Emotional understanding in aggressive and non-aggressive individuals with a mild and moderate learning disability

and Research Portfolio

PART ONE

(Part two bound separately)

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Contents

Part 1 (this bound copy)

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Preliminary evaluation of the impact of an initial assessment

model of service delivery in an adult mental health primary care

service.

Prepared in accordance with the requirements for submission

to *Clinical Psychology Forum*

(Appendix 1.1)

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Introduction

For the majority of Clinical Psychology departments there is the ever-present problem of how to manage long waiting lists effectively. Increasing demand for services and limited resources both contribute to the problem (Cawley & Read, 1999). A number of initiatives have been proposed to combat long waiting times, including well defined referral criteria, consultation to other professionals, group work, and opt-in systems (Newnes, 1993; Startup, 1994).

Early Assessment Systems

Early assessment systems (EASs) have been proposed by a number of authors (Geekie, 1995; Shawe-Taylor *et al*, 1994). Individuals are offered an initial assessment and subsequently placed on a deferred waiting list for treatment. The EAS allows a quick response to the referral, inappropriate referrals to be re-directed, and the treatment waiting list to be prioritised. It also allows the waiting period to be "active", by incorporating self-help materials (White, 1995), or group intervention packages, such as relaxation training (Cawley & Read, 1999). Further, there is evidence that EASs reduce the total number of sessions required, and increase the satisfaction of clients and referrers (Geekie, 1995).

The Clinical Psychology Department, Forth Valley Primary Care NHS Trust, had implemented a number of waiting list initiatives over time, including group work and the provision of information. However, in January 1998, due to increasing pressure to reduce their extending waiting list, an EAS was introduced, similar to that described by Geekie (1995).

As part of this initiative individuals were to be offered an initial assessment within four weeks of being referred. For the majority the assessment would involve one session, with the possibility of more complex cases requiring more. Subsequently, individuals were advised that they would either have to wait up to three months for treatment, be taken on immediately, be discharged, or referred on, as appropriate. The initial appointment letter emphasised the possible wait for therapy. The EAS operated for one year, and was undertaken by three Clinical Psychologists who formed part of the Primary Care Service, each having a fixed monthly slot of one week allocated for assessments.

Problem of non-attendance

As the Department covers a wide geographical area, it provides a service in several clinics out with the departmental base. At these locations non-attendance, particularly failure to attend without notification, not only represents wasted clinical time, but has further implications including travel costs, and the use of other NHS resources, such as health centre rooms. It was hoped that the EAS would decrease non-attendance rates by reducing the initial waiting time. A positive association between waiting time and non-attendance at first appointments was noted by Herlihy *et al* (1998). However, Geekie (1995) found that the introduction of an EAS had little effect on attendance rates at first appointment. However, as non-attendance was defined as never having attended it is unclear what proportion *cancelled* their appointment. With sufficient notice, cancelled appointments can be re-allocated and thus have less impact on the efficient use of clinician's time.

Aims of the study

Due to continued waiting list pressure the Forth Valley Psychology Department was considering the re-implementation of the EAS. It was decided timely to review this system, particularly with regard to meeting standards set, as well as impact on attendance and non-attendance rates at first and second appointments. The second appointment, for the majority, should have been the beginning of routine therapy sessions. A six-month time period when the EAS was in operation was compared with the same period prior to its implementation, over which time staffing levels remained unchanged.

For the above time periods, the following areas were examined:

- Waiting time between date referral received and first appointment offered, and between first contact and second appointment offered;

- Length of wait for those labelled as priority by referrer;

- Attendance and non-attendance rates at first and second appointment;

- Number of individuals discharged after initial appointment;

and

- Number of individuals who were offered a second appointment with a different Clinical Psychologist during the EAS only.

Method

Participants

Individuals who were offered an initial appointment by one of three Clinical Psychologists involved in the EAS, within two six-month time periods: April to

September, 1997, prior to the introduction of the EAS (N=75), and April to September, 1998, post introduction of the EAS (N=189).

Procedure

The following data was obtained from the Community Patient Based System (COPS), which monitors patient activity:

- Date referral received

- Referrers' priority

- Date of first and second appointments

- Outcome of first and second appointments

- Clinical Psychologist(s) responsible for first and second contact

Results

In the following results, second appointment data includes only individuals who attended their first appointment, and were offered a subsequent appointment. However, second appointment data for four individuals during the EAS was unavailable.

- **Waiting times**

Table 1 illustrates the mean time between referral received and appointment offered, both prior to and during the EAS. Table 1 also indicates the mean wait between first contact and second appointment offered, prior to and during the EAS.

- Insert Table 1 here -

With regard to targets set, during the EAS, 94.2% (N=178) waited longer than four weeks for an initial appointment. Between first contact and second appointment offered, 18.5% (N=20) waited longer than three months.

Individuals were offered a second appointment significantly more quickly *after referral* during the EAS (mean=112.9; SD=54.5), as compared with pre-EAS (mean=151.6; SD=103.2) (t=2.47; df=60.5; p<0.05).

■ **Referrers' priority**

Prior to the EAS, 14.7% (N=11) of individuals offered an initial appointment were classified as urgent by the referrer, and waited on average 76.2 days (SD=62.9) for the appointment. During the EAS, 2.1% (N=4) were classified as urgent, and waited on average 28.5 days (SD=11.01), with 50% (N=2) waiting longer than 4 weeks.

■ **Attendance and non-attendance rates**

Table 2 includes a breakdown of attendance and non-attendance rates for individuals both during the EAS and prior to its implementation, for first and second appointment. Individuals who were "unable to attend" (UTA) had prior contact with the Department to cancel their appointment, whereas individuals who "failed to attend" (FTA) did so without notification.

Non-attendance rates

Across FTA and UTA, 32.0% (N=24) of individuals offered an initial appointment did not attend attended pre-EAS, versus 34.9% (N=66) during the EAS. Further, 32.7% (N=16) did not attend their second appointment pre EAS, compared with 26.9% (N=29) during the EAS.

A chi-square analysis was conducted, with no significant association found between the waiting list system in operation and attendance and non-attendance rates, at either first (x^2=0.20; df=1; p=0.67) or second appointments (x^2=0.56; df=1; p=0.45).

- **Discharged after initial appointment**

Prior to the EAS, 2.7% (N=2) were discharged after attending their initial appointment, and 4% (N=3) of those who did not attend. During the EAS 5.8% (N=11) of attenders were discharged, and 11.1% (N=21) of non-attenders.

- **Different therapists for first and second contact**

During the EAS, 26.9% (N=29) of those who attended their first appointment were offered a second appointment with a different Clinical Psychologist.

Discussion

The findings demonstrate that the EAS was successful in reducing waiting times for initial appointment by almost half. It therefore enabled individuals to be assessed more quickly than the traditional system. However, despite the drop in waiting times, 94% waited longer than the targeted four weeks for an initial appointment, unlike similar initiatives where the majority waited 10-14 days (Shawe-Taylor *et al*, 1994) or on average 26 days (Geekie, 1995). In addition, half the referrals labelled as urgent by GPs were seen out with the target period, although they may have been reclassified after comparison with individuals on the waiting list and/or discussion with the GP. It is possible that the difficulty meeting targets may be linked with the level of resources allocated to the EAS.

The problem of meeting targets during the EAS is also evident following the initial assessment, as almost one fifth waited over three months for their second appointment. However, due to the surprisingly long wait between appointments in the traditional system, individuals during the initiative received a second appointment on average significantly more quickly *after being referred*. Thus, it could be said individuals enter therapy more quickly during the EAS.

The implementation of the EAS also led to a dramatic increase in the number of assessments conducted, perhaps due to the focus on, and the time allocated for, assessments. This would ultimately lead to a rise in administration for clinicians, with continued pressure to correspond with the referrer within a specified time period following assessment.

Contrary to the findings of Herlihy *et al* (1998), a shortened waiting time did not lead to a reduction in non-attendance rates at first appointment. However, the results were consistent with Geekie (1995) who demonstrated no effect on attendance and non-attendance rates with the introduction of an EAS. Non-attendance during the EAS made up approximately one third of the rate of attendance, slightly higher than the 27.6% found by Geekie (1995). The proportion who FTA reduced somewhat during the EAS, but continued to constitute a substantial proportion of non-attenders. This represents wasted clinical time, with no opportunity to re-allocate the appointment, a delay for those who do wish to attend, and extra costs incurred when appointments are out with the departmental base. In addition, these individuals may be re-referred (Startup, 1994). Moreover, the implementation of the EAS did not substantially impact upon the efficient use of resources.

Further, despite waiting longer between the first and second appointments during the EAS, there was no significant effect on non-attendance rates. Thus it would appear that individuals are prepared to wait for therapy. However, individuals were aware prior to assessment that they may be required to wait, and, as noted, were offered routine therapy session more quickly overall during the EAS.

Although some researchers have highlighted a change in therapist as a disadvantage of EASs (Stevenson *et al*, 1997), clients do not report this as a concern (Geekie, 1995). During the EAS almost one quarter were offered a second appointment with a different therapist, although for some this may have been agreed at assessment, for example if undertaking group work. Group

interventions ran during the traditional system, but were highlighted in the EAS as a way to reduce the treatment waiting list. An emphasis was also placed on selecting out inappropriate referrals as part of the new system, as clients are not always directed to the most appropriate service for their needs (Burke & Miller, 1999). However, it is unknown how many individuals during the EAS were referred on to other services, but a higher percentage of individuals were discharged following their initial appointment.

Limitations and Future Research

A number of limitations should be noted when examining the results of this study. Firstly, the results are based on the work of three Clinical Psychologists who undertook the EAS, thus limiting the extent to which they can be generalised to the impact upon a department as a whole. Secondly, future research should control for referral rates, which have not been examined in this study, but are rising annually. Finally, it was assumed that for the majority the second appointment during the EAS was the beginning of routine therapy sessions, which is consistent with the delay between appointments. However, further research is required to identify the exact aims of the second appointment, e.g., immediate intervention, a further assessment or a re-assessment due to the delay between appointments.

Practical Difficulties

Informal discussion with clinicians highlighted difficulties sustaining the EAS, including the inflexibility of the system. It required staff to be constantly available, and was thus adversely affected by unplanned absences, which

ultimately led to its discontinuation. Another difficulty was the amount of planning required, for example, in allocating time for assessments.

Conclusions and recommendations for service provision

This study highlighted the difficulties implementing an EAS with limited resources, as targets set for waiting times were not met. Increased resources or alternative management of resources may make targets achievable, such as the use of Assistant Psychologists, under supervision, as a cost-effective resource to carry out early assessments (Cawley & Read, 1999). Further, given this study's inability to demonstrate the efficacy of an EAS in reducing non-attendance, it may be necessary to examine other models of service delivery. Indeed, there is much evidence in favour of opt-in systems in this regard (Anderson & White, 1994; Stallard & Sayers, 1998; Wiseman & McBride, 1998). Moreover, the re-introduction of the EAS in its previous form, may be a case of the solution becoming the new problem (Newnes, 1993).

References

Anderson, K., and White, J. (1994) Evaluation of an opt-in system in primary care psychology. **Clinical Psychology Forum, 93,** 28-30

Burke, C., and Miller, R. (1999) **Waiting for a millennium: ways forward in tackling referrals and waiting lists in clinical psychology.** Unpublished. Lothian Primary Care NHS Trust

Cawley, J., and Read, N. (1999) Waiting list strategy number ...? An evaluation of an interim measure. **Clinical Psychology Forum, 130,** 29-31

Geekie, J. (1995) Preliminary evaluation of one way of managing a waiting list. **Clinical Psychology Forum, 85,** 33-35

Herlihy, J., Bennett, P., and Killick, S. (1998) Self-help: a better way of coping with waiting lists. **Clinical Psychology Forum, 119,** 5-8

Newnes, C. (1993) A further note on waiting lists. **Clinical Psychology Forum, 53,** 33-35

Shawe-Taylor, M., Richards, J., Sage, N., and Young, E. (1994) Assessment appointments prior to being placed on the waiting list. **Clinical Psychology Forum, 70,** 23-25

Stallard, P., and Sayers, J. (1998) An opt-in appointment system and brief therapy: perspectives on a waiting list initiative. **Clinical Child Psychology and Psychiatry, 3(2),** 199-212

Startup, M. (1994) Dealing with waiting lists for adult mental health services. **Clinical Psychology Forum, 68,** 5-9

Stevenson, J., Hill, C., Hill, J., Macleod, S., and Bridgstock, G. (1997) We're late, we're late, we're late: yet more comments about waiting lists. **Clinical Psychology Forum, 105,** 31-35

Wiseman, M. & McBride, M. (1998) Increasing the attendance rate for first appointments at child and family psychiatry clinics: An opt-in system. **Child Psychology and Psychiatry Review, 3(2),** 68-71

White, J. (1995) Stresspac: a controlled trail of a self-help package for anxiety disorders. **Behavioural and Cognitive Psychotherapy, 23,** 89-107

Tables 1-2

		Number of patients	Mean (days)	SD
Time between referral and date of 1st appointment	Pre-EAS	75	124.8	92.1
	During EAS	189	64.8	43.8
Time between 1st contact and 2nd appointment	Pre-EAS	49	26.9	24.8
	During EAS	108	56.5	47.2

Table 1. Waiting times prior to first appointment offered, and between first contact and second appointment offered prior to and during the EAS.

		Attended		FTA		UTA	
		N	%	N	%	N	%
1st appointment	Pre EAS	51	68.0	14	18.7	10	13.3
	EAS	123	65.1	28	14.8	38	20.1
2nd appointment	Pre EAS	33	67.3	9	18.4	7	14.3
	EAS	79	73.1	17	15.7	12	11.1

Table 2. Attendance and non-attendance rates at first and second appointments, prior to and during the EAS.

Chapter 2 : Major Research Project Literature Review

Facial emotion recognition in adults with a learning disability:

A systematic review of the literature.

Prepared in accordance with the requirements for submission

to the *American Journal on Mental Retardation*

(Appendix 2.1)

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Abstract

This study provides a systematic review of the evidence concerning identification of facial emotion of adults with a learning disability. Sixteen studies were reviewed, and grouped in terms of experimental procedures employed. The highest quality studies were consistent in finding that emotion identification is impaired in individuals with a learning disability relative to non-learning disabled peers. This deficit appears to be specific to emotion and cannot be fully explained by general cognitive deficits. However, comparisons with mental age matched controls have produced conflicting results. Further, the findings suggest a differential pattern of responding across emotions, with some studies identifying no impairment for particular emotions, such as happiness. The results are discussed in terms of their practical and research implications.

Introduction

Over recent years there has been an increasing interest in the social and emotional understanding of individuals with a learning disability (LD). Impaired social skills are a defining characteristic of a LD (Luckasson *et al*, 1992), and have been identified as a cause of job loss (Greenspan & Shoultz, 1981), as well as isolation from peers in employment settings, leading to feelings of loneliness (Chadsey-Rusch, 1992). The ability to accurately identify and interpret emotional states is of particular importance in developing and maintaining social relationships (Hext & Lunsky, 1997).

It is thought that individuals with a LD may exhibit impairment in their ability to identify emotional states in themselves, and others, relative to mental-age (MA) matched controls and non-disabled peers (e.g., Hobson *et al*, 1989; McAlpine *et al*, 1991). This has led some researchers to put forward an emotion-specificity hypothesis (Rojahn *et al*, 1995a; Rydin-Orwin *et al*, 1999).

Deficits in emotional understanding have also been hypothesised to be linked with challenging behaviour (Moffat *et al*, 1995). Consequently, an assumed lack of socio-emotional understanding has led to the inclusion of emotion identification as an educational component within anger management work (Benson, 1994). However, some researchers (McKenzie *et al*, 2000) have questioned the assumption of a deficit in emotion recognition in aggressive individuals. Rather, it is thought that aggressive individuals demonstrate a

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negative attribution bias in ambiguous social interactions (Walz & Benson, 1996).

In a series of studies, Moore *et al* (1995, 1997) highlighted limitations in the research methods used to examine social and emotional understanding of individuals with LD. They argued that the methodological flaws might have led to the social understanding of individuals with a LD being underestimated. Work on emotional identification has been based mainly on person-related stimuli, which is simplified in form, for example, photographs or drawings of facial expressions. It has been presumed that simpler stimuli, such as line drawings, extract the essential information for emotion recognition, making the task easier, particularly for individuals with a LD. However, Moore *et al* postulates that methodology which relies on simplified stimuli, without dynamic or temporal cues, may in fact prove a hindrance to individuals with a LD as it requires "the deployment of more inferential, cognitively based capacities" (Moore *et al*, 1995, p.84). Instead they argue that aspects of person perception are relatively direct in nature, independent of level of intellectual functioning.

Further, a recent narrative review highlighted the lack of well-controlled studies in the existing literature (Rojahn *et al*, 1995a). As few studies have controlled for the cognitive demands of the emotion tasks, it is unclear whether deficits in performance of individuals with a LD is specific to emotion, or reflects underlying difficulties related to the cognitive demands of the task (Rojahn *et al*, 1995a). It is therefore possible that the performance of individuals with a LD may be underestimated due to the demands on cognition.

In light of the preceding discussion there are a number of critical questions implicated in the area of emotion identification. In particular, a systematic review of the available evidence would allow an exploration of the links between methodology employed and results gained. No previous systematic review has been undertaken in this area.

Objectives

The objective is to undertake a systematic review of the evidence base for facial emotion identification in adults with a LD. The studies reviewed shall be assigned a quality rating, and categorised in terms of experimental procedures employed.

Criteria for considering studies for this review

Articles were included in the review if they concerned adults ($\geq$ 18 years) with a LD, which addressed the issue of facial emotion identification. LD was defined as a measured intellectual quotient (IQ) of "approximately 70 or below" (APA, 1994, p50). As the confidence interval for the Weschler Adult Intelligence Scale is $\pm$ 5 (Weschler, 1986) it was decided to accept studies which included participants with an IQ $\leq$ 75. Articles in which neither IQ or category of LD was explicitly stated were excluded. It was also decided not to use data from studies which included individuals with a diagnosis of major psychiatric or pervasive developmental disorder, with emotion recognition identified as impaired in schizophrenia, dementia and autism (Hobson, 1986; Heimberg *et al*, 1992;

Kurucz & Felmar, 1979). Further, studies for which individuals with a LD were a control for another population, such as autism, were also excluded. Only experimental studies that included original data were sought, as such, previous narrative reviews were excluded.

Search Strategy for identification of studies

Articles for possible inclusion in this review were identified through the following methods, up to 31st August, 2001.

1. Electronic Searching

The databases below were searched using the strategies outlined, with specific terms used relevant to particular databases.

(a) EBM Reviews

- Cochrane Database of Systematic Reviews (2nd Quarter 2001)
- Database of Abstracts of Reviews of Effectiveness (2nd Quarter 2001)
- ACP Journal Club 1991-March/April

[LEARNING and (DISAB$ or DIFFICULT$ or DISORDER$) or MENTAL$ and (HANDI$ or RETARD$) or INTELL$ and (DISAB$ or DIFFICULT$) or FRAGILE X or (DOWN or DOWN'S) and SYNDROME or SUBNORMAL ADJ3 INTELL$] and [EMOTION$ and (RECOG$ or UNDERSTAND$) or AFFECT adj3 PERCEPTION]

(b) EMBASE 1980-2001 Week 31

Search as for EBM Reviews above, but excluding LEARNING DISORDER$, and including MENTAL$ DEFICIENCY.

(c) The Lancet Archive 1993-December 2000

Search as for EBM Reviews, but excluding LEARNING DISORDER$.

(d) PsychINFO 1967-July, Week 4 2001

Search as for EBM Reviews, but excluding LEARNING DISORDER$, but including AFFECT adj3 FACIAL EXPRESS$.

(e) Premedline and Medline 1966-Present

Search as for PsychINFO.

(f) CINAHL 1982 – July Week 2 2001

Search as for EBM Reviews, but including AFFECT adj3 FACIAL EXPRESS$.

2. **Hand searches**

A hand search of the *American Journal on Mental Retardation*, over the past five years, was conducted.

3. **Reference Searching**

Further articles were identified through examination of reference lists from papers to ensure all relevant studies were included.

Methods of the review

- **Study selection**

All articles, identified as above, were examined by the reviewer to determine if they met the inclusion criteria. Studies were excluded mainly due to the inclusion of adults with borderline intellectual ability, or children with a LD. Of the 16 articles selected, 6 were unpublished dissertations, with the remainder published in peer reviewed journals.

- **Data extraction**

Information extracted from each article included participant characteristics, assessment measures, task paradigms, emotion categories, as well as data relating to quality and outcomes (see Tables 2-4).

- **Data synthesis**

As the focus of this review was *assessment* of emotion identification it was not possible to combine the results in a meta-analysis. The findings are thus reported in a narrative, categorised into types of experimental procedures employed, with more significance given to results of higher quality studies. Study limitations are illustrated in Tables 2-4, with the narrative focusing on key methodological flaws.

- **Categorisation of experimental procedures**

Various attempts have been undertaken to categorise experimental procedures employed in emotion identification studies (see Rojahn *et al*, 1995a). For the purposes of this review the studies shall be categorised into recognition, labelling

and rating tasks (Adams & Markham, 1991). Examples of the different procedures are shown in Table 1 below. No non-verbal recognition tasks were identified.

- Insert Table 1 here -

- **Study quality criteria**

Quality criteria were developed in line with the SIGN (2001) guidelines for systematic reviews. However, as these guidelines were designed for medical outcome trials, they have been adapted for the current study. Relevant studies were therefore graded according to their design as follows:

1) Case controlled studies including task control

2) Case controlled studies excluding task control

3) Studies with no control group, but including task control

4) Uncontrolled studies.

Within this quality criterion, the following will be considered at each level:

(i) Had sufficient numbers of participants, well-matched groups and tasks, and well validated measurement instruments.

(ii) With those studies which failed to meet the above criteria being ranked second.

Results

From the 16 targeted studies, labelling and recognition tasks were the most popular, with only 3 employing a rating paradigm. Five studies utilised more than one type of paradigm.

▪ Labelling

Labelling tasks require an individual to label the emotion being expressed, either freely (free-response), or from a selected range of labels (forced-choice). The 8 studies that utilised a labelling task were found to be of medium to high quality, as shown in Table 2. The studies are reviewed in order of their assigned quality rating.

- Insert table 2 here -

▪ *Studies assigned quality rating 1*

In the highest quality study, Eckert (1999) examined emotion labelling in a forced-choice paradigm, using the Pictures of Facial Affect (Ekman & Friesen, 1976). This measure consists of monochrome, decontextualised, photographs depicting the six basic emotions of happy, sad, angry, fear, surprise and disgust. Individuals with a moderate LD were found to be significantly impaired relative to a mental age (MA) matched control group, for each emotion. The differences found appear to be specific to emotion, as the two groups were comparable on a cognitive control task. Individual's ability to label facial expressions of emotion was unrelated to gender, or the amount of support received due to level of LD. However, this study lacked information on the psychometric properties of the control task.

Also using the Pictures of Facial Affect (Ekman & Friesen, 1976), Callaghan (1993) demonstrated that individuals with a mild LD were significantly impaired in emotion labelling relative to a non-LD adult group of similar chronological age (CA). However, interestingly the performance of the two groups was comparable for happiness. Moreover, the two groups were less well matched than in the previous study.

In an innovative study, Harwood *et al* (1999) examined the effect of movement on facial affect identification. Individuals were presented with static and moving video displays of the six basic emotions. A similar pattern of results were found to Callaghan (1993), as individuals with a mild LD were found to be significantly impaired overall in emotion labelling as compared with CA matched controls. The groups, though, performed comparably for happiness and sadness, with the former proving the easiest emotion to label. Of note, was the finding that moving displays of the facial expressions significantly improved the rate of correct responding. However, the results must be viewed with caution due to small sample size and the use of a screening procedure to ensure participants could describe the meaning of the six emotions.

- *Studies assigned quality rating 2*

Two labelling studies employed MA matched controls, but lacked tasks to control for the cognitive demands of the task (Perez, 1992; McKenzie *et al*, 2001).

Consistent with previous research, Perez (1992) demonstrated that individuals with a mild LD were significantly impaired in emotion labelling relative to a non-LD group with similar CA. However, when compared with children of a similar MA, no significant difference between groups emerged. Thus individuals with a mild LD appear to be performing on an emotion-labelling task at a level expected from their MA. However, this study lacked information on the psychometric properties of the assessment measures employed.

In an interesting study, McKenzie *et al* (2001) examined emotion identification in relation to varying amounts of contextual information using a free-response paradigm. Unlike Perez (1992), individuals with a mild-severe LD were significantly impaired overall relative to MA matched controls. However, emotion labelling ability was found to be related to level of LD, with individuals with a mild LD significantly more accurate than individuals with a moderate-severe LD. Of note, were the findings of an improvement in facial affect labelling with increased contextual information, and a lowering of ability with increasing age. However, the results should be viewed with caution, as the six basic emotions (Ekman & Friesen, 1976) were not examined, with bored and worried substituted for surprise and disgust.

One further study examined emotion labelling in adults with a LD in relation to non-LD controls, but did not employ a cognitive control task (Maurer & Newbrough, 1987). The findings of the higher quality studies were complemented by those of Maurer and Newbrough (1987), who found that individuals with a mild to severe LD were significantly impaired at labelling

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emotions relative to non-LD adults. However, the performance of both groups was comparable for sadness. Unusually, this study examined only three basic emotions (happiness, sadness, and anger), plus a neutral expression. Further, the assessment measures incorporated the facial expressions of adults with and without a LD, to examine whether facial affect *encoding* was affected by MA. The results supported their hypothesis, as both adults with and without a LD identified the facial expressions of non-LD adults more accurately.

Two studies of moderate quality were reviewed, which specifically examined the relationship between emotion identification and the expression of challenging behaviour (McKenzie *et al*, 2000; Reeves, 1985). Both studies were consistent in demonstrating that individuals with a mild to moderate LD who display maladaptive behaviour were comparable at emotion identification to individuals with no behaviour of this type. The converging results were found despite a difference in the assessment measures used. Reeves (1985) employed the traditional Ekman & Friesen (1976) photographs, while McKenzie *et al* (2000) used newly developed measures with varying amounts of contextual information. Further, Reeves (1985) examined labelling of the basic emotions, while McKenzie *et al* (2000) substituting surprise and disgust for bored and worried. Interestingly, the latter study demonstrated that aggressive individuals were in fact better than individuals without challenging behaviour at labelling emotions, when assessed with photographs with reduced contextual cues.

Further, in contrast to McKenzie *et al* (2001), Reeves (1985) found age to be unrelated to facial affect identification. However, it should be noted that Reeves

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(1985) combined the results of a labelling and recognition task in the analyses of his data.

- *Summary*

In summary, the results are consistent in suggesting that individuals with a LD are impaired at labelling emotion relative to their non-LD peers. However, two of the highest quality studies (Callaghan, 1993; Harwood *et al*, 1999) demonstrated differential responding across emotions, with no group differences found for specific emotions, such as happiness. The highest quality study (Eckert, 1999) also demonstrated that individuals with a moderate LD were significantly impaired relative to MA matched controls. The differences found appear to be specific to emotion.

The converging evidence identified happiness as the easiest emotion to label, and gender of participant as independent of labelling ability. However, the results were inconsistent regarding the relationship between emotion labelling, and age or level of LD. Interestingly, contextual information and movement of facial expression were reported to increase accuracy of labelling (Harwood *et al*, 1999; McKenzie *et al*, 2001). Also, there was no evidence to suggest that individuals with challenging behaviour are impaired at emotion labelling relative to individuals who do not demonstrate such behaviour (McKenzie *et al*, 2000; Reeves, 1985).

▪ Recognition

Recognition tasks require individuals to identify particular emotions from a range of facial expressions following a verbal prompt, such as "Show me the happy face". The quality of research utilising such a paradigm was found to be more variable than studies employing labelling, ranging from poor to high quality. Table 3 summarises the studies using such procedures, and their associated quality rating.

- Insert table 3 here –

▪ *Studies assigned quality rating 1*

In an innovative study, Weisman and Brosgole (1994) assessed emotion recognition using cartoons of various animals expressing happy, sad and angry emotions. The line drawings were thought to increase individuals' ability to attend as compared with photographs of facial expressions. This study aimed to examine the effect of varying types of prompts on performance. The results suggest that individuals with a mild to moderate LD are not impaired at emotion recognition *per se*, as they were comparable to MA matched controls when asked to choose an emotion following a direct prompt e.g., "Point to the angry face". However, individuals made more errors in responding when read a story to prompt recognition (vignette prompt) than for a direct prompt. Weisman and Brosgole suggest individuals ability may be underestimated due to the prompts used, as group differences in emotion recognition only emerged following vignette prompts. Indeed, longer vignettes led to more errors than shorter

vignettes, and vignettes, which did not include the emotion word, resulted in more errors than if the target word was included. However, the conditions were presented in increasing order of difficulty, and were not counterbalanced across participants, which may have resulted in order effects.

Donoghue (1995) chose to extend the findings of the above research using the same method, but with a somewhat increased sample size. However, unlike Weisman and Brosgole (1994) adults with a moderate to severe LD were found to be impaired at emotion recognition relative to MA matched controls when asked to choose an emotion following a direct prompt. In contrast, although still impaired relative to the child group, performance was better when prompted to choose an emotion evoked by a particular vignette than when simply prompted to choose a particular emotion. Performance was, in fact, best when a short vignette was read three times in succession. Happiness was the easiest emotion to identify, and participants' performance in this task was unrelated to CA, MA or IQ. However, Donoghue suggests the difference between her findings and those of the earlier study may relate to the lower ability level of her sample.

Unlike the above studies, Harwood *et al* (1999) examined emotion recognition using coloured photographs of the six core emotions (Mazurski & Bond, 1993). Individuals with a mild LD were found to be significantly impaired relative to a non-LD adult comparison group. As in previous studies the differences were thought to be unrelated to the cognitive demands of the task as all individuals had passed a task with similar cognitive demands. However, the results of this study should be interpreted with caution due to small sample size.

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- *Studies assigned quality rating 2*

Three studies examined emotion recognition in adults with a LD in relation to MA matched controls, but did not utilise a task to control for the cognitive demands of the task (Leung & Singh, 1998; McKenzie *et al,* 2001; Perez, 1992)

Following on from the studies employing vignette prompts, Leung and Singh (1998) requested individuals identify an emotion from a choice of six monochrome facial expressions (Ekman & Friesen, 1976), following a short vignette that included the emotion word. Despite using different measures, the results complemented those of Weisman and Brosgole (1994) in demonstrating that individuals with a mild to moderate LD were significantly less accurate in emotion recognition than non-LD children. The exception was the LD participants' equal ability to recognise happiness. However, a control task was not utilised in this research thus it is unclear whether the difference found was emotion-specific, or a result of difficulties with the cognitive demands of the task.

Also using vignette prompts, Perez (1992) demonstrated that individuals with a mild LD were significantly impaired overall relative to both children and adults without a LD. However, the groups did not differ for happiness, sadness and disgust. In this study individuals were presented with an array of three facial expressions, and asked to identify an emotion represented by a story which excluded the target word. However, this study did not specify the exact ages of

the adult participants, thus it is possible that the two adult groups may not have been adequately matched on CA.

The findings of McKenzie *et al* (2001) also complements previous research in demonstrating that individuals with a mild to severe LD were impaired in emotion recognition relative to a MA matched control group. The difference between groups emerged both when choosing from an array of six facial expressions, as in Leung and Singh's (1998) study, and when choosing from two facial expressions. However, unlike previous research this study examined whether increasing contextual information enhances performance of individuals with a LD in recognising emotions. Line drawings and coloured photographs with and without context were utilised. The ability to recognise facial expressions from a choice of six significantly increased when contextual information was available. Interestingly, unlike previous studies age was inversely related to identification ability for the LD group, and those with a mild LD outperformed those with a moderate LD. However, this study did not examine the six basic emotions, and lacked psychometric information on measures employed.

Two studies of moderate quality examined the relationship between challenging behaviour and facial emotion recognition (Reeves, 1985; McKenzie *et al*, 2000). No significant difference was found in either study between individuals with a mild to moderate LD who displayed challenging behaviour and those who did not. The converging results occurred despite using disparate measures, and examining different emotion categories. Both studies included labelling

paradigms, and as noted previously Reeves (1985) did not separate them when analysing the relationship with challenging behaviour.

- *Studies assigned quality rating 4*

Simon *et al's* (1995) study focused on the relationship between intellectual ability and emotion recognition. Despite using the Pictures of Facial Affect (Ekman & Friesen, 1976) the results were inconsistent with Leung and Singh (1998). Simon *et al* found a significant association between emotion recognition and IQ. Interestingly, quality of life and social skills were examined and found to be independent of emotion recognition ability, as was gender of participant. In a further study, using line drawings, Simon *et al* (1996) again demonstrated a significant relationship between emotion recognition and intelligence. Both studies had large sample sizes, but as they lacked a control task it was unclear to what extent the results were related to the cognitive demands of the task.

- *Summary*

In summary, despite using disparate assessment measures and task paradigms, the converging evidence suggests that individuals with a LD are impaired overall in emotion recognition relative to non-LD adults. However, the results of the highest quality studies examining individuals with a LD performance in relation to MA matched controls were conflictual (Donoghue, 1995; Weisman & Brosgole, 1994). Emotion recognition was also reported to be independent of age and IQ (Donoghue, 1995), however less well-controlled studies have not supported this. As for labelling tasks, happiness appears to be the easiest emotion to recognise, and there was no effect of gender on ability to recognise

facial expressions in those studies which examined this. Noteworthy findings include improved recognition linked with contextual cues (McKenzie *et al*, 2001), and no evidence of impaired emotion recognition in individuals who display challenging behaviour (McKenzie *et al*, 2000; Reeves, 1985).

- **Rating**

Only 3 rating studies were identified, ranging in quality from high to poor, each of which are summarised in Table 4. Rating tasks require individuals to rate a particular emotion on a specified scale, such as for intensity, or on a continuum using a bipolar construct, such as happy-sad.

- Insert table 4 here –

- *Studies assigned quality rating 1*

Rojahn *et al* (1995b) utilised the Penn Facial Discrimination Task (FDT; Erwin *et al*, 1992) to examine emotion rating ability. This measure consists of monochrome photos of faces displaying happy, neutral and sad facial expressions. Individuals were requested to rate on a 5-point scale the facial expression on a happy-sad continuum. The results indicated that overall individuals with a mild to moderate LD were significantly impaired relative to both non-LD peers and a MA matched control group. However, as in other studies, overall results masked the relationship with specific emotions. For happiness, the LD group was in fact comparable with the child group. For sadness, visual inspection of their data suggests both adult groups significantly outperformed the child group. In terms of sensitivity to neutral faces, the adult

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groups were impaired relative to the child group. It may be that the LD group felt they should categorise a face as a particular emotion, which highlights the difficulty of including neutral facial expressions in research. The FDT also included a control task requiring age discrimination, at which the LD adults and child group performed comparably.

- *Studies assigned quality rating 3*

In an earlier study, Rojahn *et al* (1994) examined the performance of individuals with a LD on the PFDT (Erwin *et al*, 1992). Re-test reliability was found to be high for individuals with a mild LD, however reliability was not assessed for individuals with a lower level of functioning. Further, this study also demonstrated that individuals with a moderate LD were significantly more impaired than those with a mild LD on both the emotion task, and a cognitive control task.

Finally, Kroeger (1998) also used an adapted version of the PFDT (Erwin *et al*, 1992) to examine the relationship between emotion identification and aspects of cognitive processing. Individuals viewed monochrome slides of three expressions, and were asked to identify, on a three-point scale, whether the emotion was happy, sad or neutral. An adapted version of the Das-Naglieri: Cognitive Assessment System (CAS; Naglieri & Das, 1997) was utilised to examine individual's planning, attention, simultaneous and successive processing capacity. Emotion identification in individuals with a mild to moderate LD was related to the successive processing scale of the Cognitive Assessment System, which examines memory for word series (Naglieri & Das, 1997).

- *Summary*

In summary, there is a paucity of high quality research utilising rating paradigms. The highest quality study suggests individuals with a mild to moderate LD performed equal to, or better than, a level expected from their MA, when rating happiness and sadness (Rojahn *et al*, 1995).

Reviewer's discussion

Studies reviewed addressed the ability of individuals' with a LD to label, recognise and rate facial expressions of emotions. The articles varied in quality, from those of poor quality with few controls, to higher quality well-controlled studies.

Consistent with a previous narrative review (Rojahn *et al*, 1995a), the higher quality studies indicated that individuals with a LD are impaired relative to their non-LD peers. This deficit appears to be specific to emotion and cannot be fully explained by difficulties with the cognitive demands of the task. Indeed, the inclusion of a cognitive control task is an important factor when assessing emotion deficits in LD (Rydin-Orwin *et al*, 1999).

To fully test the emotion-specificity hypothesis, however, Rojahn *et al* (1995a) recommended that in addition to a cognitive control task, research should include a MA matched control group. They note that *"even with well-designed tasks, differences in within-group performance on the index task and the control task are likely"* (p410; Rojahn *et al*, 1995a). However, only four studies reviewed

fulfilled these recommendations. The findings of Eckert (1999) supported the emotion-specificity hypothesis for individuals with a moderate LD in a labelling task paradigm. However, the evidence from recognition paradigms provided conflicting results (Donoghue, 1995; Weisman & Brosgole, 1994). Finally, in contrast to the emotion-specificity hypothesis, individuals with a LD appeared to perform equal to, or better than, a level expected from their MA, when rating happiness and sadness (Rojahn *et al*, 1995b).

The findings of the current review also hint at a differential pattern of responding across the six basic emotions (Izard, 1971). In particular, happiness was consistently found to be the easiest emotion to identify, with some studies finding individuals were not impaired in identifying this emotion relative to their non-LD peers (e.g., Callaghan, 1993; Leung & Singh, 1998). Indeed, Izard (1971) reported that the recognition of happiness was first to develop, followed by sadness. Interestingly the work of Baron-Cohen *et al* (1993) on children with autism may also shed light in this area. They suggest that emotions such as happiness and sadness are "simple" emotions, which can be interpreted directly from the situation, such as "Jo is happy as she received a present". Whereas other emotions, for example surprise, are "cognitive" reflecting a need to understand the protagonist's beliefs, for example, "Jo is surprised as she did not *think* she would receive an award". Thus Baron-Cohen *et al* suggest that it may be a difficulty in understanding the belief system of others which underlies identification deficits for some emotions. Indeed they demonstrated that children with a LD were somewhat less accurate in identifying "cognitive" emotions than

"simple" emotions. The notion of a general deficit in emotion identification for individuals with a LD may therefore be inaccurate.

Moreover, given the findings from high quality studies, and the suggestion of differential responding across emotion categories, the current systematic review does not wholly support the emotion-specificity hypothesis (Rydin-Orwin *et al*, 1999). The evidence reviewed has a number of implications for research and clinical practice.

Implications for research

The current review has the following recommendations for future research:

1. The importance of further examination of the influence of contextual and dynamic cues on emotion identification. The evidence of increased ability to identify emotions with the introduction of contextual information (McKenzie *et al*, 2001), and dynamic cues (Harwood *et al*, 1999), adds support to Moore *et al*'s (1995; 1997) argument that person perception is a relatively direct process. They proposed that assessment measures using simplified stimuli may require increased cognitive processing, and thus underestimate the abilities of individuals with a LD.

2. A need for high quality research that utilises a non-verbal task paradigm. Despite individuals with a LD having particular difficulties with communication (McLean *et al*, 1996), the majority of research in this area has relied heavily on verbal labelling of emotion. Tasks have either required expressive communication to label emotions, or receptive vocabulary to understand the label given by the experimenter during recognition tasks.

Rating tasks have also relied on verbal or written scales. As such, it is unclear whether deficits found are merely lexical difficulties or difficulties in understanding the emotion presented.

3. It may prove fruitful to undertake research examining differences in responding in relation to "cognitive" and "simple" emotions, given the findings in other populations (Baron-Cohen *et al*, 1993). Indeed, a more fine-grained analysis of responding across emotions may be required.

4. Finally, given the paucity of research which fulfilled the recommendations made by Rojahn *et al* (1995), it is important that future research should include both MA matched controls and a cognitive control task. This will allow a further examination of the emotion-specificity hypothesis (Rydin-Orwin *et al*, 1999).

Implications for practice

The current review also has implications for clinical practice.

1. Previous educational programmes in emotion identification have focused equally on the various emotions (McAlpine *et al*, 1992; McKenzie *et al*, 2000, Rydin-Orwin *et al*, 1999). However, the findings of this review suggest individuals may benefit from a differential emphasis on particular emotions. Indeed, it may be that those emotions that require an understanding of other's belief systems (Baron-Cohen *et al*, 1993) should be targeted.

2. Deficits in emotional understanding have been hypothesised to be linked with challenging behaviour (Moffat *et al*, 1995). However, the converging evidence reviewed within this paper does not support this view. This calls

into question the value of targeting socio-emotional understanding in this group. In particular, the efficacy of the emotion identification component in anger management training (Benson, 1994) should be examined.

3. Finally, the current review also has implications for the widespread use of line drawings to aid communication for individuals with a LD (Remington, 1998), such as the Picture Communication Symbols (Mayer Johnson, 1981). Such augmentative communication systems may reflect the assumption that simplified stimuli aid recognition due to the removal of distracting information (Cha & Merrill, 1994; Rojahn *et al*, 1995a). However, given the findings from studies reviewed in the current article the efficacy of using such a system should be examined.

References

Adams, K. & Markham, R. (1991). Recognition of affective facial expressions by children and adolescents with and without mental retardation. *American Journal on Mental Retardation, 96,* 21-28

American Psychiatric Association (1994; 4ᵗʰ Edition). *Diagnostic and Statistical Manual of Mental Disorders.* Washington, D.C.: American Psychiatric Association.

Baron-Cohen, S., Spitz, A. & Cross, P. (1993). Do children with autism recognise surprise? A research note. *Cognition and Emotion, 7(6),* 507-516.

Benson, B.A. (1994). Anger management training: a self control programme for persons with mild mental retardation. In N. Bouras (Ed.) *Mental Health in Mental Retardation: Recent Advances and Practices.* Cambridge: Cambridge University Press.

Brosgole, L., Gioia, J. & Zigmond, R. (1986). Facial- and postural-affect recognition in the mentally handicapped and normal young children. *International Journal of Neuroscience, 30,* 127-144.

Callaghan, P.E. (1993). Emotion recognition and mental retardation: Toward an understanding of the relationship between emotion and cognition. Central

Michigan University. US: University Microfilms International. Unpublished doctorate thesis.

Chadsey-Rusch, J. (1992). Toward defining and measuring social skills in employment settings. *American Journal on Mental Retardation, 96(4),* 405-418.

Cha, K.H. & Merrill, E.C. (1994). Facilitation and inhibition effects in visual selective attention processes of individuals with and without mental retardation. *American Journal on Mental Retardation, 98,* 594-600.

Colour Cards (1991). *Emotions.* Bicester, Winslow Press.

Colour Cards (1996). *Sequencing Social Situations.* Bicester, Winslow Press.

Donoghue, P.A. (1995). *Facial affect recognition in adults with mental retardation.* St. John's University, New York. US: University Microfilms International. Unpublished doctorate thesis.

Eckert, S.P. (1999). *The ability to identify facial expressions of emotions: Emotion specific deficit or construct of mental retardation.* The University of New Mexico. Unpublished doctorate thesis.

Ekman, P. & Friesen, W.V. (1976). *Pictures of Facial Affect.* Palo Alto, CA: Consulting Psychologists Press.

Erwin, R.J., Gur, R.C., Gur, R.E., Skolnick, B., Mawhinney-Hee, M. & Smailis, J. (1992). Facial emotion discrimination: I. Task construction and behavioral findings in normal subjects. *Psychiatry Research, 42,* 231-240.

Greenspan, S. & Schoultz, B. (1981). Why mentally retarded adults lose their jobs: Social competence as a factor in work adjustment. *Applied Research in Mental Retardation, 2,* 23-38.

Harwood, N.K., Hall, L.J. & Shinkfield, A.J. (1999). Recognition of facial emotional expressions from moving and static displays by individuals with mental retardation. *American Journal on Mental Retardation, 104(3),* 270-278.

Heimberg, C., Gur, R.E., Erwin, R.J., Shtasel, D.L. & Gur, C.G. (1992). Facial emotion discrimination: III. Behaviour findings in schizophrenia *Psychiatry Research, 42,* 253-265.

Hext, L.J. & Lunsky, Y. (1997). Relationships etc. – A social skills program: "A learning by doing model". *The Habilitative Mental Healthcare Newsletter, 16(1),* 7-10.

Hobson, R.P. (1986). The autistic child's appraisal of expressions of emotion. *Journal of Child Psychology and Psychiatry, 27,* 321-342.

Hobson, R.P., Ouston, J. & Lee, A. (1989). Recognition of emotion from facial expression in mentally retarded adolescents and young adults. *American Journal of Mental Retardation, 93,* 434-443.

Izard, C. (1971). *The face of emotion.* New York: Appleton-Century Crafts.

Kroeger, T.L. (1998). *The Penn Facial Discrimination Task: Psychometric properties and relationship with PASS cognitive processing.* Unpublished Phd Thesis, The Ohio State University, US.

Kurucz, J. & Feldmar, G. (1979). Prosopo-affective agnosia as a symptom of cerebral organic disease. *Journal of the American Geriatrics Society, 27,* 225-230.

Leung, J.P. & Singh, N.N. (1998). Recognition of facial expressions of emotion by Chinese adults with mental retardation. *Behavior Modification, 22(2),* 205-216.

Luckasson, R., Coulter, D.L., Polloway, E.A., Reiss, S., Schalock, R.S., Snell. M.E., Spitalnik, D.M. & Stark, J.A. (1992). *Mental retardation: Definition, classification, and systems of support.* Washington, DC: American Association on Mental Retardation.

Maurer, H. & Newbrough, J.R. (1987). Facial expressions of mentally retarded and non-retarded children: I. Recognition by mentally retarded and non-retarded adults. *American Journal of Mental Deficiency, 91,* 505-510.

Mayer Johnson, R. (1981). Picture Communication Symbols. Solana Beach, California, USA: Mayer-Johnson Company.

Mazurski, E.J. & Bond, N.W. (1993). A new series of slides depicting facial expressions of affect: A comparison with the pictures of facial affect series. *Australian Journal of Psychology, 45,* 41-47.

McAlpine, C., Kendall, K.A. & Singh, N.N. (1991). Recognition of facial expressions of emotion by persons with mental retardation. *American Journal on Mental Retardation, 96,* 29-36.

McAlpine, C., Singh, N.N., Ellis, C.R., Kendall, K.A. & Hampton, C. (1992). Enhancing the ability of adults with mental retardation to recognise facial expressions of emotion. *Behavior Modification, 16(4),* 559-573.

McKenzie, K., Hamilton, L., Matheson, E., McCaskie, K. & Murray, G. (2000). An emotional challenge. *Learning Disability Practice, 2(4),* 20-23.

McKenzie, K. Matheson, E., McCaskie, K., Hamilton, L. & Murray, G.C. (2001). A picture of happiness. *Learning Disability Practice, 4(1),* 26-29.

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McLean, L.K., Brady, N.C. & McLean, J.E. (1996). Reported communication abilities of individuals with severe mental retardation. *American Journal on Mental Retardation, 100,* 580-591.

Moffat, C.W., Hanley-Maxwell, C. & Donnellan, A.M. (1995). Discrimination of emotion, affective perspective-taking and empathy in individuals with mental retardation. *Education and Training in Mental Retardation, 30(1),* 76-85.

Moore, D.G., Hobson, R.P. & Anderson, M. (1995). Person perception: Does it involve IQ-independent perceptual processing? *Intelligence, 20,* 65-86.

Moore, D.G., Hobson, R.P. & Lee, A. (1997). Components of person perception: An investigation with autistic, non-autistic retarded and typically developing children and adolescents. *British Journal of Developmental Psychology, 15,* 401-423.

Naglieri, J.A. & Das, J.P. (1997). *Cognitive Assessment System.* Riverside publishing.

Pérez, S.M. (1992). *Emotion-related abilties in mildly mentally retarded adults.* Yeshiva University. US: University Microfilms International. Unpublished Phd thesis.

Reeves, R.H. (1985). The ability of mentally retarded adult males to decode facial affect. Wayne State University, US. Unpublished doctorate manuscript.

Remington, B. (1998). Working with people with communication difficulties. In Emerson, E., Hatton, C., Bromley, J & Caine, A. (Eds) *Clinical Psychology and People with Intellectual Disabilities*. Chichester: John Wiley & Sons Ltd.

Rojahn, J., Kroeger, T.L., McElwain, D.C. (1994). Performance on the Penn Facial Discrimination Task by adults with mental retardation. *American Journal on Mental Retardation, 99(3)*, 316-319.

Rojahn, J., Lederer, M. & Tasse, M.J. (1995a). Facial emotion recognition by persons with mental retardation: A review of the experimental literature. *Research in Developmental Disabilities, 16(5)*, 393-414.

Rojahn, J., Rabold, D.E. & Schneider, F. (1995b). Emotion specificity in mental retardation. *American Journal on Mental Retardation, 99(5)*, 477-486.

Rydin-Orwin, T., Drake, J. & Bratt, A. (1999). The effects on emotion recognition skills for adults with an intellectual disability. Journal of Applied Research in Intellectual Disabilities, 12 (3), 253-262.

SIGN (2001). Scottish Intercollegiate Guidelines Network (SIGN) 50: A guideline developers' handbook, Section 5: Systematic literature review. http://www.sign.ac.uk/guidelines/fulltext/50/section5.html

Simon, E.W. & Rosen, M. (1996). Age and IQ as predictors of emotion identification in adults with mental retardation. *Research in Developmental Disabilities, 17(5),* 383-389.

Simon, E.W., Rosen, M., Grossman, E. & Pratowski, E. (1995). The relationships among facial emotion recognition, social skills and quality of life. *Research in Developmental Disabilities, 16(5),* 383-391.

Walz, N.C. & Benson, B.A. (1996). Labeling and discrimination of facial expressions by aggressive and nonaggressive men with mental retardation. *American Journal on Mental Retardation, 101,* 282-291.

Weisman, J. & Brosgole, L. (1994). Facial affect recognition in singly diagnosed mentally retarded people and normal young children: A methodological comparison. *International Journal of Neuroscience, 75,* 45-55.

Weschler, D. (1986). *Weschler Adult Intelligence Scale – Revised.* New York: The Psychological Corporation.

Tables 1-4

Table 1. Examples of experimental procedures employed.

Experimental procedures		Example
Labelling Task	**Free response**	Participant required to label an emotion expressed on face.
	Forced choice	Participant required to label an emotion expressed on face, using a limited range of labels, presented either verbally or visually.
Recognition Task		Participant required to identify a correct facial expression from a range following a direct verbal prompt, e.g., "Show me the happy face", or a short story which identifies an emotion.
Rating Task		Participant required to rate the intensity of an emotion expressed on a face.

Table 2. Summary of emotion labelling studies, with associated quality rating.

Study	Study Quality	Participants	Emotion type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Eckert (1999)	1 (i)	n_1=30 mod LD; mean IQ 46.5 (range 38-55); CA range 23-54; 15 male, 15 female n_2= 30 non-LD children; mean MA 95 (range 79-109); 15 male, 15 female.	Happy, sad, angry, fear, surprise, disgust	Pictures of Facial Affect (Ekman & Friesen, 1976)	Participant required to label emotion depicted in photo, using list.	LD group significantly impaired compared to non-LD group, for each emotion.	1, 6, 8, 11
Callaghan (1993)	1 (ii)	n_1= 20 mild LD; mean IQ 63 (range 57-67); mean CA 24 (range 19-30); 10 male, 10 female n_2= 20 non-LD adults; mean CA 22 (range 18-25); 7 male, 13 female	Happy, sad, angry, fear, surprise, disgust	Pictures of Facial Affect (Ekman & Friesen, 1976) and emotion labels.	Asked to label emotion using list of 6 labels.	LD group significantly impaired compared to non-LD group on all emotions except happiness.	1, 3, 6, 10
Harwood et al (1999)	1 (ii)	n_1=12 mild LD; mean IQ 62.6 (range 56-73); mean CA 39 (range 19-54); 8 male, 4 female n_2=12 non-LD adults; CA and gender matched.	Happy, sad, angry, fear, surprise, disgust	Videotape of moving and static displays of facial emotion.	Shown video, to choose from 6 labels/pictorial representations.	LD significantly impaired overall. No group differences for happiness and sadness.	1, 4, 10, 11

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Table 2. (continued)

Study	Study Quality	Participants	Emotion type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Maurer & Newbrough (1987)	2 (ii)	n_1=32 mild-severe LD; mean IQ 54.4 (range 31-72); mean CA 31.3 (range 24-62); 18 male, 14 female. n_2=23 non-LD adults; mean CA 34.3 (range 21-61); 11 male, 12 female.	Happy, sad, angry, fear, neutral	Slides of non-LD children and LD children expressing emotion	Asked to identify emotions displayed in the slides, using happy, sad, mad, or just OK labels.	LD significantly impaired overall, and specifically for happiness, anger and neutrality.	1, 3, 7
McKenzie et al (2000)	2 (ii)	32 mild-mod LD, mean CA34 (21-54); 10 female, 22 male; 16 with challenging behaviour and 16 without, matched for CA, gender and IQ.	Happy, sad, anger, fear, bored, worried.	Line drawings (Mayer Johnson, 1981); Coloured photos of faces, Photos with context (Colour Cards, 1991, 1996)	Label the emotion depicted in drawing/photo	No significant differences in accuracy between the two groups for any of the stimuli.	1, 5, 7, 8, 9
McKenzie et al (2001)	2 (ii)	n_1= 68 mild-severe LD; mean CA 35 (range 19-62); 40 male, 28 female n_2= 68 non-LD children; mean CA 7 (range 3-11); matched for gender and MA	Happy, sad, anger, fear, bored, worried.	See McKenzie et al (2000)	Label the emotion depicted in drawing/photo	LD significantly impaired relative to child group. Contextual information significantly increased accuracy, versus line drawing.	1, 3, 5, 7, 8, 9

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Table 2. (continued)

Study	Study Quality	Participants	Emotion type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Perez (1992)	2 (ii)	n_1= 20 mild LD adults; IQ range 55-69; CA between 25-65; n_2= 20 non-LD children; mean CA 10.1 (range 8.1—11.7); n_3= 20 non-LD adults; CA between 25-65; 10 male, 10 female in each group	Happy, sad, angry, fear, surprise, disgust	Monochrome photos of facial expressions.	Asked to identify emotion from choice of six labels.	LD group equal to child group, both significantly impaired relative to adult group for all emotions.	1, 3, 5, 7, 10
Reeves (1985)	2 (ii)	n_1= 26 mild-mod LD adults; maladaptive behaviour; male; n_2= 22 mild-moderate LD adults; no maladaptive behaviour; male	Happy, sad, angry, fear, surprise, disgust	Pictures of Facial affect (Ekman & Friesen, 1976)	Shown picture and asked how individual is feeling etc.	No significant effect of social adaptivity (includes recognition task in analysis)	3, 7, 8, 10

* Study limitations:

1. Lack of information on psychiatric, sensory and/or communication disorders; 2. Lack of control group; 3. Poorly matched groups; 4. Small sample size; 5. Lack of psychometric information on affect task; 6. Lack of psychometric information on control task; 7. Lack of control task; 8. Gender of model not controlled for in emotion task; 9. Not examined basic emotions; 10. Possible order effects; 11. Inclusion of pre-assessment training.

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Table 3. Summary of emotion recognition studies, with associated quality rating.

Study	Study Quality	Participants	Emotion Type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Weisman & Brosgole (1994)	1 (i)	n_1= 15 mild LD adults; mean IQ 62 (range 53-69); mean CA 34 (range 28-44); 8 male, 7 female n_2= 15 mod LD adults; mean IQ 42 (range 36-49); mean CA 30 (range 21-37); 8 male, 7 female n_3= 15 non-LD children; mean CA 5 (range 4-6); 7 male, 8 female	Happy, sad, angry.	Cartoons of 3 animals demonstrating facial expressions (Brosgole et al, 1986)	Identify emotion from three cartoons, following direct prompt, short and long vignettes, with or without tagline.	Direct prompts: all groups comparable. Differences emerged with vignette prompts.	10
Donoghue (1995)	1 (ii)	n_1= 25 mod-severe LD adults; mean IQ 39 (range 24-57); mean CA 32 (range 19-49); 13 male, 12 female n_2= 25 non-LD children; mean CA 5 (range 4-6); 11 male, 14 female; matched for MA	Happy, sad, angry.	Cartoons of animals demonstrating facial expressions (Weisman & Brosgole, 1994)	Identify emotion from three cartoons, following direct prompt, short & long vignettes, & long vignette read 3 times in succession.	LD significantly impaired in comparison with child group across all conditions.	3, 10

Table 3. (continued)

Study	Study Quality	Participants	Emotion Type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Harwood et al (1999)	1 (ii)	n₁=12 mild LD; mean IQ 62.6 (range 56-73); mean CA 39 (range 19-54); 8 male and 4 female ; n₂=12 non-LD adults; CA and gender matched.	Happy, sad, angry, fear, surprise, disgust	Coloured photographs of adults and children displaying emotion (Mazurski & Bond, 1993)	Identify from range of faces same emotion as expressed in sample, with verbal label given.	LD significantly impaired relative to non-LD group.	1, 4, 8, 11
Leung, & Singh (1998)	2 (ii)	n₁=60 LD; 30 mild, mean CA 30 (range 20-39); 30 moderate, mean CA 33 (CA 22-51); 33 male and 27 female n₂=60 children; 30 elementary school, mean CA 10 (range 8-12); 30 junior high school, mean CA 13 (range 12-15); 30 male and 30 female	Happy, sad, angry, fear, surprise, disgust	Pictures of Facial Affect (Ekman & Friesen, 1976)	Asked to point to an emotion identified in story (including label of emotion) from a choice of six facial expressions.	LD significantly impaired relative to child group, except for happiness.	1, 3, 7, 11
McKenzie et al (2000)	2 (ii)	32 mild-mod LD, mean CA34 (21-54); 10 female, 22 male; 16 with challenging behaviour and 16 without, matched for CA, gender and IQ.	Happy, sad, anger, fear, bored, worried.	Line drawings, coloured photos with and without context (see McKenzie et al, 2000, in Table 2)	Asked to identify target emotion from choice of six, and two.	No significant differences in accuracy between the two groups for any of the stimuli.	1, 6, 7, 8, 9

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Table 3. (continued)

Study	Study Quality	Participants	Emotion Type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
McKenzie et al (2001)	2 (ii)	n_1= 68 mild-severe LD adults; mean CA 35 (range 19-62); 40 male, 28 female ; n_2= 68 non-LD children; mean CA 7 (range 3-11); matched for gender and MA	Happy, sad, anger, fear, bored, worried.	See McKenzie et al (2000)	Asked to identify target emotion from choice of six, and two	LD significantly less accurate than child group.	1, 6, 7, 8, 9
Perez (1992)	2 (ii)	n_1= 20 mild LD adults; IQ range 55-69; CA between 25-65; 10 male, 10 female n_2= 20 non -LD children; mean CA 10.1 (range 8.1—11.7); 10 male, 10 female; n_3= 20 non-LD adults; CA between 25-65; 10 male, 10 female	Happy, sad, angry, fear, surprise, disgust	Monochrome photos of facial expressions.	Asked to choose from three facial expressions, the one which was depicted during vignette, excluding target word	Overall, LD significantly impaired compared to child and adult, specifically for anger, fear and surprise.	1, 3, 5, 7, 10
Reeves (1985)	2 (ii)	n_1= 26 LD adults; maladaptive behaviour; 16 mild, 10 mod; male n_2= 22 LD adults; no maladaptive behaviour; 12 mild, 10 mod; male	Happy, sad, angry, fear, surprise, disgust	Pictures of Facial affect (Ekman & Friesen, 1976)	Shown stimulus card, and asked to point to appropriate emotion from choice of two	No significant effect of social adaptivity.	3, 7, 8, 10

Table 3. (continued)

Study	Study Quality	Participants	Emotion Type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Simon et al (1995)	4 (i)	n_1= 46 mild-moderate LD adults; mean IQ 50.2 (SD 9.53); mean CA 42.9 (SD 10.28); 24 male, 22 female	Happy, sad, angry, fear, surprise, disgust	Pictures of Facial Affect (Ekman & Friesen, 1975)	Asked to point to an identified emotion, from choice of six.	Significant relationship between IQ and overall emotion recognition.	1, 2, 7
Simon et al (1996)	4 (i)	n_1= 86 mild-moderate LD adults; CA lay between 20-60; 42 males, 44 females	Happy, sad, angry, fear, surprise, disgust	Line drawings developed by artist	Asked to point to an emotion introduced through verbal label, or through vignette, from choice of six.	IQ significantly predicted overall number correct. Increasing age linked with decreasing number correct	2, 7, 8

* Study limitations:

1. Lack of information on psychiatric, sensory and/or communication disorders; 2. Lack of control group; 3. Poorly matched groups; 4. Small sample size; 5. Lack of psychometric information on affect task; 6. Lack of psychometric information on control task; 7. Lack of control task; 8. Gender of model not controlled for in emotion task; 9. Not examined basic emotions; 10. Possible order effects; 11. Inclusion of pre-assessment training.

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Table 4. Summary of emotion rating studies, with associated quality rating.

Study	Study Quality	Participants	Emotion Type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Rojahn et al (1995)	1 (ii)	n_1= 16 mild-moderate LD adults; fell within IQ 40-70; 7 male, 9 female n_2= 16 non-LD children; CA range 6.5-12; 7 male, 9 female; matched for MA and gender n_3= 16 non-LD adults; 11 male, 5 female	Happy, sad, neutral.	Penn Facial Discrimination Task (Erwin et al, 1992)	Rate emotion on a 5 point visual scale ranging from happy to sad	Overall, LD significantly impaired relative to both comparison groups on emotion task.	3
Rojahn et al (1994)	3 (i)	n_1= 26 mild LD; mean IQ 65.8 (SD 5.5); 14 male, 12 female n_2= 23 low mild-moderate LD; mean IQ 54.1 (SD 3.2); 9 male, 14 female; CA range 20-49	Happy, sad, neutral	Penn Facial Discrimination Task (Erwin et al, 1992)	Rate emotion on a 5 point visual scale ranging from happy to sad	Mild LD outperformed moderate LD.	2

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Study	Study Quality	Participants	Emotion Type	Assessment Measures	Experimental Procedures	Main results	Study * Limitations
Kroeger (1998)	3 (i)	n₁= 50 LD adults; mild-moderate; CA range 18-65; 22 male, 28 female	Happiness Sadness Neutral	Adapted Facial Discrimination Task – MR (Erwin et al, 1992)	Asked to identify the emotion presented in a slide either verbally or by pointing to the appropriate visual aid	Overall performance on both the FDT-MR and age task was significantly related to the successive processing scale of the CAS (Naglieri & Das, 1997)	2

* Study limitations:

1. Lack of information on psychiatric, sensory and/or communication disorders; 2. Lack of control group; 3. Poorly matched groups; 4. Small sample size; 5. Lack of psychometric information on affect task; 6. Lack of psychometric information on control task; 7. Lack of control task; 8. Gender of model not controlled for in emotion task; 9. Not examined basic emotions; 10. Possible order effects; 11. Inclusion of pre-assessment training.

Chapter 3 : Major Research Project Proposal

Emotional understanding in aggressive and non-aggressive individuals with a mild and moderate learning disability.

Prepared in accordance with the requirements detailed in Department of

Psychological Medicine's Doctorate in Clinical Psychology course handbook

(Appendix 3.1)

1.1 Applicants

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1.2 Title

Emotional understanding in aggressive and non-aggressive individuals with a mild and moderate learning disability.

1.3 Summary

Deficits in emotion recognition within the learning disabled population have been linked with the expression of challenging behaviour, particularly aggression (Walz & Benson, 1996). However, aggressive individuals have been shown to

be equal to, or better than, non-aggressive peers when labelling emotions, but demonstrate a negative bias when *mislabelling* emotions (Walz & Benson, 1996; McKenzie *et al*, 1999). Traditional emotion recognition measures utilise monochrome photographs of decontextualised faces, require verbal responses, and lack measures to control for the cognitive demands of tasks. It therefore remains unclear whether these experimental findings can be replicated with more naturalistic, contextually rich stimuli, and with non-verbal tasks.

It is anticipated that a minimum of 32 individuals with a mild to moderate learning disability, attending Adult Resource Centres (ARCs) in the Lothian area, will be recruited (8 aggressive men and women, and 8 non-aggressive men and women). Participants will be required to label emotions using photographs of decontextualised faces (Ekman & Friesen, 1976), and photographs of faces in context (McKenzie *et al*, 1999). In addition, individuals emotional understanding will be assessed in a non-verbal, forced-choice task, utilising cartoons. Three non-emotion tasks shall control for cognitive demands.

This study has practical implications in terms of anger management work. Furthermore, it has general implications for CBT work with individuals with a learning disability in terms of assessment.

1.4 **Introduction**

Over recent years there has been an increasing interest in the social and emotional understanding of individuals with a learning disability. Impaired social skills are a defining characteristic of a learning disability (Luckasson *et al*, 1992). Of primary importance in developing and maintaining social relationships is the ability to accurately identify and interpret emotional states (Hext & Lunsky, 1997). Research in this area suggests that individuals with a learning disability exhibit impairment in their ability to identify emotional states in themselves, and others, relative to mental-age matched controls and non-disabled peers (e.g., Hobson *et al*, 1989; McAlpine *et al*, 1991). This has lead to an emotion-specificity hypothesis being postulated by some researchers (Rojahn *et al*, 1995).

Such deficits in emotional understanding are thought to be linked with the expression of challenging behaviour (Moffat *et al*, 1995; McKenzie *et al*, 2000), particularly aggression (Walz & Benson, 1996). The assumption of a lack of competence as a causal factor has lead to the inclusion of emotion identification as an educational component within anger management work (Benson, 1994). However, results of research in this area are equivocal, questioning the validity of this approach. Findings have suggested that in fact individuals with a learning disability who display aggression are equal to or better than non-aggressive peers at labelling anger (Walz & Benson, 1996; McKenzie *et al*, 2000).

The assumption of a deficit in emotion recognition as a causal factor is in contrast to the work in child psychology, which has examined cognitive distortions in relation to aggression. Dodge (1980) demonstrated a hostile attributional bias in aggressive children within ambiguous interpersonal situations. Consistent with Dodge's (1993) social information-processing model, Walz and Benson (1996) demonstrated that aggressive individuals with a learning disability made more errors in labelling faces negatively, i.e., angry or sad, when they were not, than non-aggressive peers. However, this study included five participants who were classified as having a borderline intellectual disability. A hostile attributional bias by aggressive individuals with a learning disability has also been demonstrated in an assessment task using stories illustrated with photographs (Pert *et al*, 1999).

Izard (1971) and Ekman (1973) put forward that individuals determine emotion in others in context. Despite this, work on emotional understanding has been based mainly on decontextualised person-related stimuli, which is simplified in form, for example the monochrome photographs of faces used by Walz and Benson (1996; Ekman & Friesen, 1976). It could be argued this does not capture the contextual cues present in day-to-day interaction. The performance of individuals with a learning disability, as with non-disabled individuals, has been shown to improve with increasing contextual information (McKenzie *et al*, 1999).

Furthermore, although a high percentage of individuals with a learning disability have particular difficulties with communication (McLean *et al*, 1996) research in

this area has also generally required verbal naming. The ability to recognise emotions has been found to vary with the cognitive demands of the task (McKenzie *et al*, 1999), but few studies have controlled for this. Thus it unclear whether the performance of individuals with a learning disability is specific to emotion, or reflects difficulties with the cognitive demands of the task (Rojahn *et al*, 1995).

Moreover, due to the practical implications of work in this area it is relevant to further examine the accuracy, and indeed inaccuracy, of emotion recognition in individuals with a learning disability who are aggressive, relative to their non-aggressive peers. It remains unclear whether the negative attribution bias found by Walz and Benson (1996) is solely an experimental finding specific to the measures used, or if it is evident when more naturalistic, contextually rich, stimuli are present, similar to that available in day-to-day interaction. Furthermore, the work undertaken has not clearly identified whether the bias is merely a *labelling* difficulty, or if it is a cognitive bias, which could be replicated using a non-verbal task.

1.6 **Aims and hypotheses to be tested**

The aim therefore is to further investigate the emotional understanding of individuals with learning disabilities who are aggressive, as compared with non-aggressive individuals.

Two research hypothesis flow logically from the preceding discussion:

1. Individuals with a mild to moderate learning disability who display aggressive behaviour are not impaired in their ability to label emotion, as compared with non-aggressive individuals with a learning disability.

2. Individuals with a mild to moderate learning disability who display aggressive behaviour will demonstrate a negative bias when mislabelling emotions if assessed using traditional assessment measures, i.e., decontextualised faces.

Two research questions have also been derived:

3. Do individuals with a mild to moderate learning disability who display aggressive behaviour demonstrate a negative labelling bias when emotions are presented with increased contextual information?

4. Do individuals with a mild to moderate learning disability who display aggressive behaviour demonstrate a negative bias during a contextually rich, non-verbal task, utilising a forced-choice methodology?

1.6 **Plan of Investigation**

1.6.1 Participants

It is anticipated that a minimum of 32 individuals with mild to moderate learning disability will be recruited from three ARCs in the Lothians area. The sample size is based on a calculation of statistical power utilising what was deemed to be the most closely comparable and available study, Walz & Benson

(1996). The relevant data were submitted into UCLA's power calculator (www.stat.ucla.edu/calculators/powercalc/), which indicated that an estimated sample size of 15 per group would be necessary to demonstrate a significant between group difference for a power size of 0.8 and a significance level (one-tailed) of 0.05.

Staff within the ARCs will be asked to provide information on individuals whom they have worked with for at least three months. General inclusion criteria includes a mild to moderate learning disability (to be confirmed by formal psychometric measures - see below), and sufficient verbal communication to undertake tasks, i.e., ability to speak clearly, in sentences, and describe events. General exclusion criteria includes a diagnosis of autism, or a major psychiatric disorder, with emotion recognition identified as impaired in autism, schizophrenia, and dementia (Hobson, 1986; Heimberg *et al*, 1992; Kurucz & Felmar, 1979).

An adaptation of Harris *et al's* (1994) Check-list of Challenging Behaviour will be completed for the remaining individuals. Individuals with 4 or more symptoms in the past three months will be identified as aggressive, with non-aggressive individuals having no reported behaviour of this kind. The 8 most frequently aggressive men and women, and 8 non-aggressive men and women will be selected.

1.6.2 Measures

Emotion identification and control measures

1. Decontextualised photographs

   (i)   *Emotion labelling.* Photographs taken from The Pictures of Facial Affect, which was developed and validated by Ekman & Friesen (1976), will be used to measure individuals ability to accurately label emotions. This consists of 12 monochrome photographs of faces expressing the six basic emotions (i.e., happiness, sadness, fear, anger, surprise and disgust), with a male and female face per emotion.

   (ii) *Non-emotion labelling.* A cognitive control task consisting of 12 monochrome photographs of individuals engaging in six basic activities with minimal contextual and affective information. A male and female shall be depicted per activity.

2. Photographs with context

   (i)   *Emotion labelling.* A measure developed by McKenzie *et al* (1999) shall be used to determine the effects of contextual information on emotion labelling. It includes 6 coloured photographs of individuals expressing six basic emotions within context. It is hoped to supplement this with 6 photographs from the same source material, i.e., Colour Cards *Emotion* (1996) and *Sequencing Social Situations* (1991), to allow for a male and female per emotion.

(ii)   *Non-emotion labelling.* As for the non-emotion labelling task described above, with contextual cues available.

3. <u>Cartoons with context.</u>

(i)   *Visual emotion task.* To measure emotion identification during a non-verbal task with contextually rich stimuli. 12 A4-sized cartoons of two individuals interacting within scenes displaying the six basic emotions. A character in each picture (a male and female per emotion) has an outline where his/her head should be. A set of male and female heads, with faces displaying six emotions, is provided.

(ii)   *Visual non-emotion task.* A cognitive control task consisting of 12 A4 sized cartoons of two individuals engaged together in six different activities. One of the characters in each of the pictures (a male and female per activity) has an outline where his/her body should be. A set of male and female bodies, in various costumes linked with the activities, are provided.

Formal Psychometric measures

The British Picture Vocabulary Scale (Dunn *et al*, 1982) and Raven's Matrices (1965) will be administered to establish participant's verbal understanding and non-verbal reasoning ability. This will also ensure individuals' level of cognitive functioning falls within the mild to moderate range of learning disability.

1.6.3 Design and Procedure

This study includes two comparison groups, with a repeated measure design on three emotion identification measures, three control tasks and two psychometric measures. This will allow for comparisons on accuracy across six different emotions on each task, and between tasks. It will also allow for comparisons of performance between emotion tasks and control tasks, as well as psychometric measures.

Recruitment will take place within ARCs in the Lothians area. An information sheet on the purpose and procedure of the study will be provided to suitable individuals, to be read by them or a significant other (see Appendix 3.2). Interested individuals will have the opportunity to ask questions, and written consent shall be required (see Appendix 3.3). The assessment measures will be administered over two sessions, lasting approximately 30-40 minutes, with the psychometric measures conducted during the initial session.

Procedure for emotion identification and control measures. After viewing each photograph, with or without context, participants will be asked to describe what they saw. If necessary they will be prompted to describe how the individual felt (emotion labelling tasks) or what he/she was doing (non-emotion labelling tasks). For the cartoon tasks, participants will be given a set of male or female heads (visual emotion tasks) or bodies (visual non-emotion task) and asked what they think is the correct head/body. They will be encouraged to place their choice on the picture, and confirm it is correct. If they are unsure they will be encouraged

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to try once more. The sequence of the tasks will be randomly altered to control for order effects, as will the emotions/activities represented within each task.

Prior to testing adults with a learning disability, a pilot of the photographs with context and cartoons will be conducted with adults without a learning disability. This is to ensure a high level of agreement for each emotion/activity represented.

1.6.4   Settings and equipment

It is anticipated that individual interviews will be conducted in a private room within the ARCs detailed above. The equipment used will consist of the measures outlined above. The cartoon drawings will be created by a professional cartoonist, and the non-emotion labelling measures obtained from available resources for this group.

1.6.5   Data analysis

The information will be analysed using SPSS, with alphanumeric codes used to maintain anonymity. Descriptive statistics shall be used for the purposes of sample description etc.

Two independent raters will code verbatim responses, and inter-rater reliability will be analysed.

The main statistical analysis will compare the emotion recognition data between the two groups using parametric statistics if it is normally distributed, including a factorial analysis of variance. If this assumption is violated non-parametric statistics will be utilised, including a Mann-Whitney U test. Performance on psychometric measures shall be correlated with the performance on the emotion tasks, for example using Pearson correlation coefficient.

1.7 **Practical applications**

Anger has been identified as one of the primary reasons for a referral to mental health services for individuals with a learning disability (Harris, 1993). The current trend in anger management is for the inclusion of an educational component on identification of emotion (Benson, 1994). It is therefore important to examine the underlying assumption on which this approach is based. Furthermore, this project has implications more generally in terms of the use of CBT with individuals with a learning disability. Emotional understanding is a prerequisite for such work (Black *et al*, 1997), and this study may provide the means to assess this more fully, including possible cognitive distortions, for which appropriate interventions can be tailored.

1.8 **Timescales**

It is anticipated that submission for ethical approval will be conducted between April-June 2001. Data collection shall take approximately 6 months, with analysis and report writing a further 2 months.

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1.9   **Ethical approval**

Ethical approval will be required both from Lothian Primary Care NHS Trust and the Social Work Department (see Appendices 3.4 for letter granting ethical approval).

2.0 References

Benson, B.A. (1994). Anger management training: a self control programme for persons with mild mental retardation. In N. Bouras (Ed.) *Mental Health in Mental Retardation: Recent Advances and Practices*. Cambridge: Cambridge University Press.

Black, L., Cullen, C., & Novaco, R.W. (1997). Anger assessment for people with mild mental retardation in secure settings. In B. Kroese, D. Dagnan, & K. Loumidis (Eds.), *Cognitive Therapy with People with Mental Retardation*. London: Routledge.

Colour Cards (1991). *Emotions*. Bicester, Winslow Press.

Colour Cards (1996). *Sequencing Social Situations*. Bicester, Winslow Press.

Dodge, K.A. (1980). Social cognition and children's aggressive behaviour. *Child Development*, 51, 162-170.

Dodge, K.A. (1993). Social cognitive mechanisms in the development of conduct disorder and depression. *Annual Review of Psychology*, 44, 559-584.

Dunn, L.M., Dunn, L.M. & Whetton, C. (1982). *British Picture Vocabulary Scale*. Windsor, England: NFER-Nelson.

Ekman, P. (1973). Cross-cultural studies of facial expression. In P. Ekman (Ed.) *Darwin and facial expression*. New York: Academic Press.

Ekman, P. & Friesen, W.V. (1976). *Pictures of Facial Affect*. Palo Alto, Ca: Consulting Psychologists Press.

Harris, P (1993). The nature and extent of aggressive behaviour among people with learning difficulties in a single health district. *Journal of Intellectual Disability Research*, 37, 221-242.

Harris, P., Humphreys, J. & Thomson, G. (1994). A checklist of challenging behaviour: The development of a survey instrument. *Mental Handicap Research*, 17, 118-133.

Heimberg, C., Gur, R.E., Erwin, R.J., Shtasel, D.L. & Gur, C.G. (1992). Facial emotion discrimination: III. Behaviour findings in schizophrenia *Psychiatry Research*, 42, 253-265.

Hext, L.J. & Lunsky, Y. (1997). Relationships etc. – A social skills program. *The Habilitative Mental Healthcare Newsletter*, 16(1), 7-10.

Hobson, R.P. (1986). The autistic child's appraisal of expressions of emotion. *Journal of Child Psychology and Psychiatry*, 27, 321-342.

Hobson, R.P., Ouston, J. & Lee, A. (1989). Recognition of emotion from facial expression in mentally retarded adolescents and young adults. *American Journal of Mental Retardation*, 93, 434-443.

Izard, C. (1971). *The face of emotion.* New York: Appleton Century-Crafts.

Kurucz, J. & Feldmar, G. (1979). Prosopo-affective agnosia as a symptom of cerebral organic disease. *Journal of the American Geriatrics Society*, 27, 225-230.

Luckasson, R., Coulter, D.L., Polloway, E.A., Reiss, S., Schalock, R.S., Snell. M.E., Spitalnik, D.M. & Stark, J.A. (1992). *Mental retardation: Definition, classification, and systems of support.* Washington, DC: American Association on Mental Retardation.

McAlpine, C., Kendall, K.A. & Singh, N.N. (1991). Recognition of facial expressions of emotion by persons with mental retardation. *American Journal of Mental Retardation*, 96, 29-36.

McKenzie, K., Hamilton, L., Matheson, E., McCaskie, K. & Murray, G. (2000). An emotional challenge. *Learning Disability Practice*, 2(4), 20-23.

McKenzie, K. Matheson, E., McCaskie, K., Hamilton, L. & Murray, G.C. (1999). Emotion recognition in individual with a learning disability (submitted for publication).

McLean, L.K., Brady, N.C. & McLean, J.E. (1996). Reported communication abilities of individuals with severe mental retardation. *American Journal on Mental Retardation*, 100, 580-591.

Moffat, C.W., Hanley-Maxwell, C. & Donnellan, A.M. (1995). Discrimination of emotion, affective perspective-taking and empathy in individuals with mental retardation. *Education and Training in Mental Retardation*, 30(1), 76-85.

Pert, C., Jahoda, A. & Squire, J. (1999). Attribution of intent and role-taking cognitive factors as mediators of aggression with people who have mental retardation. *American Journal on Mental Retardation*, 104(5), 399-409.

Raven, J.C. (1965) *The Coloured Progressive Matrices*. London: Lewis.

Rojahn, J Rabold & Schneider (1995). Emotion specificity in mental retardation. *American Journal of Mental Retardation*, 99(5), 477-486.

Walz, N.C. & Benson, B.A. (1996). Labelling and discrimination of facial expressions by aggressive and non-aggressive men with mental retardation. *American Journal on Mental Retardation*, 101, 282-291.

Chapter 4 : Major Research Project

Emotional understanding in aggressive and non-aggressive individuals with a mild and moderate learning disability

Prepared in accordance with the requirements for submission

to the *American Journal on Mental Retardation*

(see Appendix 2.1)

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Abstract

Deficits in emotion recognition have been linked with the expression of challenging behaviour, particularly aggression (Walz & Benson, 1996). Emotion identification was assessed in 19 aggressive and 15 non-aggressive adults with a mild to moderate learning disability. Participants were required to label the emotion presented in photographs of faces, with and without contextual information. Emotion identification was also assessed in a non-verbal task, using cartoons. Aggressive participants were found to be impaired relative to non-aggressive peers in their ability to label emotions in contextually rich photographs. Further, the results did not support a negative bias, in aggressive individuals, when incorrectly labelling emotions. However, a hostile attributional bias was evident in the aggressive group during the non-verbal task.

Introduction

Over recent years there has been an increasing interest in the social and emotional understanding of individuals with a learning disability (LD). Impaired social skills are a defining characteristic of a LD (Luckasson *et al*, 1992). Of primary importance in developing and maintaining social relationships is the ability to accurately identify and interpret emotional states (Hext & Lunsky, 1997). Research in this area suggests that individuals with a LD exhibit impairment in their ability to identify emotional states in themselves, and others, relative to mental-age matched controls and non-disabled peers (e.g., Hobson *et al*, 1989; McAlpine *et al*, 1992). This has led to an emotion-specificity hypothesis being postulated (Rojahn *et al*, 1995).

Deficits in emotional understanding have been hypothesised to be linked with challenging behaviour (Moffat *et al*, 1995; McKenzie *et al*, 2000). Consequently, an assumed lack of socio-emotional understanding has led to the inclusion of emotion identification as an educational component within anger management work (Benson, 1994). Others have found that, in fact, individuals with a LD who display aggression are equal to, or better than, non-aggressive peers at labelling anger (Walz & Benson, 1996; McKenzie *et al*, 2000). This calls into question the value of targeting socio-emotional understanding in this group.

The focus on skills deficit as a causal factor is in contrast to the work in child psychology, which has examined cognitive distortions in relation to aggression. Dodge (1980) demonstrated a hostile attributional bias in aggressive children

when confronted with an ambiguous situation. Consistent with Dodge's (1993) social information-processing model, Walz and Benson (1996) demonstrated that aggressive individuals with a LD made more negative errors in labelling faces than non-aggressive peers. In other words, the aggressive participants were more likely to label faces as angry or sad when they were not. A hostile attributional bias by aggressive individuals with a LD has also been demonstrated in an assessment task using stories illustrated with photographs (Pert et al, 1999).

Izard (1971) and Ekman (1973) argued that individuals determine emotion in others utilising cues other than facial expression, such as bodily posture, language and tone of voice. Despite this, work on emotional understanding has been based mainly on decontextualised person-related stimuli, which is simplified in form. For example, the Ekman and Friesen (1976) photographs of facial affect have been widely used (Walz & Benson, 1996; Leung & Singh, 1998). However, it could be argued that such photographs have led to an underestimation of the ability of individuals with a LD, as they lack the dynamic and contextual cues present in day-to-day interaction (Moore et al, 1995, 1997). The performance of individuals with a LD, as with non-disabled individuals, has in fact been shown to improve with increased contextual information (McKenzie et al, 2001).

Another serious methodological flaw with prior research is that although many individuals with a LD have particular difficulties with receptive and expressive communication (McLean et al, 1996), the majority of studies have tended to rely on verbal labelling of emotion (Moore et al, 1997). The ability to identify

emotions has been found to vary dependent upon the cognitive demands of the task paradigm in use (McKenzie *et al*, 2001). However, few studies have controlled for the cognitive demands of the task, and thus it is unclear whether performance of individuals with a LD is specific to emotion (Rojahn *et al*, 1995).

Due to the practical implications of work in this area it is relevant to further examine the accuracy, and indeed inaccuracy, of emotion identification in individuals with a LD who are aggressive, relative to their non-aggressive peers. It remains unclear whether the negative attribution bias found by Walz and Benson (1996) is specific to the measures used, or if it is evident when more naturalistic, contextually rich, stimuli are present, similar to that available in day-to-day interaction. Furthermore, the work undertaken has not clearly identified whether the bias is merely a *labelling* difficulty, or if it is a cognitive bias.

It is hypothesised that individuals with a mild to moderate LD who display aggressive behaviour (a) will not be impaired in their ability to label emotion, as compared with non-aggressive individuals with a LD, and (b) will demonstrate a negative bias when mislabelling emotions if assessed using traditional measures, i.e., decontextualised faces. It remains to be seen if the negative labelling bias would be present with increased contextual information, or during a contextually rich, non-verbal task, utilising a forced-choice methodology.

Method

Participants

Participants were recruited from five Adult Resource Centres (ARCs) that offer day service provision to individuals with a LD in two local authorities in Scotland. ARC staff identified potential participants from among service users whom they had worked with for at least three months. Participants were eligible for inclusion if (a) they had a mild to moderate LD and (b) sufficient verbal communication to undertake tasks, i.e., ability to give own name, simple information about self, and pass on information to others. Individuals with a diagnosis of autism, or a major psychiatric disorder, including schizophrenia and dementia, were excluded, as emotion recognition has been identified as impaired in these groups (Hobson, 1986, Heimberg *et al*, 1992, Kurucz & Felmar, 1979).

Day centre staff completed an adaptation of Harris *et al*'s (1994) Check-list of Challenging Behaviour for those who met the inclusion criteria (Appendix 4.1). The criterion for selection was the frequency of aggressive behaviour (Pert *et al*, 1999), with individuals with 4 or more aggressive incidents in the past three months identified as aggressive, and non-aggressive individuals having no reported behaviour of this kind. The objective was to recruit the 8 most frequently aggressive men and women, and 8 non-aggressive men and women. However, due to limited numbers available, all individuals who fulfilled the above criteria were asked to participate. Individuals were provided with an information sheet outlining the purpose and procedure of the study, which they were encouraged to take home and discuss with others. Those who wished to participate were asked to complete a consent form.

One female consented but was unable to participate due to illness. Data was thus obtained for 11 aggressive men, 8 aggressive women, and 7 men and 8 women who had no reported aggressive behaviour. The frequency of aggressive behaviour ranged from 5 incidents to 181 incidents over the past three months. Of the 19 aggressive individuals, 5 demonstrated physical aggression towards others, 16 demonstrated verbal aggression towards others or aggression towards others' property, and 16 demonstrated aggression that was not specifically directed at others.

Participants' level of verbal and non-verbal reasoning ability was assessed using the British Picture Vocabulary Scale (2nd Edition: Dunn et al, 1982) and Raven's Matrices (1965). Participants' characteristics are presented in Table 1. The BPVS-II scores for the aggressive group corresponded with age equivalents of 3 years 0 months to 11 years 4 months, with the age equivalents for the non-aggressive group ranging from 2 years 9 months to 13 years 0 months. As can be seen, three individuals with possible borderline intellectual functioning, as derived from the Raven's Matrices, were included within the sample.

- Insert Table 1 here -

A Mann Whitney U test (2-tailed) was employed to examine group (aggressive, non-aggressive) differences on BPVS-II raw scores, IQ bands derived from Raven's Matrices, and chronological age (CA). There were no significant differences between the two groups on any measure.

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Materials and Design

The study consisted of three tests of emotion identification, and three non-emotion measures to control for the cognitive demands of the task. All measures were newly developed, with the exception of the emotion task using decontextualised photographs (Ekman & Friesen, 1976). To develop new measures, extensive piloting was conducted with individuals without a LD, to ensure the faces and situations chosen reflected the specific emotion or activity category required. Difficulties encountered during piloting included particular facial models being more expressive than others. The final material (Appendices 4.3-4.7) was given to 18 adult judges without a LD. Agreement will be given for each measure as described.

Decontextualised photographs

i.   *Emotion labelling.* Photographs taken from The Pictures of Facial Affect, developed and validated by Ekman and Friesen (1976), were used to assess individuals' ability to accurately label emotions. This measure consisted of 12 (6 male, 6 female) monochrome photographs of faces expressing the basic emotions of happiness, sadness, fear, anger, surprise and disgust (Izard, 1971). These photographs were demonstrated to have an inter-rater agreement of 91% to 100% across the emotions for adults without a LD (Ekman & Friesen, 1976).

ii.   *Non-emotion labelling.* This control task consisted of 12 (6 male, 6 female) monochrome photographs of individuals engaged in six basic activities (reading, writing, drinking, telephone use, brushing teeth, brushing

hair) with minimal contextual and affective information. Agreement among the adult judges for the activities represented was 100%.

Photographs with context

i.   *Emotion labelling.* This measure was used to determine the effects of contextual information on emotion labelling. It consisted of a male and female set of 6 coloured photographs of individuals expressing the basic emotions described above, within a context. This measure was influenced by the work of McKenzie *et al* (2001), and utilised ColorCards (Harrison, 1996a; 1997) and photographs. The latter were produced using posed expressions of adults. The (non-actors) models were shown the Ekman & Friesen (1976) faces. Photographs were then taken of the models showing these facial expressions in contextually congruent situations, for example, a sad face at a graveside. Agreement among the judges for facial expressions ranged from 94.4% to 100%.

ii.   *Non-emotion labelling.* This control task consisted of a male and female set of 6 coloured photographs of individuals engaging in basic activities (drinking, eating, telephone use, reading, swimming, sleeping) with contextual cues available. The materials employed were ColorCards (Harrison, 1991a; 1991b; 1991c; 1994; 1995; 1996b; 1997; 1998), and photographs. Agreement for the activities represented was 100% among the judges.

Cartoons with context

The cartoon drawings were created by a professional cartoonist.

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i.   *Emotion task.* This task was developed as a non-verbal measure of emotion identification using contextually rich stimuli. It consisted of 12 A4-sized cartoons of 2 individuals interacting within scenes displaying the basic emotions. For example, a happy woman receiving a present, an angry man in a fight. The central character in each picture (a male and female per emotion) had an outline where his/her head should be. A set of male and female heads, with faces displaying the 6 emotions, were provided. Agreement among the judges for emotions ranged from 88.9% to 100%.

ii.   *Non-emotion task.* The control task consisted of 12 A4 sized cartoons of 2 individuals engaged together in different activities (football, swimming, going to bed, building a snowman, dancing, and horse riding). In six of the cartoons the central character is male, and in the remainder is female. The main protagonist in each cartoon has an outline where his/her body should be. A set of male and female bodies, in various costumes linked with the activities, were provided. Agreement among the adult judges for the activity represented was 100%.

Procedure

Individual interviews were conducted in a quiet room within the ARCs. The assessment measures were administered over two sessions, with the psychometric measures conducted during the initial session. The sequence of the emotion and control tasks were randomly altered to control for order effects, as were the items within each task.

- *Decontextualised photographs and photographs with context*

The two tasks were introduced to the participant as follows: "You are going to see some pictures of people. I want you to look at the picture and tell me how the person is feeling/what they are doing". The participant was shown each photograph and asked, "Tell me what you see". If necessary, they were asked, "Tell me how the lady/man is feeling" for the emotion tasks, or "Tell me what the lady/man is doing" for the non-emotion tasks.

- *Cartoons with context*

For the cartoon tasks, participants were told: "I am going to show you some drawings of people". They were given a cartoon with one of the protagonist's head or clothing missing and asked, "What do you think is happening here?" to focus their attention. They were then provided with a set of male or female heads (emotion task) or clothes (non-emotion task) as appropriate and asked, "Which do you think is the correct head/body?". They were encouraged to place their choice on the picture, and asked, "Is that the right head/body?". If they were unsure they were encouraged to try once more.

Responses for emotion labelling tasks were recorded verbatim (see Appendix 4.2 for recording form). They were compared to lists of acceptable words developed by previous researchers (Harrigan, 1984; Izard, 1971, p.270; Walz, 1995, p. 46). If a response corresponded with a list, the response was categorised. If the response was not listed, two independent adult judges without a LD were asked to categorise the response into one of the six basic emotions, or an "other" category (Walz, 1995). For the non-emotion labelling tasks, the raters judged all

responses as to whether the activity was represented in the response. Inter-rater agreement between the independent raters was 90.2% for emotion responses, and 93.3% for activity responses.

Results

The results are reported in the following seven sections. Data analyses employed non-parametric statistics to examine group differences, as aspects of the data were not normally distributed. With regard to missing data, one female non-aggressive participant's ability to identify sadness on the cartoon task was not assessed.

I.   Correct responding on emotion tasks versus non-emotion tasks

Each correct response was awarded a point, with total scores ranging from 0-12 per task. Table 2 illustrates the median number of facial expressions correctly identified, and the median correct responses in the non-emotion tasks, for each group. The Wilcoxon matched-pairs signed-ranks test (2-tailed) was employed to examine differences in responding between the emotion and non-emotion tasks for both the aggressive and non-aggressive groups. Aggressive individuals demonstrated significantly higher scores on the control tasks than emotion tasks when assessed using decontextualised photographs, photographs with context, and cartoons with context, $z=-3.86$, $p<0.01$, $z=-3.83$, $p<0.01$, $z=-3.56$, $p<0.01$ respectively. This was also true for the non-aggressive group when assessed using decontextualised photographs, photographs with context, and cartoons with context, $z=-3.42$, $p<0.01$, $z=-3.43$, $p<0.01$, $z=-3.21$, $p<0.01$ respectively. The

high rate of responding on the control task suggests the cognitive demands of the task should not prove a barrier to emotion identification for either group.

- Insert Table 2 here -

II.   Identification of individual emotions

Tables 3-5 illustrate happiness was the most accurately identified emotion in each condition for both the aggressive and non-aggressive groups, followed by sadness and then anger. However, the aggressive group identified sadness as commonly as anger during the decontextualised photographs condition, with the non-aggressive group identifying these emotions equally during the cartoon condition. The number of times the other emotions, namely surprise, fear and disgust, were correctly identified varied across conditions and between groups.

- Insert Tables 3-5 here -

III.   Correct responding on emotion tasks across the three conditions

Using Friedman's rank test, both groups demonstrated significantly different responding on emotion tasks across the three conditions, $\chi_F^2 = 9.08$; df=2; p<0.05 for the aggressive group, and $\chi_F^2 = 11.81$; df=52 p<0.01 for the non-aggressive group. This was followed by pairwise Wilcoxon Signed Ranks Tests (2-tailed), which demonstrated that both the aggressive (z=-3.22; p<0.01) and non-aggressive (z=-3.19; p<0.01) groups, were significantly more accurate when assessed with photographs with context than decontextualised photographs.

IV.   Comparison between aggressive and non-aggressive groups: Correct

responding

The Mann Whitney U (2-tailed) test was employed to examine the differences in

correct responding between the aggressive and non-aggressive groups on each

task. As can be seen from Table 2, the only significant group difference which

emerged was on the emotion task during the photographs with context condition

(U=71.00; p<0.05).   The non-aggressive group demonstrated a significantly

higher rate of correct responses than the aggressive group in this task.

V.   Comparison between aggressive and non-aggressive groups: An

examination of errors made in the identification of emotions

In addition to showing correct responses, Tables 3-5 also categorise incorrect

responses for each facial expression presented, over the three conditions. Mann

Whitney U tests were performed to examine the differences between the

aggressive and non-aggressive groups in terms of each emotion identified

incorrectly.   For such analyses, the number of times an individual chose a

particular emotion incorrectly was tabulated.   For the decontextualised

photographs and photographs with context, no significant differences in error

rates were found between the groups on any emotion incorrectly labelled.

However, for the cartoon task the aggressive group were significantly more

likely to incorrectly identify an emotion as anger than the non-aggressive group

(2-tailed; U=80.5; p<0.05).   As can be seen from Table 5, the disgusted and

frightened facial expressions were most often confused with anger.

VI. Performance on the vocabulary measure in relation to ability to identify emotions

Scatterplots were examined which suggested an association between BPVS-II raw scores, and number of correctly scored items on all emotion tasks and on the non-emotion task during the cartoon condition. Spearman's correlation coefficient (2-tailed) confirmed that BPVS-II scores were significantly positively correlated with performance on the emotion tasks, for decontextualised photographs r=0.36, p<0.05, photographs with context r=0.61, p<0.01, and cartoons p=0.56, p<0.01 respectively. Further, performance on the cartoon non-emotion task was significantly correlated with BPVS-II scores (r=0.58; p<0.01). Given the limited variability in control task performance on the other conditions further data analyses was not conducted.

VII. Performance on emotion tasks in relation to IQ, age and gender.

Scatterplots were also examined for associations between correct responding on emotion tasks for the sample as a whole, and age or IQ bands as derived from Raven's Matrices (1965). A significant negative association was confirmed using Spearman correlation coefficient (2-tailed) between age and accuracy, for each condition (decontextualised photographs: r=-0.41; p<0.05; photographs with context: r=-0.73; p<0.01; cartoons: p=-0.73; p<0.01). However, no association was found between accuracy scores and IQ bands for any condition. Further, a Mann Whitney U test (2-tailed) identified no significant difference between genders in ability to correctly identify emotions, on any condition.

Discussion

Consistent with Walz & Benson (1996), the ability of aggressive and non-aggressive individuals to label emotions was found to be comparable, when assessed with traditional decontextualised measures (Ekman & Friesen, 1976). However, the results of the current study did not wholly support the hypothesis that aggressive individuals with a LD are equal to non-aggressive peers at emotion identification. When aggressive participants were assessed with contextually rich emotional photographs they were found to be impaired relative to non-aggressive peers. This difference appears to demonstrate a specific deficit in emotional understanding, as it was not apparent on a cognitive control task. Such findings are in contrast to the results of McKenzie *et al* (2000), who reported no group differences using a similar measure. However, McKenzie *et al's* study did not examine the six basic emotions (Izard, 1971), and lacked information on the psychometric properties of the measures used. It may therefore be that aggressive individuals attend to fewer cues in the environment, and thus benefit less from increasing amounts of contextual information as compared with non-aggressive individuals. Indeed, Dodge *et al* (1986) demonstrated that aggressive boys attended to fewer social cues than non-aggressive children when interpreting ambiguous interaction, leading to a less accurate appraisal of social situations (Dodge, 1993).

The current study did not replicate the findings by Walz & Benson (1996), of a bias towards labelling ambiguous facial expressions negatively, demonstrated by aggressive individuals. However, there was evidence of a hostile bias when

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errors were made on the cartoon task, with the aggressive participants proving more likely than their non-aggressive peers to choose an angry face. This is consistent with the hostile attributional bias identified in aggressive children (Dodge, 1993), during ambiguous interpersonal situations. Such a bias has also been reported in aggressive individuals with a LD in informal case studies (Black *et al*, 1997) and following stories of ambiguous situations (Pert *et al*, 1999). However, the current findings during a non-verbal task are of particular importance, as it suggests the hostile attribution bias is a cognitive distortion and not merely a *labelling* bias.

The deficits in emotional understanding displayed by aggressive participants provide some support for the inclusion of emotion education in anger management work, with an emphasis on psychosocial cues. However, the findings also demonstrate the importance of widening the focus from simply a cognitive deficit explanation of aggression. The results complement the available evidence on the importance of assessing possible cognitive distortions in aggressive individuals with a LD (Pert *et al*, 1999). The notion of cognitive biases influencing the way we attend to, and process, information is strongly held in adult psychology (Beck, 1976), but there has been a dearth of literature in relation to those with a LD. Cognitive work, particularly accessing cognitive distortions, has relied heavily on self-reported verbal material, making it less accessible for individuals with a LD (Stenfert-Kroese, 1997). Identifying attributional biases through non-verbal tasks could therefore provide an important assessment tool for facilitating cognitive-behaviour therapy in this population.

The current research complements previous findings showing an increase in accuracy with the introduction of contextual information (McKenzie *et al*, 2001). The introduction of dynamic cues has also been found to increase accuracy (Harwood *et al*, 1999). It is thus possible that previous research using static decontextualised measures may have underestimated the ability of individuals with a LD to accurately identify emotions. The results add weight to Moore *et al*'s (1995) argument that methodology which relies on simplified stimuli, without dynamic or temporal cues, may in fact prove a hindrance to individuals with a LD as it requires "the deployment of more inferential, cognitively based capacities" (Moore *et al*, 1995, p.84). Instead they argue that aspects of person perception are relatively direct in nature, independent of level of intellectual functioning.

The current findings therefore have implications for the widespread use of line drawings to aid communication for individuals with a LD (Remington, 1998), such as the Picture Communication Symbols (Mayer Johnson, 1981). Such augmentative communication systems reflect the assumption that simplified stimuli aid recognition due to the removal of distracting information (Cha & Merrill, 1994; Rojahn *et al*, 1995a). However, given the findings from the current study the efficacy of using such a system should be examined.

The findings of the current study also suggest a differential pattern of responding across the six basic emotions (Izard, 1971). In line with previous research, happiness was found to be the easiest emotion to identify, followed by sadness

(Walz & Benson, 1996). Indeed, Izard (1971) reported that recognition of happiness, and then sadness, were the first emotions to develop. Interestingly, the work of Baron-Cohen *et al* (1993) on children with autism may also shed light in this area. They suggest that emotions such as happiness and sadness are "simple" emotions, which can be interpreted directly from the situation, such as "Jo is happy as she received a present". Whereas other emotions, for example surprise, are "cognitive" reflecting a need to understand the protagonist's beliefs, for example, "Jo is surprised as she did not *think* she would receive an award". Thus Baron-Cohen *et al* suggest that it may be a difficulty in understanding the belief systems of others which underlies identification deficits for particular emotions. The notion of a general deficit in emotion identification for individuals with a LD may therefore be inaccurate.

The research surrounding the link between IQ and emotion identification is conflicting. The current study is in keeping with the notion that the ability to identify facial expressions of emotion is independent of intelligence (Leung & Singh, 1998). Further, there was no effect of gender on ability to accurately identify emotional expressions, consistent with previous findings (Eckert, 1999; Maurer & Newbrough, 1987). However, an association between emotion identification and age was found, with older individuals being more impaired than younger individuals. These results are consistent with the findings of Wilcenski (1989) and McKenzie *et al* (2001), but at odds with the results of Leung and Singh (1998). Researchers have suggested that such a positive association may reflect the increasing range of educational and social opportunities in the community for younger individuals with a LD, or a

differential pattern of ageing in individuals with a LD (McKenzie et al, 2001). In addition, a positive association was found between performance on the emotion tasks and receptive vocabulary, which is consistent with previous research (Walz & Benson, 1996).

The results of the present study, however, should be viewed with caution due to a number of limitations. Data analyses include three individuals with a borderline LD, as estimated by the Ravens' Matrices (1965), however all individuals were in life-long services for individuals with a LD. In addition, sensory deficits were not explicitly screened for, but no individuals had such severe difficulties as would hamper participation. With regard to the newly developed measures, the test-re-test reliability was not examined. Further, a ceiling effect was found for the non-emotion tasks, as is the case in previous studies utilising control tasks (Walz, 1995). Finally, a few studies have demonstrated concern over the use of the BPVS as a measure of verbal ability in emotion identification research, due to concern over inflated results, and as certain items contain an emotional element (Hobson & Lee, 1989).

Conclusions

The current study questions the traditional notion of assuming cognitive deficits underlie challenging behaviour in individuals with a LD. Indeed the findings suggest that it is a more complex picture, with aggressive individuals possibly attending to fewer situational cues, combined with a tendency to attribute hostile intent to others in ambiguous situations. The development of non-verbal task paradigm to examine cognitive distortions in aggressive individuals with a LD

could provide an important tool for clinical practice, as well as opening up a rich

vein for future research in this area.

References

Baron-Cohen, S., Spitz, A. & Cross, P. (1993). Do children with autism recognise surprise? A research note. *Cognition and Emotion, 7(6),* 507-516.

Benson, B.A. (1994). Anger management training: a self control programme for persons with mild mental retardation. In N. Bouras (Ed.) *Mental Health in Mental Retardation: Recent Advances and Practices.* Cambridge: Cambridge University Press.

Beck, A.T. (1976). *Cognitive therapy and the emotional disorders.* International Universities Press, New York.

Black, L., Cullen, C., & Novaco, R.W. (1997). Anger assessment for people with mild mental retardation in secure settings. In B. Kroese, D. Dagnan, & K. Loumidis (Eds.), *Cognitive Therapy with People with Mental Retardation.* London: Routledge.

Cha, K.H. & Merrill, E.C. (1994). Facilitation and inhibition effects in visual selective attention processes of individuals with and without mental retardation. *American Journal on Mental Retardation, 98,* 594-600.

Dodge, K.A. (1980). Social cognition and children's aggressive behaviour. *Child Development, 51,* 162-170.

Dodge, K.A. (1993). Social cognitive mechanisms in the development of conduct disorder and depression. *Annual Review of Psychology, 44,* 559-584.

Dunn, L.M., Dunn, L.M. & Whetton, C. (1982). *British Picture Vocabulary Scale.* Windsor, England: NFER-Nelson.

Eckert, S.P. (1999). *The ability to identify facial expressions of emotions: Emotion specific deficit or construct of mental retardation.* The University of New Mexico. Unpublished doctorate thesis.

Ekman, P. (1973). Cross-cultural studies of facial expression. In P. Ekman (Ed.) *Darwin and facial expression.* New York: Academic Press.

Ekman, P. & Friesen, W.V. (1976). *Pictures of Facial Affect.* Palo Alto, CA: Consulting Psychologists Press.

Harrigan, J.A. (1984). The effects of task order on children's identification of facial expressions. *Motivation and Emotion, 8,* 157-169.

Harrison, V. (1991a; Ed.) *ColorCards: Activities & Events.* Bicester, Winslow Press.

Harrison, V. (1991b; Ed.) *ColorCards: Daily Living.* Bicester, Winslow Press.

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Harrison, V. (1991c; Ed.) *ColorCards: Social Situations.* Bicester, Winslow Press.

Harrison, V. (1994; Ed.) *ColorCards: Basic Sequences.* Bicester, Winslow Press.

Harrison, V. (1995; Ed.) *ColorCards: Outdoor Sounds.* Bicester, Winslow Press.

Harrison, V. (1996a; Ed.) *ColorCards: Emotions.* Bicester, Winslow Press.

Harrison, V. (1996b; Ed.) *ColorCards: What's Missing?* Bicester, Winslow Press.

Harrison, V. (1997; Ed.) *ColorCards: Cause & Effect.* Bicester, Winslow Press.

Harrison, V. (1998; Ed.) *ColorCards: Problem Solving.* Bicester, Winslow Press.

Harris, P., Humphreys, J. & Thomson, G. (1994). A checklist of challenging behaviour: The development of a survey instrument. *Mental Handicap Research, 17,* 118-133.

Harwood, N.K., Hall, L.J. & Shinkfield, A.J. (1999). Recognition of facial emotional expressions from moving and static displays by individuals with mental retardation. *American Journal on Mental Retardation, 104(3),* 270-278.

Heimberg, C., Gur, R.E., Erwin, R.J., Shtasel, D.L. & Gur, C.G. (1992). Facial emotion discrimination: III. Behaviour findings in schizophrenia. *Psychiatry Research, 42,* 253-265.

Hext, L.J. & Lunsky, Y. (1997). Relationships etc. – A social skills program: "A learning by doing model". *The Habilitative Mental Healthcare Newsletter, 16(1),* 7-10.

Hobson, R.P. (1986). The autistic child's appraisal of expressions of emotion. *Journal of Child Psychology and Psychiatry, 27,* 321-342.

Hobson, R.P. & Lee, A. (1989). Emotion-related and abstract concepts in autistic people: Evidence from the British Picture Vocabulary Scale. *Journal of Autism and Developmental Disorders, 19(4),* 601-623.

Hobson, R.P., Ouston, J. & Lee, A. (1989). Recognition of emotion from facial expression in mentally retarded adolescents and young adults. *American Journal of Mental Retardation, 93,* 434-443.

Izard, C. (1971). *The face of emotion.* New York: Appleton Century-Crafts.

Kurucz, J. & Feldmar, G. (1979). Prosopo-affective agnosia as a symptom of cerebral organic disease. *Journal of the American Geriatrics Society, 27,* 225-230.

Leung, J.P. & Singh, N.N. (1998). Recognition of facial expressions of emotion by Chinese adults with mental retardation. *Behavior Modification, 22(2),* 205-216.

Luckasson, R., Coulter, D.L., Polloway, E.A., Reiss, S., Schalock, R.S., Snell. M.E., Spitalnik, D.M. & Stark, J.A. (1992). *Mental retardation: Definition, classification, and systems of support.* Washington, DC: American Association on Mental Retardation.

Maurer, H. & Newbrough, J.R. (1987). Facial expressions of mentally retarded and non-retarded children: I. Recognition by mentally retarded and non-retarded adults. *American Journal of Mental Deficiency, 91,* 505-510.

Mayer Johnson, R. (1981). Picture Communication Symbols. Solana Beach, California, USA: Mayer-Johnson Company.

McAlpine, C., Singh, N.N., Kendall, D.A. & Ellis, C.R. (1992). Recognition of facial expressions of emotion by persons with mental retardation. *Behavior Modification, 16(4),* 543-558.

McKenzie, K., Hamilton, L., Matheson, E., McCaskie, K. & Murray, G. (2000). An emotional challenge. *Learning Disability Practice, 2(4)*, 20-23.

McKenzie, K. Matheson, E., McCaskie, K., Hamilton, L. & Murray, G.C. (2001). A picture of happiness. *Learning Disability Practice, 4(3)*, 26-29.

McLean, L.K., Brady, N.C. & McLean, J.E. (1996). Reported communication abilities of individuals with severe mental retardation. *American Journal on Mental Retardation, 100*, 580-591.

Moffat, C.W., Hanley-Maxwell, C. & Donnellan, A.M. (1995). Discrimination of emotion, affective perspective-taking and empathy in individuals with mental retardation. *Education and Training in Mental Retardation, 30(1)*, 76-85.

Moore, D.G., Hobson, R.P. & Anderson, M. (1995). Person perception: Does it involve IQ-independent perceptual processing? *Intelligence, 20*, 65-86.

Moore, D.G., Hobson, R.P. & Lee, A. (1997). Components of person perception: An investigation with autistic, non-autistic retarded and typically developing children and adolescents. *British Journal of Developmental Psychology, 15*, 401-423.

Pert, C., Jahoda, A. & Squire, J. (1999). Attribution of intent and role-taking cognitive factors as mediators of aggression with people who have mental retardation. *American Journal on Mental Retardation, 104(5)*, 399-409.

Raven, J.C. (1965). *The Coloured Progressive Matrices*. London: Lewis.

Remington, B. (1998). Working with people with communication difficulties. In Emerson, E., Hatton, C., Bromley, J & Caine, A. (Eds) *Clinical Psychology and People with Intellectual Disabilities*. Chichester: John Wiley & Sons Ltd.

Rojahn, J., Rabold, D. & Schneider, F. (1995). Emotion specificity in mental retardation. *American Journal on Mental Retardation, 99(5)*, 477-486.

Stenfert-Kroese, B. (1997). Cognitive-behaviour therapy for people with learning disabilities: Conceptual and contextual issues. In Stenfert-Kroese, B., Dagnan, D. & Loumidis, K. (Eds) *Cognitive-Behaviour Therapy for People with Learning Disablities*. London: Routledge.

Walz, N.C. (1995). *Recognition of facial expressions by aggressive and nonaggressive males with mental retardation*. University of Illinois, US. Unpublished dissertation.

Walz, N.C. & Benson, B.A. (1996). Labeling and discrimination of facial expressions by aggressive and nonaggressive men with mental retardation. *American Journal on Mental Retardation, 101*, 282-291.

Wilcenski, F.L. (1989). *Nonverbal communication and mental retardation: Comprehension and expression of facial affect among adults with developmental disabilities.* University of Massachusetts, US. UMI.

Tables 1-5

	Chronological Age (years; months)			BPVS-II (Raw score)			IQ Bands			
Group	Mean	SD	Range	Mean	SD	Range	40-50	50-60	60-70	70-80
AGG (n=19)	40;05	12;01	23-65	57.47	21.75	26-107	6	7	5	1
NAGG (n=15)	32;10	12;10	19-58	67.67	24.05	21-117	4	4	5	2

Table 1. Participant characteristics for aggressive (AGG) and non-aggressive (NAGG) groups.

Tables 1-5 (*continued*)

Condition	Group	Emotion Tasks		Non-emotion tasks	
		Median	Inter-quartile range	Median	Inter-quartile range
Decontext-ualised photographs	A[a]	4.00	1.00	12.00	0.00
	NA[b]	5.00	3.00	12.00	0.00
Photographs with context	A	5.00*	2.00	12.00	1.00
	NA	8.00*	3.00	12.00	0.00
Cartoons with context	A	4.00	4.00	9.00	7.00
	NA[c]	5.50	5.00	11.00	3.00

Table 2. The median numbers correct for emotion and non-emotion tasks, for each group, per condition.

[a] Aggressive (n=38) [b] Non-aggressive (n=30); [c] Non-aggressive (n=28) due to missing data.

* *Mann Whitney U test comparing A and NA p<0.05*

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Tables 1-5 (*continued*)

	Facial expression											
	Happy		Sad		Angry		Fear		Surprise		Disgust	
Response	A[a]	NA[b]	A	NA	A	NA	A	NA	A	NA	A	NA
Happy	33	28	7	4	4	3	10	7	8	5	1	3
Sad	0	0	16	18	9	6	10	11	13	7	11	10
Angry	1	0	6	4	16	15	7	4	7	6	17	12
Fear	0	0	1	0	0	1	2	2	2	2	0	0
Surprise	0	0	0	1	1	0	1	2	1	7	0	0
Disgust	0	0	0	0	0	0	0	1	0	1	2	0
Other	4	2	8	3	8	5	8	3	7	2	7	5

Table 3. For decontextualised photographs, number of times each response was given following presentation of facial expression of emotion, per group.

Note. Each expression was presented twice, one for each gender.

[a] Aggressive (n=38) [b] Non-aggressive (n=30)

Tables 1-5 *(continued)*

	Facial expression											
	Happy		Sad		Angry		Fear		Surprise		Disgust	
Response	A[a]	NA[b]	A	NA	A	NA	A	NA	A	NA	A	NA
Happy	34	28	1	2	2	1	5	3	15	10	1	2
Sad	0	0	26	27	7	3	7	2	7	6	15	12
Angry	0	0	2	0	18	22	9	5	2	0	9	3
Fear	0	0	0	0	0	0	10	16	0	2	0	0
Surprise	0	0	0	0	1	0	2	2	5	9	2	0
Disgust	0	0	0	0	0	0	2	0	0	0	6	10
Other	4	2	9	1	10	4	3	2	9	3	5	3

Table 4. For photographs with context, number of times each response was given following presentation of facial expression of emotion, per group.

Note. Each expression was presented twice, one for each gender.

[a] Aggressive (n=38) [b] Non-aggressive (n=30)

	Facial expression											
	Happy		Sad		Angry		Fear		Surprise		Disgust	
Response	A[a]	NA[b]	A	NA[c]	A	NA	A	NA	A	NA	A	NA
Happy	22	23	2	1	3	3	3	1	11	15	4	4
Sad	2	1	19	19	5	4	6	7	7	0	6	5
Angry	5	2	5	2	14	19	9	2	5	0	12	4
Fear	2	2	2	0	7	1	13	12	3	4	5	3
Surprise	5	0	4	1	4	1	2	4	8	8	5	8
Disgust	2	2	4	5	4	2	5	4	4	3	5	6
Other	0	0	2	0	1	0	0	0	0	0	1	0

Table 5. For cartoons with context, number of times each response was given following presentation of facial expressions of emotion, per group.

Note. Each expression was presented twice, one for each gender.

[a] Aggressive (n=38) [b] Non-aggressive (n=30) [c] Non-aggressive (n=28) due to missing data.

Chapter 5 : Abstract for Single Subject Research Study

A further examination of the utility of a brief functional analysis of aggressive behaviour: A single case experimental investigation of an adult with severe learning disability in an in-patient setting.

Abstract

A repeated measures design was used to evaluate the utility of a brief functional analysis of aggressive behaviour with a 20-year old lady with a severe learning disability. Four pre-defined experimental conditions were used to analyse the occurrence and topography of aggressive behaviour, as well as the occurrence of appropriate behaviour during 6-second intervals. The results are presented graphically to allow a visual comparison of trends in the data. The pattern of responding was consistent across both analogue assessments, with a higher rate of aggressive behaviour found in one maintaining condition. Less aggressive and appropriate behaviour was found during a control condition. No clear relationship exists between appropriate and aggressive behaviour. It is concluded that the brief analogue assessment is a clinically useful tool when examining aggressive behaviour. However, care should be taken as overall rates of aggressive behaviour may mask underlying relationships with specific behaviours.

Chapter 6 : Appendices

Section 1: Appendices for Small Scale Service Related Project

1.1   Notes for contributors to *Clinical Psychology Forum.*

Clinical Psychology Forum

Clinical Psychology Forum is produced by the Division of Clinical Psychology of The British Psychological Society. It is edited by Steve Baldwin, Lorraine Bell, Jonathan Calder, Lesley Cohen, Simon Gelsthorpe, Laura Golding, Helen Jones, Craig Newnes, Mark Rapley and Arlene Vetere, and circulated to all members of the Division monthly. It is designed to serve as a discussion forum for any issues of relevance to clinical psychologists. The editorial collective welcomes brief articles, reports of events, correspondence, book reviews and announcements.

Notes for contributors

Articles of 1000-2000 words are welcomed. Send two copies of your contribution, typed and double spaced. Contributors are asked to keep tables to a minimum, to ensure that all references are complete and accurate, and to give a word count. Please indicate the authors' employers, to appear at the head of the article, and include an address for correspondence, with e-mail if possible. News of Branches and Special Groups is especially welcome.

)Language contributors are asked to use language which is psychologically descriptive rather than medical and to avoid using devaluing terminology; i.e. avoid clustering terminology like "the elderly" or medical jargon like "person with schizophrenia". If you find yourself using quotation marks around words of dubious meaning, please use a different word.

Articles submitted to Forum will be sent to members of the Editorial Collective for refereeing. They will then communicate directly with authors.

We reserve the right to shorten, amend and hold back copy if needed.

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Clinical Psychology Forum is published monthly and is dispatched from the printers on the penultimate Thursday of the month prior to the month of publication.

Section 2: Appendices for Major Research Project Literature

Review

2.1   Notes for contributors to *American Journal on Mental Retardation.*

Appendix 2.1

Information for Authors

Manuscript Submission

Four quality copies of manuscripts should be sent to William E. MacLean Jr., PO Box 3415, Department of Psychology, University of Wyoming, Laramie, WY 82071. The editor may also be contacted via phone, 307-766-5433; fax, 307-766-5432; or e-mail, maclean@uwyo.edu. The street address (for express mail delivery) is Shipping & Receiving, University of Wyoming, 16th and Gibbon Sts., Laramie, WY 82071. The cover sheet should include title, authors, affiliations, and the address of the author to whom correspondence should be directed as well as a running head of forty characters or less. If the manuscript has been prepared for blind review, an additional cover sheet should also be included that contains a running head rather than the author's name on each page of the manuscript; other identifying material should be removed. All manuscripts are sent out for peer review by knowlegdeable colleagues. The initial review process ordinarily requires from 6 to 12 weeks, and revisions are often requested.

Manuscripts should be prepared in accordance with the *Publication Manual of the American Psychological Association* (5th ed.). The instructions given there for preparing tables, figures, references, metrics, and abstracts should be followed. Regular articles are to include an abstract containing a maximum of 120 words. The editor is responsible for obtaining reviews and deciding on the disposition of all manuscripts (acceptance, rejection, or requests for revision). Once a manuscript is accepted for publication, the remainder of the production process is coordinated by the Senior Editor, Yvette Taylor, 10886 Ravel Ct., Boca Raton, FL 33498; e-mail, ytaamr@aol.com; phone, 561-482-0341. For this purpose, a PC-compatible electronic version of the accepted manuscript must be provided, in WordPerfect or Word, on a 3.5 inch diskette. Contact her if you have any technical questions.

Ethical Standards.

All investigations using human participants must have been approved by the human subjects review committee of the author's institution. Submission of a manuscript to *AJMR* while that paper is under review by another journal is unacceptable. Presentation of a manuscript in electronic form on the Internet is considered to constitute publication and may be grounds for rejection of the paper by this journal.

Form.

All sections of the manuscript (including quotations, references, tables, and footnotes) should be double-spaced on 8 by 11-inch paper with at least a 1-inch margin on all sides. Authors should retain the original. Copies will not usually be returned. The preferred length of manuscripts is 20 typed pages or less, but somewhat greater length may be accepted depending on the complexity and importance of the research reported.

Abbreviations and Terminology.

Abbreviations should be held to a minimum. The names of groups or experimental conditions should usually not be abbreviated. The full names of tests should be given when they are first mentioned, with the common shortened form in parentheses.

When context makes it clear whether an author is referring to people with mental retardation or when it is otherwise unnecessary to refer to intellectual level or diagnostic category, authors should use the most descriptive generic terms, such as children, students, or persons, without using qualifiers such as "with mental retardation," "with handicaps," or "with developmental disabilities." Under no circumstances should *retarded* be used as a noun. Prepositional constructions such as "students with mental retardation," or "individuals who have mental retardation' are preferred over adjectival constructions such as "mentally retarded people," except when clear communication dictates occasional use of adjectival designations. Because *normal* has multiple meanings and may inappropriately imply *abnormal* where it is not applied, this word should not be used. Instead, more operationally descriptive terms such as "intellectually average pupils" should be used.

Numerical and Illustrative Presentations and References.

The metric system should be used for all expressions of linear measures, weight, and volume. Tables and figures should be kept to a minimum. Information should be presented only once – whether in the text or in a table or figure. For this reason, short tables may be deleted or combined into larger ones during the copy-editing process. Lines should not be typed or inked within tables, and all columns should be provided with headings. Glossy prints or original line drawings of figures may be kept by the author until the Senior Editor requests them after acceptance of a manuscript. Figure captions should be typed on a separate sheet, but other types of lettering may appear on the figures themselves. All such lettering must be of professional quality and large enough to withstand a reduction of approximately 50%. Release forms (signed, dated, witnessed, and notarized) must accompany photographs of human subjects. Care should be taken to conceal the identity of persons in such photographs. Authors must also secure permission to use any copyrighted tables or figures. References should conform to the American Psychological Association style. Content footnotes are not used.

Footnotes.

These should be kept to a minimum, for example those (a) acknowledging grant support or help in carrying out the research or in preparation of the manuscript, (b) noting change in affiliation of an author, or (d) stating the availability of supplementary information.

Copyright Assignment.

In view of the U.S. Copyright Revision Act of 1976, if a manuscript is accepted for publication, authors are asked to sign a Copyright Assignment and Agreement form conveying all copyright ownership to AAMR.

Section 3: Appendices for Major Research Project Proposal

3.1   Format for Proposal laid out by West of Scotland Clinical, based upon the application for a mini-project grant in Health Services Research (SOHHD – Chief Scientist Office).

3.2   Participant information sheet

3.3   Participant consent form

3.4   Certificate of ethical approval (03/09/01)

Appendix 3.1

Major Research Project Proposal

1.1   Applicants – names and addresses including the names of co-workers and supervisor(s) if known.
1.2   Title – no more than 15 words
1.3   Summary – no more than 300 words, including a reference to where the study will be carried out
1.4   Introduction – of less than 600 words summarising previous work in the field, drawing attention to gaps in present knowledge and stating how the project will add to knowledge and understanding.
1.5   Aims and hypothesis to be tested – these should wherever possible be stated as a list of questions to which answers will be sought.
1.6   Plan of investigation – consisting of a statement of the practical details of how it is proposed to obtain answers to the questions posed. The proposal should contain information on Research Methods and Design i.e.,
1.6.1 Subjects – a brief statement of inclusion and exclusion criteria and anticipated number of participants.
1.6.2 Measures – a brief explanation of interviews/observations/rating scales etc. to be employed, including references where appropriate.
1.6.3 Design and procedure – a brief explanation of the overall experimental design with reference to comparisons to be made, control populations, timing of measurements, etc. a summary chart may be helpful to explain the research process.
1.6.4 Settings and equipment – a statement on the location(s) to be used and resources or equipment which will be employed (if any).
1.6.5 Data analysis – a brief explanation of how data will be collated, stored and analysed.
1.7   Practical applications – the applicant should state the practical use to which the research findings could be put.
1.8   Timescales – the proposed starting date and duration of the project.
1.9   Ethical approval – stating whether this is necessary and, if so, whether it has been obtained.

Appendix 3.2

(University headed note paper)

INFORMATION SHEET

EMOTIONAL UNDERSTANDING RESEARCH PROJECT

Edith Matheson, Clinical Psychologist in Training, University of Glasgow

Dear ....,

Some people find it hard to tell how other people are feeling inside. We would like you to take part in a research project looking at this. Before you decide to take part it is important that you understand what the project is about and what will happen. Please take time to decide and talk to other people about it.

We would like you to look at pictures of faces and cartoons, and ask you some questions about what the people are feeling. We would have to meet two times at the Adult Resource Centre and it would take about half an hour each time.

It is entirely up to you if you want to take part. If you choose to take part you will be asked to sign a consent form, which you can keep a copy of. Staff at the ARC will be asked to witness your signature. You can change your mind about taking part at any time without giving a reason, and you don't need to answer questions if you don't want to. It will not affect any treatment you receive now or in the future.

We also won't tell anyone else how you get on.

If you want to ask me any questions please ask staff at your Adult Resource Centre to contact me, or give you my telephone number so you can call me.

If you want to speak with someone who is not directly involved with this project please phone X, Clinical Psychologist, at X on X.

Yours sincerely,

Edith Matheson
Clinical Psychologist in Training

Information Sheet, Version Number 1, Dated 21/06/01

Appendix 3.3

CONSENT FORM

EMOTIONAL UNDERSTANDING RESEARCH PROJECT

Edith Matheson, Clinical Psychologist in Training, University of Glasgow

Please read and sign below if you consent to take part.

I have read and understand the information sheet (dated 21/06/01, version 1), for this project looking at others emotions.

I have had been able to ask questions if I wanted to.

I know that I should take part only if I want to.

I know that I can stop at any time without giving a reason, and it will not affect any treatment I receive now or later.

I understand that no one will be told how I got on.

I agree to take part in this project.

Name ....

Signature .... Date:
....

Witnessed by:

Name ....

Signature .... Date:
....

2nd witness required if individual unable to sign name.

Name ....

Signature .... Date:
....

Appendix 3.4

Section 4: Appendices for Major Research Project Paper

Appendix 4.1

Research study: Emotional understanding in aggressive and non-aggressive individuals with a mild and moderate learning disability

Inclusion Criteria

The individual must meet all three of the following criteria:

Criteria	Tick if individual meets criteria (✔)
1. Mild to moderate learning disability.	
2. Sufficient verbal communication i.e., is able to give simple information regarding who they are and where they live, and pass on simple information to someone in a different part of the building.	
3. Do not have autism, or a diagnosis of major psychiatric disorder such as schizophrenia, or dementia.	

If the individual meets the above criteria, then please score them on their aggressive tendencies below:

Examples of aggressive behaviour		Frequency over past 3 months
Physical aggression towards others	Hitting, grabbing, pushing, pulling, pinching, scratching, hair pulling, kicking, headbutting, biting, choking or throttling, throwing things at people, using objects as weapons against people	
Verbal aggression towards others/aggression towards others' property	Shouting and screaming at people, swearing at and abusing others, threatening others, deliberately damaging an individuals' property.	
Aggressive behaviour not specifically directed at others	Muttering, cursing, shouting aloud, deliberately damaging objects, slamming doors, banging or knocking over objects, barging through places and past people.	
TOTAL FREQUENCY		

Individuals would fall into the:

1) **Aggressive group** if they have demonstrated 4 or more of any of the above behaviours over the past three months.
   e.g., four episodes of shouting, or two episodes of muttering, one of swearing, and one of kicking.
2) **Non-aggressive group** if they have demonstrated <u>no</u> behaviour of this sort over the past three months.

Appendix 4.2

Group1: Non-LD / LD   Group 2: Agg / Non-agg

Age: Gender: M / F

Part 1a – Decontextualised photographs – Emotion labelling task

Gender	Emotion	Response
Female	Happy	
	Sad	
	Angry	
	Fear	
	Surprise	
	Disgust	
Male	Happy	
	Sad	
	Angry	
	Fear	
	Surprise	
	Disgust	

Part 1b – Decontextualised photographs – Non-emotion labelling task

Gender	Activity	Response
Female	Reading	
	Writing	
	Drinking	
	Telephone Use	
	Brushing teeth	
	Brushing hair	
Male	Reading	
	Writing	
	Drinking	
	Telephone Use	
	Brushing teeth	
	Brushing hair	

Part 2a – Photographs with context – Emotion labelling task

Gender	Activity	Response
Female	Happy	
	Sad	
	Angry	
	Fear	
	Surprise	
	Disgust	
Male	Happy	
	Sad	
	Angry	
	Fear	
	Surprise	
	Disgust	

Part 2b – Photographs with context – Non-emotion labelling task

Gender	Emotion	Response
Female	Drinking	
	Eating	
	Telephone Use	
	Reading	
	Swimming	
	Sleeping	
Male	Drinking	
	Eating	
	Telephone Use	
	Reading	
	Swimming	
	Sleeping	

Part 3a – Cartoons with context – Emotion identification task

Gender	Emotion	Response
Female	Happy	
	Sad	
	Angry	
	Fear	
	Surprise	
	Disgust	
Male	Happy	
	Sad	
	Angry	
	Fear	
	Surprise	
	Disgust	

Part 3b – Cartoons with context – Non-emotion identification task

Gender	Emotion	Response
Female	Football	
	Swimming	
	Bedtime	
	Winter	
	Dancing	
	Horse riding	
Male	Football	
	Swimming	
	Bedtime	
	Winter	
	Dancing	
	Horse riding	

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Appendix 4.3 Decontextualised photographs: Non-emotion labelling
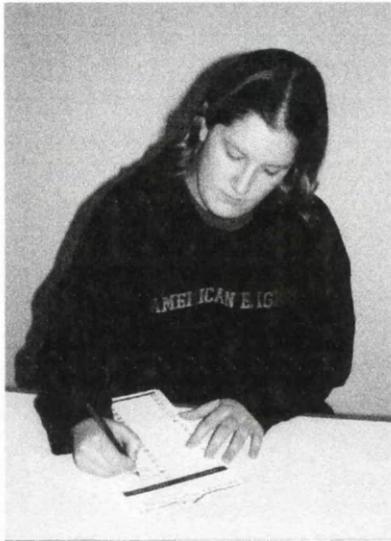
Female writing

Female reading

Female brushing hair
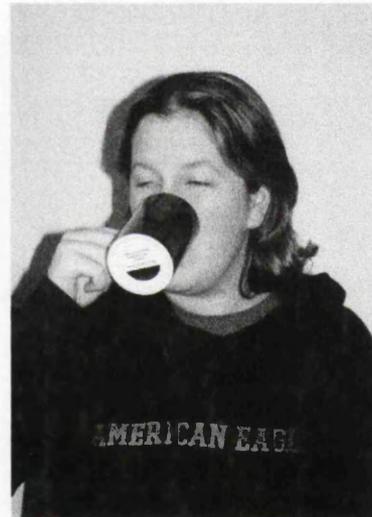
Female drinking

Female using phone

Female brushing teeth

Male writing

Male reading

Male using phone

Male drinking
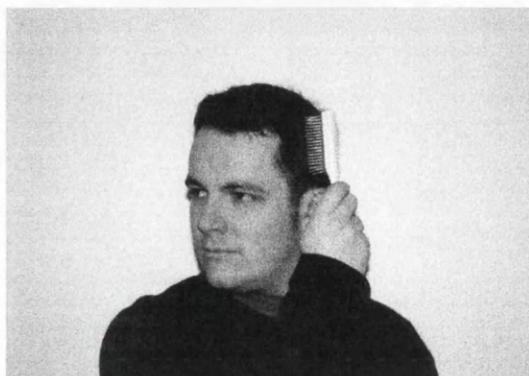
Male brushing hair

Male brushing teeth

Appendix 4.3 (continued)

Above are all reproductions of original photographs, reduced in size.

Appendix 4.4 Photographs with context: Emotion labelling

Sad (male) See below (original in colour)
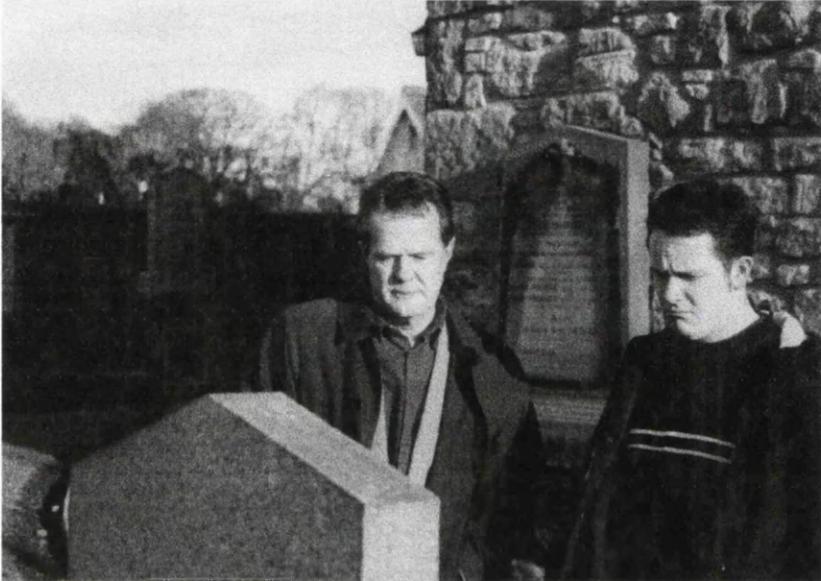
Fear (female)   see below (original in colour)

Appendix 4.4 Photographs with context: Emotion labelling

Fear (male)   See below (original in colour)

Surprise (female)   See below (original in colour)
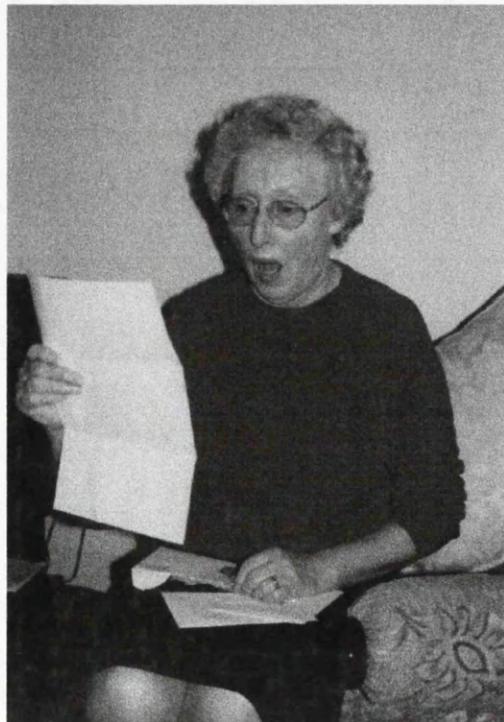
Appendix 4.4 Photographs with context: Emotion labelling

Surprise (male)   See below (original in colour)

Disgust (female)
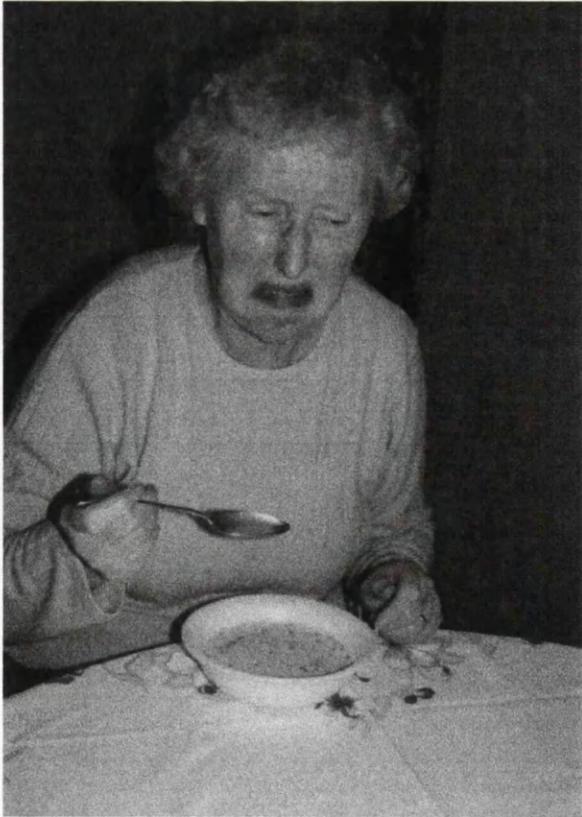
Appendix 4.4 Photographs with context: Emotion labelling

All photographs above were reproduced from coloured originals, and reduced in size.

The following emotions were obtained from the ColorCard range (Harrison, 1996a; 1997), but could not be reproduced here due to copyright restrictions:

Happy (female)	Smiling, looking at a baby.
Happy (male)	Smiling, at wedding.
Sad (female)	Crying, at funeral.
Angry (male)	Arguing following incident with car
Angry (female)	Shouting at demonstration
Disgust (male)	Disliked dinner

Appendix 4.5 Photographs with context: Activity labelling

The following activities were obtained from the ColorCard range (Harrison, 1991a; 1991b; 1991c; 1994; 1995; 1996b; 1997; 1998), but could not be reproduced here due to copyright restrictions:

Activity	Description
Drinking (male)	Man drinking at table with woman, outside
Drinking (female)	Female drinking at table
Eating (male)	Man eating outside in restaurant
Eating (female)	Woman eating at table inside, with man
Telephone use (male)	Man outside using phonebox, queue developing
Telephone use (female)	Woman inside, speaking on telephone
Reading (male)	Boy in library, reading book
Reading (female)	Girl, lying on bed, reading book
Swimming (male)	Man swimming in pool
Swimming (female)	Young girl learning to swim at pool
Sleeping (male)	Boy asleep in his bed
Sleeping (female)	Woman asleep in a chair inside

Appendix 4.6 Cartoons with context: Emotion labelling

Emotion heads

Happy	Fear	Disgust
Angry	Surprise	Sad

Female set

Happy	Fear	Disgust
Angry	Surprise	Sad

Male set

Happy (female)

Happy (male)

Sad (female)

Sad (male)

Angry (female)

Angry (male)

Surprise (female

Surprise (male)

Fear (female)

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Fear (male)

Disgust (female)

Disgust (male)

Appendix 4.6 (continued)

The preceding cartoons were all produced from the originals, sizing was not altered

in reproduction.

Appendix 4.7 Cartoons with context: Non-emotion task

Cartoons with context: Non-emotion task (clothing)
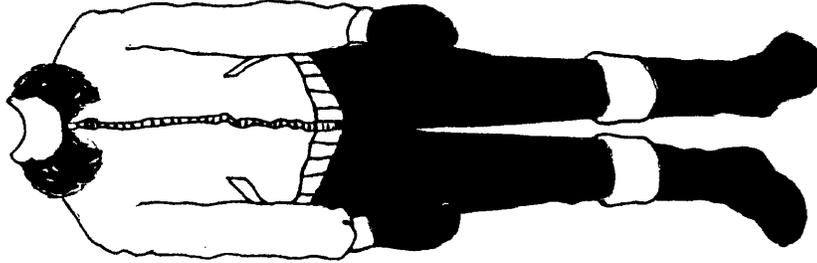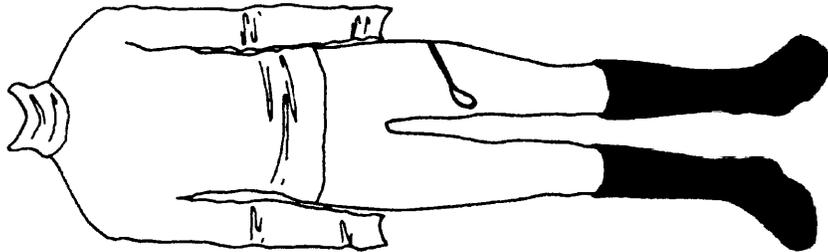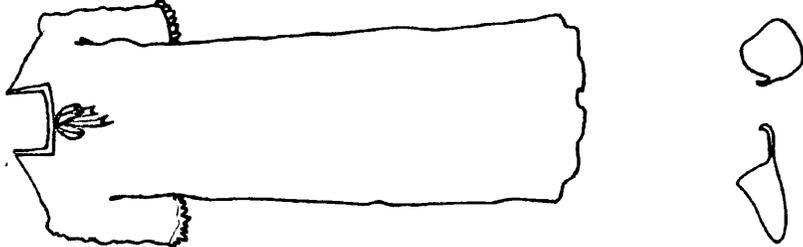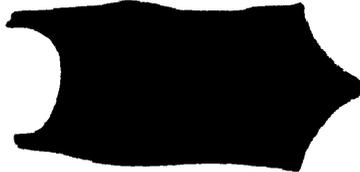
Playing football

Dancing

Swimming

Going to bed

Horse riding

Making snowman

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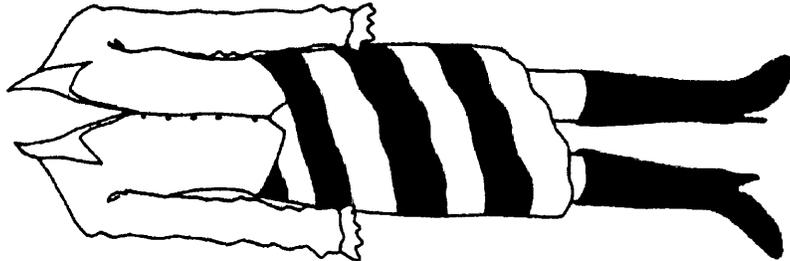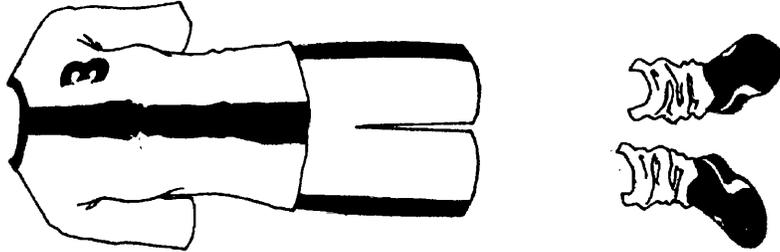
Cartoons with context: Non-emotion task (clothing)
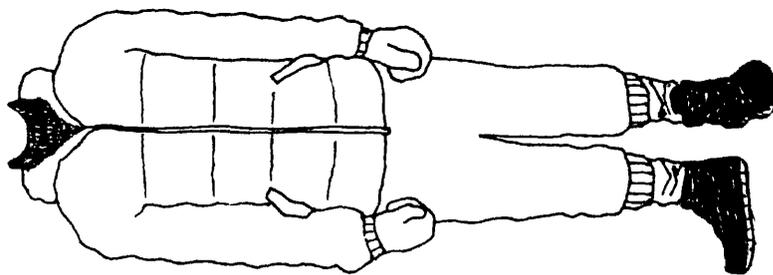
Playing football

Dancing

Swimming

Going to bed

Horse riding

Making snowman
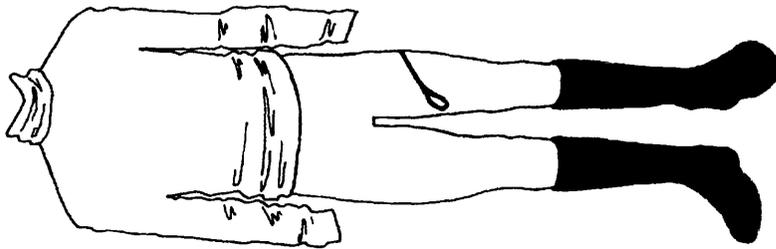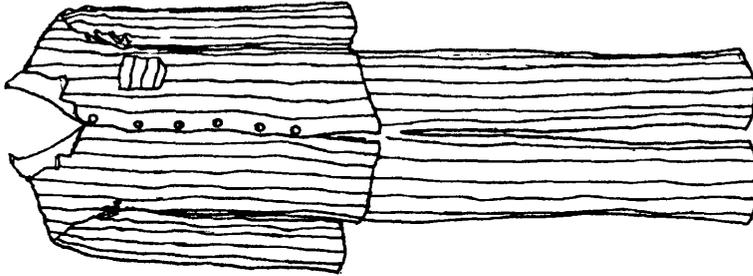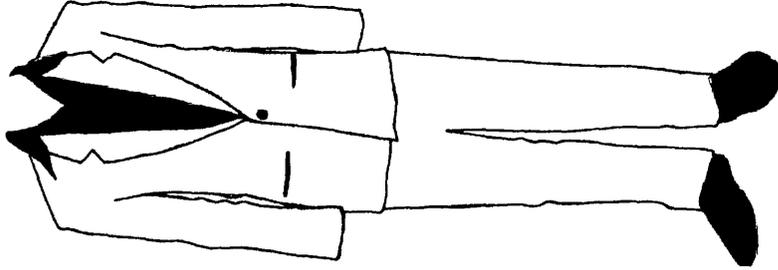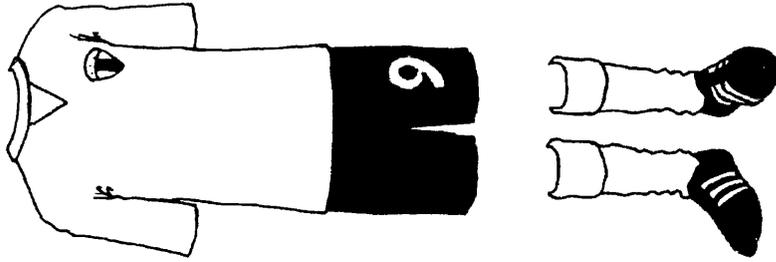
Male set

Cartoons with context: Non-emotion task (scenes)
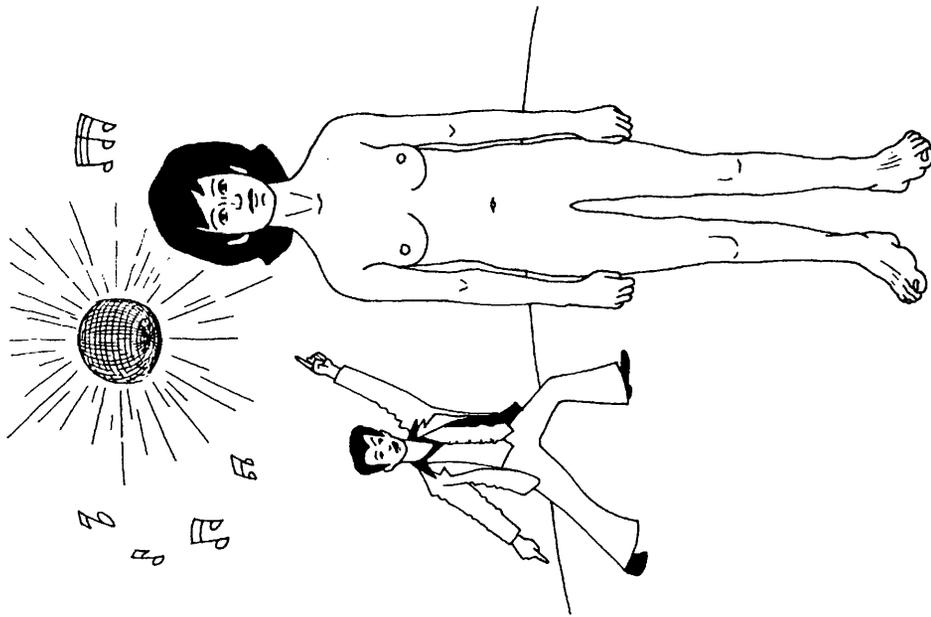
Playing football

Dancing

Female set
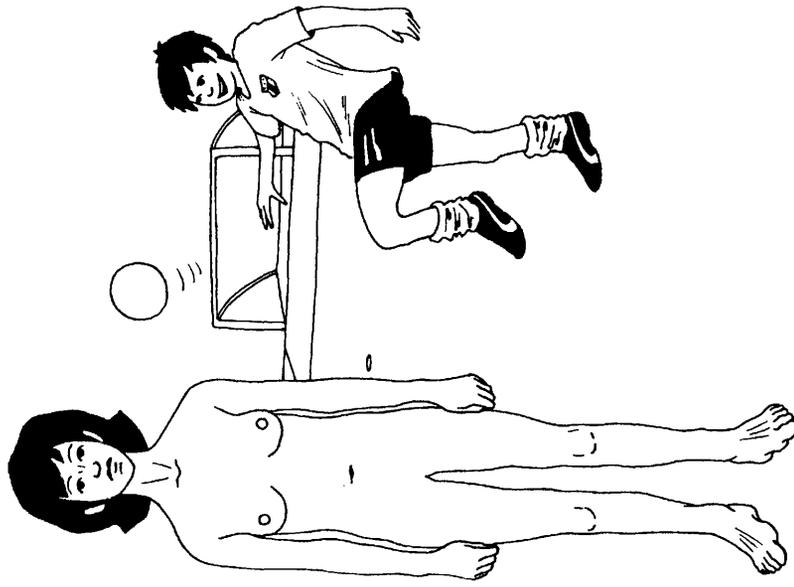
Cartoons with context: Non-emotion task (scenes)
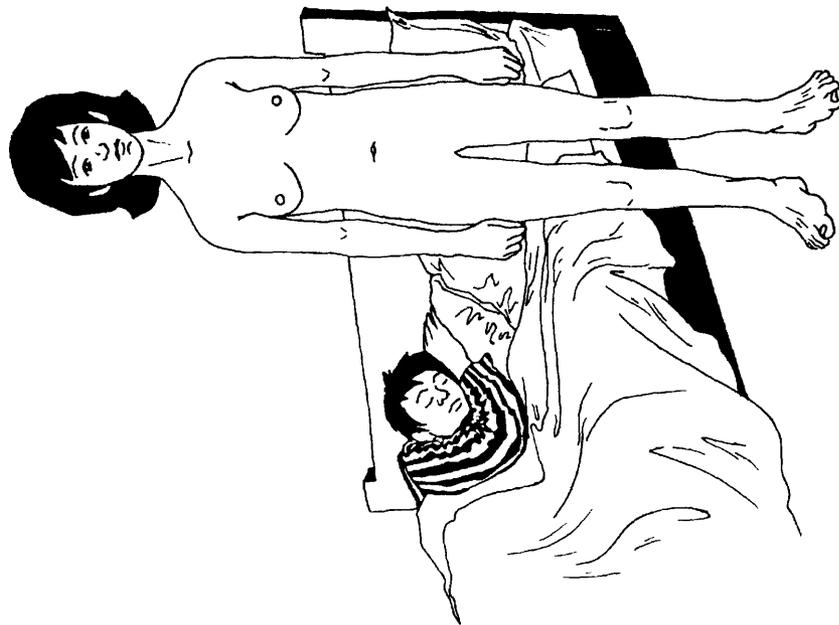
Swimming

Going to bed
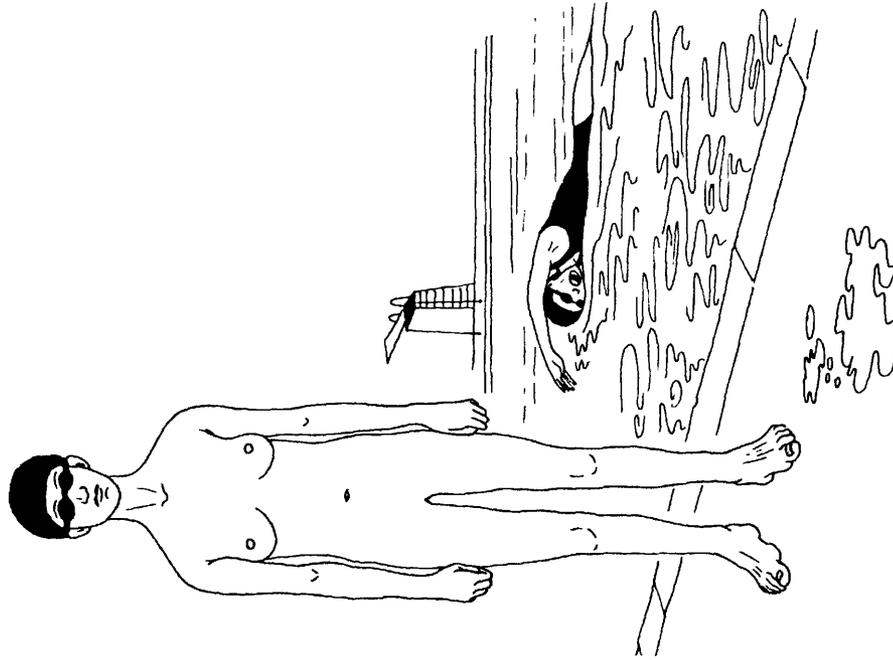
Female set

Horse riding

Cartoons with context: Non-emotion task (scenes)
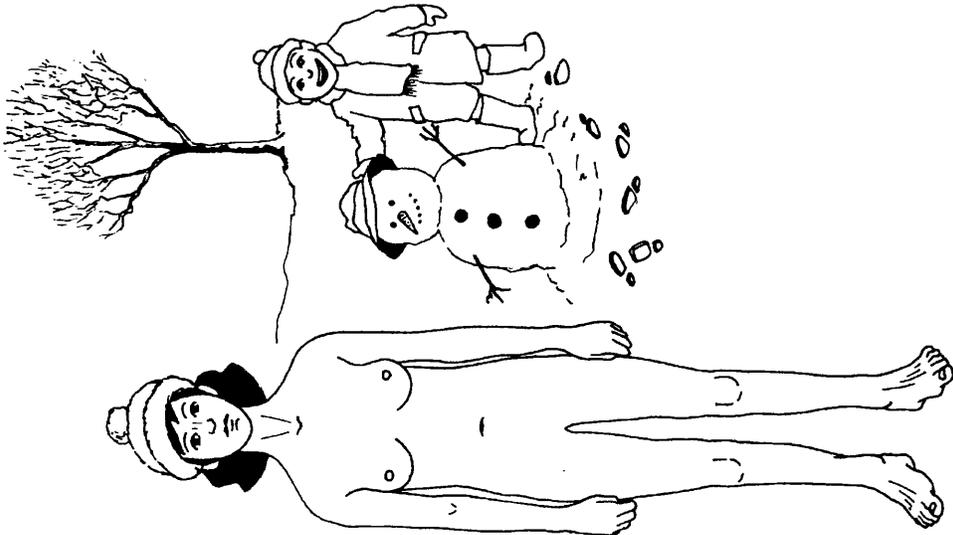
Making snowman

Female set
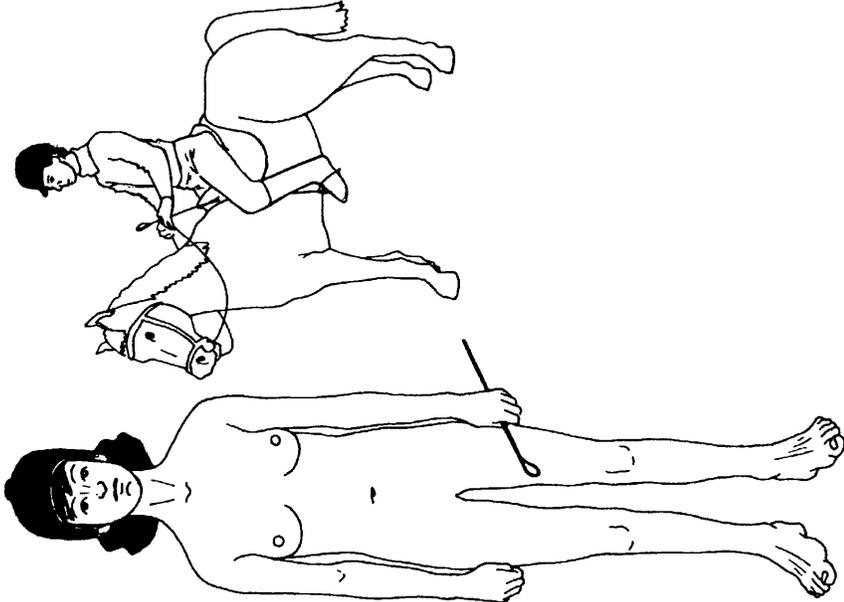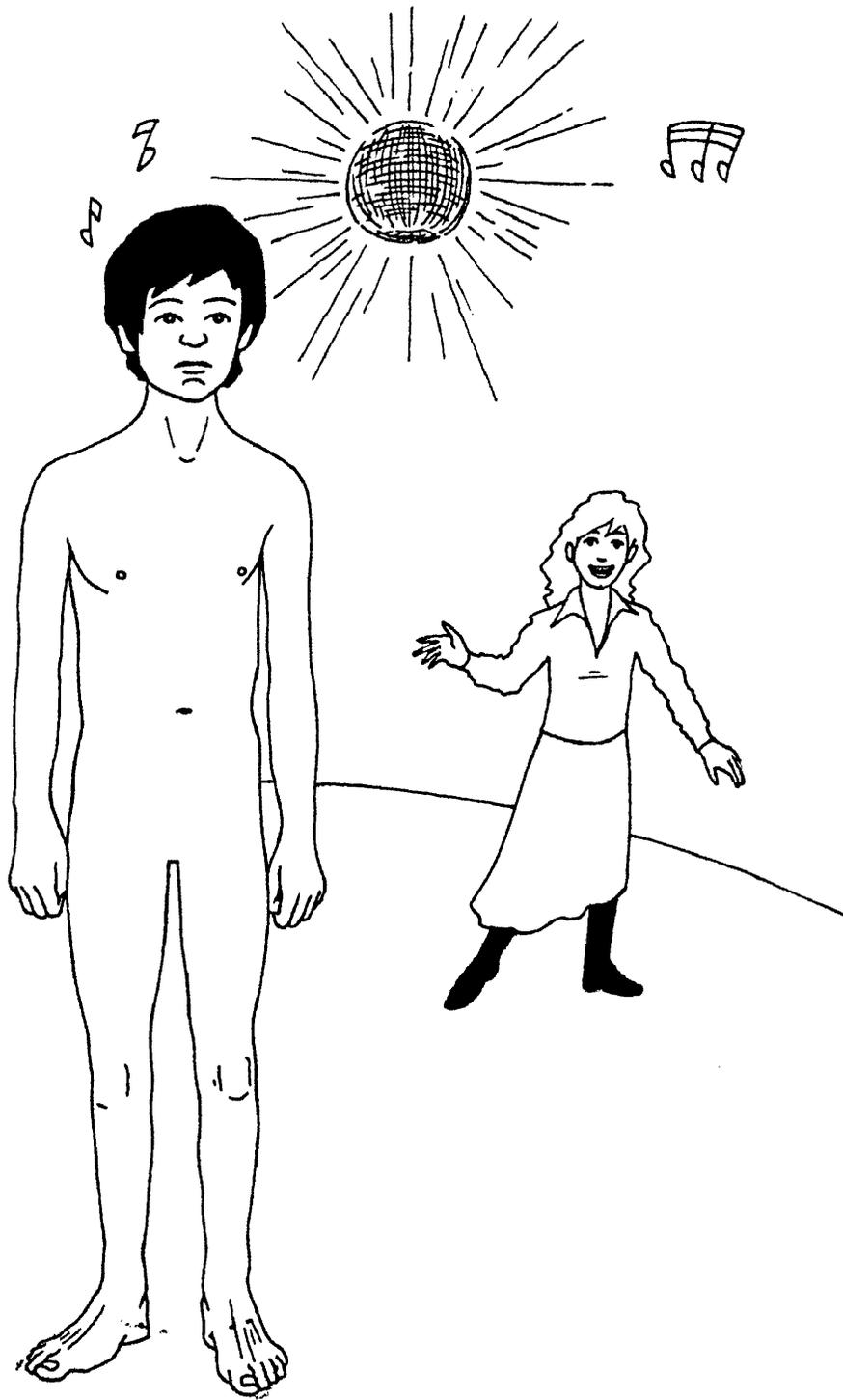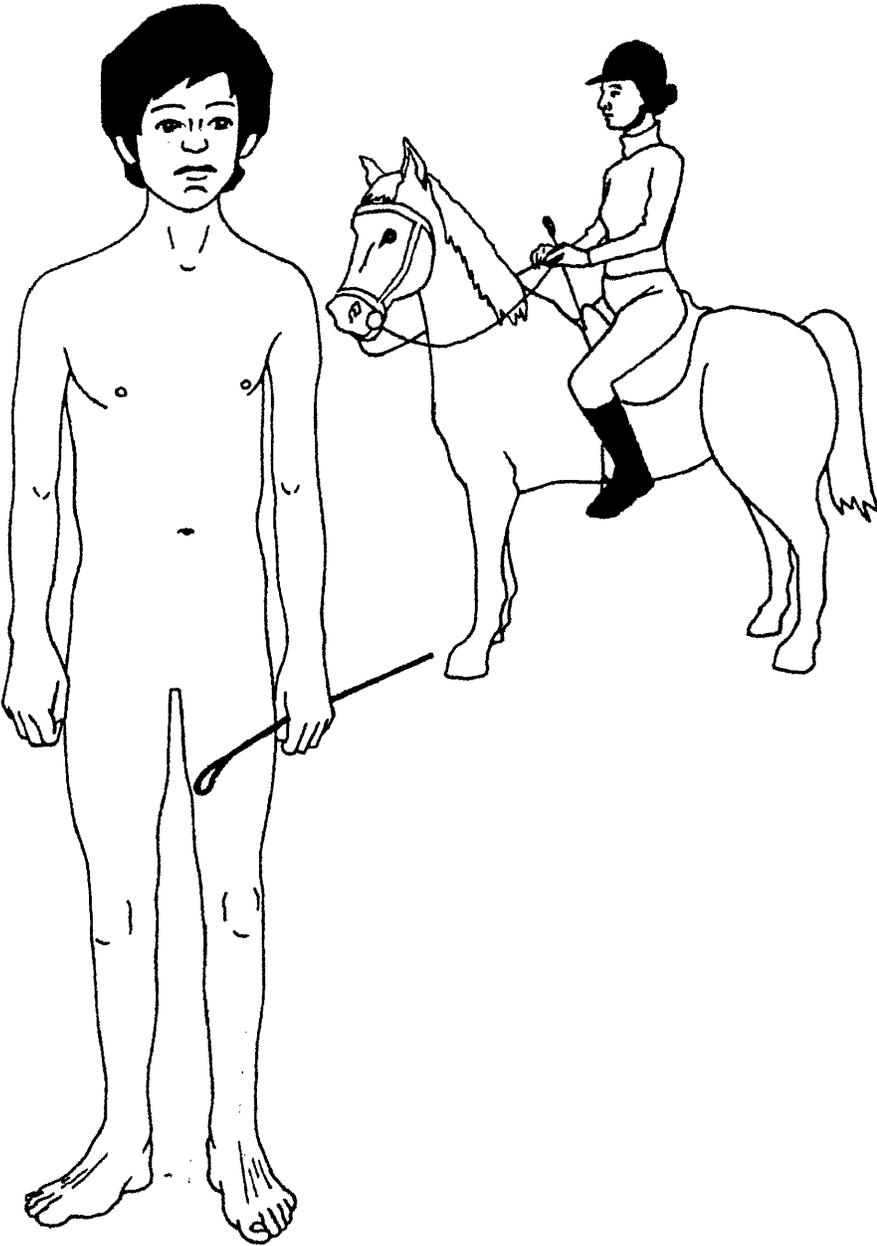
Dancing (male)

Horse riding (male)

Making snowman (male)

Playing football (male)

Swimming (male)

Going to bed (male)

Appendix 4.7 (continued)

The above cartoons were reproductions of the originals (monochrome). The female

set had been reduced in size.

Appendix 4.7 (continued)