The EZ-Yale Personality Questionnaire and the NEO Personality Inventory Revised and Individuals with Mild Intellectual Disability:

An Exploratory Study of Between Instrument Associations.

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DECLARATION

"This thesis has been composed by myself and the work contained herein is my own."

Ewan Culling Date

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ABSTRACT

Aims

The principle objective of this study was to explore the degree of overlap between similar personality sub-scales on the EZ-Yale Personality Questionnaire (EZPQ) (Zigler et al, 2002) and the NEO Personality Index revised (NEO PI-R)(Costa and McCrae, 1992), in a sample of adults with mild intellectual disability.

Methodology

A within subjects design was used. Twenty seven participants completed the EZPQ and the NEO PI-R personality questionnaires, each in relation to a specific client with mild intellectual disability. Pearson correlations and Spearman rho correlations were used to investigate the associations between sub-scales of the two questionnaires that purport to measure similar aspects of personality.

Results

Significant positive correlations were found between the Agreeableness (NEO PI-R) and Obedience (EZPQ) sub-scales and between the Conscientiousness (NEO PI-R) and Effectance Motivation (EZPQ) sub-scales. The associations between the other personality sub-scales were less than anticipated.

Conclusions

The findings were discussed in terms of the possible future utility of the EZPQ and NEO PI-R in the assessment of psychiatric disorders, particularly personality disorder. The lack of correlation was discussed in relation to differences in the way the NEO PI-R and EZPQ were developed and standardized.

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CHAPTER 1

INTRODUCTION

CHAPTER 1: INTRODUCTION

1.1. HISTORICAL CONTEXT OF INTELLECTUAL DISABILITY AND PERSONALITY

At the begining of the twentieth century people with intellectual disabilty were typically thought of as having imoral, degenerate, untrustworthy and potentially dangerous personalities. Fernald (1912), an early intellectual disability theorist at the time noted:

"The feebleminded are a parasitic, predatory class, never capabe of self-support or of managing their own affairs.....Feebleminded women are almost invariably immoral and usually become carriers of venereal disease or give birth to children who are as defective as themselves.....Every feebleminded person, especially the high-grade imbecile, is a potential criminal, needing only the proper environment and opprtunity for the development and expression of his criminal tendencies." (In Zigler and Harter, 1969, p. 1066).

Throughout the next 50 years, the majority of theorists adheared to this pejorative view of personality in the intellectually disabled population. It was suggested that the personalities of people with intellectual disabilities were innate and passed from generation to generation (Gardner, 1968; Mautner, 1959). Wolfensberger and Menolaschino (1968) criticised this perspective, and suggested that it perpetuated the

myth that intellectually disabled people are a homogenous group of less-than-human organisms. The emergence of the Individuals with Disabilities Education Act (1975) challenged this view and led to a global shift in perspective to a personality model that finally began to view people with intellectual disability as fully human.

Other theorists in the field of personality and intellectual disabilities have suggested that underlying cognitive deficits account for behaviour and personality (Siegel and Foshee, 1960; O'Conner and Hermelin, 1959). This perspective suggests that the differences observed in the presentation of people with intellectual disabilites stem from cognitive problems such as inadequete neural satiation realted to brain modifiability or cortical conductivity (Spitz, 1963), impaired attentional systems (Zeaman, 1959) and inadequete verbal processes resuting in a dissociation between verbal and motor systems (Luria, 1956). As we know the underlying cognitive imapirments asscociated with intellectual disability do have an impact on social cognition and the regulation of affect and impulse control. However, critics of this perspective have labelled this the 'difference theory' of intellectual disability and argue that it represents a tautology and is rather all encompassing (Zigler et al, 1999).

More recent theories have began to integrate developmental principles (Piaget, 1979), behavioural conditioning theories (Ferster and Skinner, 1953; Tucker and Bushell, 1998) and social learning models (Miller and Dollard, 1941; Rotter, 1954; Bandura, 1977; Vygotsky, 1980) to the overall conceptualisation of personality in people with intellectual disabilities.

Torr (2003) suggets that the important factor to consider is how the cognitive abnormalities associated with intellectual disability interact with environmental factors to influence personality development.

It has been argued, that to date the developmental model of personality and intellectual disability (Zigler and Bennett-Gates, 1999) is the most empirically supported, best evidenced and theoretically meaningful model (Reid et al 2004; Mooreland, 2008).

1.2. THE DEVELOPMENTAL THEORY OF PERSONALITY

1.2.1 Factors that Influence Behavior and Performance

Intellectual disability is defined as cognitive impairment (i.e. an IQ of less than 70), coupled with impairment in adaptive functioning and an age of onset prior to 18 years of age according to current ICD-10 criteria (World Health Organization, 1992). The focus has tended toward the cognitive impairment component, looking less at the other factors that may influence the behavior and performance of individuals with intellectual disability (Zigler, 1969). This perspective has endured despite attempts by Luckasson et al (1992) and the British Psychological Society (2000) to encourage clinicians and researchers to place as much emphasis on the adaptive functioning deficits.

Developmental theorists contend that although cognitive dysfunction is important, it is not sufficient to explain the performance and behavior of intellectually disabled individuals (Zigler and Balla, 1982; Weisz and Yeates, 1981). Factors such as motivation (Switsky, 1997) and the development of personality characteristics and traits are also likely to be important in making sense of the overall presentation of an individual with intellectual disability (Zigler and Bennett-Gates, 1999).

1.2.2 Organic vs Socially Acquired Intellectual Disability

Zigler and Hodapp (1986) make an important distinction between organic and socially acquired intellectual disability. Organic intellectual disability applies to individuals that acquired their cognitive impairment due to genetic syndromes (such as Down syndrome), pre, peri or post natal brain damage and other disorders such as epilepsy. The process of cognitive development and consequently the development of personality is thought to be fundamentally different in these individuals due to the deficits in brain structure and function.

Socially acquired intellectual disability is developmental in nature and not underpinned by any organic source. Zigler and Hodapp (1986) assert that socially acquired deficits are caused by environmental factors, such as a social deprivation and lack of learning opportunities. The majority of intellectual disability would appear to be socially acquired and tends to result in mild or moderate levels of disability. The pathway of

cognitive development is thought to be no different to that of the non-disabled population, however it may be developmentally delayed and fail to reach the same level of IQ (Piaget, 1979). In this respect, the development of personality in these individuals should be considered to be similar to that of the non-disabled population. The variation in personality characteristics can be attributed to socialization and past experience (Zigler and Bennett-Gates, 1999).

1.2.3 The Effects of Socialization and Life Experience

In the developmental model of personality it is suggested that life experience and socialization is an important factor in the development of personality traits and styles. It is proposed that those with intellectual disabilities have qualitatively different experiences in life from those without disability (Zigler and Bennett-Gates, 1999). These differences include the need for extra support from parents or professional carers, resulting in increased dependence and looking to others to help with tasks (Bybee and Zigler, 1998). Frequent experience of failure that leads to learned helplessness (Weisz, 1979) is detrimental to self-esteem (Glick, Zigler and Bybee 1997) motivation (Switsky, 1997) and expectancy of success (Bennett-Gates and Kreitler, 1999). Finally, social deprivation can lead to an increased dependency on social reinforcement from authority figures and an anxious avoidance of social interaction (Zigler and Bennett-Gates, 1999). To date the majority of research favours the more inclusive developmental model (Zigler and Bennett-Gates, 1999; Haywood, 1987; Cromwell, 1963).

1.2.4 Empirical Evidence for the Developmental Model

The performance of individuals with intellectual disabilities was compared to the performance of chronological age matched and mental age matched non-disabled individuals over a series of performance tasks (Haywood, 1987). The results demonstrated what is known as the 'Mental-Age Deficit Phenomenon' where individuals with intellectual disabilities perform at a lower level than both chronological and mental age-matched peers. This provides evidence that differences in cognitive abilities alone are insufficient to explain the lower performance of intellectually disabled people.

Developmental theorists suggest that this deficit can be attributed to differences in social interactional tendencies and motivational styles observed in disabled and non-disabled individuals (Zigler and Bennett-Gates, 1999). The social interactional tendencies include the tendency to seek social reinforcement from the examiner that interferes with attention given to the task and is detrimental to performance (Positive Reaction Tendency). The other social interactional tendency involves a general wariness around the examiner resulting in the individual approaching the task in an avoidant manner (Negative Reaction Tendency). The motivational styles that are detrimental to task performance include low Expectancy of Success, lack of desire or satisfaction derived from achievement (Effectance Motivation) and a tendency to look to others to provide the answers (Outer-directedness). These social interactional tendencies and motivational styles make up the 5 personality constructs of the developmental model.

1.2.5 The 5 Personality Constructs of the Developmental Model

The Mental Age Deficit Phenomenon ties in with the research of Zigler and his colleagues. They have extensively explored the possible differences in motivation and personality styles in intellectually disabled individuals and their non-disabled peers. They compared performance on experimental tasks under different social and motivational conditions. The experimental tasks used included; the Sticker Game (Yando and Zigler, 1971), the Probability Learning Task (Luthar and Zigler,1988), the Marble in the Hole Game (Zigler and Balla, 1972), the Puzzle Preference Maze (Flavel, 1982), the Pictorial Curiousity Task (Flavel, 1982), the Peg Sorting Task, (Harter and Zigler, 1974) and the Discrimination Task (Bybee and Zigler, 1989). The results revealed significant differences that related to 5 personality and motivational constructs.

i. ***Positive–Reaction Tendency*** is defined as a heightened desire for praise, social interaction and social re-enforcement, generally from a supportive adult/authority figure (Sarason, 1953). Zigler and Hodapp (1986) note that this desire for interaction may compete with attention given to performance in a task, as the individual is motivated by social re-enforcement rather than by the satisfaction of completing the task. People with intellectual disability have consistently displayed more Positive-Reaction Tendency than their non-disabled peers during experimental tasks, resulting in poorer task performance (Balla et al 1974, Zigler 1961; Zigler and Balla, 1972). This is a developmental characteristic that

decreases as children get older, and develop independence. There is evidence to suggest that this trait is particularly associated with individuals who have grown up in depriving environments (Balla, 1967).

ii. ***Negative–Reaction Tendency*** is defined as a wariness of and reluctance to interact with strangers (Shallenberger and Zigler, 1961). This tendency was consistently found to be significantly higher in people with intellectual disability (Harter and Zigler 1968; Zigler, Balla and Butterfield, 1968). At face value it may appear as though Positive-Reaction Tendency and Negative Reaction Tendency would be mutually exclusive social interactional tendencies. However, if attachment theory is considered, it has been noted that tendencies to seek social re-enforcement and actively avoid contact with care-giving adults are both heightened in ambivalently attached infants (Ainsworth, 1973). Positive and Negative Reaction Tendency are both thought to be influenced by the bond formed with primary care-givers in early life. People with intellectual disability often have frequent changes of primary care-giver (especially if they require institutionalization or long hospital stays). In support of this, Zigler (1971) and Balla (1967) found that individuals who had had frequent changes of primary care giver, showed a greater desire for supportive adult interaction (Positive-Reaction Tendency) and were more wary of unfamiliar adults (Negative-reaction tendency). Negative-Reaction Tendency can lead to avoidance of social interactions that deny the individual the opportunity for social learning.

iii. ***Outer-directedness*** is defined as the tendency to imitate or depend upon other people to find the solution to a problem, rather than solving problems independently (Macmillan and Wright, 1974). This trait has been shown in many studies to be significantly higher in people with intellectual disability (Achenbach and Zigler, 1968, Cohen and Heller, 1975 and Yando and Zigler, 1971). Interestingly intellectually disabled individuals were found to imitate even the wrong responses of their peers on a task, rather than generate their own responses. Earlier theorists may have attributed this tendency solely to cognitive inflexibility or rigidity (Lewin, 1936). However the developmental theory of personality suggests that heightened Outer-directedness results due to repeated failures in past attempts to problem solve independently (Lustman and Zigler, 1982). When it is not extreme Outer-directedness has an adaptive function. When external cues are helpful, this will result in improved performance on a task. However when external cues are not available or misleading this will damage performance on a task (Ballo, Styfco and Zigler, 1971).

iv. ***Effectance Motivation*** is defined as the pleasure derived from tackling and solving problems or completing challenging tasks (Zigler and Hodapp, 1986). During the course of socialization children are encouraged to pursue goals and take pride in their successes and accomplishments. As children mature they tend to become achievement oriented and seek out new challenges. However it has been shown that people with intellectual disability display significantly less

Effectance Motivation than the general population (White, 1959). Effectance Motivation is a similar construct to that of internal/intrinsic motivation, which is the desire to do something for an internal reward, such as a feeling of satisfaction. People with intellectual disability have been shown to be more motivated by external/extrinsic rewards, such as social re-enforcement or gaining a prize etc (Switzky, 1997).

v. ***Expectancy of Success*** is defined as the degree to which an individual expects to succeed or fail on a task. This construct is significantly lower in individuals with intellectual disability and has been shown to adversely affect task performance (Cromwell, 1963; MacMillan and Keogh, 1971). Zigler and Hoddapp, 1986 suggest that low expectancy of success occurs in people with intellectual disability due to the fact they are frequently faced with challenges and situations that are beyond their abilities. People with intellectual disability have often experienced many failures in the past and as such are less likely to expect success.

1.2.6 Summary of the Developmental Model

The developmental model of personality is concerned with viewing the individual with intellectual disability as a "whole", rather than as the sum of their cognitive deficits. This theoretical standpoint suggests that development of personality is dependent on life

experiences and places emphasis on the role of motivation, social re-enforcement and previous success/failure (Zigler and Bennett-Gates, 1999). Broad findings from the experimental tasks have shown that individuals with intellectual disability tend to exhibit more Positive Reaction Tendency, Negative Reaction Tendency and Outer-directedness and exhibit less Effectance Motivation and Expectancy of Success personality constructs than do their non-disabled counterparts.

1.2.7 Applications of the Developmental Model

Maladaptive personality styles are considered to be important risk factors for psychiatric problems in the general population, but this is rarely considered in those with intellectual disabilities. Dykens (1999) suggests that each of these personality constructs have both adaptive components and maladaptive components. It is proposed that extreme presentation of these personality constructs may be linked to mental health and behavioral problems. For example Dykens (1999) suggests that individuals who display high levels of Positive Reaction Tendency are likely to present with inappropriate social skills, over-familiarity, social disinhibition and superficial interactions that may be related to anxiety or dependent personality disorder. It is also proposed that individuals who demonstrate extreme Negative Reaction Tendency may present as withdrawn and avoidant that may relate to avoidant personality disorder and pervasive developmental, autistic spectrum disorders. Dykens (1999) also suggests that those who demonstrate high levels of Outer-directedness may present as dependent on others, mistrusting

themselves and unable to attend to problems for long that may relate to attention deficit hyperactivity disorder or low self-esteem. Finally, on constructs relating to motivation such as Expectancy of Success and Effectance Motivation, it is suggested that individuals who demonstrate low levels may present as having low self-efficacy that may be associated with affective disorders, depression or disruptive behavior disorders (Dykens, 1999).

In conclusion, it is proposed that these personality constructs may have applicability in models of psychiatric problems and intellectual disability in terms of etiology and in the selection of suitable intervention (Dykens, 1999).

The most salient problem with the developmental model of personality is that this area of research has been carried out in isolation from other research into personality and intellectual disability. The developmental model has focused primarily on establishing links between personality, environment, motivation and task performance, but has rarely considered the possible utility of this model in mental health. In contrast the other primary research perspective in personality and intellectual disability has focused almost exclusively on exploring the prevalence of personality disorder in people with intellectual disability.

1.3 PERSONALITY DISORDER AND INTELLECTUAL DISABILITY

Interest in personality disorder has increased since it was recognized as a psychiatric disorder in 1980 according to DSM diagnostic classification criteria. This status has remained in the most recent revision, the DSM-IV-TR (American Psychiatric Association, 2000).

1.3.1 Prevalence Studies

Prevalence studies, using community surveys have shown rates to be between 4.4% and 13% within the general population (Coid et al, 2003). Early prevalence studies of personality disorder within intellectually disabled community populations described rates of 25.4% and 27.1% (Corbett, 1979; Eaton and Menolaschino, 1982). It should be noted that this is significantly higher than the rates found in the general population. This is consistent with the finding that generally, psychiatric problems are up to three times more prevalent in the intellectually disabled population (Borthwick-Duffy, 1994, Menolascino and Fleisher, 1993). This over-representation of psychiatric disorders has been attributed to the combination of deficits in cognitive, functional, social and personality functioning associated with intellectual disability (Matson 1985; Matson and Sevin 1994).

Other studies have demonstrated much smaller rates in community samples, such as, 3%, 3.9%, 1%, 6.9% and 7% (Gostasson, 1987; Jacobson, 1990; Deb and Hunter, 1991; Bouras & Drummond 1992; Naik 2002, respectively). These rates are broadly comparable to those found in the general population (Coid et al, 2003). However, in stark contrast other community studies have demonstrated massive prevalence rates such as 25-45%, 91% and 30% (Reiss, 1990; Goldberg et al, 1995; Khan et al, 1997, respectively). It should be noted that Reiss et al (1990) used abnormal personality and personality symptoms, rather than formal personality disorder diagnoses in their study. However, it is suggested that this alone could not account for such large discrepancies (Alexander and Cooray, 2003).

Personality Disorder prevalence rates of 50.6-30.7%, 56%, 36%, 57%, 58%, 92% and 39.3% were found in acute, long stay, challenging behavior and forensic hospital samples (Day, 1985; Ballinger and Reid, 1987; Deb and Hunter, 1991; Goldberg et al, 1995; Alexander et al 2002; Flynn et al, 2002; Lindsay et al 2006, respectively). As would be expected, these prevalence rates were predominantly higher than those found in the community. Goldberg et al (1995) proved to be the exception to the rule, where 91% of the community sample displayed personality abnormality as opposed to 57% of the hospital sample. They attributed this finding to the higher levels of structure and supervision offered in institutions and hospitals. It could be argued that if this were actually the case higher community prevalence rates would have been more consistently reported.

Alexander and Cooray, (2003) conducted a review of prevalence studies between 1979 and 2002 and concluded *"the variation in the occurrence of personality disorder (found in people with intellectual disabilities) with prevalence ranging from 1% to 91%...is too large to be explained by real differences"* p.30.

There are common methodological issues that may contribute to the discrepancies observed in personality disorder and intellectual disability literature (Tryer et al, 1993). These include the appropriate age for diagnosis, the complications associated with the assessment of less able individuals, the overlap with behavioral disorders, diagnostic overshadowing, the overlap with aspects of intellectual disability, issues with validity and problems with assessment measures and diagnostic classification. The issues are outlined below.

1.3.2 Common Issues in Personality Disorder Studies in Intellectual Disability

1.3.2.1 Age

Several prevalence studies included individuals under 21 years of age (Corbett, 1979; Eaton and Menolaschino; 1982, Reiss et al 1990). The difficulty in distinguishing personality disorder from the late effects of childhood psychosis, may have produced inflated rates in these studies (Corbett, 1979). The Royal College of Psychiatrists (2001) recommend that a diagnosis of personality disorder should not be made in people with

intellectual disability before the age of 21, since it is thought that they take longer to develop enduring personality traits than those in the general population.

1.3.2.2 Level of Ability

It has been shown that level of ability has an influence on the likelihood of an individual receiving a diagnosis of personality disorder. Most commonly, diagnoses of personality disorder are made in those with borderline intelligence or mild intellectual disability (Ballinger and Reid, 1988). It has been suggested that individuals with severe or profound intellectual disability are more likely to receive a diagnosis of behavioral disorder when they present with maladaptive personality traits (Naik et al 2002). The incidence and severity of communication problems, sensory difficulties, illiteracy problems and cognitive impairments increases with severity of intellectual disability. This prevents researchers/clinicians from gaining access to internal states such as thought processes, feelings and beliefs often necessary to make a diagnosis of personality disorder (Khan et al, 1997). Therefore several authors surmise that it is not possible to make a reliable diagnosis of personality disorder in people with severe and profound intellectual disability (Royal College of Psychiatrists, 2001; Lindsay, Gabriel, Dana, Young and Dosen, 2003).

1.3.2.3 Overlap between Behavioral Disorders and Personality Disorder

A study by Day et al (1985) suggested that behavioral problems such as aggression, self-injury and destruction of property are over-represented in individuals with intellectual disability. It has been argued that undifferentiated behavioral problems of this nature may be pathologised or misdiagnosed as personality disorder (Mooreland, 2008). Misdiagnoses of behavioral disorders associated with intellectual disability may account for the over-representation of personality disorder in some studies while other issues such as 'Diagnostic Overshadowing' may account for the under-representation in other studies and clinical practice.

1.3.2.4 Diagnostic Overshadowing

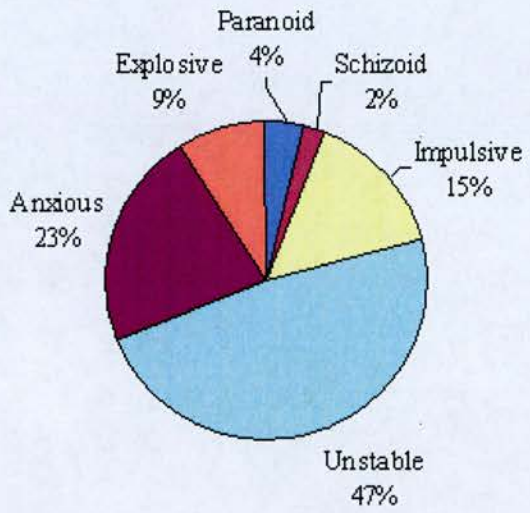
Diagnostic overshadowing is a commonly found phenomenon in intellectual disability research. This refers to the ruling out of a possible secondary diagnosis due to overshadowing from a primary diagnosis. The impairments associated with intellectual disability are global in their effect on functioning. Mooreland (2008) suggested that often in clinical practice the primary diagnosis of intellectual disability may overshadow other diagnoses, such as personality disorder. Hurley and Sovner, (1995) diagnosed 6 men with personality disorder in a research study. Even though all 6 men clearly fit the criteria for personality disorder, only one of these men had actually received a formal

diagnosis in clinical practice. Consistent with this, Khan et al (1997) reported lower rates of diagnosis in clinical practice compared to the rates found in research and attributed this to the effects of diagnostic overshadowing.

1.3.2.5 The Overlap between Personality Disorder and Intellectual Disability

There is a clear overlap between the presentation of intellectual disability and that of personality disorder. This overlap may have led to the inflated rates of specific types of personality disorders in prevalence studies. One of the earliest prevalence studies conducted by Corbett et al (1979) demonstrated a prevalence of 25.4% personality disorder from a sample of 402 adults receiving intellectual disability services in the community. Of those adults deemed to have personality disorder, there was a clear over-representation of individuals diagnosed with "unstable" personality disorder (figure 1). The authors acknowledged the similarity in presentation between intellectual disability and 'unstable personality disorder'.

Figure 1. Personality Disorder Sub-types in Adults with Intellectual Disability (Corbett, 1979)



Consider the following diagnostic definitions for specific sub-types of personality disorder from the International Classification of Diseases Criteria, ICD-10 (WHO 1993) and the Diagnostic and Statistical Manual of Mental Disorders DSM IV (American Psychiatric Association 1994):

Unstable Personality Disorder - *"Marked tendency to act unexpectedly and without consideration of the consequences" and "difficulty in maintaining any course of action that has no immediate reward."* People with intellectual disabilities typically have problems with impulse control (Allen, 2000). They are also more dependent on external motivation such as social re-enforcement (Switzky, 1997).

Dependent Personality Disorder - *"Allowing others to make most of ones important life decisions", "undue compliance for other's wishes", limited capacity to make everyday decisions without excessive amount of advice and reassurance from others".* It has been demonstrated that people with intellectual disability also tend to have low self-efficacy and are very reliant upon others to solve their problems and make decisions (MacMillan and Wright, 1974).

Borderline Personality Disorder - Includes features such as self-injury, impulsivity and affective lability. These features are commonly associated with intellectual disabilities (Alexander and Cooray, 2003). An interesting series of case studies by Mavromatis et al (2000) demonstrated how three intellectually disabled individuals, selected at random from a community sample, would all receive a diagnosis of "Borderline Personality Disorder" if DSM-IV criteria were applied.

This overlap also extends to the developmental disorders associated with intellectual disability. In an early study, Craft et al (1959) reported an over-representation of 'schizoid personality disorder'. It was proposed that this had arisen due the overlap in presentation with autistic spectrum disorder (Deb and Hunter, 1991). In addition, Naik et al (2002) suggested that personality disorders such as 'anxious', 'dependent' or 'schizoid' are not clearly defined due to their similarities and potential for confusion with aspects of intellectual disability or developmental disorders, such as the autistic spectrum disorders.

In conclusion researchers and clinicians should be especially cautious when diagnosing emotionally unstable, dependent, borderline, anxious/avoidant and schizoid personality disorders in people with intellectual disability. This large degree of overlap may account for the extremely high prevalence rates found in some studies (Goldberg et al 1995). This leads to doubts as to whether the current diagnostic criteria for personality disorder are appropriate for people with intellectual disabilities (Flynn et al 2002; Alexander and Cooray, 2003).

1.3.2.6 Diagnostic Criteria and Intellectual Disability

Personality disorder and intellectual disability research has employed a variety of diagnostic classification systems (e.g International Classification of Diseases Criteria, ICD-10, WHO 1993; Diagnostic and Statistical Manual of Mental Disorders, DSM III and DSM IV, APA 1994). This diversity of diagnostic criteria may account for some of the inconsistencies found in personality disorder prevalence research. As outlined in the preceding section, the current criteria are not suited to clearly distinguishing between personality disorder and the impairments in social, behavioral and cognitive functioning associated with intellectual disability (Mooreland et al, 2008).

More recently the Diagnostic Criteria for Learning Disability, DC-LD (Royal College of Psychiatrists, 2001) was developed to address some of the common issues related to the diagnosis of psychiatric problems in people with intellectual disabilities. The diagnostic

criteria of the DC-LD varies to that of the DSM IV or the ICD-10 since it acknowledges the presence of intellectual impairment. As such it attempts to avoid falsely attributing the behavioral or cognitive problems of intellectual impairment to psychiatric disorders, and also attempts to avoid diagnostic overshadowing. In relation to personality disorder it provides the following guidelines. A higher age threshold (over 21) for diagnosing personality disorder is recommended. Clinicians are advised to avoid the categories of schizoid, dependent and anxious/avoidant personality disorders. Finally, the classification system advises that a personality disorder diagnosis in people with severe or profound intellectual disability is unlikely.

Despite this addition to the classification systems, the validity of a diagnosis of personality disorder in people with intellectual disabilities using the current classification systems is questionable. This has led to debate over the clinical utility of the diagnosis.

1.3.2.7 Clinical Utility

There is evidence to suggest that clinicians are reluctant to make a diagnosis of personality disorder in people with intellectual disabilities. In addition it has been demonstrated that clinician diagnoses are often found to correlate poorly with the classification systems that were designed for use with people without intellectual disabilities (Kroese et al, 2001). Khan et al (1997) demonstrated that a diagnosis of

personality disorder and intellectual disability is rarely used in the clinical setting when compared with research prevalence rates (Khan et al 1997). This could be attributed to the fact that clinicians have more reservation in making these diagnoses than researchers due to the perceived derogatory nature of a personality disorder diagnosis in an already stigmatized group (Lindsay et al, 2006). It was demonstrated that in-patients with personality disorder and intellectual disability are less likely to be discharged than other patients (Deb and Hunter, 1991). Worryingly, there is evidence to suggest that people with intellectual disability and personality disorder in hospital settings are predominantly managed using high dose psychotropic medication (Ballinger and Reid, 1987). Finally, clinicians may believe that this diagnosis may prejudice the access to suitable service or community/residential placements for their patients (Khan et al, 1997).

Earlier research could be criticized for focusing exclusively on the prevalence of personality disorder and ignoring aspects of etiology, intervention or management. However more recently researchers have began to explore the utility of a diagnosis of personality disorder in people with intellectual disability. The utility of any diagnosis lies in the ability to make meaningful predictions about a client group. A diagnosis of personality disorder has been shown to predict aggressive behavior (Lidher et al 2005) and risk of co-morbid psychiatric illness (Goldberg et al 1995). At a service allocation level, the diagnosis of personality disorder has been shown to influence the rate of referral to specialist services (Zigler and Burrack, 1989) and predict the level of security required for forensic patients (Lindsay et al, 2006). In addition it has an influence on

the possibility of being detained under a section (Mental Health Act DOH 1999) and on the type of therapeutic intervention that the individual is likely to receive (Hurley and Sovner 1995; Mavromatis 2000; Wilson 2001).

1.3.2.8 Summary and Conclusions

The assessment of personality disorder in people with intellectual disability using current criteria is highly contentious. The most insurmountable problem is in distinguishing personality disorder from the impairments and deficits associated with intellectual disability. Alexander and Cooray (2003) and Reid et al (2004) recommend that researchers should be more cautious in diagnosing personality disorder and use several sources of information in assessment, including formal assessment schedules, behavioral observation, file review and interviews with several informants (family members, nursing staff etc.) Recent studies have followed these guidelines, and as a result they have not exhibited an over representation of the personality sub-types that overlap with intellectual disability (Lindsay et al 2006). In addition the DC-LD is also an encouraging development that may facilitate further research and assist with more valid diagnosis in clinical practice.

Gostasson et al (1987) suggest that personality disorder research has largely been carried out in isolation from other fields of personality research. They suggest that personality disorder should be considered in the context of personality development within the

intellectually disabled population. Torr (2003) and Dykens (1999) agree that developmental personality characteristics in people with intellectual disability (section 1.2) are likely to contribute to the etiology of personality disorder in adult life. It is clear that an integration of these disparate areas of personality disorder research and developmental research would greatly improve our overall understanding of personality in intellectual disability.

Finally, in the diagnosis of personality disorder and in understanding the personalities of people with intellectual disability it is important to consider how personality is assessed.

1.4 PERSONALITY ASSESSMENT AND INTELLECTUAL DISABILITY

1.4.1. Measuring Personality Traits

The conceptualization of the human personality has been a highly contentious topic over the years. Personality theories differ greatly in their theoretical roots and many of the debates are ongoing, such as whether personality is stable or dynamic and whether personality develops as a consequence of genetic or environmental factors. However, many theorists agree on the existence of underlying personality 'traits' that influence human behavior (Allport 1921; Cattell, 1962; Eyesenck, 1970).

Personality traits are modeled as broad dispositions to behave in certain ways. It is acknowledged that everyone has a unique set of personality traits that account for the diversity of human behavior and the different ways people respond to situations. Trait theorists also agree that these traits are hierarchical in nature. Eyesenck suggests that behavior can be thought of in terms of a specific set of responses to different situations. These responses tend to be linked to each other to form more general behavioral habits that are thought to stem from underlying personality traits. Knowledge of these traits can allow predictions to be made about how people will act or what they will prefer. For example those who prefer meeting new people to reading alone could be predicted to enjoy attending parties and social events (Eyesenck, 1970).

There are many approaches to measuring personality traits. These can be broadly separated into unstructured tests and structured tests. Unstructured tests were largely developed from the psychoanalytic approach and were popular in the 1940's and 1950's. These include projective tests such as the Rorschach ink-blot test where individuals are asked to look at an ink-blot and describe what they perceive it to represent. From this the psycho-analyst would then interpret the responses and relate them to the underlying wants, desires and traits of the individual.

Structured personality tests usually take the form of questionnaires that are completed by the individual themselves or by an observer. These questionnaires are concerned with how the individual will feel and act in certain situations. The aim of this type of assessment is to reveal trends in responses that suggest behavioral tendencies that can be

linked to underlying personality traits. The present study will focus on structured personality assessments and personality questionnaires.

1.4.2. Personality Assessments

In the general population there are many personality questionnaires that have been developed to assess personality and diagnose personality disorder. The assessment of personality disorder in intellectual disabilities is an area that has been rapidly attracting interest over recent years. Several of the personality assessment questionnaires from the general population have been adapted or simplified for use with the intellectually disabled population. These include the Reiss Screen (Reiss et al, 1988), the Psychopathology Inventory for Mentally Retarded Adults (Matson et al, 1988), the Temporal-Lobe Personality Behavior Inventory (Bear et al, 1977), the NEO PI-R (Costa and McCrae, 1992), the abbreviated Structured Assessment of Personality (SAP) (Mann et al, 1981) the Psychopathy Check-List Revised PCL-R (Hare, 1991) and the Abbreviated Minnesota Multiphasic Personality Inventory - MMPI-168-L (Overall, Butcher and Hunter, 1975; Overall and Gomez-Mont, 1974).

The abbreviated SAP (Mann et al, 1981) is the most commonly used assessment in personality disorder and intellectual disability research. It depends upon an informant rating to establish a diagnosis. The existence of one or more personality traits that cause significant personal distress, social or vocational impairment is sufficient for a diagnosis of personality disorder.

There are items on the SAP that are designed to measure subjective inner experience such as 'continual feelings of emptiness'. This assumes that the informant has access to an individual's internal emotional states and beliefs. However those with more significant intellectual impairment are often unable to interpret and then express their subjective inner experience (Flynn et al, 2002). Another problem with the SAP is that it was designed around ICD-10 diagnostic criteria and recent studies suggest that the current ICD-10 criteria may not be suitable for people with intellectual disability (Mooreland et al, 2008) (see section 1.3.2.6).

Personality assessments vary greatly in their design and administration. There is an ongoing debate as to whether these assessment measures should be diagnostic or dimensional in nature.

1.4.3 Diagnostic or Dimensional?

Diagnostic (also known as categorical) assessment involves identifying the presence or absence of particular traits or symptoms in an individual to determine if they meet specified criteria. The diagnostic approach to personality assessment is concerned with identifying traits that are maladaptive, different from the norm or clinically significant. Diagnostic/categorical assessments are designed to fit the criteria specified for a diagnosis of personality disorder in the DSM IV and the ICD-10 classification manuals.

There are however several problems with this approach. It is suggested that there is such a high degree of co-morbidity associated with personality disorder that it is often not possible to categorize separate diagnostic entities (Clark et al 2001; Widiger et al 2006).

Mainstream research into the structure of personality, as opposed to personality disorder, has tended to define personality traits as dimensional rather than categorical (McCrae and Costa, 1985). It seems illogical to have one form of assessment for 'normal' personality and a different form of assessment for 'abnormal' personality. Dimensional approaches also appear to be theoretically consistent with some of the symptom complexities that are observed in clinical practice. For example it has been observed that personality disorder varies by degree of severity (Flynn et al, 2002). This would be consistent with the theory that personality disorder should be thought of as extreme presentation of normal personality traits rather than as a completely different entity.

Dimensional personality assessment scales are modeled as a continuous spectrum with extreme scores reflecting abnormal personality traits. Some examples of dimensional personality assessments include the NEO PI-R (Costa and McCrae, 1992), the Structured Interview for the 5 factor model (Trull and Widiger, 1994) and the EZ Yale Personality Questionnaire (Zigler et al, 2002). The consensus opinion has recently evolved to suggest that the dimensional approach to personality assessment has more utility than black and white 'normal' or 'personality disordered' categories (Blackburn, 2000; Clark et al, 2001; Livesley et al, 2001).

1.4.4 Self-Report or Informant-Report?

Personality assessment questionnaires and schedules also vary in the manner they are administered. Self-report measures involve assessment of the individual directly as they rate aspects of their own personality. The strength of self-report measures is that they are not subject to interpretation by a family member, health professional or carer. This is particularly advantageous on items that are related to subjective inner experiences such as emotions and beliefs. However, self-report scales tend to be problematic when used in psychiatric populations since depending on the psychiatric disorder the individual may lack insight and ability to be objective. Self-report is also problematic in the assessment of people with intellectual disabilities as a result of sensory problems, cognitive deficits and difficulties with language comprehension (Khan et al 1997). Informant-rated measures are completed by someone who is familiar with the individual. A number of studies conclude that self-report measures should be backed-up by the additional use of behavioral observation, file review and informant-rated measures (Lindsay et al 2006, Alexander and Cooray, 2003 and Reid et al 2004).

1.4.5 Validity of Personality Assessment Measures in Intellectual Disability

The validity of personality assessments has rarely been investigated in relation to intellectually disabled patients (Flynn et al 2002). Hogan and Nicholson (1988) define

the four factors of construct validity as:

1. *The degree to which the assessment tool is underpinned by precise criteria and theoretical consideration.*
2. *The evidence base for the components of the classification system and empirical support.*
3. *The degree to which the assessment tool reliably measures the same construct while being differentiated from tools that measure other constructs.*
4. *The degree to which the assessment tool can predict behavior and treatment outcome.*

Using these principles many of the current classification systems and personality measures would appear to be inappropriate when applied to people with intellectual disabilities (Blackburn 2000). The central problem is that the majority of personality assessment schedules and personality disorder diagnostic tools were designed for use in the non-disabled population. Several of the assessment scales have been adapted or abbreviated for use with disabled individuals, but are generally not developed from an intellectual disability perspective. In contrast, the EZ Yale Personality Questionnaire, EZPQ (Zigler et al, 2002) was designed from the developmental perspective of personality and intellectual disability. It is the only questionnaire or scale that attempts to measure the personality and motivational constructs that appear to be such important determinants of behavior and task performance in people with intellectual disability (see section 1.2). There is a consensus that further investigation of the EZPQ may be the first

step in applying developmental personality principles to the assessment of mental health problems such as personality disorder (Torr et al 2003; Reid et al 2004; Lindsay et al 2007a; Mooreland et al 2008).

1.5 THE EZ-YALE PERSONALITY QUESTIONNAIRE

1.5.1 The Need for a Combined Measure

The EZ-Yale Personality Questionnaire (Zigler et al, 2002) was designed to measure the personality constructs identified by Zigler and his colleagues following four decades of experimental testing (see section 1.2.5). It is based on the developmental model of personality in individuals with intellectual disabilities (Zigler and Bennett-Gates, 1999).

Historically the developmental constructs of personality, such as Positive Reaction Tendency, Negative Reaction Tendency, Outer-directedness, Effectance Motivation and Expectancy of Success were only accessible by observation of the performance of people with intellectual disability on experimental tasks (such as the Sticker Game, the Probability Learning Task and the Marble in the Hole Game etc.). However, in terms of their utility in research and clinical practice there are several problems associated with these experimental tasks. Each of the tasks require access to specific materials and testing environments. In addition often a long time period is required to administer each task. There is also the problem of order effects meaning that only one personality

construct may be accurately measured at a time. These cumulative issues prevent clinicians from accessing any kind of developmental personality profile from experimental assessment. This restricts the application of the developmental personality constructs to tests of performance and motivation.

The EZPQ was developed as a combined measure of the developmental personality constructs and allows clinicians and researchers to assess all of the constructs at one time. It is an informant-rated questionnaire that takes around 15 minutes to complete and consists of 37 items. The items are presented as a series of statements. The informant is asked to rate each statement on a 1-5 scoring scale for the degree that it applies to the individual, with a rating of 1 representing 'very much not true of this individual' and 5 representing 'very much true of this individual. This enables researchers to explore these constructs more thoroughly and apply them to areas such as the etiology of behavioral disorders and mental health problems including personality disorder.

1.5.2 Development of the EZPQ

Zigler et al (2002) conducted a four-part study to establish the factor structure, reliability and validity of the EZPQ. They used 661 children and adolescents with intellectual disabilities (ages 5-20 years) across 53 participating special education and mainstream schools in the United States (IQ ranging between 45 and 75). Children and adolescents

were used in the development of the scale so that they could be compared to age-matched non-disabled peers. Zigler et al (2002) suggest that the scale was not designed exclusively for children/adolescents and could be applied to adult samples. The developmental model of personality conceptualizes personality as a dynamic construct, which is continuously shaped by past experience, rather than as static and enduring as conceptualized by other theories of personality. Zigler and Bennett-Gates (1999) suggest that the 5 personality constructs measured by the EZPQ may develop and change over the course of a lifetime, and as such age norms may be established in future studies. As of yet the EZPQ has only been used with samples of children and adolescents.

In the first part of the study four experts in the field were asked to come up with 115 items/questions that they thought were capable of identifying the 5 personality constructs. Using factor structure and item analysis the authors deleted items that were found to be inconsistent or redundant and the current pool of 37 items remained. From the factor analysis a further two personality constructs emerged. Zigler et al (2002) labeled them as the 6^{th} and 7^{th} developmental personality constructs.

vi. **Curiosity/Creativity** is defined as the heightened pleasure derived from attempting novel or unfamiliar tasks. Intellectually disabled individuals have been found to have lower scores on this construct than their non-disabled peers (Zigler et al, 2002). As a motivational construct it was found to closely correlate with other motivational constructs such as Effectance Motivation and Expectancy of Success.

vii. **Obedience** is defined as the ability to follow specific directions/rules in a given situation. People with intellectual disability were shown to attain lower scores on this construct (Zigler et al, 2002). The authors suggest that the lower scores found on the Obedience construct relate to difficulties in understanding, retaining and putting into practice specific instructions/rules. The construct of Obedience differs from Outer-directedness since Obedience relates to the more adaptive ability to follow directions as opposed to over-dependence on others.

Zigler et al (2002) also explored the internal consistency, split half reliability and test retest reliability of the instrument. The findings (using Cronenbach's Alpha statistical analysis) revealed that the alpha scores ranged from .79 to .91, indicating good reliability across the entire scale. In addition they demonstrated that the EZPQ is able to distinguish between intellectually disabled individuals and those without disability with 92.3% accuracy.

1.5.3 Previous Research using the EZPQ

The EZPQ is a relatively new personality assessment measure and to date has only been used in one study. This lack of research is representative of the relative dearth of personality and intellectual disability research as a whole (Torr et al, 2003). Henrich et

al (2005) utilized the personality constructs from the EZPQ to assess the motivation of 133 children in their third and final year of a remedial educational program called 'Head Start'. Head Start was designed to prepare underperforming and underprivileged children for school by enhancing social-emotional and cognitive development.

As part of the study the psychometric properties and structure of the EZPQ were examined in this sample. The results demonstrated that 6 out of the 7 scales were internally consistent. The Positive Reaction Tendency construct was not internally consistent and so was not included in the rest of the analysis. Statistical analysis showed a very high correlation between the Effectance Motivation, Expectancy of Success and Creativity/Curiosity constructs. The authors decided that the 3 constructs were not well defined in this sample and so formed a composite score labeled Academic Mastery. Academic Mastery is broadly a measure of motivational style, self efficacy and ability to persevere with tasks.

The constructs of Negative Reaction Tendency, Outer-directedness and Academic Mastery from the EZPQ were used as an outcome measure of the program. They found that children that had been in two years of head start were rated higher on Academic Mastery and rated lower on Outer-directedness and Negative Reaction Tendency. In addition this correlated strongly with other measures of social-emotional and academic performance. The results of this study highlighted the importance of including motivation as a variable for social and academic performance at school. In addition this study demonstrates the possible utility of the EZPQ as a measure of motivational style in

an educational setting.

It is likely that the EZPQ may have utility in the clinical population as well as educational. The EZPQ has possible utility in increasing our understanding of the developmental context of mental health disorders such as personality disorder in people with intellectual disability. However since it is a relatively new assessment it requires further exploration.

1.5.4 Future Exploration of the EZPQ

In terms of testing and validation, the EZPQ has been shown to have good split half reliability and test retest reliability. The findings from Zigler et al (2002), using Cronenbach's Alpha statistical analysis, revealed that the alpha scores range from .79 to .91, indicating good reliability across the entire instrument. This study also demonstrated that the EZPQ was capable of discriminating between intellectually disabled and non-disabled individuals with 92.3 percent accuracy, providing evidence of construct validity. Sufficient convergent validity was also evidenced as each of the 7 personality constructs correlated well with the respective experimental task. However it must be noted that the constructs of the EZPQ have never been compared to similar constructs from other more established personality assessments.

It has been suggested that the convergent validity of personality assessments is generally

very poor (Clark et al 2001). This is a serious problem as the choice of personality assessment may result in a different diagnosis or profile. Without convergent data it is not possible to further refine our current knowledge of personality traits or the diagnostic criteria for personality disorder.

There have been very few attempts to compare assessments of personality to one another within the intellectual disability field. It appears to be taken for granted that if two assessments purport to measure the same personality constructs then they would strongly relate to each other. A study by McDaniel et al (2003) compared similar constructs of the Minnesota Multiphasic Personality Inventory abbreviated for intellectual disability (MMPI-168 L Overall, Butcher and Hunter, 1975; Overall and Gomez-Mont, 1974) to those of the Assessment of Dual Diagnosis (ADD; Matson, 1997). The results of the Pearson Product-Moment correlation analysis demonstrated very few significant associations between the scales at all. This even applied to scales that purported to measure the same constructs e.g. 'Mania' scale on the MMPI compared to the 'Mania' scale on the ADD.

In contrast, The NEO Personality Inventory Revised, NEO PI-R (Costa and McCrae, 1992) is a personality assessment that is based on the rigorously researched Five Factor Model of Personality. As such it has been compared to numerous other personality measures and models. The 5 personality constructs of the NEO PI-R have been found to correlate to similar constructs form other scales, such as; the Bipolar Adjective Scale (McCrae and Costa, 1987), measures of vocational interest (Costa, McCrae and Holland,

1984), measures of defense mechanisms (Costa, Zonderman and McCrae, 1991), the Personality Research Form Costa and McCrae, (1988a) and the Psychopathy Check List Revised (Clark et al 2001). Also a recent unpublished study has found the NEO PI-R to correlate well on similar personality constructs from 12 other established personality inventories (Costa and McCrae, in press b).

From this it could be argued that the NEO PI-R is unusual due to it's high level of convergent validity with other measures. As such it would be an ideal personality assessment scale to compare to the EZPQ. Both scales consist of personality constructs that purport to measure interpersonal tendencies, motivational styles, independent problem solving style and self-concept.

1.6 THE REVISED NEO PERSONALITY INVENTORY (NEO-PI-R)

1.6.1 Overview

The NEO PI-R (Costa and McCrae, 1992) is the most recent incarnation of the NEO PI (Costa and McCrae, 1985) and is based on the five-factor model of personality (section. 1.6.2). The NEO PI-R is a personality questionnaire that consists of 240 statements that the rater must respond to by circling either SD -Strongly Disagree, D – Disagree, N – Neutral, A- Agree, SA- Strongly Agree. The responses from the questions are grouped into 5 main personality dimensions known as domain scores. The 5 personality domain

scores comprise of 6 related personality facets. As such the NEO PI-R is capable of providing very detailed and descriptive personality profiles. The domains and facets relate to normal personality traits rather than maladaptive traits. However, extreme scores on certain domains (e.g. high Neuroticism, low Conscientiousness, low Agreeableness) have been found to be associated with personality disorder and psychiatric problems (Costa and McCrae, 1990).

In addition, the NEO-PI-R uses dimensional scales, where the facets and domains of personality are represented as a continuum rather than by categories as used by other personality inventories (Minnesota Multiphasic Personality Inventory, Hathaway & McKinley, 1983). This is one of the advantages of the NEO-PI-R as several studies advocate a dimensional approach to personality assessment (Loranger, 1997; Livesely, 2001; Clark et al 2001). Another advantage is that the NEO PI-R is standardized against a large population (n=1,000). Therefore the personality characteristics and profiles of individuals can be compared to the normative sample, providing a percentile rank comparison. The NEO PI-R can be completed either by self-report (form S) or by an informant (form R).

1.6.2 The Five Factor Model of Personality

The NEO PI-R was designed to measure the 5 personality domains that comprise the five-factor model of personality. The five factor model is a dynamic personality model

and as such the factors are regularly studied and reconceptualised (Digman, 1990).

The five-factor model was developed out of the lexical tradition that involved the analysis of words (trait adjectives) found in language (John, Angleitner and Ostendorf, 1988). In this tradition a large list of words that are used to describe people were identified by the researchers, such as 'anxious', 'excited', 'cautious' and 'humorous' etc. These adjectives were then used to rate a sample of individual. The results were factor analyzed to reveal what lexical theorists believe to be the enduring underlying characteristics of personality (John 1990).

The five domains of the NEO PI-R and the five factor model of personality are outlined below.

Neuroticism (N)

The domain of Neuroticism is associated with the tendency to experience negative affect, including anxiety, sadness, embarrassment, agitation and disgust. Costa and McCrae (1992) suggest that individuals prone to any one of these negative emotional states are also more likely to experience others. Those who score highly on Neuroticism are more likely to experience negative states, irrational ideas, are less able to control their impulses, and do not cope well with stress. High scores of N are associated with an increased risk of mental health problems (Costa and McCrae, 1987). Those who have

low scores on the N domain, tend to be emotionally stable, calm and even tempered and are more likely to cope well with stress (Costa and McCrae, 1992).

Extraversion (E)

Extraverts (i.e. those who score high on E) are generally characterized as being very sociable. However Extraversion also includes other aspects of personality such as assertiveness. Extraverts tend to enjoy excitement, are energetic and active. Low scores on this scale indicate introversion. Introversion should be seen as the absence of the traits associated with extraversion rather than the opposite of them (Costa and McCrae, 1992). Therefore introverts will present as being shy rather than unfriendly. In addition studies have provided evidence to suggest that introversion is not associated with pessimism, anxiety or sadness (Costa and McCrae, 1980a; McCrae and Costa, 1987).

Openness (O)

The components of Openness are thought to comprise of, active imagination, aesthetic sensitivity, sensitivity to inner feelings, preference for variety, intellectual curiosity, and independence of judgment (Costa and McCrae, 2005). Costa and McCrae (1992) describe those who score low on Openness to be limited in their repertoire of behavior and conservative in their outlook. In contrast they suggest high scores on Openness

indicate that the individual is curious about all facets of internal and external experience. Costa and McCrae (1992) suggest that although people with high openness scores may appear more healthy and mature than others, the value of this trait is entirely dependent on the environment.

Agreeableness (A)

Agreeableness is related to interpersonal tendencies. Those who score highly on agreeableness tend to be more altruistic, sympathetic to others, eager to help and believe others will help them in return. Those who score low on Agreeableness tend to be antagonistic, egocentric, skeptical of others intentions and competitive rather than co-operative according to Costa and McCrae (1992).

Conscientiousness (C)

Contentiousness is related to the control of impulses and desires according to McCrae and Costa (1992). Self-control, motivation and self-direction are the key characteristics of this domain. Those who score highly on contentiousness are more likely to attain academic and occupational achievement however they are also more likely to be fastidious, compulsively neat and workaholics, according to Costa and McCrae, (1992). It is suggested that those who attain low scores on contentiousness are less interested in

achieving goals, more hedonistic and more interested in sex (McCrae, Costa and Busch, 1986)

1.6.3 Utility of the NEO PI-R

The 5 personality domains of the NEO PI-R have been shown to have utility in educational research, vocational studies and in the clinical setting. The Conscientiousness and Openness domains are thought of as representing motivational and intellectual personality constructs respectively, as such they are thought to have utility in educational psychology. Openness has been shown to mildly correlate with measures of intelligence and creativity (McCrae, 1987) and has been shown to predict college performance (McCrae, Costa and Piedmont, in press). Furthermore it has been shown that those who score highly on conscientiousness are more likely to be rated as intelligent by themselves and others (McCrae and Costa, 1987). Whether Openness as a personality construct can be improved with educational methods or through practice is an area for future consideration.

The NEO PI-R personality domains also have application in the areas of vocational counseling and organizational psychology. Vocational interests and choice of employment have been shown to be strongly related to NEO PI-R personality domains, particularly Extraversion and Openness (Costa, McCrae and Holland, 1984). Also, job dissatisfaction has been shown to be related to high scores on Neuroticism (Perone,

DeWaard and Baron, 1979). The NEO PI-R domain of Conscientiousness has been linked to job performance as measured by the Military Leadership Scale (Gough and Heilburn, 1983). However, Holland (1985) suggests that the NEO PI-R should not be used in place of a well validated vocational interest scale.

Finally, the NEO PI-R has been shown to demonstrate utility in a clinical setting. In therapy, an individual's NEO PI-R profile can provide the clinician with a useful insight into the specific personality traits that may influence the therapeutic process. Also, although the NEO PI-R was not designed to be a diagnostic tool, several studies have demonstrated strong correlations between the five personality domains and psychiatric disorders (Costa and Widiger, in press, Wiggins and Pincus, 1989). Extremely high scores on the domain of Agreeableness are associated with dependent personality disorder, while extremely low scores are associated with narcissistic, antisocial and paranoid personality disorders (Widiger et al, in press; Costa and McCrae, 1990). The NEO PI-R may be particularly useful as a screening tool for personality disorder as recent research suggests that personality disorders are dimensional in nature (Blackburn, 2000; Clark, 2001). Finally, other studies have shown the domain of Neuroticism in the NEO PI-R to be linked to mental health problems such as anxiety and depression (Widiger and Trull, in press).

1.6.4 The NEO PI-R and Intellectual disability

A recent exploratory study by Lindsay et al (2007a) examined the use of the NEO PI-R with people with intellectual disabilities. In the first part of the study the authors simplified the questions on the NEO PI-R self report form so that they would be easier for people with intellectual disabilities to comprehend. The authors then assessed the convergent validity of the simplified questions by comparing the original NEO PI-R and the adapted NEO PI-R on a sample of non-disabled adults. They found that the personality domain scores and the 30 facet scores were very closely correlated with the original measure.

In the second part of the study they compared the ratings on the adapted version of the self-rated NEO PI-R with the ratings from the informant-rated NEO PI-R in a sample of 40 intellectually disabled offenders. The results revealed broad reliability between the self-rated and the informant-rated measure but also demonstrated significant inconsistencies between the self-rated and informant rated measures in some of the participants. The Conscientiousness domain demonstrated the largest degree of inconsistency, where informant-rated scores were significantly lower than self-rated scores. The inconsistency between the measures led the authors to conclude that the results from self-rated measures should be combined and substantiated using an informant-rated measure. Another problem with the simplified version of the NEO PI-R was that it took around 3-4 hours to administer, using visual communication aids etc. A

lengthy administration time such as seriously affects the applicability of the self-report NEO PI-R as a routine clinical instrument.

In the present study the informant-rated form of the NEO PI-R (form-R) was chosen due to the problems associated with the self-report measure.

1.7 PRESENT STUDY

1.7.1 Comparison of the EZPQ and the NEO PI-R

In this study personality constructs on the EZPQ are compared to similar personality constructs on the NEO PI-R in an intellectually disabled sample. Clark et al 2001 reported on the general lack of convergent validity between personality assessment measures and the need for comparison of scales that purport to measure similar constructs.

There is a theoretical and experimental evidence base for the 7 developmental personality constructs that are measured by the EZPQ personality assessment (Zigler and Bennett-Gates 2002). These 7 constructs relate to a mixture of task performance and interpersonal personality characteristics that may have utility in the assessment of people with intellectual disabilities.

The EZPQ does not exist in a self-rated form and must be completed by an informant. Therefore, in this study the informant-rated version of the NEO PI-R was chosen as a comparison to the EZPQ (form R, Costa and McCrae, 1995). This was thought to be appropriate since Ackenbach and McConaughy (1987) demonstrated that self-report measures correlate poorly with informant-rated measures.

The NEO PI-R was selected to compare to the EZPQ in this study for several reasons. Firstly, both scales are trait based and measure personality constructs using a dimensional approach. Also recent studies have demonstrated that both the EZPQ and the NEO PI-R have utility with people with intellectual disabilities (Zigler et al, 2002; Lindsay, 2007a).

In addition, the five factor model upon which the NEO PI-R is based, has consistently proven to have good convergent validity with other personality measures (Costa, Zonderman and McCrae, 1991; Dye, 1991; Angleitner and Ostendorf, 1991). Finally, the narrative definitions of the 5 personality domains of the NEO PI-R appear to demonstrate considerable similarities and overlap with those of the EZPQ.

It would appear from examination of the domains and constructs of the questionnaires that Positive Reaction Tendency (EZPQ) may relate to Extraversion (NEO PI-R), since these constructs are both associated with a desire to interact with others. Also Negative Reaction Tendency (EZPQ) may relate to Neuroticism (NEO PI-R) since both constructs measure anxious-avoidant type personality characteristics. There is some evidence to

suggest that Positive Reaction Tendency/Extraversion and Negative Reaction Tendency/Neuroticism may represent the two most important groupings of personality traits that underlie the various subtypes of personality disorder. Lindsay et al (2007b) conducted a factor analysis on the diagnosis of personality disorder in 164 people with intellectual disabilities. This factor analysis revealed that the diagnoses made in this sample could be clustered into two broad groups or a 2-factor model of personality disorder. This 2-factor model was found to account for 37.2% of the variance between diagnoses. The authors concluded that these two factors were statistically independent. The two factors were defined as 'avoidant/rumination/inhibited' and 'acting out' and suggested that they may relate to the Neuroticism and Extraversion constructs on the NEO PI-R and as a consequence may also be consistent with Negative Reaction Tendency and Positive Reaction Tendency on the EZPQ. A similar two factor model was found by Blackburn, Logan, Renwick and Donnelly (2003) in a study of 168 male forensic psychiatric inpatients. They suggested these factors should be named 'acting out' and 'anxious inhibited' and proposed that they were the two most stable factors underlying personality disorder.

Further predictions could also be made that Curiosity/Creativity (EZPQ) is predicted to relate to Openness (NEO PI-R) as they are both associated with intellectual curiosity and the desire to attempt new or challenging activities. Also, Effectance Motivation (EZPQ) may show positive associations with Conscientiousness (NEO PI-R) since both constructs are motivational in nature, related to task performance and measure an individual's belief in their own abilities and competence. Lastly, Obedience (EZPQ)

could be predicted to be associated with Agreeableness (NEO PI-R) since both are interpersonal constructs that relate to compliance.

The existence of positive correlations between similar personality constructs would further our knowledge of the constructs of the EZPQ and the NEO PI-R, in terms of their applicability to people with intellectual disability. Knowledge of the areas of overlap between these personality assessments could also guide future researchers and clinicians in their choice of personality assessment.

1.8 AIMS AND HYPOTHESES

The principle objective of this research is to explore the degree of overlap between similar personality constructs on the EZ-Yale motivation-personality questionnaire (EZPQ) (Zigler et al, 2002) and the NEO personality index revised (NEO PI-R)(Costa and McCrae, 1992), in a sample of adults with intellectual disability.

The following hypotheses were generated:

1.8.1 Hypothesis 1:

Positive Reaction Tendency (EZPQ) will be positively correlated with Extraversion (NEO PI-R) in individuals with intellectual disability.

1.8.2 Hypothesis 2:

Negative Reaction Tendency (EZPQ) will be positively correlated with Neuroticism (NEO PI-R) in individuals with intellectual disability.

1.8.3 Hypothesis 3:

Effectance Motivation (EZPQ) will be positively correlated with Conscientiousness (NEO PI-R) in individuals with intellectual disability.

1.8.4 Hypothesis 4:

Obedience (EZPQ) will be positively correlated with Agreeableness (NEO PI-R) in individuals with intellectual disability.

1.8.5 Hypothesis 5:

Curiosity/Creativity (EZPQ) will be positively correlated with Openness (NEO PI-R) in individuals with intellectual disability.

CHAPTER 2

METHOD

METHOD

2.1 ETHICAL APPROVAL

Ethical approval was granted from the locally appropriate NHS research and ethics committee on 7th March 2008 (appendix 1). This study was also approved by the locally appropriate NHS Research and Development Department on 13th March 08 (appendix 2).

2.2 PARTICIPANTS

2.2.1 Identification of Participants

Individuals who participated in this study were informants, and completed the questionnaires to rate the clients they support. The informants included family members, support workers and nursing staff of in-patients and out-patients with mild intellectual disability that were currently seen by the Community Adult Learning Disability Clinical Psychology service.

Initially, four Clinical Psychologists working within the Learning Disability service were consulted to help identify suitable participants based on the inclusion and exclusion

criteria (see 2.2.2 and 2.2.3). The departmental database of patient information was used to obtain contact details in the study.

2.2.2 Inclusion Criteria

2.2.2.1 Inclusion Criteria for Participants (informants)

The EZPQ and NEO PI-R (form-R) questionnaires are informant-rated and as such require to be rated by an informant who has a high degree of familiarity with a specific individual with intellectual disability. Eligible informants include the family members, support workers, spouses, nursing staff and other health or social work professionals of in-patients and out-patients with mild intellectual disability. The participants are required to have known the clients with intellectual disability for at least 12 months and must have had frequent contact with them during this time. Frequent contact was defined as at least fortnightly face-to-face contact. This was specified to ensure that the participant has enough knowledge to rate the client's personality.

2.2.2.2 Inclusion Criteria for Clients

The clients that are eligible to be rated by participants on the personality scales include male or female adults with an intellectual disability aged 18 upwards and currently seen

by the Clinical Psychology service. The individuals must have a diagnosis of mild intellectual disability, according to ICD-10 criteria (Full Scale IQ of 50-69 with 95% confidence intervals and two areas of deficit in adaptive functioning). The individuals must have undergone a recent cognitive and adaptive assessment to confirm this level of intellectual disability, using the Wechsler Adult Intelligence Scale Criteria 3rd Edition and an Adaptive Behavior Assessment, using the Adaptive Behavior Assessment System 2nd edition (ABAS-II). In this study the assessments were defined as being 'recent' if they had been completed within the past 6 years. Individuals were only considered if they were perceived to have the capacity to consent by one of the four Clinical Psychologists involved in the study.

2.2.3 Exclusion Criteria

Informants that have known the client for less than 12 months or that have less than fortnightly face-to-face contact with them.

Clients who have an IQ higher than 70 or less than 50 according to ICD-10 criteria or that do not have two or more significant deficits in adaptive functioning.

Individuals deemed not to have capacity to consent according to the Clinical Psychologist involved in their care.

2.3 PROCEDURE

2.3.1 Approaching possible participants

Following identification, the possible participants were approached by either the researcher or one of the four Clinical Psychologists from the Learning Disability service. The study was explained and the participants were asked to read the information pack and seek consent from the intellectually disabled client (with the use of the simplified consent sheet) before deciding whether to take part in the study. In addition, agreement was obtained from the responsible medical officer and the ward manager to ask nursing staff to participate in the study.

The research information packs explained the purpose and process of the research. The packs also included consent forms, for both the participant and the person they were asked to rate. After consent was obtained, the clients were not required for any other part of the research. Those who responded were contacted and an appointment was arranged for the participant to meet with the researcher to complete the EZPQ and NEO PI-R personality scales.

The research information pack included the following materials:

- ***A participant information booklet and consent form*** (appendix 3). The information sheet was designed to explain the purpose of the study and what it would entail for the participant and the client. The sheet also explained that any information would be kept confidential, that information given by participants was purely for research purposes and would be kept anonymous. In addition the information sheet explained that the participant or the client they were asked to rate were able to withdraw from the research at any stage, without providing a reason or being penalized in any way. The participant information sheet included the researcher's contact details so that participants may discuss any questions they had about the study. Finally, there was a consent form attached for the participant to complete in order to opt-in.

- ***A simplified information sheet and consent form*** (appendix 4). An adaptation of the information sheet and consent form was provided for the clients who may not have been able to understand the standard participant information sheet or consent form. This simplified version used 'Boardmaker' communication symbols (Mayer-Johnson inc, 2003), simplified phrasing and no jargon. The participants were asked to explain the research to the clients they would rate using the simplified forms as a communication aid. Participants were informed that if they perceived that the client had difficulty comprehending what they were consenting to they should not participate in the study. Since informed consent is a difficult and often subjective decision to make the participant's were asked to err on the side of caution.

In total 80 research information packs were given out.

2.3.2 Opt-in and Consent

The research information packs were given to the possible participants, explaining the purpose and process of the research. Consent was required from both the participant and the client they were asked to rate. Those who returned a completed consent form to the researcher within 2 weeks were included in the study. Appointment cards were sent out to those participants who opted-in and completed the consent forms, signed by themselves and the client. They were not required to provide a reason for opting out of the study. After consent was obtained, the clients were not required for any other part of the research.

2.3.3 Completing the Questionnaires

The participants met with the researcher and the sessions were conducted on a one-to-one basis. The EZPQ and the NEO PI-R questionnaires were completed by the participants in relation to the specified client.

The NEO PI-R manual suggests that the questionnaire should be completed in a distraction-free environment with adequate lighting (Costa and McCrae, 2005). All of the assessments were completed on a 1:1 basis in an office in the Clinical Psychology Department. Form R of the NEO PI-R was used in this study as it is the informant-rated version. The participants were asked if they wished to complete the questionnaires independently or if they wished to complete the questionnaires in the form of a structured interview, where the researcher would note their responses. This was in accordance with the procedure outlined in the NEO PI-R administration manual (Costa and McCrae, 2005). The only other information that was collected was the gender of the client, to determine whether the male or female standardized scores would be used in the scoring of the NEO PI-R

As of yet there is not an administration manual for the EZPQ, however guidance for the use of the measure is supplied in Zigler et al (2002). Authorization was gained from correspondence with Professor Zigler (Yale University, USA) and Professor Henrich (Yale University, USA) to use the EZPQ in this study. As with the NEO PI-R and in accordance with Zigler et al (2002) the participants were asked if they wished to complete the EZPQ questionnaires independently or if they wished to complete the questionnaires in the form of a structured interview

Half of the sample completed the NEO-PI-R first and then the EZPQ second, while the other half of the sample completed the EZPQ first followed by the NEO-PI-R. This was

to control for order effects. The administration time of the EZPQ is 10-15 minutes and for the NEO PI-R it is 35-45 minutes.

The participants were given an opportunity to discuss any issues that had arisen during the assessment, thanked for their participation and given an opportunity to discuss any issues that had arisen during the course of the assessment.

2.4 MEASURES

2.4.1 EZ Yale Personality Questionnaire (EZPQ)

The EZPQ (Zigler et al, 2002) is an informant-based questionnaire with 37 questions. The questions are rated on a scale from 1-5. 1 being 'very much not true of this individual' and 5 being 'very much true of this individual'. This scale is used to rate 7 personality constructs including: Positive Reaction tendency, Negative Reaction Tendency, Outer-directedness, Effectance Motivation, Expectancy of Success, Creativity/Curiosity and Obedience in intellectually disabled individuals. In one version of the EZPQ the items refer to the 'child' being rated and in the other version the items refer to the 'individual' being rated. The 'individual' version of the form was used in this study.

2.4.1.1 Standardization

The EZPQ was standardized using 349 male and 312 female school children and adolescents (ages 5-20 years) (Zigler et al, 2002). All of the normative sample had intellectual disabilities or were in the borderline range of intellectual functioning with IQ scores ranging from 45-75. None of the sample had known biological or organic causes for their intellectual impairment. The sample was drawn from a variety of ethnic and social backgrounds.

2.4.1.2 Reliability

Zigler et al (2002) explored the internal consistency, split half reliability and test retest reliability of the instrument. The findings (using Cronenbach's Alpha statistical analysis) revealed that the alpha scores ranged from .79 to .91, indicating good reliability across the entire scale.

2.4.1.3 Validity

Zigler et al (2002) also investigated the convergent validity of scores on the EZPQ with performance in experimental tasks. These included the Sticker Game (Yando and Zigler, 1971), the Probability Learning Task (Luthar and Zigler, 1988), the Marble in the Hole

Game (Zigler and Balla, 1972) and various aspects of other tasks such as the Puzzle Preference task, the Maze task, the Pictorial Curiosity task and the Peg Sorting Task (Harter and Zigler, 1974). As anticipated, they found that the strongest correlations existed between the experimental measures and items of the EZPQ that were designed to measure similar constructs. Overall the correlations between the experimental measures and their related scales on the EZPQ were all within acceptable limits. The validity of the EZPQ has only been assessed on children and adolescents with intellectual disability. As of yet there have been no validity studies conducted on other client populations.

2.4.2 NEO Personality Inventory Revised (form-R)

The NEO PI-R (form R) (Costa and McCrae, 1992) is an informant-based questionnaire with 240 questions. This scale is used to rate 5 broad personality domains N Neuroticism, E Extraversion, O Openness to experience, A Agreeableness and C Conscientiousness. The domain scores are comprised of 6 personality facets that are correlated to the overall personality domain. Overall the scale has 30 personality facets and provides a very detailed personality profile.

Neuroticism Facets include; N1 Anxiety, N2 Angry Hostility, N3 Depression, N4 Self-Consciousness, N5 Impulsiveness, N6 Vulnerability.

Extraversion facets include; E1 Warmth, E2 Gregariousness, E3 Assertiveness, E4 Activity, E5 Excitement-Seeking, E6 Positive Emotions.

Openness to ideas facets include; O1 Fantasy, O2 Aesthetics, O3 Feelings, O4 Actions, O5 Ideas, O6 Values.

Agreeableness Facets include; A1 Trust, A2 Straightforwardness, A3 Altruism, A4 Compliance, A5 Modesty, A6 Tender-mindedness

Conscientiousness facets include; C1 Competence, C2 Order, C3 Dutifulness, C4 Achievement Striving, C5 Self Discipline, C6 Deliberation

For a full definition of each of the personality facets see appendix 5.

2.4.2.1 Standardization

The NEO PI-R is a well standardized instrument. It was standardized and norms were established across 3 sub-samples;

1. Augmented Baltimore Longitudinal Study of Ageing (ABLSA) (Shock et al, 1984).
2. The ABLSA computer administrated study, between 1989-1991.

3. A national survey of job performance (Costa and McCrae, in press b).

500 men and 500 women (n=1,000) were selected from the studies listed above. The sample was selected in terms of the distribution of race, and age from the U.S. census projection for 1995 (U.S. Department of Commerce, 1984). The sample included a representative range of level of education and socio-economic status. The sample did not however include participants with any type of mental disorder including intellectual disability.

2.4.2.2 Reliability

2.4.2.2.1 Test Re-test Reliability

Short term test retest reliability has not yet been studied in the NEO PI. However, longer term test retest reliability was examined in a seven year longitudinal study (Costa and McCrae, in press b). Reliability was found to range from .51 to .82 for the facet scales and from.63 to.81 in the five domains. The NEO PI is though to be one of the few instruments that is capable of consistently measuring personality traits over a long time frame, whether assessed using self-report, or by informant ratings from spouses or peers (Costa and McCrae, 1995).

2.4.2.2.2 Internal Consistency

Internal consistency, calculated as coefficient alpha is the degree that items in a scale measure the same thing. In this case the degree to which items tap into the same aspect of a specific underlying personality trait. The 30 facets within each of the 5 personality domains of the NEO PI-R were found to have very large coefficient alpha scores ranging from .86 to .95 (Costa and McCrae in press b). The 5 personality domains were also found to have good internal consistency in a clinical sample (Fagan et al 1991) and for college students (Piedmont, McCrae and Costa, 1992).

2.4.2.2.3 Factor Structure

The factor structure of the NEO PI-R is the extent that the internal structure corresponds to the predictions of the five-factor model of personality. Costa, McCrae and Dye (1991) examined the factor structure and found correlations between the N,E,O,A and C domains to be .91, .89, .95 and .89 respectively. This study revealed factorial validity across all gender, ethnic and age groups of the normative sample.

2.4.2.3 Validity

Content validity, convergent validity and divergent validity have been assessed in studies of the five factor model, the NEO PI-R and the NEO PI.

The studies of content validity using samples of adults from psychiatric settings provide evidence that the NEO PI and NEO PI-R sample appropriately from the range of characteristics they were designed to represent. For example it was found that patients currently in psychotherapy scored higher than controls on Neuroticism (Miller et al, 1991). In addition drug abusers were found to attain significantly low scores on the Agreeableness domain (Brooner et al, 1991). Finally, Costa, McCrae and Holland (1984) linked the facet scales of the NEO PI to vocational interest. The NEO PI facet 'Openness to ideas' O5 was linked to investigative vocational choices, while artistic interests were linked to the NEO PI facet 'Aesthetics' O5.

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The validity of the five factor model of personality that the NEO PI-R is based upon has also been examined. McCrae and Costa (1987) administered 80 Bipolar Adjective Scales to the normative sample, and to informants. Through factor analysis the five factors of personality were revealed, these showed strong evidence of correlating with the appropriate domains of the Five Factor Model. Also other studies have produced adjective scales for the 5 factors and found them to correlate closely with the appropriate personality domain of the five factor model (Goldberg, 1989; Ostendorf, 1990).

Convergent validity is said to be established when measures of constructs that theoretically should be related to each other, are observed to relate to each other in practice. In contrast divergent validity is said to be established when measures of constructs that theoretically should not be related to each other, are observed to not be related to each other in practice. The convergent and divergent validity of the domains and facets of the NEO PI-R were assessed in studies comparing the NEO PI-R to other personality measures. These studies found the NEO PI and NEO PI-R have good convergent and divergent validity with the Adjective Checklist, ACL (Costa and McCrae, in press a), measures of defense mechanisms (Bond et al, 1983; Haan, 1965; Ihilevich and Gleser, 1896; Costa, Zonderman and McCrae, 1991), the Personality Research Form (Jackson, 1984; Costa and McCrae, 1988a), the Edwards Personal Preference Schedule (Edwards, 1959; Piedmont, McCrae and Costa, 1991), the Adjective Checklist (Gough and Heilbrun, 1983; Piedmont, McCrae and Costa, 1992) and the Interpersonal Adjective Scales (Wiggins, Trapnell and Phillips, 1988; McCrae and Costa, 1989c).

In addition a recent study compared the facets of the NEO PI to 116 different sub-scales from 12 other established personality inventories. Of the 150 correlations made 66 were found to be greater than .66 in magnitude. Convergent validity was demonstrated by the fact that all 30 facets correlated very well with similar constructs from the other 12 personality scales (Costa and McCrae, in press b). Evidence of both convergent and divergent validity is required to establish the construct validity of an assessment

measure. The studies above provide evidence that the NEO PI-R has good convergent and divergent validity.

2.5 DATA ANALYSIS

2.5.1 Correlations

Descriptive statistics were used to report the mean results on each index on the EZPQ and the NEO PI-R. One sample t-tests were used to compare the mean results on each personality construct of the questionnaires against results found in previous studies using the EZPQ and NEO PI-R in different client populations and samples. The mean scores of the EZPQ were compared to those found by Zigler et al (2002) in a sample of children and adolescents with intellectual disabilities. The mean scores of the NEO PI-R were compared to those found in the normative sample of the NEO PI-R (section 2.3.2.1). In addition the mean scores found on the NEO PI-R domains in the present study were compared to those found by Lindsay et al (2007a) in a sample of adult offenders with intellectual disability.

To test the 5 hypotheses correlations were examined between the various domains and indices of the NEO PI-R and the EZPQ personality inventories. The data distribution for the scores on each personality construct of the NEO PI-R and EZPQ were examined to determine if they were normally distributed. If the data was found to be normally distributed then Pearson product moment correlations were used. If the distribution of

scores were not normally distributed then Spearman rho correlation coefficients were used.

It is acknowledged that the large number of correlations under examination produced an increased probability of type 1 errors. A Bonferroni correction was used and an adjusted alpha level of .01 was applied to the 5 correlations in the hypotheses.

2.5.2 Data Distribution Consideration

Consideration was given to the use of data transformation techniques for data that was found to be non-parametric, so that parametric statistical analysis could have been used. Normally distributed data is one of the requirements for the use of parametric statistical analysis. The X^2 goodness-of-fit test can be used on ordinal, interval or ratio data to determine if the data conforms to the normal distribution or if it is positively or negatively skewed. Data that is skewed towards the left of the distribution is thought of as being 'positively skewed'. In order to transform this data so that it resembles a normal distribution it would require the application of a logarithm, root or reciprocal transformation calculation (Clark-Carter, 1999). Data that is skewed towards the right of a data distribution curve is thought of as being 'negatively skewed'. The appropriate transformation calculation for this data would be to raise the data points by a value ($X^{â}$), where X is the raw data and $â$ is a value greater than 1 (Clark-Carter, 1999). Data

transformation calculations were not applied in this study because they were not used in previous studies that have also examined the correlations between various EZPQ and NEO PI-R sub-scales, e.g. Zigler et al (2002) Costa and McCrae et al (1992) and Lindsay et al (2007). This decision was made so that the conclusions found in this study could be directly compared to those in the aforementioned studies.

2.5.1 Power Calculation

McDaniel et al (2003) also explored between instrument correlations between two personality assessments using an intellectually disabled sample. The results revealed some high correlations (r = .50 and above) between specific sub-scales using a sample of 58 participants. In terms of the magnitude of the correlations reported in the results section, Cohen's (1975) recommended guidelines for interpreting the effect size in behavioral research were used. In this case a minimum of 25 participants (n = 25) were needed for the required significance levels (alpha = .05 and power = .80).

CHAPTER 3

RESULTS

RESULTS

3.1 BACKGROUND INFORMATION

3.1.1 Participants

Of the 60 carers/family members/nursing staff/health professsionals of people with intellectual disability who were apprached for this study, 27 opted in. There was no missing data. This gave an overall response rate of 45%. Written consent was attained from all 27 individuals with intellectual disability. According to advice from the local ethics comittee, in order to preserve anonymity where possible very few identifying details were collected. Details of additional behavioural, genetic syndrome, psychiatric disorder or history were not collected. The age of the individuals was also not collected, however since this study was carried out an in an adult service, all of the individuals must have been 18 years or over. The sample included 20 males and 7 females. All of the individuals included were currently seen or had been seen by Clinical Psychology in the past. All of the individuals had been assessed using the Wechsler Adult Intelleigence Scale 3rd edition (WAIS-III) and Adaptive Behavioural Assessment Schedule 2nd edition (ABAS-II) in the past 6 years, and all fit the criteria for mild learning disability according to ICD-10 classification.

All of the informants had known the individuals for at least 2 years and had at least fortnightly contact. It was found that 25 of the 27 had approximately daily contact and the other two had at least weekly contact.

Table 1 Sample characteristics of those rated on the EZPQ and the NEO PI-R

	Acute Hospital Ward	Low secure (forensic) hospital ward	Community Out-patients
Male (%)	6 (22.2%)	5 (18.5%)	9 (33.3%)
Female (%)	2 (7.4%)	0 (0%)	5 (18.5%)

3.1.2 Personality Characteristics of the Sample

3.1.2.1 EZPQ Personality Characteristics in the Sample

The means and standard deviations found on each of the EZPQ personality constructs are described in table 2. The scores from this study were compared to those found by Zigler et al (2002) using a one-sample t-test. This was carried out to determine the relative personality characteristics of the present sample. Zigler et al (2002) used a sample of 661 children and adolescents (ages 5-20 years).

Table 2. Mean Scores and Standard deviations of the EZPQ Constructs and Comparison with Zigler et al (2002)

	Present Study			Zigler et al (2002) study	Comparison of Present Study to Zigler et al (2002) Study One-Sample t-test		
EZPQ Construct	N	Mean	Std. Deviation	Mean	T	df	p-value (2 tailed)
PRT	27	3.18	.89	3.38	-1.15	26	.260
NRT	27	2.75	1.01	2.44	1.60	26	.122
EM	27	3.10	.83	3.24	-.90	26	.274
OB	27	2.93	.60	3.57	-5.49	26	.000***
CC	27	3.46	.87	2.76	4.22	26	.000***
OD	27	2.77	.48	3.12	-3.76	26	.001**
ES	27	2.95	.96	2.79	.88	26	.389

Key - PRT = Positive Reaction Tendency, NRT = Negative Reaction Tendency, EM = Effectance Motivation, OB = Obedience, CC = Curiosity/Creativity, OD = Outer-directedness and ES = Expectancy of Success

* Significant difference to 0.05 level

** Significant difference to 0.01 level

*** Significant difference to 0.001 level

Table 2 demonstrates that the Positive Reaction Tendency, Negative Reaction Tendency, Effectance Motivation and Expectancy of Success scores were all largely in line with the findings from Zigler et al (2002).

In contrast the Obedience scores found in the present sample were significantly lower ($t = -5.49$, $df = 26$, $p<.001$) than those found by Zigler et al (2002). The Curiosity/Creativity scores from the present sample were significantly higher ($t = 4.22$ $df = 26$, $p<.001$) than those found by Zigler et al (2002). Finally the Outer-directedness scores found in the present study were significantly lower ($t = -3.76$, $df = 26$, $p<.01$) than those found in the Zigler et al (2002) sample. This is discussed further in the discussion section.

3.1.2.2 NEO PI-R Personality Characteristics in the Sample

The means and standard deviations found on each of the NEO PI-R personality constructs are described in table 3. The scores from this study were compared to those found by Costa and McCrae (1992) in their normative sample, n=1,000 in the non-disabled adult population and to Lindsay et al (2007a) in their study of offenders with mild intellectual disability (n=40). This was carried out to determine the relative NEO PI-R personality characteristics of the present sample. In the NEO PI-R the raw scores are converted into standardized scores. The NEO PI-R is standardized across a large cross section of the population (Costa and McCrae, 1995). The average standardized

score on each personality factor is 50, this is also the most frequently found score (modal score) in the standardization studies. Therefore standardized scores that vary greatly from 50, can be considered to be extreme and unusual in the population. The standardized NEO PI-R scale ranges between 20-80. A score of 20 indicates that the individual exhibits very little of the personality construct while a score of 80 indicates that the individual exhibits the particular personality construct to a great extent.

Table 3. Means and Standard deviations of the NEO PI-R Constructs and Comparison to the normative sample (Costa and McCrae, 1992) and offenders with mild intellectual disability (Lindsay et al, 2007a)

NEO PI-R Personality Construct	Present Study			Present study compared to Normative Sample (Costa and McCrae, 1992) One-Sample t-test			Present study compared to Lindsay et al (2007) study One-Sample t-test		
	N	Mean	Std. Deviation	t	df	p-value (2-tailed)	t	df	p-value (2-tailed)
N	27	70.81	8.55	12.64	26	.000***	1.36	26	.185
E	27	52.59	10.91	1.23	26	.228	3.27	26	.003**
O	27	50.41	8.97	.24	26	.815	5.34	26	.000***
A	27	39.22	9.12	-6.14	26	.000***	1.41	26	.171
C	27	29.93	14.10	-7.34	26	.000***	1.25	26	.222

Key – N = Neuroticism, E =Extraversion, O =Openness, A = Agreeableness, C = Conscientiousness
* Significant difference to 0.05 level
** Significant difference to 0.01 level
*** Significant difference to 0.001 level

Table 3. demonstrates that compared to the normative sample of non-disabled adults the present sample scored significantly higher on Neuroticism ($t = 12.64$, $df = 26$, $p<.001$), and significantly lower on Agreeableness ($t = -6.14$, $df = 26$, $p<.001$) and Conscientiousness ($t = -7.34$, $df = 26$, $p<.001$).

The present sample showed less variation in standardized mean scores when compared to those found in intellectually disabled offenders (Lindsay et al, 2007a). However the construct of Extraversion was found to be significantly higher in this sample ($t = 3.27$, $df = 26$, $p<.01$). The Openness construct was also found to be significantly higher in this sample ($t = 5.34$, $df = 26$, $p<.001$). The possible reasons for the differences observed between the samples are reviewed in the discussion.

3.2 EXPLORATION OF HYPOTHESES

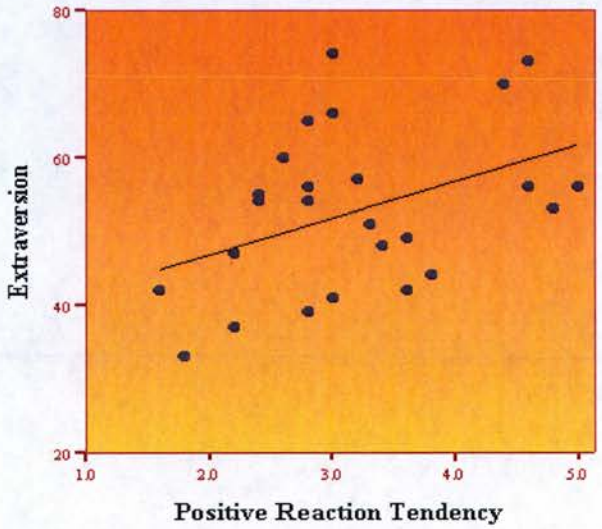
3.2.1 Hypothesis 1:

Positive Reaction Tendency (EZPQ) will be positively correlated with Extraversion (NEO PI-R) in individuals with intellectual disability.

The scores for Positive Reaction Tendency (EZPQ) were normally distributed in this sample (appendix 6). Among the scores of the 7 EZPQ personality constructs Positive

Reaction Tendency demonstrated the largest range of responses from informants. The modal response was "neither true not untrue of this individual" accounting for 37% of responses. Responses for Extraversion items also demonstrate a normal distribution of scores in this sample (appendix 6). The mean score of 52.59 was slightly above the mean of 50 found in the normative sample. Due to the normal distribution of data revealed on the Extraversion and Positive Reaction Tendency scales a Pearson Correlation was deemed to be the appropriate statistical test.

Fig. 2 Scatter-plot comparison of Extraversion Scores (NEO PI-R) with Positive Reaction Tendency scores (EZPQ)



It can be seen from figure 2 that the scatter-plot displays a loose positive correlation between scores on Extraversion and Positive Reaction Tendency. There is a wide spread of data on the scatter-plot and that the line of best fit is not at a 45 degree angle.

This means that it is likely that the positive correlation between these two scales may not be strong and may not produce a statistically significant result.

Pearson correlation revealed a positive correlation between Extraversion and Positive Reaction Tendency (r=.407, n=27 p=.035, two tailed) that is significant to the .05 level prior to the Bonferonni Correction. However, after applying the Bonferonni Correction and using the adjusted alpha level of 0.01 this positive association fails to meet significance. It can be concluded that there is a positive trend between Extraversion and Positive Reaction Tendency, but not enough to reach significance and the null hypothesis is accepted. It is likely that an increase in statistical power, as a result of a larger sample, may produce a statistically significant association between these two personality constructs of the EZPQ and the NEO PI-R.

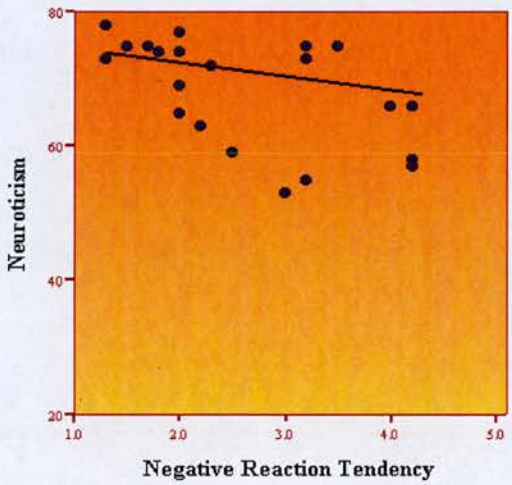
3.2.2 Hypothesis 2:

Negative Reaction Tendency (EZPQ) will be positively correlated with Neuroticism (NEO PI-R) in individuals with intellectual disability.

The spread of scores on the Negative Reaction Tendency scale do not demonstrate a normal distribution (appendix 7). None of the informants chose the response 'very much true of this individual' to rate an individual on items measuring Negative Reaction Tendency. In addition, Neuroticism scores are not normally distributed in this sample

and are markedly skewed towards the high end of the scale (appendix 7). Over 70% of the sample were within the 'very high' range of the Neuroticism scale. This was above the 87th percentile on this domain, which means that 70% of this sample scored higher than 87% of the normative sample. Due to the lack of normally distributed data on the Neuroticism and Negative Reaction Tendency scales the Spearman rho Correlation was deemed to be the appropriate statistical test.

Fig 3. Scatter-plot Comparison of the Neuroticism Scores (NEO PI-R) and Negative Reaction Tendency Scores (EZPQ)



From analysis of figure 3 it can be seen that there is no discernable correlation between the scores on Neuroticism and Negative Reaction Tendency.

The Spearman rho correlation is consistent with the distribution on the scatter-plot and no significant correlation was observed between Neuroticism and Negative Reaction Tendency (r_s = -.133, n = 27, p = 0.508, two tailed). The very low correlation between

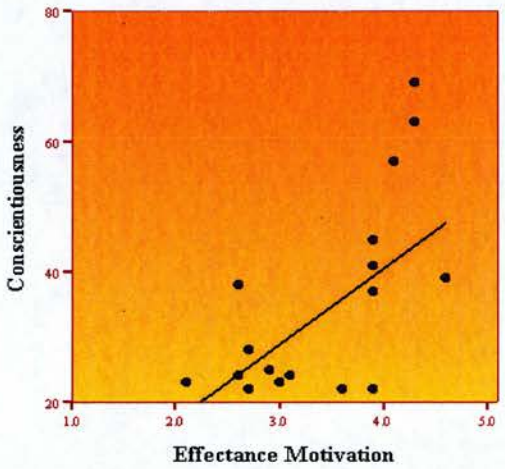
these two scales demonstrates that Negative Reaction Tendency and Neuroticism do not overlap on the personality constructs that they measure. The null hypothesis cannot be rejected.

Hypothesis 3:

Effectance Motivation (EZPQ) will be positively correlated with Conscientiousness (NEO PI-R) in individuals with intellectual disability.

The Effectance Motivation scores are not normally distributed in this sample (appendix 8). The responses from informants demonstrate a broadly even spread across the scale, with no evidence of peaks or a modal score. The lowest response 'very much untrue of this individual' was never used to rate an individual on this construct. The distribution of scores on the Conscientiousness scale is dramatically skewed towards the lower end of the scale in this sample (appendix 8). 70 % of the sample scored within the 'very low' range on Conscientiousness and scored lower than the 99^{th} percentile of the normative sample. The data is not normally distributed and so a Spearman rho correlation was selected as an appropriate statistical test to compare the Effectance Motivation and Conscientiousness personality constructs.

Fig. 4 Scatter-plot Comparison of Effectance Motivation Scores (EZPQ) Conscientiousness Scores (NEO PI-R)



The scatter-plot demonstrates an observable positive association between Effectance motivation and Conscientiousness. The spread of results produces a relatively narrow line at an approximately 45 degree angle that suggests a strong association between the two scales.

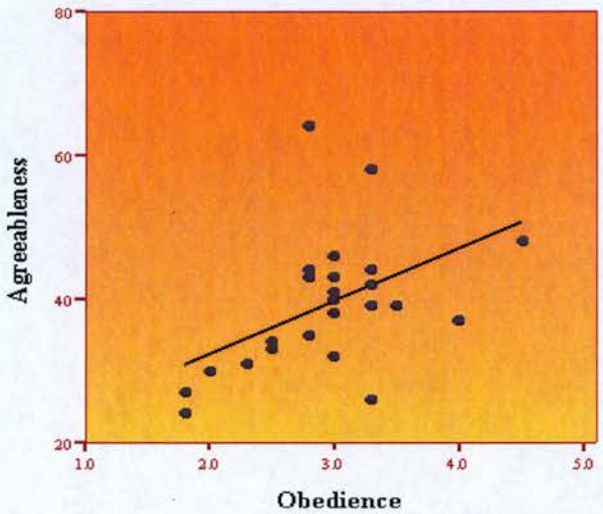
Spearman correlation revealed that Effectance Motivation is significantly positively correlated with Conscientiousness (r_s=.626, n=27, $p < .001$). This correlation remains significant after the Bonferonni Correction, demonstrating a statistically significant correlation and allowing the null hypothesis to be rejected.

3.2.4 Hypothesis 4:

Obedience (EZPQ) will be positively correlated with Agreeableness (NEO PI-R) in individuals with intellectual disability.

The Obedience scores from the EZPQ were normally distributed (appendix 9). The modal response was "neither true not untrue of this individual" accounting for 40% of responses. The range of responses on the Agreeableness scale of the Neo PI-R also demonstrates a normal distribution , but is notably skewed to the lower end of the scale in this sample (appendix 9). Over 85% of the sample scored below the 25th percentile within the 'very low' range. Due to the fact that Obedience and Agreeableness demonstrate a normal distribution a Pearson correlation was deemed to be the appropriate statistical test.

Fig 5 Scatter-plot Comparison of Agreeableness Scores (NEO PI-R) and Obedience Scores (EZPQ)



This scatter-plot shows a positive association between Obedience and Agreeableness. The data forms a relatively narrow line, this suggests that this may be a strong and significant relationship. The existence of two observable outliers may affect the significance of the relationship.

Pearson correlation revealed that Obedience is positively correlated with Agreeableness ($r_s = .488$, $n = 27$, $p<0.01$). This correlation is significant to 0.01 level. This correlation remains significant after the Bonferonni Correction, demonstrating a statistically significant correlation and allowing the null hypothesis to be rejected.

Hypothesis 5:

Curiosity/Creativity (EZPQ) will be positively correlated with Openness (NEO PI-R) in individuals with intellectual disability.

The range of scores on the Curiosity/Creativity construct of the EZPQ shows a high frequency of responses in the middle of the scoring range and is normally distributed (appendix 10). The modal response to items of Curiosity/Creativity on the EZPQ was "neither true nor untrue of this individual". The data for Openness scores on the NEO PI-R was not normally distributed (appendix 10). All of the sample scored between 35-65 standard scores on the NEO PI-R showing that very little of the sample scored within the "very low" or "very high' ranges on this construct. Due to the fact that the data is not normally distributed a Spearman rho correlation was selected as an appropriate statistical test.

Fig 6 Scatter-plot comparison of Curiosity/Creativity (EZPQ) and Openness (NEO PI-R)

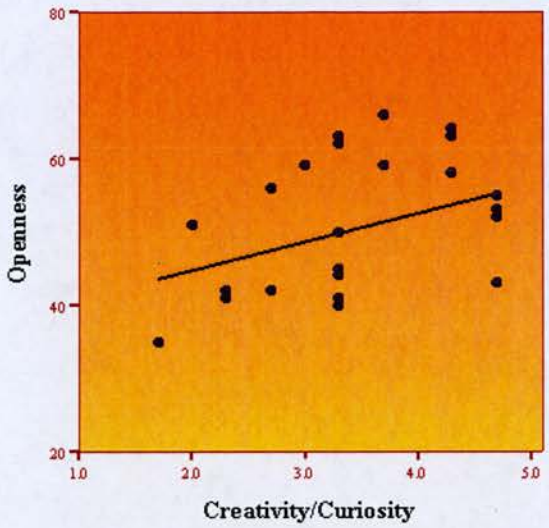


Figure 6 shows a positive association between Openness and Creativity/Curiosity. The data spread is very wide ranging however, therefore this association is less likely to be significant.

Spearman rho correlation revealed Creativity/Curiosity and Openness show a positive relationship, however using the adjusted alpha of .01 this association fails to meet statistical significance ($r_s = .383$, $n = 27$, $p = .048$). It can be concluded that there is a positive trend between Creativity/Curiosity and Openness, but not enough to reach significance and the null hypothesis is accepted. It is likely that an increase in statistical power, as a result of a larger sample, may produce a statistically significant association between these two constructs of the EZPQ and the NEO PI-R.

3.3 POST-HOC CORRELATIONS

3.3.1 Statistical Consideration

Following testing of the research hypotheses in this study, further examination of the data from this study was conducted in a post-hoc manner. In addition to the inter-scale correlations investigated in the research hypotheses all of the personality domains across both scales were compared to each other using the Pearson product moment correlation to produce a correlation matrix (table 4). The Pearson product moment was chosen based on the fact that it has been used for correlation matrices examining the overlap between personality constructs in other studies e.g. Zigler et al (2002), McDaniel et al (2003) and Costa and McCrae (2005).

The Bonferonni Correction was not applied to these results. In the correlation matrix a total of 66 correlations were made resulting in an unfeasible adjusted alpha level of 0.00075. Since the Bonferonni correction was not applied the reader should be advised that significant correlations in the data below may well have occurred purely due to chance (type 1 error). These correlations should not be considered as an attempt to standardize or validate the EZPQ in this study. The correlations in table 4 are intended to highlight the possible trends in the data rather than to confirm significance.

Table 4. Correlation Matrix of Personality Constructs * Significant to 0.05 level, ** Significant to 0.01 level

	PRT	NRT	EM	OB	OD	CC	ES	N	E	O	A	C
PRT	1											
Sig.												
NRT	.647**	1										
Sig.	.000											
EM	-.542**	.104	1									
Sig.	.004	.606										
OB	-.588**	.142	.619**	1								
Sig.	.001	.481	.001									
OD	.291	-.121	-.450*	.043	1							
Sig.	.141	.548	.019	.831								
CC	-.009	.296	.239	-.330	-.598**	1						
Sig.	.963	.174	.231	.093	.001							
ES	-.207	-.034	.562**	-.161	-.630**	.549**	1					
Sig.	.301	.868	.002	.422	.000	.003						
N	.445*	-.244	-.601**	-.009	.569**	-.606**	-.787**	1				
Sig.	.020	.220	.001	.964	.002	.001	.000					
E	.407*	-.638**	.009	-.125	-.019	-.102	.271	-.069	1			
Sig.	.035	.000	.965	.535	.925	.613	.172	.733				
O	-.043	-.125	.493**	.047	-.475*	.375	.760**	-.496**	-.425*	1		
Sig.	.833	.536	.009	.815	.012	.653	.000	.009	.027			
A	-.432*	.254	.713**	.488**	-.090	.074	.302	-.470*	-.178	.296	1	
Sig.	.024	.201	.000	.010	.657	.715	.126	.013	.373	.175		
C	-.547**	.416*	.684**	.433*	-.533**	.316	.298	-.477*	-.386*	.157	.574**	1
Sig.	.003	.031	.000	.024	.004	.108	.132	.012	.046	.435	.002	

3.3.2 EZPQ With-in Instrument Correlations

Table 4 demonstrates the intra-scale correlations of the EZPQ questionnaire. It can be seen that the Positive Reaction Tendency construct is negatively correlated with the Negative Reaction Tendency construct (r = -.647), the Effectance Motivation construct (r = -.542) and the Obedience construct (r = -.588). It also demonstrates that the Effectance Motivation construct correlates positively with the Obedience Construct (r =.619) and the Expectancy of Success construct (r = .562). The Effectance Motivation construct was also found to correlate negatively with the Outer-directedness construct (r=.562). The Curiosity/Creativity construct was found to correlate positively with the Expectancy of Success construct (r = .549) and negatively with the Outer-directedness construct (r = -.598). Finally the Expectancy of success construct was also found to negatively correlate with the Outer-directedness construct (r = -.630).

3.3.3 NEO PI-R With-in Instrument Correlations

The with-in instrument correlations can also be seen for the NEO PI-R in table 4. Overall less with-in instrument correlations were observed between NEO PI-R domains that were observed between EZPQ constructs. Neuroticism was shown to correlate negatively with Openness (r = -.496), Agreeableness (r = -.470) and Conscientiousness (r = -.477). These negative correlations are at a moderate level. Extraversion correlated

positively with Openness (r = .425). The largest within instrument correlation was observed between Agreeableness and Conscientiousness (r = .574).

3.3.4 Post-hoc Correlations between the NEO PI-R and the EZPQ constructs

In addition to the correlations from the research hypotheses and the following correlations (trends) were also observed in table 4; Curiosity/Creativity showed a strong negative correlation with Neuroticism (r = -.606). Obedience correlated negatively with Neuroticism (r = -.496). Positive Reaction Tendency correlated positively with Neuroticism (r = .445). Positive Reaction Tendency also correlated negatively with Conscientiousness (r = -.547). Negative Reaction Tendency negatively correlated with Extraversion (r = -.638). Effectance Motivation displayed a positive correlation with Agreeableness (r = .713) and also negatively correlated with Neuroticism (r = -.601). Obedience correlated positively with Conscientiousness (r = .433) and Outer-directedness correlated positively with Neuroticism (r = .569) and also correlated negatively with Conscientiousness (r = -.533). Finally Expectancy of Success negatively correlated with Neuroticism (r =.787).

CHAPTER 4:

DISCUSSION

DISCUSSION

This study aimed to explore the correlations between similar personality constructs on the EZPQ and NEO PI-R personality assessments. Participants completed both the EZPQ and the NEO PI-R questionnaires in relation to one specific client each with mild intellectual disability.

The findings of this study are discussed in relation to the personality characteristics of this sample and in relation to each of the hypotheses. The theoretical and clinical implications of these findings are considered. Finally, the findings are also discussed in terms of methodological issues and links with personality disorder and mental health research.

4.1 PERSONALITY CHARACTERISTICS

4.1.1 EZPQ personality characteristics

The constructs of Positive Reaction Tendency, Negative Reaction Tendency, Effectance Motivation and Expectancy of Success did not differ significantly in a one-sample t-test from those found in the standardization sample of children and adolescents with

intellectual disability (Zigler et al, 2002). However the ratings of Outer-directedness, Obedience and Creativity/Curiosity were all found to be significantly different. These findings will be considered in more detail later in this section.

First it is relevant to reiterate the differences between the samples in this study and that of Zigler et al (2002). The sample in the present study was drawn from an adult population (i.e. over the age of 18 years), rather than the child and adolescent sample in the Zigler et al (2002) study (ages 5-20). Also the present study did not exclude individuals on account of underlying organic etiology for intellectual impairment. Therefore this sample is likely to have been more heterogeneous. In addition, in the present study, participants were selected from hospital settings (including a unit for offenders) and from a learning disability community out-patient service, therefore additional mental health or behavioral problems were expected to be highly prevalent.

Informant ratings of Outer-directedness were found to be significantly lower in this sample than found by Zigler et al (2002). This meant that in this sample the individuals were described as being less dependent on external cues and less reliant upon supportive others to help solve problems. This difference may have occurred due to the age difference between the samples. The tendency for Outer-directedness has been found to decrease with increasing mental age and development (Turnure and Zigler, 1964). Therefore in a non intellectual disability adult sample lower ratings of Outer-directedness and greater levels of independent problem solving would be expected. In contrast it has been suggested that Outer-directedness decreases with increasing mental

age in non-disabled samples, whereas Outer-directedness increases or shows no change with increasing mental age of intellectually disabled samples (Bybee and Zigler, 1998). These results may be understood by the fact that the sample from the present study was within the mild range of intellectual disability, whereas the samples used in the experimental measures included more severe levels of disability. The findings from the present study suggest that people with mild intellectual disability may be considered to decrease in tendency to be Outer-directed as they develop consistent with the development of the non-disabled population.

The construct of Obedience was found to be significantly lower in this sample than found in the previous study (Zigler et al, 2002). Obedience is similar to Outer-directedness in that they both refer to an individual's use of external cues. Obedience differs from Outer-directedness as it is defined as the ability to follow specific directions/rules in a given situation where there is no opportunity for independent problem solving. As such high ratings of Obedience are generally considered to be adaptive. The lower ratings of Obedience found in this sample may relate to a general tendency for the adult clients to be less influenced by external cues.

Another possibility is that a proportion of the clients in the present sample were accommodated in secure or acute hospital settings, so behavioral problems and offending behavior were likely to be prevalent. Intellectually disabled offenders, due to their previous criminal behavior, clearly demonstrate significant difficulties in following the rules of society and thus may be expected to score lower on Obedience. The

personality construct of Obedience may prove useful in the field of behavioral problems and forensic psychology.

Finally, the construct of Curiosity/Creativity was found to be significantly higher in this sample. Curiosity/Creativity relates to the desire to participate in novel or unfamiliar tasks and activities rather than repeat what is familiar. Curiosity/Creativity is a motivational construct that relates to intrinsic motivation, i.e. being motivated to complete a task for an internal reward, such as gaining satisfaction (Switzky, 1997). Creativity/Curiosity demonstrated a significant negative correlation with Outer-directedness ($r = -.31$) in the child/adolescent sample (Zigler et al, 2002) and also in the present adult sample ($r = -.60$).

Therefore the significant differences in ratings on Outer-directedness, Creativity/Curiosity and Obedience may be related to a more general difference in motivational style. The child/adolescent sample (Zigler et al, 2002) were generally rated as being more externally motivated and reliant on cues from others, whereas the adult sample in this study were described as being more independent, internally motivated and less reliant on instructions from others.

4.1.2 NEO PI-R personality characteristics

In comparison to the standardized scores attained in the normative sample for the NEO PI-R (Costa and McCrae, 1995) the mean scores found in the present study differed significantly across the Neuroticism, Agreeableness and Conscientiousness personality domains.

It should be noted that the population used in the normative sample was neither clinical nor did it include people with intellectual disability. The present sample was a taken from a clinical, intellectually disabled population and this may account for the significantly higher ratings observed on the Neuroticism personality domain. Recent evidence suggests that Neuroticism is strongly associated with mental health problems (Costa and Widiger, in press).

The ratings on the Agreeableness domain were found to be significantly lower in the present study than in the normative sample (Costa and McCrae, 1992). Costa and McCrae (2005) describe Agreeableness as largely relating to interpersonal tendencies, such as being trustful of others, willing to co-operate and generally more altruistic. Therefore the lower scores observed in this sample suggest that the clients were rated as being more unco-operative, untrusting and more egocentric than the general population. Social skills have often been shown to be key deficit in individuals with intellectual disabilities (O'Reilly et al, 1995) therefore this may account for this relatively low score. Furthermore people with intellectual disabilities may have problems with perspective-

taking and will often think in an egocentric manner, particularly if they have an additional autistic spectrum disorder (Baron-Cohen, 1995).

Ratings on the Conscientiousness personality domain were also observed to be significantly lower in this sample, when compared to the normative sample (Costa and McCrae, 1995). Conscientiousness is thought to relate to motivational aspects of personality such as self-discipline, dutifulness, ability to inhibit impulses and achievement striving (Costa and McCrae, 2005). These types of abilities may be thought of as being similar to working memory and executive functioning abilities. People with intellectual abilities and people with mental health problems have been shown to have problems with their executive functioning (Henry, 2001).

It is interesting to note that the mean scores of the present study differed less when compared to those reported by Lindsay et al (2007a). Lindsay et al (2007a) used a simplified self-rated version of the NEO PI-R on a sample of offenders with mild intellectual disability. Inflated scores on Neuroticism and lower scores on Agreeableness and Conscientiousness were reported in both studies and both were significantly higher than that of the normative sample. The results of the present study and those of Lindsay et al (2007a) provide evidence that the underlying personality traits associated with Neuroticism, Agreeableness and Conscientiousness in clinical and forensic samples of people with intellectual disability may differ significantly from that of the general population. From these studies alone it would not possible to attribute these differences exclusively to the effects of cognitive impairment, mental health

problems or forensic history. As of yet there have been no attempts to assess a representative cross section of the general intellectually disabled population using the NEO PI-R. Future research using samples that are free from psychiatric and behavioral co-morbidity is recommended to explore these differences further.

The mean ratings from the present study, although generally similar did differ significantly from the mean ratings of Extraversion and Openness from the Lindsay et al (2007a) criminal sample. Ratings of Extraversion and Openness were found to be significantly higher in the present study. Extraversion has been linked to stimulation seeking and risk taking behavior and in this respect may have been expected to have been higher in a purely criminal population, which is contrary to the relatively low ratings found in the Lindsay et al (2007a) study. However, Extraversion is also a measure of interpersonal characteristics and as such may result in the individual having a larger circle of friends or support network. Decreased social support is often thought of as a risk factor for future offending (Webster, 1997), therefore those with lower ratings on Extraversion may be considered more likely to enter the criminal justice system. The NEO PI-R has seldom been used to explore criminal populations. Validated personality assessments are now considered to be an important part of risk assessment (Reid et al, 2004) and the NEO PI-R may have utility in this field.

4.2 DISCUSSION OF HYPOTHESES

4.2.1 Hypothesis 1:

Positive Reaction Tendency (EZPQ) will be positively correlated with Extraversion (NEO PI-R) in individuals with intellectual disability.

Pearson correlation revealed the existence of a positive association between Positive Reaction Tendency (EZPQ) and Extraversion (NEO PI-R) ($r = .407$). However, this association did not remain significant after the Bonferonni correction. Further exploration of these constructs using a larger sample size may reveal a significant correlation.

As a broad domain it would appear that Extraversion does attempt to measure similar aspects of personality as Positive Reaction Tendency. However each NEO PI-R personality domain is comprised of 6 sub-categories or facets. An exploration of the definitions of the facets within the Extraversion domain reveals facets such as 'warmth' and 'gregariousness' that are associated with a desire for social interaction and as such demonstrate an overlap with the definition of Positive Reaction Tendency. In contrast the Extraversion facet of 'assertiveness' defined as a tendency to be dominant, forceful and speak without hesitation (Costa and McCrae, 2005), does not logically overlap with the definition of Positive Reaction Tendency. Further exploration of the correlations

between the individual facet scores of the NEO PI-R and the EZPQ personality constructs, may help to illuminate these assertions. This was not possible in this study due to the relatively small sample size.

4.2.2 Hypothesis 2:

Negative Reaction Tendency (EZPQ) will be positively correlated with Neuroticism (NEO PI-R) in individuals with intellectual disability.

It was anticipated that Neuroticism and Negative Reaction Tendency would positively correlate with each other. However, the Spearman rho correlation revealed that they were not correlated (r_s = -.133). In fact the scatter-plot (figure 3) revealed that the direction of the relationship between Negative Reaction Tendency and Neuroticism was negative. This provides evidence that these two personality domains do not represent the same underlying personality characteristics.

This finding does not support the prediction that Neuroticism will overlap with Negative Reaction Tendency. This assertion has not been withheld in this study, therefore it cannot be concluded that Positive reaction Tendency and Negative Reaction Tendency represent the higher order two factor model of personality disorder proposed by Lindsay et al (2007b). This lack of association may be explained due to the fact that Negative Reaction Tendency is primarily a social construct by definition, related to avoidance and wariness of social interaction. In contrast Neuroticism is primarily a measure of negative

affect (facets include; anxiety, angry hostility, depression, self-consciousness, impulsiveness and vulnerability).

4.2.3 Hypothesis 3:

Effectance Motivation (EZPQ) will be positively correlated with Conscientiousness (NEO PI-R) in individuals with intellectual disability.

Pearson correlation revealed a significant positive correlation between Effectance Motivation and Conscientiousness ($r = .684$). This was the strongest correlation found across the hypotheses and remained significant even after the Bonferonni Correction. To interpret this result it is relevant to consider the origins of the development of the EZPQ and the NEO PI-R. The EZPQ is a personality scale that was developed primarily from research into experimental task performance. Therefore all of the personality constructs of the EZPQ relate to task performance and motivational styles to some degree. The Conscientiousness domain is perhaps the purest measure of motivational style on the NEO PI-R and as such it logically overlaps with Effectance Motivation from the EZPQ. This correlation provides evidence that Conscientiousness and Effectance Motivation measure similar personality characteristics in this intellectually disabled sample.

4.2.4 Hypothesis 4:

Obedience (EZPQ) will be positively correlated with Agreeableness (NEO PI-R) in individuals with intellectual disability.

Pearson correlation revealed that Obedience and Agreeableness significantly correlated with each other even after the Bonferronni correction ($r = .488$). This lends evidence to the assertion that Obedience and Agreeableness measure similar underlying personality constructs.

It should be noted that the level of correlation ($r = .488$) could only be described as moderate. This demonstrates that although the constructs are significantly related they could not be considered to be equivalent. The explanation for this moderate correlation may be explained by considering the similarities and the differences of these two personality constructs. Obedience and Agreeableness are both measures of interpersonal characteristics, relating to co-operation and compliance with others. It is suggested that an individual that is co-operative rather than competitive (e.g. high rating on Agreeableness) may also be more likely to be compliant and follow instructions (e.g. high rating on Obedience). This assertion may be explored further in future using regression analysis. The constructs differ in that Agreeableness is associated with altruism and an attitude or outlook that other people are trustworthy and well intentioned (Costa and McCrae, 2005). In contrast the developmental personality styles such as

Obedience do not include aspects of personality such as attitudes, outlooks or beliefs. It is suggested that this may have reduced the level of correlation revealed in the present study.

4.2.5 Hypothesis 5:

Curiosity/Creativity (EZPQ) will be positively correlated with Openness (NEO PI-R) in individuals with intellectual disability.

The Spearman rho correlation revealed the existence of a positive association between Curiosity/Creativity (EZPQ) and Openness (NEO PI-R) (r_s = .383). However, this association did not remain significant after the Bonferonni correction.

By definition both constructs relate to a general tendency to seek novel activities rather than stick to routine. Therefore a larger correlation was expected. It is suggested that these constructs did not significantly correlate due to differences in the aspects of personality they were designed to measure. As well as measuring the tendency to seek novel activities, Openness also relates to attitudes, outlooks and beliefs, such as Openness to new ideas, appreciation of art, music and poetry and a tendency to question authority or rules/legislation. There have also been studies that have linked Openness to intelligence (Costa and McCrae, 1992) and choice of occupation (Costa, McCrae and Holland, 1984). Curiosity/Creativity in contrast is a newly discovered personality construct derived from factor analysis in the development of the EZPQ. As such there

has been little opportunity to refine this construct or establish any possible links it has to daily functioning or lifestyle choices. As with the other EZPQ constructs Creativity/Curiosity does not appear to measure attitudes or belief systems and is primarily based on motivation and task performance.

In conclusion this finding reveals a possible trend between these two constructs. Further investigation of this relationship using a larger sample size may reveal a significant association.

4.3 POST-HOC ANALYSIS

Post-hoc analysis was carried out to identify possible trends between other EZPQ and NEO PI-R constructs in this sample.

Firstly, Negative Reaction Tendency was found to have a strong negative correlation with Extraversion ($r = -.638$). This result is meaningful in that people with high Negative Reaction Tendency scores are likely to be wary of social interaction and keep to themselves. This overlaps with the definition of people who score very low on Extraversion, as they also avoid social interaction and are not comfortable around unfamiliar people. Further exploration of the construct of Negative Reaction Tendency may reveal it to be associated with Eyesenck's description of 'Introversion' (Eyesenck, 1970), rather than as positively relating to Neuroticism.

Post-hoc analysis also revealed a strong positive correlation between Effectance Motivation and Agreeableness (NEO PI-R) (r =.713). This correlation is much more difficult to interpret. Agreeableness is an interpersonal construct comprised of facets such as trust, compliance, straight-forwardness, modesty and tender-mindedness. In contrast Effectance Motivation is not an interpersonal construct, but rather it is related to motivation and satisfaction derived from achievement. However, there are two possible explanations for this correlation. Firstly it is important to note that in the post-hoc analyses, 66 correlations were performed on the data. This large number of statistical tests greatly increases the probability that this correlation occurred purely by chance (e.g. type 1 error). Such a chance finding cannot be ruled out. There is also the possibility that specific personality constructs co-occur with other constructs. In this case this would mean that people who are empathic and care about others (high A score) are more likely to gain great satisfaction from their work and have good motivation (high EM score). The existence of such co-occurrences of theoretically different characteristics of personality may be investigated further in future research using regression analysis.

Neuroticism revealed large negative correlations with the EZPQ constructs, Curiosity/Creativity (r = -.606) and Expectancy of Success (r = -.787). These findings are meaningful in that Neuroticism is thought to be related to negative affect and doubting ones own abilities. Therefore it would seem logical that an individual who is rated highly on Neuroticism, associated with depression and anxiety would not expect to

succeed and would be less willing to attempt novel or challenging tasks (DSM IV-TR, 2000).

Finally, post-hoc exploration indicated a positive association between Obedience and Conscientiousness (r = .433). The Conscientiousness domain includes facets such as 'order' and 'dutifulness' that would appear to overlap by definition with the Obedience construct of the EZPQ.

The reader is urged to regard correlations found in post-hoc analysis with caution and to view such correlations as possible trends rather than statistically significant findings.

4.4 INCONSISTENCIES BETWEEN THE EZPQ AND THE NEO PI-R

Overall the correlations revealed less convergence between similar personality constructs from the EZPQ and the NEO PI-R than was anticipated. Therefore despite the similarities in their definition the constructs of the EZPQ and NEO PI-R should not be considered equivalent in practice. McDaniel et al (2003) also demonstrated less convergence than expected between the MMPI and the ADD personality/psychopathy assessments in an intellectually disabled sample. They suggested that the fact that the MMPI is self-rated and the ADD is informant-rated may account for this lack of correlation. This explanation is not applicable to the present study since both of the personality assessments were informant-rated.

Alternatively it is suggested that consideration of the differences in the development of the two personality measures, may provide an insight into the lack of correlation found in this study. The EZPQ was developed through experimental measures of task performance in individuals with and without intellectual disability. As a result five of the constructs relate primarily to motivational style and problem solving. These include Effectance Motivation, Expectancy of Success, Obedience, Creativity/Curiosity and Outer-directedness. The other two personality constructs, Negative Reaction Tendency and Positive Reaction Tendency relate to social interactional styles that are thought to compete with attention given to experimental tasks.

In contrast the NEO PI-R was developed from the lexical approach, where personality characteristics were identified through analysis of the adjectives used in language. As a consequence the NEO PI-R includes personality constructs that relate to more than motivational styles and interactional tendencies, including emotions, outlooks, attitudes and belief systems. Therefore it could be concluded that the NEO PI-R includes a wider range of personality aspects than the EZPQ, this is reflected in the greater number of items required for assessment. The failure of the EZPQ to measure aspects of emotion and attitudes can be viewed as a considerable problem with the scale, since internal states such as emotional tendencies have long been thought to be enduring aspects of personality (Eyesenck, 1970; Angleitner et al, 1991).

Another difference is that the EZPQ was standardized on a sample of children and adolescents whereas the NEO PI-R was standardized on an adult sample. This is the first study to use the EZPQ on an exclusively adult sample and as such the validity of the measure remains unknown and may account for some of the inconsistencies between the scales. Zigler and Bennett-Gates (1999) suggest that the developmental personality constructs measured by the EZPQ are dynamic and may change as an individual ages. They suggest that with further investigation of these constructs across age groups, it may be possible to establish developmental age norms. In contrast the NEO PI-R and the five factor model, conceptualize personality as being stable and enduring following childhood and adolescence.

Finally, the constructs of the EZPQ (Outer-directedness, the reaction tendencies etc.) were largely developed during an era when intellectually disabled children were brought up in institutional care. The differences in personality constructs between institutionalized and non-institutionalized children formed the backbone of this research (Balla, 1967; Lustman et al, 1982). It is suggested that these constructs may not be as relevant or prominent in the intellectually disabled community given the more recent move to community care and increased opportunities for employment appropriate to ability level (Dykens, 1999). Clearly more research is required to further investigate the use and validity of the EZPQ in a modern population of adults with intellectual disabilities.

4.5 FUTURE IMPLICATIONS

The present study was exploratory in nature and focused on the areas of overlap between similar personality constructs of the EZPQ and the NEO PI-R. This study was not intended to assess the convergent validity of the EZPQ and the NEO PI-R or thoroughly integrate the two personality measures. Studies of this kind would be much larger in scale and require more participants. The utility of an exploratory study such as this is in identifying trends and areas to be investigated further in future research. Possible links to personality disorder and other avenues for further research are suggested from the findings in this study.

4.5.1. Links to Personality Disorder

The issues associated with the assessment of personality disorder in people with intellectual disabilities are well documented (Tyrer et al, 1993; Alexander and Cooray, 2003; Torr et al, 2003; Reid et al; 2004; Mooreland et al, 2008). Central to these issues are the problems associated with current personality assessment measures and diagnostic criteria and their lack of validity in the intellectually disabled population.

A longstanding criticism of current personality assessment measures is that they are often categorical in nature, whereas it is thought that personality (and personality

disorder) is more appropriately conceptualized as being dimensional (Widiger et al, 2006). Therefore it is thought that dimensional measures such as the NEO PI-R and EZPQ may have utility in screening for personality disorders (Wiggins and Pincus, 1989; Widiger et al, in press). Widiger et al (in press) have linked 13 sub-types of personality disorder to extreme scores on the domains and facets of the NEO PI-R. Low scores on Agreeableness were found to be associated with Paranoid, Anti-social and Narcissistic personality disorders, while high scores on the Agreeableness domain were found to be associated with Dependent personality disorder according to DSM-III-R criteria (Widiger et al, in press).

Given that the present study revealed a significant positive correlation between the Agreeableness domain (NEO PI-R) and the Obedience construct (EZPQ), links could be proposed between extreme scores on Obedience and the aforementioned personality disorder sub-types.

Similarly Widiger et al (in press) found associations between low scores on the Conscientiousness domain with Passive Aggressive and Anti-Social personality disorder and high scores on Conscientiousness with Obsessive Compulsive personality disorder according to DSM-III-R criteria. Given the significant positive correlation revealed in the present study between Conscientiousness and Effectance Motivation, it is suggested that future research may examine the links between these personality disorder sub-types and Effectance Motivation in people with intellectual disability.

Widiger et al (in press) also found associations between extreme scores on Extraversion, Neuroticism and Openness and sub-types of personality disorder. Further research into the relationships between these constructs and the constructs of the EZPQ may clarify these theoretical links further.

There is growing evidence that the NEO PI-R may have utility in the assessment and understanding of the etiology of personality disorder in the general population. Future research into the associations between the NEO PI-R domains and the personality constructs of the EZPQ may reveal that the EZPQ also has utility in the assessment of personality disorder, which could be applied to the intellectually disabled population. This study provides further evidence for future research to investigate these theoretical links.

4.5.2 Links to Therapeutic Outcome

Miller (1991) demonstrated that the personality domains of the NEO PI-R may have utility in anticipating the course of therapy. Their study revealed that people with low Neuroticism scores and high Conscientiousness scores were predicted to have a better outcome in therapy. Given the significant positive correlation found in this study between Conscientiousness and Effectance Motivation on the EZPQ, it could be proposed that high scores on Effectance Motivation as measured by the EZPQ may also predict better outcome.

The Agreeableness domain of the NEO PI-R has also been shown to have important implications in predicting the course of therapy (Miller, 1991). High scorers on Agreeableness tend to be trusting and compliant predicting a better outcome and low scorers tend to be skeptical and rejecting predicting a poorer outcome. Given the high correlation found between Agreeableness and the Obedience construct of the EZPQ in this study there is a possibility that the Obedience construct of the EZPQ may prove to be a useful construct in predicting the course of therapy.

Henrich et al (2005) have found the EZPQ to be a useful measure of motivation and a good predictor of success at school in a sample of children in a remedial program. Given the success of the EZPQ in measuring motivational style and the significant correlations found in this study, the EZPQ would seem to be particularly well suited to predicting a client's suitability and motivation to engage in therapy.

4.5.3 Links to Mental Health

High scores on the Neuroticism domain and low scores on the Agreeableness and Conscientiousness domain of the NEO PI-R have often been linked to psychiatric problems such as anxiety and depression (Fagan, 1991; Miller, 1991; Muten, 1991). The findings from this study suggest links between low scores on Obedience and Effectance Motivation and psychiatric problems. Tendencies such as over-reliance on others and

low self efficacy, such as characterized by the constructs of the EZPQ have been linked to the development of psychiatric problems in people with intellectual disabilities (Zigler and Burack, 1989). The EZPQ personality constructs have potential application in predicting psychiatric problems in people with intellectual disabilities (Dykens, 1999). This study suggests that low Obedience and low Effectance Motivation ratings on the EZPQ may relate to psychiatric problems and should be investigated further.

4.6 METHODOLOGICAL ISSUES

This study used a relatively small sample size of 27 participants. This was sufficient to meet the requirement of 25 estimated using the power calculation (Cohen, 1975). However in hindsight it was an error to assume there would be a large effect size between the constructs. Previous studies such as McDaniel et al (2003) and McCann (1989) used larger sample sizes of 58 and 47 respectively to compare personality assessments and revealed little significant between instrument overlap. A larger sample size in the present study may have allowed the positive correlations observed in hypothesis 1 and 5 to reach statistical significance. A larger sample size would have also allowed for a meaningful exploration of the overlap of the 30 facet scores of the NEO PI-R and the constructs of the EZPQ. Unfortunately due to the time restraints of this study and the lengthy administration time required for each participant this was not possible.

The NEO PI-R, with 240 items required around 45 minutes for each participant and increased the administration time greatly. In future the use of the abbreviated NEO FFI scale (Costa and McCrae, 2005) may be considered. The NEO FFI uses only 60 items to calculate the 5 domain scores and takes around 15 minutes to administer. The NEO FFI has been shown to correlate reasonably well with the NEO PI-R using spouse ratings with correlations ranging from $r = .44$ to $r = .65$ across the domains (Costa and McCrae, in press a). As a cautionary note Costa and McCrae (2005) note that the NEO FFI should not be considered as equivalent to the NEO PI-R and what is gained in speed of administration is lost in precision.

In the pot-hoc analysis of within and between instrument correlations, the vast number of correlations between each of the scales affected the alpha level to such a degree that a much higher number of participants would have been necessary to demonstrate significant effects. Therefore the correlation matrix (table 4) in this study was only able to highlight possible trends between the personality sub-scales.

Another methodological issue was the high levels of within item overlap noted in the exploratory post-hoc analysis (table 4). This demonstrated that the personality scales within the instruments were not independent from each other and may account for some of the between instrument overlap. However it should be noted that personality traits have often been shown to have a large degree of overlap with each other and so this is a problem that is inherent to personality assessment (McCann, 1991).

The EZPQ was designed on experimental evidence from studies involving children and adolescents and as such this is the first study to explore the EZPQ on an adult sample. The EZPQ has been shown to have good accuracy at discriminating between children/adolescents with intellectual disability and non-disabled children/adolescents. In the present study it may have been useful to have explored the discriminant ability of the EZPQ on an adult population in a similar manner to Zigler et al (2002). This may have been possible by including a non-disabled group of adults. As such this study did not explore the discriminant validity of the EZPQ in this adult sample. Furthermore the inclusion of a non-disabled group would have provided a more heterogeneous sample on which to assess the assertions that specific personality constructs were congruent across the two scales.

It can be seen from the data distribution tables (Appendices 6-10) that some of the data from the EZPQ and NEO PI-R sub-scale scores are negatively or positively skewed and as such are not normally distributed. It may have been possible to correct for this using data transformation calculations. This would have allowed for parametric statistical analysis tests to have been used. Another problem is that Pearson's correlations were used in the post-hoc analysis, such as the correlation matrix (Table 4). This can be viewed as a methodological shortcoming since it is known that not all of the data in this study was parametric. However previous studies also used Pearson's correlations to compare each sub-scale to one another without performing a data transformation calculation (e.g. Zigler et al, 2002; Costa and McCrae et al, 1992; Lindsay et al, 2007).

The data transformation calculations were not used in this study so that the results could be directly comparable to those of the previous related studies.

To preserve anonymity, only IQ level, accommodation status and gender were collected as client details. It was unclear whether those included in the sample had additional mental health problems, behavioral problems, organic syndromes, personality disorder or autistic spectrum disorders. The inclusion of this information would have been useful as specific trends may have been related to such issues (Dykens, 1999). As such the effect these dual-diagnoses may have had on the scores remains unknown. This highlighted an enduring debate in research studies using clinical samples where the researcher will often attempt to balance anonymity with the level of information collected.

It is recommended that the most comprehensive form of personality assessment involves informant and self-report measures, file review and direct behavioral observation (Alexander and Cooray, 2003). At present there is only an informant-rated form of the EZPQ. If the EZPQ is to be used universally, there are many situations where a suitable informant may not be available and as such the measure could not be used. Future research may investigate the conversion of this scale into a self-rated format as recent studies have reported success with self-report measures of mental health assessment (Cuthill et al, 2003) and personality assessment (Lindsay et al 2007a) in people with intellectual disabilities.

4.7 CONCLUSION

This study demonstrated inconsistent correlations between similar personality constructs of the EZPQ and NEO PI-R in a sample of adults with mild intellectual disability. This inconsistency was explained in relation to differences in the way the two scales were developed and standardized.

It is concluded from these results that neither personality assessment can be used as a direct substitute for the other. Costa and McCrae (2005) propose that the NEO PI-R may have utility as a broad personality assessment capable of highlighting areas of significance in an individual's profile. They suggest that more specific personality assessments may be used in conjunction with the NEO PI-R to explore these highlighted areas further. The EZPQ may have utility in measuring specific aspects such as motivation and interpersonal tendencies in people with intellectual disabilities. However further validation of the EZPQ in an adult sample is recommended.

The significant correlations between the Conscientiousness and Effectance Motivation scales and between the Agreeableness and Obedience scales provide evidence for the existence of shared underlying personality characteristics. Links were suggested between these constructs and their utility with personality disorder, mental health and therapeutic engagement and outcome issues. The search for an appropriate personality

assessment for people with intellectual disability should be made a priority in this area of research (Alexander and Cooray et al 2003; Mooreland et al, 2008).

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APPENDIX 1:

APPROVAL LETTER FROM LOCAL ETHICS COMMITTEE

Full title of study: **Comparison of EZ yale personality questionnaire to the NEO Personality Index (Revised) on a sample of adults with mild learning disability.**

REC reference number: **08/S0802/28**

Thank you for your letter which we received on 6 March 2008, responding to the Committee's request for further information on the above research and submitting revised documentation.

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.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out. You are advised to study the conditions carefully, in particular:

Condition 1: Annual Progress Report

Under the National Research Ethics Service (NRES) regulations NHS Research Ethics Committees are required to monitor research with a favourable opinion. This is to take the form of an annual progress report which should be submitted to the Research Ethics Committee 12 months after the date on which the favourable opinion was given. Annual reports should be submitted thereafter until the end of the study.

APPENDIX 2:

APPROVAL LETTER FROM LOCAL RESEARCH AND DEVELOPMENT COMMITTEE

Project title: Comparison of EZ yale personality questionaire to the NEO Personality Index (Revised) on a sample of adults with mild learning disability

Thank you very much for sending all relevant documentation. I am pleased to confirm that the project is now registered with the NHS Research & Development Office. The project has R & D Management Approval to proceed locally.

Please note that if there are any other researchers taking part in the project that are not named on the original Ethics application, please advice the Ethics Committee in writing and copy the letter to us so that we may amend our records and assess any additional costs.

Wishing you every success with your research.

Yours sincerely

APPENDIX 3:

PARTICIPANT INFORMATION SHEET AND CONSENT SHEET

Participant Information Sheet

Study exploring a new personality assessment questionnaire for people with Learning Disability

As someone who cares for or works with people with learning disabilities you are being invited to take part in a research project. Before you decide it is important for you to understand why this research is being done and what it will involve. Please take time to read the information provided below.

What is the purpose of the study?

There is a lack of research exploring the role of personality and personality styles in people with learning disabilities. All too often difficulties in individuals with learning disability are solely attributed to intellectual/cognitive impairments and the individual's personality is not considered. One reason for this is the lack of a suitable personality assessment for people with learning disability. The EZ-Yale personality questionnaire (EZPQ) was recently designed specifically for use with individuals with learning disability. This questionnaire is likely to be very useful in clinical work such as assessing learning disabled individuals who have difficult behaviour, psychiatric problems, personality disorders or who offend. This study has been designed to explore the potential use of this personality scale by comparing it to a well-established personality scale from the general population. Your participation would further the clinical knowledge base in the field of learning disability and be greatly appreciated.

Why have I been chosen?

You have been chosen since you are a carer for someone with a learning disability and so are eligible to complete personality questionnaires that relate to the person you care for.

Anonymity

Since this is a research project, no identifying details will be recorded from yourself or the person that you care for. It will be completely anonymous. The purpose of the study is only to test the questionnaire, so that it may be used in research and clinical practice in the future.

Study exploring a new personality assessment questionnaire for people with Learning Disability

What if the person I care for does not want me to complete a questionnaire about them?

I have included a symbolised information sheet that has been adapted to explain the research project for people with learning disability. I would be very grateful if you could also take a few minutes to explain the research project to the learning disabled individual you care for, using the symbolised information sheet provided. After reading it through you could ask if he/she agrees to you taking part and completing an anonymous personality questionnaire based on him/her. If the individual is at all concerned or does not want you to take part then you don't have to. If after reading through the information together you think he/she understands what the research entails and he/she agrees for you to complete the questionnaire then please both sign and send the completed consent forms to the address below. This will be all that is required of the person you care for, since you will complete the questionnaire.

What will happen to me if I take part?

1 Data for this study will be collected between April and June 2008.

2 I will contact you and arrange to meet with you on a 1:1 basis to complete the questionnaire - the session will take around **1hour**.

3 All information will be kept strictly anonymous and confidential. The procedures for handling, processing, storage and destruction of your data are compliant with the Data Protection Act 1998.

Will I receive feedback?

It is anticipated that feedback regarding the overall results of the study will be given in the form of a letter during September 2008. Unfortunately, feedback on individual performance will not be provided since all data will be anonymous.

Study exploring a new personality assessment questionnaire for people with Learning Disability

What if I choose not to participate or withdraw from the study?
You and the person you care for are free to choose not to participate or withdraw at any time and without giving a reason.

Further Information
Please take time to consider whether or not you wish to take part. Please contact me if you would like further information:

Thank you for taking time to read this form
Your assistance in this study would be greatly appreciated

If you wish to take part please sign the consent form overleaf

Consent Form

Study exploring the use of the EZPQ with adults with Learning Disability

Name of Researcher:

1. I confirm that I have read and understood the information sheet dated..... for the above study. I have had the opportunity to consider the information, ask questions and have these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

3. I agree to take part in the above study.

_____	_____	_____
Name of Carer	Date	Telephone number or email

_____

Signature

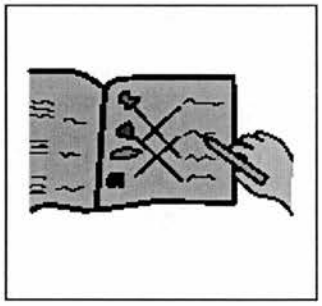
APPENDIX 4:

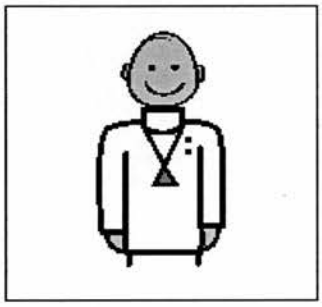
SIMPLIFIED INFORMATION SHEET FOR CLIENT

Research Information Sheet

Should my carer take part in this research project?

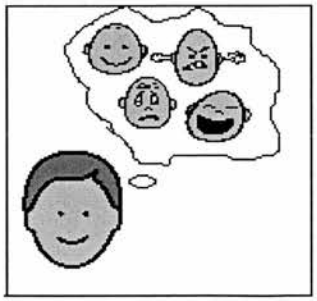
This research project was designed to test a new personality questionnaire that could be used by Doctors and Psychologists.



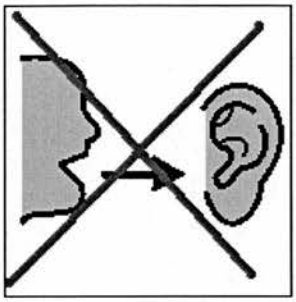


In the future this new questionnaire could be used to help people who are having problems.

If I agree, my carer would meet with someone to test the questionnaire by answering questions about my personality.

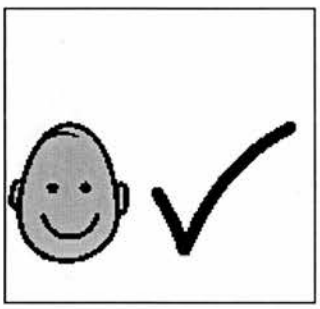


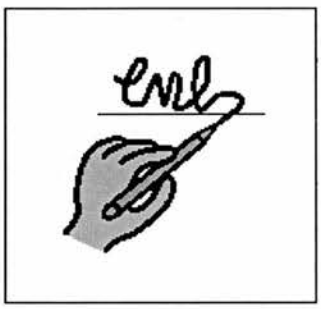
No-one else will hear what my carer says about me. It will be private.



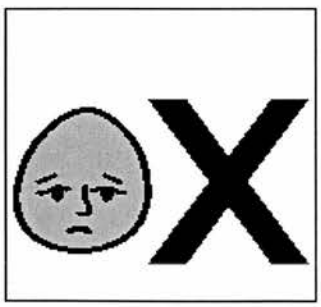
If I agree I should sign my name at the bottom and my carer can take part.

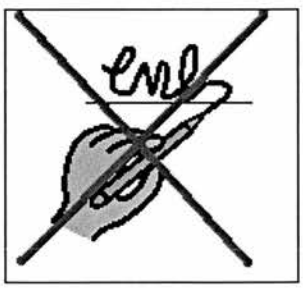
Yes I want my carer to take part – Sign bottom of page.





If I don't agree, I will <u>not</u> sign my name at the bottom and my carer will not take part.





Signature_____

APPENDIX 5:

NEO PI-R FACETS (from Costa and McCrae, 2005)

APPENDIX 5

NEO PI-R personality facets (taken from Costa and McCrae, 2005)

Neuroticism Facets

N1: Anxiety. Anxious individuals are more likely to be apprehensive, fearful, prone to worry and nervous.
N2: Angry Hostility. Angry Hostile individuals are more likely to experience anger, frustration and bitterness.
N3: Depression. Depressed individuals are more likely to experience depressed affect, guilt, sadness, loneliness and hopelessness.
N4: Self-Consciousness. Self-Conscious individuals are more likely to experience shame and embarrassment and are uncomfortable around others.
N5: Impulsiveness. Impulsive individuals are less able to control their cravings and urges.
N6: Vulnerability. Vulnerable individuals are less able to cope with stress. They have a tendency to become dependent on others and panic when faced with emergency situations.

Extraversion Facets

E1; Warmth. Individuals who score highly on Warmth tend to be affectionate, friendly and easily form attachments.
E2: Gregariousness. Gregarious individuals enjoy the company of others and social interactions and environments.
E3: Assertiveness. Assertive individuals tend to be dominant, forceful and speak without hesitation. They are prone to becoming group leaders.
E4: Activity. High scorers on this facet have a need to be kept busy and lead fast paced lives.
E5: Excitement-Seeking. Individuals who score high on this facet crave excitement, stimulation and noisy environments. Excitement-seeking is similar in many respects to "sensation seeking" (Zuckerman, 1979).
E6: Positive Emotions. Individuals who score high on this facet are more likely to experience positive emotions, such as joy, happiness, love and excitement. They tend to be cheerful and optimistic.

Openness Facets

O1: Fantasy. Individuals who score high on fantasy are likely to have a vivid imagination and active fantasy life. They are prone to day-dreaming and believe that imagination contributes to a rich and creative life.
O2: Aesthetics. High scores on this domain, indicate that the individual has a deep appreciation for art and beauty. This appreciation may lead them to develop a wider knowledge than the average individual.
O3: Feelings. Individuals who score high on feelings are more likely to experience both positive and negative feelings more acutely. These individuals also place a lot of importance on their feelings.
O4: Actions. Individuals who score high on actions are more willing to try new and novel activities.
O5: Ideas. This facet is also known as "Intellectual Curiosity" (Fiske, 1949). Individuals who score high on this facet have an active pursuit of intellectual activities and are more willing to consider new or unconventional ideas.
O6: Values. High scorers on this facet are more willing to re-examine their political, social and religious views. It can be considered as the opposite of "dogmatism" (Rokeach, 1960).

Agreeableness Facets

A1: Trust. Individuals who score high on trust, are more likely to believe that others are honest and well-intentioned.
A2: Straightforwardness. Straightforward individuals are more likely to be frank and less likely to manipulate others using flattery, craftiness or deception.
A3: Altruism. Altruistic individuals have an active concern for others, are generous and likely to help those in need.
A4: Compliance. Those who score high on compliance are likely to defer to others, inhibit aggression and appear as mild or meek to others.
A5: Modesty. Those who score high on this facet are humble and self-effacing. It should be noted that these individuals are not necessarily lacking in self confidence or self-esteem.
A6: Tender-Mindedness. High scorers on this facet tend to have sympathy and concern for others.

Conscientiousness Facets

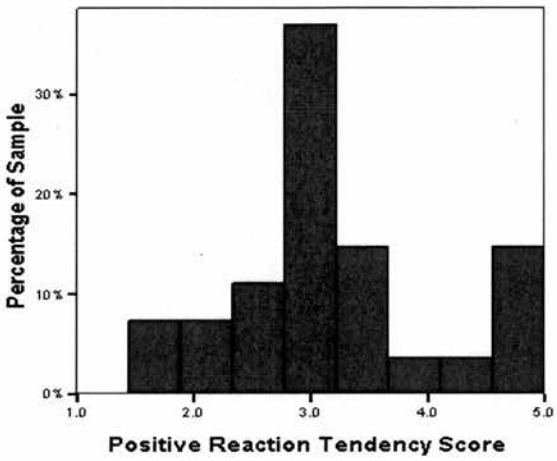
C1: Competence. High scorers on this facet have the sense that they are capable, sensible, prudent and effective. They tend to feel well-prepared for life. Competence has been found to be closely related to self-esteem and internal locus of control (Costa, McCrae and Dye, 1991).
C2: Order. Those who score high on this facet are liable to be neat, tidy and well-organised. Extremely high scores are thought to be associated with compulsions and compulsive personality disorder.
C3: Dutifulness. Dutiful individuals adhere rigidly to their principles and strive to live by their ethics and morals.
C4: Achievement Striving. Those who score high on achievement striving set high standards for themselves, are diligent and have a sense of direction in their lives. High scorers also have a tendency to invest a lot in their careers at the expense of other aspects of their lives.
C5: Self-Discipline. Individuals who score high on this facet have the ability to complete tasks, even when they are bored or other distractions are present. They are highly motivated.
C6: Deliberation. Those who score high on this facet demonstrate the ability to think before they act. As a result they tend to be cautious and deliberate in their behaviours.

APPENDIX 6:

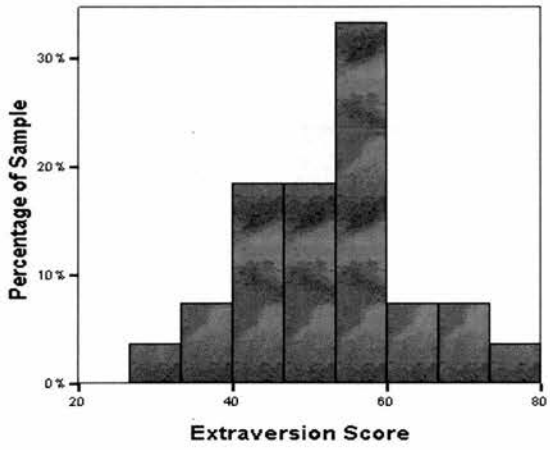
DISTRIBUTION CHARTS FOR EXTRAVERSION (NEO PI-R) AND POSITIVE REACTION TENDENCY (EZPQ)

Appendix 6

Distribution of Positive Reaction Tendency (EZPQ) Scores



Distribution of Extraversion (NEO PI-R) scores

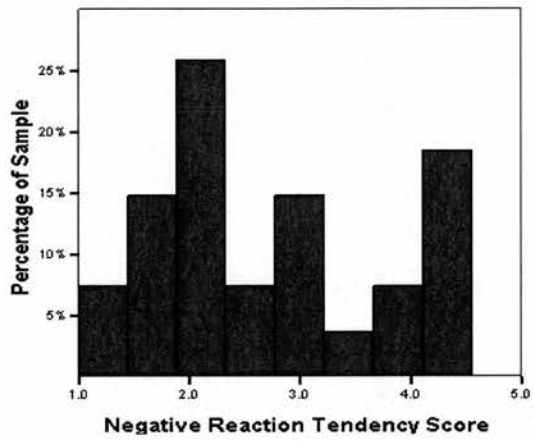


APPENDIX 7:

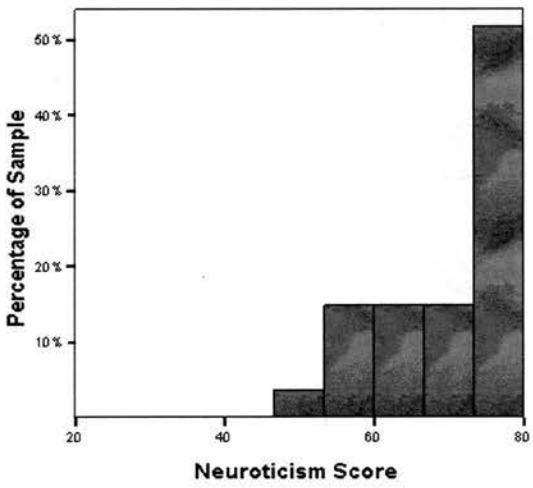
DISTRIBUTION CHARTS FOR NEUROTICISM (NEO PI-R) AND NEGATIVE REACTION TENDENCY (EZPQ)

Appendix 7

Distribution of Negative Reaction Tendency (EZPQ) Scores



Distribution of Neuroticism (NEO PI-R) Scores

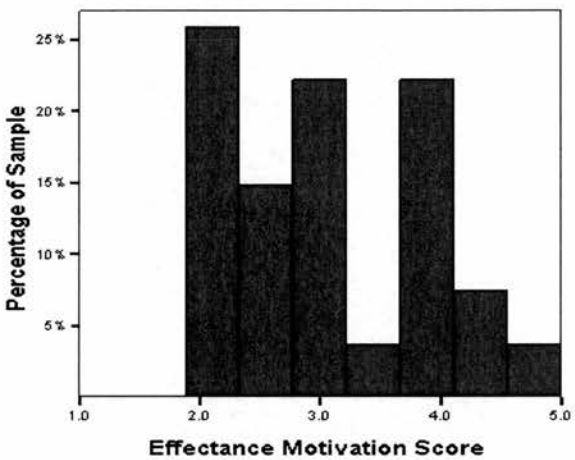


APPENDIX 8:

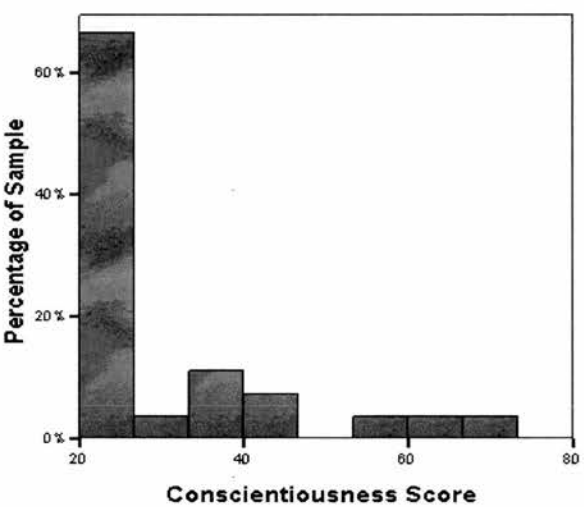
DISTRIBUTION CHARTS FOR CONSCIENTIOUSNESS (NEO PI-R) AND EFFECTANCE MOTIVATION (EZPQ)

Appendix 8

Distribution of Effectance Motivation (EZPQ) Scores



Distribution of Conscientiousness (NEO PI-R) Scores

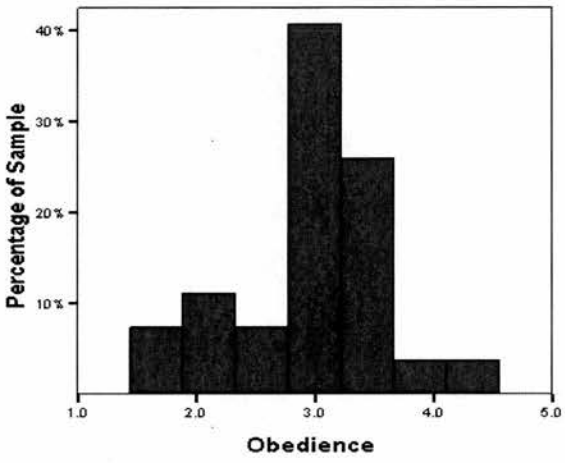


APPENDIX 9:

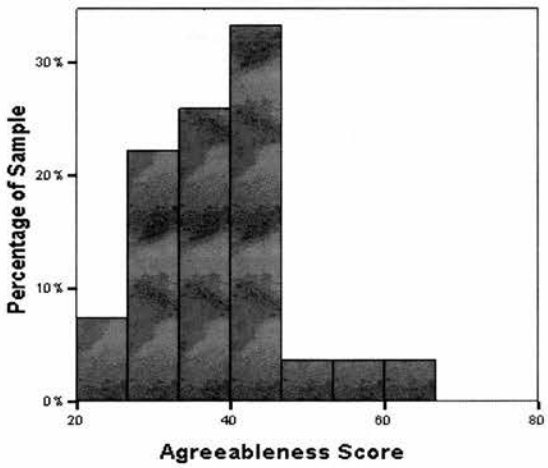
DISTRIBUTION CHARTS FOR AGREEABLENESS (NEO PI-R) AND OBEDIENCE (EZPQ)

Appendix 9

Distribution of Obedience Scores (EZPQ)



Distribution of Agreeableness Scores (NEO PI-R)

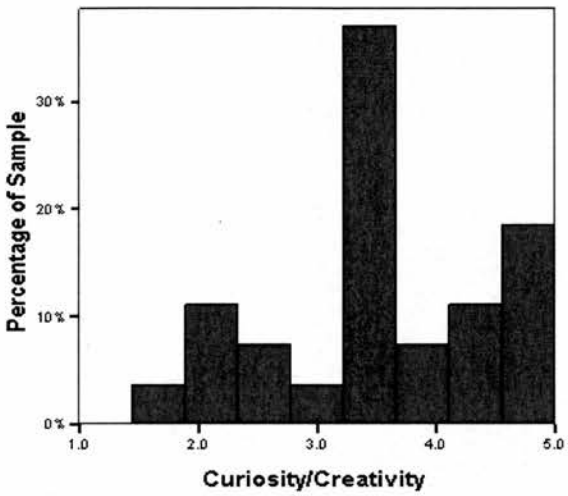


APPENDIX 10:

DISTRIBUTION CHARTS FOR OPENNESS (NEO PI-R) AND CURIOSITY/CREATIVITY (EZPQ)

Appendix 10

Distribution of Curiosity/Creativity (EZPQ) Scores



Distribution of Openness scores (NEO PI-R)