1 →ACE-R B → Difficult 1 →ACE-R A→ Easy 2 → Novel Star → Difficult 2 → Novel Square
8	Difficult 1 →ACE-R A→ Easy 1 →ACE-R B → Difficult 2 → Novel Square→ Easy 2 → Novel Star

⇩

Stage 5: Administration of Descriptive Measures

⇩

Stage 6: EZP-Q& demographic information collection

⇩

Stage 7: Data analysis

[2]Sequences reverts to beginning for subsequent participant(s)

Appendix H: Major Research Proposal and Appendum

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Major Research Proposal

Can cognitive performance in individuals with mild intellectual disabilities be optimised by facilitating perceived competence?

Date:	1st July 2010
Version No:	Version 3
Word Count:	3160 (excluding references)

Introduction

The main feature of individuals with intellectual disabilities (ID) is that their cognitive functioning, or intelligence, is significantly below those of average intellect. As such, cognitive assessment is vital within this population. However, there is always the danger that cognitive assessment might merely demonstrate what a person is able to do under test conditions rather what they are actually capable of doing under normal everyday living conditions (i.e. ability versus capability).

Zigler and colleagues (1982, 2002) argue that the behaviours of individuals with an intellectual disability are not solely the result of their cognitive deficits. Rather, it is suggested that individuals with IDs are no different to individuals of above-average intelligence in that they are more than just 'cognitive systems'. He states that they are "whole people, whose daily experiences and adaptive efforts affect their motivational and/ or personality structures" (Zigler et al., 2002). As such, motivational and/ or personality factors may also play a significant role in determining assessment performance.

Personality and Motivation

Over recent decades, efforts to understand the performance of individuals with IDs on a variety of cognitive tasks have led to the study of personality and motivational factors that influence the performance and, more broadly, the adaptation of individuals with IDs. One such factor is the extent to which an individual expects to succeed, known as 'expectancy of success'. A common observed trait amongst individuals with IDs is a low expectancy of success, which may be due to a lifetime of being faced with tasks that are beyond their intellectual abilities (Zigler & Balla, 1992; Zigler & Hoddap, 1986) and that potentially undermines their performance across various tasks (Bennett- Gates & Kreitler, 2001). As attempts to succeed end in failure, expectancy of success (or perceived competence)

decreases. The main motivation then becomes to avoid failure rather than experience success (Cromwell, 1963), thus highlighting a potential 'failure-set', resulting in individuals with IDs often giving up before they have tried in situations they perceive as challenging.

If individuals with IDs consistently experience failure, they may eventually become susceptible to 'learned helplessness'. In 1980, a study by Rholes et al found that susceptibility to learned helplessness amongst children increased with age. This trend fitted with Zigler's suggestion that children with IDs accumulate failure experiences over the course of development. Additionally, meta-cognition (the ability to monitor one's own performance) has been shown to be impaired in individuals with IDs (Bebko & Luhaorg, 1998). This factor is of particular interest in the field of IDs, as one aspect of intelligent thinking is the ability to consciously control and adapt one's learning to new environmental challenges. Poor meta cognition may impact upon an individual's ability to detect lowered performance and increase effort accordingly. It therefore also seems entirely rational that effectance motivation (the pleasure derived from tackling and solving difficult problems) is a trait that is found in lower levels in individuals with IDs compared to those of average and higher intellect.

Motivation and Cognitive Performance

Heaton & Heaton (1981) state that "*the goal of [cognitive] testing is always to obtain the best performance the patient is capable of producing*". While all cognitive tests *assume* that the individual being tested is performing to the best of his or her ability (Morgenstern & Klass, 1991), the difficult task for the clinician is *enabling* the client to perform as well as possible. This may be particularly difficult in cases where certain conditions, such as brain damage, can render individuals more vulnerable to external influences or changes in internal states (Lezak et al, 2004). In the same way, it seems logical to suggest that when individuals with

IDs are asked to undertake rigorous cognitive assessment they might also be vulnerable to external influences or changes in internal states that will affect their cognitive performance.

There are serious implications for both the individual being tested and on the provision of services if there is a failure to consider whether an individual is actually performing to the best of their ability. Generally, individuals who are not motivated to perform well may experience a greater sense of failure following cognitive assessment, resulting in important implications for their self-esteem and psychological well-being. Clinical research has demonstrated, for example, that consistent failure experiences render individuals with IDs more susceptible to poor mental health (Jahoda et al., 2006).

At a service level, individuals who are actually able to cope well in every day life, but who score just below the cut-off for an ID on cognitive testing on the basis of less than optimal motivation (or anticipated competence) may be unnecessarily retained in a learning disability service, regardless of whether they might be better placed in an alternative service. While adaptive behaviour assessments are an essential component of assessment of an intellectual disability, decisions about whether an individual is best served by ID services are still frequently made on the basis of cognitive assessment. From the point of view of clinical experience, it is certainly not unusual for some Adult Mental Health Services to refuse to accept referrals where an individual's IQ is even marginally below 70, regardless of the individual's adaptive skills, on the basis of strict eligibility criteria.

In conclusion, there is little doubt that those with IDs draw from a more limited reservoir of cognitive potential than individuals with above-average intelligence. Therefore, it is imperative that clinicians encourage optimum performance when assessing their abilities. The evidence base in this area clearly identifies the impact of the individuals' social development on their anticipated competence in test situations. Research in this area needs

to investigate potential interventions that improve an individual's anticipated competence in assessment situations.

Qualitative Indicators of Performance

In addition to administering formal assessment tools, clinical psychologists often utilise their observational skills in order to add to the overall clinical opinion on an individual's clinical presentation, and in considering the validity and reliability of results. Therefore, a potentially useful strategy for the detection of less than optimal effort in individuals with IDs may be clinical observation. In previous studies, clinician-observed qualitative indicators of an individual's behaviour have been found to highlight possible under-achievement in the presence of an external incentive (extrinsic motivation) (Johnstone & Cooke, 2003).

A number of clinical markers (such as gaze-aversion, longer latency of responses, silence, increased number of speech errors, prolonged or inappropriate smiling and distractibility) are thought to indicate that individuals are not performing to the best of their ability. These markers may also apply to people with IDs; however, they are also often aspects of the everyday presentation of individuals with an ID (Beirne-Smith et al., 2002) and we cannot therefore assume that they indicate less than optimal performance. No research has been conducted that has explored the potential clinical indicators of effort in cognitive assessments in individuals with IDs.

Aims and Hypotheses

(i) Aim

The aim of the study is to explore the impact of manipulating perceived competence on the cognitive assessment of individuals with mild intellectual disabilities and to explore the relationship between an individual's personality-motivational functioning and cognitive performance when perceived competence is manipulated. An additional aim of the study

(which will be treated as a pilot study given the restricted time period in which to complete the current research) is to determine whether there are any qualitative indicators that might alert a clinician as to whether an individual with a mild ID may or may not be performing at their optimum level.

(ii) Hypotheses

It is hypothesised that:

(1) manipulating perceived competence will influence cognitive performance in individuals with a mild ID. More specifically, cognitive performance will be improved when preceded by an easy task than when preceded by a difficult task;

(2) the extent to which cognitive performance improves following an easy task or worsens following a difficult task (i.e. the difference in change scores) will be influenced by an individual's general motivational and personality structures. Specifically, greater differences in change scores will be observed where individuals with IDs have lower levels of expectancy of success (perceived competence) and effectance motivation;

(3) distinct clinical indicators of motivation will be observed when cognitive performance is both positively and negatively manipulated.

Design

The study will employ a within participants design, with each participant taking part under all conditions. A counterbalanced design will be employed to control for order effects of test administration.

Participants

Participants will be aged 18 years or over and have a mild learning disability (as defined by ICD-10). All participants will be volunteers and will give signed consent.

Exclusion criteria are as follows: history of drug and/or alcohol abuse; traumatic brain injury or a history of serious falls; current involvement in any proceedings (such as compensation claims, head injury litigation, or criminal proceedings) that could potentially influence motivation to perform well; current involvement in cognitive assessment process; and, any physical condition that could lead to fluctuations in cognitive performance.

Sample size

The primary analysis will be to test for significant differences between scores for cognitive tasks preceded by both a 'difficult' and 'easy' task. A literature search revealed no studies that have utilized the same measures in the manner proposed by this study. Consequently, it was deemed appropriate to make use of previous research investigating the effects of prior 'extrinsic' manipulation of success and failure on performance scores. A study by Brockner (1979) found significant differences in performance scores between participants who were given either prior success feedback or prior failure feedback when they were being closely observed, regardless of whether participants had high or low self-esteem, with medium effect sizes (between 0.63 and 0.69). Given that the participants in this study will also be closely observed, a moderate effect size might also be anticipated. Based on an effect size of 0.6, with an alpha level of 0.05 and a power of 0.8 (two-tailed), the required sample size for this study is 19 (G*Power 3.0, Faul et al., 2007). Based on this calculation, this study will aim to recruit a minimum of 25 participants.

Measures

All participants will be administered the following:

<u>Dependent Measures:</u>

- *Rivermead Behavioural Memory Test Extended Version* (RBMT-E; Wilson et al, 1999). This test has twelve subtests and is designed to assess memory skills related to everyday situations. An extra feature of the RBMT makes it ideal for this study as it

has four parallel forms, thus enabling repeat administration of a subtest without any practice effects. The 'Faces' subtests of the RBMT-E will be used in this study.

- *Delis-Kaplan ExecutiveFunction System* (DKEFS; Delis, Kaplan & Kramer, 2001). The D-KEFS is a nine-item battery of tests designed to assess the key components of executive functioning in children and adults aged 8 to 89 years. It has previously been used in studies where participants have been assessed as having an ID (Marshall & Happe, 2007). One subtest of the D-KEFS, the Sorting Test, will be used in the current study due to the availability of parallel forms, again enabling repeat administration of a subtest without any practice effects.

Independent Measures:

- *'Easy' and 'Difficult' tests.* These will precede the dependent measures. The preceding tests will relate to the same cognitive process i.e. the 'easy' test will be a much simpler version of the 'difficult' test, which will be impossible to complete. For example, in the 'easy' condition of a search task, participants will have to identify a target item hidden in a picture. However, this object will in fact be very apparent so that the participant cannot fail and will perceive that they have succeeded. In the 'difficult' condition, participants will be instructed to find the same target item in a more complex picture, only the target item will be non-existent, and they will perceive that they have failed. A pilot study will determine whether this and other similar measures are fit for purpose, i.e. they have the desired effect of instilling perceived competence/ incompetence, before they are included in the final design.

Descriptive Measures:

- *Glasgow Depression Scale- Learning Disability* (GDS- LD; Cuthill et al., 1999). This is a reliable and valid 20-item screening measure for depression in individuals with intellectual disabilities. The presence of a depressive illness can interfere with the normal expression of cognitive abilities (Mayberg et al., 2002; Walsh & Darby, 1999);

therefore, this measure will be used to control for differences in cognitive performance due to underlying mood state.

- *EZ-Personality Questionnaire* (EZPQ; Zigler et al., 2002). A single questionnaire measure designed to measure personality functioning in individuals with an intellectual disability. It is a 37-item scale and is used as a measure for investigating personality-motivational functioning. It taps into 7 personality- motivational constructs- positive reaction tendency, negative reaction tendency, expectancy of success, outer-directedness, effectance motivation, obedience and curiosity/creativity. The questionnaire in this research will be given to referrers to complete on behalf of the participants. *(Note that while this scale is normed for a North American ID population, there are no UK norms. This questionnaire will therefore be adapted and piloted prior to use in the main research study and is also therefore subject to change).*
- *Weschler Abbreviated Scale of Intelligence* (WASI; Weschler, 1999). This is a brief, reliable and valid measure of general intelligence suitable for individuals aged 6 to 89. A two subtest short-form of the WASI (Vocabulary and Block Design) will be used (see Silverstein 2006). The purpose of this test is to gain a rough estimate of an individual's intelligence for inclusion criteria reasons, for example, if a previous full-scale IQ had not been obtained.

Procedure

Stage 1- Recruitment and consent

Standard information packs detailing the purpose of study and the relevant inclusion/ exclusion criteria will be sent to relevant day centres, voluntary agencies, specialist colleges and outreach support agencies. Presentations will be arranged in order to inform both service providers and service users of the purpose of the study and the process. Service users who wish to take part will then be able to volunteer. Convenient dates, times and locations of testing sessions will then be arranged, in order to minimize disruption to

volunteers' schedules. Informed consent to take part and for a carer to complete relevant demographic information and a questionnaire designed to measure personality functioning will be obtained. All information will be in written form and will be explained clearly in a way that the potential participant can understand. Any questions that they have regarding the study will be answered.

Stage 2- Completion of demographic information

Participants and their carers will be asked to complete relevant demographic information relating to the participant.

Stage 3- Carer completes the EZP-Q

Carers will be asked to complete the EZP-Q.

Stage 4- Re-checking of participant consent and summary of study

Participants will once again be provided with a summary of the study and consent will be verified. Participants will be informed that they can take a break or stop the study at any time and that this will not affect them in any way.

Stage 5- Administration of experimental measures

Participants will be administered all experimental measures as per counter- balanced design (appendix not included). All assessment with participants will take place at the recruitment base or another suitable environment, with someone in an adjacent room at all times in accordance with health and safety. A well-lit, quiet room will be necessary to provide a standardised and optimal testing environment. This section of the procedure will be videotaped to allow for a pilot study to assess potential clinical indicators of effort. The videotape will be positioned so that as much of the participant's body language is recorded as possible.

Stage 6- Administration of Descriptive Measures

The GDS-LD and the WASI will be administered to all participants following a comfort break, if required.

Stage 7- Data scoring and analysis

Qualitative Analysis- Cognitive Component

Demographic information relating to the participants will be presented using descriptive statistics. Means scores for each individual on the tasks preceded by the 'easy' task (easy preceded) and mean scores for the tasks preceded by the 'difficult' task (difficult preceded) will be calculated. If the data meets parametric assumptions, following normality testing, dependant samples t-tests will be used to determine whether there are significant differences between the 'easy preceded' and 'difficult preceded' scores (i.e. change scores). A significant effect (depending on the direction) will suggest that prior experience of failure influences task performance. Each participants change scores will then be correlated (post-hoc) with relevant factors from their completed EZP-Q to determine whether personality influences change scores.

Videotape Analysis (Pilot Study)

The following methodology and analyses will be adopted from a study by Burford et al. (2003) who used videotape analysis for the early detection of Rett disorder in infants. In this study, Clinical Psychologists working in the field of learning disabilities will be shown the administration of experimental measures. Clinicians will be using their own experiences to inform the research, rather than following a set of pre-existing guidelines. For the purposes of a pilot study, only 8 video recordings will be used and these will be selected at random. The researcher will sit beside the viewer. Clinicians will be asked to tell the researcher when they believe the participant to be either 'trying' or 'not trying'. When the viewer indicates something, the researcher will note the point in the session and stop the tape. The researcher will then ask the viewer to comment on what was happening in the video,

including what was either helpful (e.g. insightful) or unhelpful (e.g. confusing). Comments are to be recorded as expressed, unedited by the researcher. Once the data has been collected the information will be entered into Excel. This allows the comments to be subject to a content analysis, based in grounded theory, to establish the themes and categories that emerge from the recordings. The aim would be to identify markers that might indicate whether a client is sufficiently trying or not.

Health and Safety Issues

Participant health and safety will be considered at all times in accordance with the relevant policies and guidelines. The researcher does not envisage any potential risks associated with the study (appendix not included).

Ethical Issues

Ethical approval will be sought from Greater Glasgow & Clyde NHS Trust Ethics committee and other relevant ethics committees (i.e. University). Where a participant's score is above the cut-off on the depression screening measure, a standard letter will be sent to the individual's GP and/or carer. All data and videotapes will be stored and retained in accordance with the Data Protection Act (1998).

Financial Issues

Costs required to undertake the study (such as stationary, test material, photocopying, computer equipment and travel costs) are detailed in attached Costing Form (appendix not included).

Timescale

Ethical approval will be sought from the appropriate ethics committees in December 2010. Following ethical approval potential participants will be identified and recruited to the study between February and May 2011. A pilot study will be conducted between February and

March 2011 in order to determine whether all operational parameters are suitable. Data analysis and write-up will be on-going.

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APPENDUM

Following piloting, the Dependent Measures suggested in the proposal were considered to be unsuitable for use in the main study. The DKEFS subtest was deemed to be potentially too complex for this population, potentially resulting in a floor effect regarding scores. The RBMT 'Faces' subtest was not suitable for the study design, as it involved both immediate and delayed recall trials. This may also have resulted in differential administration between participants. Both measures were therefore replaced.

CR/July 2011

Appendix I: NHS Research and Ethics Committee 3 Approval

WoSRES
West of Scotland Research Ethics Service

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Mrs Claire Robinson
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Date 21st January 2011
Your Ref
Our Ref
Direct line 0141 211 2123
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E-mail Liz.Jamieson@ggc.scot.nhs.uk

Dear Mrs Robinson

Study Title: **Can cognitive performance in individuals with mild intellectual disabilities be optimised by facilitating perceived competence?**
REC reference number: **10/S0701/70**

Thank you for your recent email responding to the Committee's request for further information on the above research.

The further information was considered in correspondence by a sub-committee of the REC. A list of the sub-committee members is attached.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Covering Letter		15 October 2008
Letter from Sponsor		22 July 2010
GP/Consultant Information Sheets	1	24 August 2009
Investigator CV		12 October 2010
REC application		15 October 2010
Participant Consent Form: Carers	1	
Participant Consent Form	2	
Response to Request for Further Information		
Research Equipment, Consumables and Expenses Form		
Participant Information Sheet	2	
Protocol	3	01 July 2010
Demographic information	1	September 2010
CV for Professor Andrew Jahoda		
CV for Kenneth MacMahon		

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators

- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

10/S0701/70	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Liz Jamieson
Committee Co-ordinator
On behalf of Eoin MacGillivray, Vice Chair

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments

"After ethical review – guidance for researchers"

Copy to: Erica Packard, NHS Greater Glasgow and Clyde

Advanced Clinical Practice I: Reflective Critical Account (Abstract Only)

Consideration of the importance of developing and maintaining the therapeutic alliance within the process of violence risk assessment

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Abstract

Introduction This reflective account is based on the challenges faced when undertaking a violence risk assessment. Specifically, the identified focus of the reflective account is the development of an understanding of the importance of developing and maintaining a good working alliance with clients when assessing risk of future violence. Atkins and Murphy's (1994) model of reflective practice is used to guide the structure of the reflective process, in addition to relevant guidelines, including the *BPS Code of Ethics and Conduct (2009),Professional Practice Board: Generic Professional Practice Guidelines (2008)* and *Risk Management Authority: Standards and Guidelines for Risk Assessment (2006).* **Reflective Review** The experience of developing and maintaining a balance between meeting the requirements of a violence risk assessment and paying due attention to both the process of engagement and the development of a therapeutic relationship in a forensic setting is reflected upon. An evaluation of the relevance of reflective practice in this setting, and the identification of learning follows. A meta- reflection is provided to review the process of completing the account itself and implications for both individual and service level professional practice.

Advanced Clinical Practice II: Reflective Critical Account (Abstract Only)

Developing an understanding of the challenges involved in the effective management of a clinical psychology waiting list

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Abstract

Introduction This reflective account outlines the development of an understanding of the factors that may have contributed to the development of a particularly lengthy clinical psychology waiting list, within a chronic pain service. The account is guided by relevant policies and guidelines, including *The Healthcare Quality Strategy for NHS Scotland (2010)* and the *BPS Code of Ethics and Conduct (2009)*. A reflective framework is identified using Gibb's (1988) model of reflective practice and the National Occupational Standards for Psychology (NOS; 2006). In particular, emphasis is related to three competencies: *Communication* (Generic Key Role 4); *Training* (Generic Key Role 5); and, *Management* (Generic Key Role 6). **Reflective Review** The usefulness of reflective practice in developing an understanding of the potential factors that may have contributed to the development of an extensive clinical psychology waiting list, within a chronic pain service, is described. In particular, it is acknowledged that the process of reflective practice expedited awareness of the professional challenge of achieving a balance between maintaining standards of ethical practice and the competing demands of meeting management objectives and healthcare targets. An increased understanding of the challenges that professional leads in healthcare settings may face, when attempting to effectively manage a waiting list, is demonstrated. A meta- reflection is provided to review the process of completing the account itself and implications for both individual and service level professional practice.