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**The relationship between challenging behaviour and the behaviour
of others: A consideration of the role of emotion**

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The relationship between challenging behaviour and the behaviour of others:

A consideration of the role of emotion

Abstract

Contemporary behavioural models of the maintenance of challenging behaviour stress the importance of the behaviour of others in the environment. It is proposed that the interactions between challenging behaviour and caregiver behaviour are mutually reinforcing, and thereby contribute towards the long term maintenance of challenging behaviour. This thesis seeks to build on our current understanding of the processes which influence caregiver behaviour in relation to challenging behaviour.

One of the central assumptions of the behavioural systems model (Oliver, 1995), is that challenging behaviour is experienced by others as aversive. The first paper, a literature review, discusses the findings of existing research on caregivers' behavioural and emotional responses to challenging behaviour in relation to this assumption.

The second paper seeks to establish the aversive nature of challenging behaviour by demonstrating, using an experimental design, that caregivers experience negative emotions in response to self-injurious behaviour. Also, the effect of the behavioural function of self-injury on emotional reactions is explored. On the basis that some reinforcement processes may be perceived as more controllable than others, it was predicted that there would be differences in emotional reactions to self-injury serving different behavioural functions. Participants were presented with filmed stimuli depicting simulated self-injurious behaviour. The results indicate that participants reported experiencing negative emotional reactions in response to the stimuli. There is some evidence that the behavioural function of the self-injurious behaviour had an effect, although this is not accounted for by attributions of controllability. Clinical and research implications of these findings are discussed.

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Literature Review

**The role of emotion in caregivers' responses to challenging
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Abstract

Challenging behavior has a significant detrimental impact both on the lives of individuals with intellectual disabilities and those who live and work with them. Also, it represents a significant challenge to clinical psychology services. Consequently, it is a highly researched area, and the field of applied behavior analysis in particular has made measurable advances in the analysis and treatment of challenging behavior.

Contemporary behavioral models conceptualise challenging behavior and caregiver behavior as being implicated within a dynamic reciprocal system. Central to these models (known as behavioral systems models) is the notion that challenging behavior is aversive to others. By virtue of its aversive nature, it sets the scene for caregiver escape behavior, which in turn serves to maintain challenging behavior over time. One important implication of this proposal is that an analysis of caregiver behavior is crucial in terms of the field effectiveness of behavioral interventions.

The main focus of the current review is to examine the evidence for the aversive nature of challenging behavior. There are two main lines of enquiry: 1. the effects of challenging behavior on caregiver behavior, and 2. caregivers' emotional reactions to challenging behavior. Each of these research areas will be discussed in relation to behavioral systems models of challenging behavior. Implications for future research and clinical practice will be drawn.

Introduction

Challenging behavior in people with intellectual disabilities is currently defined as 'culturally abnormal behavior of such an intensity, frequency or duration that the physical safety of the person or others is likely to be placed in serious jeopardy, or behavior which is likely to seriously limit use of, or result in the person being denied access to, ordinary community facilities' (Emerson, 1995; p. 9). This definition emphasises the importance of social and cultural expectations and contextual factors in defining a behavior as challenging. Hence, challenging behavior is socially constructed, defined by its effects on the individual, others, services and the community, rather than by its topography. It typically includes a range of behaviors including aggression towards others, self-injury, destructiveness, sexually inappropriate acts, and stereotypical actions.

Challenging behavior is perhaps the most researched issue in the field of intellectual disabilities, and this is likely to be a reflection of the seriousness of the impact that it has on the lives of the individuals themselves and their caregivers, and of the magnitude of the clinical problem that it represents for intellectual disability services. With regard to the latter, some studies have sought to identify the prevalence of various forms of challenging behavior among the total population of children and adults in contact with intellectual disabilities services in a geographically defined area. Prevalence rates vary (probably due to slightly different operational definitions of challenging behavior being used), but rates of between 8 percent (Emerson & Bromley, 1995) and 17 percent (Kiernan & Qureshi, 1993) are suggested. For stereotyped behaviors, prevalence rates as high as seventy percent have been found in residential

settings (Rojahn, 1986). Cohort studies suggest that challenging behaviors show high rates of persistence over long periods of time (e.g. Leudar, Fraser & Jeeves, 1984). In addition, long term follow-up studies of interventions suggest high rates of relapse (Griffin, Williams, Stark, Altmeyer, & Mason, 1986; Schroeder, Bickel & Richmond, 1986).

In terms of the impact of challenging behavior, by definition it may significantly impose risks to the physical integrity and quality of life of the individuals themselves, their caregivers and those in the general community. In addition to immediate consequences, a range of social consequences have been linked to challenging behavior. It has been shown that the presence of such behavior is associated with initial admission into restrictive environments (Khan et al., 1993; Krishnan, Upadhyay & Londe, 1993), and with the breakdown of community residential placements (Harder, Kalachnik, Jensen & Feltz, 1987; Jacobson & Schwartz, 1983). Children and adults who engage in challenging behavior are more likely to be physically abused by their caregivers than those who do not (Rusch, Hall & Griffin, 1986; Zirpoli, Snell & Loyd, 1987). In terms of intervention, between one half and two thirds of people with severe intellectual disabilities and challenging behavior are maintained on psychotropic medication, such as major tranquillisers, over long periods of time (Chadsey-Rusch & Sprague, 1989). In addition, challenging behavior is associated with high levels of family distress, and is an important factor in determining decisions within families to place people into residential care (Quine & Pahl, 1985). Challenging behavior is also associated with stress amongst paid carers (e.g. Bromley & Emerson, 1995; Jenkins, Rose & Lovell, 1997).

In summary, challenging behavior represents a significant clinical problem, both in terms of its prevalence and chronicity, and the negative impact that it has on the individual and others. Consequently, the question of why challenging behavior occurs is an important one, and has received a significant amount of interest from a variety of theoretical orientations.

Models of challenging behavior

In terms of our understanding of challenging behavior, a range of theoretical models exist, including neurobiological, psychodynamic, developmental and behavioral approaches. Each of these will be described in turn below.

Neurobiological models

Over the last decade, significant advances have been made in our understanding of the role that neurobiological processes may have in relation to challenging behavior. A considerable amount of research has focussed on the role of particular neurotransmitters in the modulation of behavior. An example here in relation to self-injurious behavior is the opioid addiction hypothesis (Sandman, 1991). Opioids (and in particular β -endorphins) are structurally similar to and produce similar effects to morphine. It is proposed that self-injury is maintained by the release of β -endorphins. Due to the euphoric mood inducing and analgesic qualities of β -endorphins, self-injury is automatically reinforced, and over time physical dependence may develop. There is evidence that for some individuals self-injurious behavior reduces in response to drug treatments which block the β -endorphin system (Ricketts, Ellis, Singh & Singh, 1993). Other areas of enquiry include the association between the neurotransmitter serotonin

and aggressive behavior (e.g. Baumeister & Sevin, 1990), and the association between dopamine and self-injury (e.g. Nyhan, 1994).

Some neurobiological models of challenging behavior, including those described above, predict that certain pharmacological interventions will be effective. There is evidence that this is the case for some individuals, but it is clear that much challenging behavior cannot yet be explained neurobiologically (Emerson, 1995). Some pharmacological interventions appear to lack a strong theoretical base that is applicable to the majority of challenging behaviors and tend to be focussed primarily on behavior management rather than on treatment.

A case in point is that of the use of anti-psychotic medication in individuals who engage in challenging behavior. In this case it is not clear whether pharmacological interventions contribute significantly even to the management of challenging behavior. A recent review of the evidence from randomised controlled trials found no evidence for the effectiveness or ineffectiveness of anti-psychotic medication in the treatment of challenging behavior (Brylewski & Duggan, 1999). Another recent study has found that anti-psychotic medication can be significantly reduced without any escalation in challenging behavior, even in the absence of alternative interventions (Ahmed et al., 2000).

Finally, there are cases where challenging behaviors have a biological aetiology, but are maintained by learning processes. Carr and McDowell (1980) report the case of a young boy whose self-injurious behavior began as a result of an ear infection. The self-injurious behavior was found to persist after the original cause had disappeared, because the self-injurious behavior had been reliably associated with attention from caregivers.

Psychodynamic models

A number of attempts have been made to conceptualise self-injurious behavior in terms of psychodynamic concepts. The central proposal of such accounts is that the behavior is symbolic. One theory suggests that these behaviors represent the individual's search for 'body reality' (Greenacre, 1954). This proposal is related to Mahler, Pine and Bergman's (1975) psychodynamic concept of 'individuation'. In typical development, at a certain age the child is able to separate from the primary caregiver with little or no anxiety, and hence the sense of the self is established and complete. The theory of Greenacre suggests that some people with intellectual disabilities have not reached this stage in development.

The obvious difficulty with psychodynamic theoretical models is that they fail to generate hypotheses which can be empirically investigated. The central concepts such as 'ego structures' and 'body reality' are difficult to operationalise, and hence do not lend themselves to falsification.

In addition, there is very little evidence for the efficacy of psychodynamic intervention in the treatment of challenging behavior. Several case reports have been published (e.g. Sinason, 1992), but there is a tendency for the focus to be on the process of therapy rather than on outcome, and where outcome has been reported it has been descriptive and anecdotal (Beail, 1995). Perhaps the first study in which outcome has been measured objectively and at follow-up is a study looking at the treatment of 'problem' behaviors in a small group of men with intellectual disabilities (Beail, 1998). Whilst the outcome data in this study look impressive, the aspect(s) of the therapy

responsible for the behavior change is by no means made explicit. In summary, the evidence base for the use of psychoanalytic approaches for the treatment of challenging behavior is very weak.

Developmental models

Aspects of developmental theory have been used in an attempt to understand self-injury and stereotypy in individuals with intellectual disabilities. Head banging/rolling, body rocking and hair-pulling are behaviors which are often observed in the course of typical human development (Thelan, 1981), and such behaviors are considered to be adaptive in terms of motor development. Similarly, aggression and destructive behaviors are typically observed in children between two and three years of age.

These naturally occurring behaviors typically decrease in frequency and severity as development progresses. Some theorists have suggested that these behaviors persist in individuals with intellectual disability because of developmental delay (Maclean, Stone & Brown, 1994), hence the behavior is developmentally appropriate, but inappropriate to the individual's chronological age. This argument is partially supported by the positive correlation between the presence of self-injurious behavior and the severity of intellectual disability or developmental delay (e.g. Oliver, Murphy & Corbett, 1987; Rojahn, 1986). However, whilst a developmental perspective can provide a coherent theory of the aetiology of challenging behaviors, it is less useful in generating hypotheses about why such actions may increase in frequency and severity over time.

Introduction to behavioral models

Behavioral approaches to assessment and treatment have perhaps dominated the literature on challenging behavior in people with intellectual disabilities over the last twenty years. There is a growing literature on the relevance of basic research findings with animals and humans in controlled settings to the analysis and treatment of human behavior problems in applied settings. Examples include discussions of the applications of basic research on delayed reinforcement (Hayes & Hayes, 1993), reinforcement schedules (Lattal & Neef, 1996), and response effort (Friman & Poling, 1995).

At the cornerstone of operant psychology is the notion that contingent reinforcement is the key mechanism of behavior change, i.e. behavior is modified by contingencies through the processes of reinforcement and punishment. A simple behavioral model accounts for the maintenance of challenging behavior in terms of a three term contingency (antecedent-behavior-consequence). There are two basic processes of reinforcement. Firstly, a behavior may be positively reinforced if it results in desired objects or events (e.g. attention from caregivers, access to tangibles). For example, in the case of an individual for whom attention from others is rewarding, the antecedent to a challenging behavior may be deprivation of attention, and the consequence of the behavior may be a caregiver giving attention. Secondly, a behavior may be negatively reinforced if it results in escape from or avoidance of undesired events (e.g. escape from attention or academic demand). For example, in the case of an individual for whom academic demand is aversive, the antecedent to a challenging behavior may be being presented with a task, and the consequence of the behavior may

be the removal of the demand. Both reinforcement processes will increase the likelihood of the behavior occurring again in similar situations/contexts.

The application of the principles of operant conditioning to the treatment of challenging behavior initially emerged as behavior modification, an approach which primarily focuses on behavior management, with an emphasis on the utility of change techniques. Over the last twenty years, the emergence of applied behavior analysis has represented a shift away from contingency management, and a move towards seeking to understand the functions of challenging behavior and developing interventions based on those functions (e.g. Carr & Durand, 1985; Durand & Crimmins, 1991; Repp, Felce and Barton, 1988).

Considerable advances in assessment (e.g. analogue assessment methodology developed by Iwata, Dorsey, Slifer, Bauman and Richman, 1982; 1994) and intervention methodologies (e.g. Functional Communication Training developed by Carr and Durand, 1985) have been made in recent years. Also, there is a good evidence base for the internal validity of behavioral interventions. They tend to be successful when conducted by 'experts' in controlled settings (see Didden, Duker & Korzilius, 1997, and Scotti, Evans, Meyer & Walker, 1991, for meta-analytic studies). Despite this, clinical experience tells us that behavioral approaches are not always successful. In addition, a number of studies (which will be reviewed below) have shown that direct care staff often behave in ways which may serve to ensure the long term maintenance of challenging behavior. Often, these responses are intuitive in that they lead to a reduction in challenging behavior in the immediate term. One of the important barriers to the effective implementation of behavioral interventions may be that the programmes are



not typically carried out by the people that designed them, rather it is usually the direct care staff who are in day to day contact with the individual that are asked to implement them (Hastings & Remington, 1993). The question of why caregivers behave as they do has significant implications for the external validity of behavioral interventions. A key challenge for researchers and clinicians is to get 'typical' people (i.e. those in day to day contact with individuals who engage in challenging behavior) to apply technologies in 'typical' settings such as day or residential services (Carr et al., 1999).

An obvious response to this challenge is to provide caregivers with training in behavioral principles, and anticipate that an increase in knowledge and skills will be reflected in their intervention behavior. However, it is likely that caregiver behavior is influenced by factors other than knowledge and skills. An increasing body of literature is suggesting that staff responses are directly related to certain aspects of challenging behavior. Along with the shift away from behavior modification towards applied behavior analysis, theoretical models of challenging behavior have become increasingly complex. Contemporary models have extended the simple three term contingency (antecedent-behavior-consequence) to look at the behavioral systems in which challenging behavior occurs (Hastings, 1997a; Oliver, 1995). This represents an important conceptual leap in that the focus on the individual is extended to an equally valid focus on others in the environment in which challenging behavior occurs. Specifically, behavioral systems models propose that caregiver behavior is influenced by contingencies associated with challenging behavior.

Behavioral systems models of challenging behavior

Many challenging behaviors occur in social contexts and serve social functions. Studies have suggested that approximately 70 percent of challenging behaviors may serve social functions, such as to gain attention or access to tangibles, or escape from demands or social contact (Derby et al., 1992; Iwata et al., 1994).

Research suggests that caregiver behavior is often of a nature that may serve to reinforce challenging behavior (see Hastings & Remington, 1994a, for a review). Firstly, observational studies have suggested that clients spend very little time in social interaction with caregivers (Abraham, Lindsay & Lawrenson, 1991; Conneally, Boyle & Smyth, 1992). Secondly, individuals who engage in challenging behavior are observed to receive a disproportionate amount of attention from caregivers, over and above the attention involved in dealing with incidents of challenging behavior (Emerson, Beasley, Offord & Mansell, 1992). Thirdly, caregivers are observed to respond to challenging behavior on an intermittent basis (e.g. Felce et al., 1987). Finally, self-report data suggest that when staff do respond to challenging behavior, the response is likely to lead to a reduction in the behavior in the short term, but may reinforce it in the long term (e.g. Bruininks, Hill & Morreau, 1988).

One explanation for caregivers behaving in counter-therapeutic ways may be that their behavior is partly shaped by contingencies that involve challenging behavior. The notion that the behavior of person A is influenced in a significant way by the behavior of person B, and that person B also exerts some influence over the behavior of person A is firmly based in the philosophy of radical behaviorism, and was termed by Skinner as 'control/counter-control' (Skinner, 1974). Oliver (1995) proposed the behavioral systems model, in which the relationship between challenging behavior and

the behavior of others is seen as dynamic. Thus, staff behavior and challenging behavior may be considered as a dynamic behavioral system in which problem behaviors and caregiver behaviors occur within a cyclical system. With particular reference to self-injurious behavior in children with intellectual disabilities, Oliver (1995) proposed an account of how the interactions between challenging behavior and the behavior of others may be mutually reinforcing and hence contribute towards the long term maintenance of challenging behavior.

Central to this model is the proposal that self-injury and other challenging behaviors affect the behavior of others by virtue of their aversive nature. The notion that challenging behavior is aversive to others and consequently elicits escape behavior was suggested some years ago specifically in relation to the behavior of autistic children and its effect on parental behavior (Ferster, 1961). It is not until recently however, that this hypothesis has been incorporated into a model of the maintenance of challenging behavior.

Also central to Oliver's (1995) model is the notion that both the antecedent conditions that evoke self-injury and the self-injurious behaviors themselves may be conceptualised as establishing operations (Michael, 1982). An establishing operation sets the scene for a particular behavior to occur by providing the motivational drive for that behavior, or by providing information about the probability of that behavior being reinforced. For example, conditions that evoke challenging behavior, such as states of deprivation of social contact, result in attention becoming more reinforcing to the individual, and make behaviors previously reinforced by social contact more likely to occur.

Figure 1 is a representation of the cyclical nature of challenging behavior and caregiver behavior. In the case of self-injury being maintained by positive reinforcement of social contact, self-injury is evoked by the establishing operation of deprivation of social contact. If no social contact is given, then the establishing operation of deprivation continues, and challenging behavior continues.

Insert Figure 1 about here

If we can assume that challenging behavior is aversive to others, then the absence of social contact from the caregiver will be punished by the continuance of challenging behavior. Because of its aversive nature, challenging behavior becomes an establishing operation for caregiver behavior. If the caregiver provides social contact, then self-injury ceases, and caregiver behavior is negatively reinforced because it has resulted in the cessation of (or escape from) an aversive stimulus (i.e. the challenging behavior).

In the case of challenging behavior being maintained by negative reinforcement of escape from demand (see Figure 2), challenging behavior is evoked by the establishing operation of demand being placed on the individual. If the demand continues, then challenging behavior will continue and the caregiver's behavior (making demands) will be punished by the continuance of challenging behavior. If the establishing operation of demand is removed, then challenging behavior ceases, and the caregiver's behavior (ceasing to make demands) is negatively reinforced because it has resulted in the cessation of an aversive stimulus.

Insert Figure 2 about here

In this way, challenging behavior can be considered as an establishing operation by virtue of its aversive properties. Consequently, it evokes escape behavior by the caregiver. In the long-term, as a result of the negative reinforcement from the cessation of challenging behavior, such escape behavior on the part of the caregiver is more likely to occur in the future when challenging behavior occurs. Also in the long-term, on the part of the individual with intellectual disabilities, as a result of the positive reinforcement (of social contact) or negative reinforcement (of escape from demand), challenging behavior is more likely to occur in the future when similar antecedent conditions occur. Hence, Oliver (1995) proposes the mutual reinforcement processes which occur in the natural environment and ensure the long-term maintenance of challenging behavior.

An alternative representation of the behavioral systems model is the H model proposed by Hastings (1997a). Figure 3 shows that this is an extension of three term contingency (ABC) model, in which problem behaviors are considered as antecedents and consequences of the behaviors of caregivers, and in turn the behaviors of caregivers are antecedents and consequences for problem behaviors.

Insert Figure 3 about here

Some research exists which supports the notion that some challenging behaviors are sufficiently aversive so as to set the conditions for caregivers to engage in escape and avoidance behaviors, and this will be outlined in the following section.

Effects of challenging behavior on caregiver behavior

The following five studies represent a systematic approach to the investigation of the relationship between challenging behavior and caregiver behavior, using observational and experimental methodologies. First, in a case study of a man with intellectual disabilities who engaged in self-injurious behaviors, Hall and Oliver (1992) carried out 16 hours of continuous direct observations of the man in his natural environment. The behaviors of interest were the self-injurious behavior of the client, and the social contact he received from direct care staff. It was found that the probability of staff attention was low prior to an episode of self-injury, high during an episode, and gradually returned to pre-injury levels after the cessation of self-injury. In an interpretation which supports the behavioral systems model, Hall and Oliver hypothesize that the self-injurious behavior acts as an establishing operation which evokes social contact as an escape behavior. When self-injurious behavior ceases, the aversive stimulus (challenging behavior) is removed and the escape behavior (social contact) ceases. Hence, staff behavior (giving attention) is negatively reinforced by the cessation of the aversive stimulus. In turn, staff attention is a potential reinforcer for the self-injurious behavior. It is argued that by virtue of its aversive nature and the consequent effect that it has on the behavior of others, self-injurious behavior may naturally establish operant processes that serve to maintain it over time.

Second, in a quasi-experimental study, Carr, Taylor and Robinson (1991) systematically observed the behavior of student teachers (who were acting as the experimental participants) over a number of teaching sessions. The students were observed working in a classroom setting with four pairs of children, in which one child in each pair exhibited challenging behavior in response to task demand (and not at other times), and the other child typically did not engage in challenging behavior at all. The participants could choose which tasks to present to each child, and how much time to allocate to each child. Significant differences were found in the teaching behavior of the adults between the two groups of children. Typically, the adults interacted less, made less task demands, and avoided using more difficult tasks with those children who responded to instruction with problem behavior, compared with those children who did not engage in challenging behavior in response to instruction. The finding that the adults behaved in ways which were associated with low rates of challenging behavior led the authors to conclude that the child's challenging behavior constitutes an aversive stimulus (a punisher) for any adult behavior that it follows, and that the adults in this study behaved in ways so as to minimise the levels of punishment that they received by presenting fewer task demands to the children whose challenging behavior was contingent on task demand. This behavior will serve to maintain the challenging behavior over time.

Third, in a similar subsequent study, Taylor and Carr (1992) observed the teaching behavior of students working in a classroom setting with three groups of children. The children were selected for the study on the basis that previous functional analyses had revealed that their challenging behavior served certain social functions.

One group of children displayed challenging behavior under conditions of low adult attention (attention seeking group). Another group of children displayed challenging behavior under conditions of high adult attention (socially avoidant group). A third group typically did not display challenging behavior at all and were included for comparison purposes (comparison group). It was found that the attention seeking group received significantly more attention, more physical contact and more 'interactive' type tasks compared to the comparison group. The opposite was found to be the case for the socially avoidant group compared to the comparison group. Differences in teaching behaviors were found to be most pronounced when the adults worked with pairs of children comprising one attention seeking child and one socially avoidant child. When children in the attention seeking group engaged in challenging behavior, the adults responded by increasing attention in an average of 79 percent of the episodes, and decreased attention in only 20 percent of episodes. In contrast, when children in the socially avoidant group engaged in challenging behavior, adults responded by decreasing attention in 82 percent of the episodes, and increasing attention in only 18 percent of episodes. These effects were found to be reliable over the course of 18 teaching sessions. Differences in the distribution of adult attention were established within the first teaching session, and gradually became more pronounced over the course of subsequent sessions, suggesting that the children's behavior caused changes in adult behavior. This study demonstrates that child challenging behavior has reliable effects on adult teaching behavior, and the authors conclude that the adults and children constituted reciprocal social systems in which adult attention affected challenging behavior, and challenging behavior affected adult behavior.

Fourth, based on an analogue of Taylor and Carr's (1992) design, Hastings, Remington and Hall (1995) produced a computer simulation of a care situation in which two people who engaged in self-injurious behavior were simulated on a computer screen. Participants in this study were undergraduate students who were not experienced in working with people with intellectual disabilities or challenging behavior. The simulated pair consisted of an 'attention seeker' and a 'social avoider'. The attention seeker engaged in high rates of self-injurious behavior when not being attended to, and low rates when being attended to. The pattern of self-injurious behavior for the social avoider was the opposite of this. Thus, the contingencies present in Taylor and Carr's (1992) study were replicated. Participants could 'attend' to the simulated people by moving a computer mouse between the pair. They were instructed to spend at least some time attending to each, and could attend to only one at any one time. In addition, whilst attending to each one of the pair, participants were instructed to carry out a simulated teaching task. Some groups of participants were given 'advice' from a psychologist regarding how they should divide their attending behavior between the two people so as to minimise the level of self-injury. Some groups were given accurate advice, others were given inaccurate advice. The major finding of this study was that participants tended to follow the advice that they were given, even when doing so did not lead to low rates of self-injurious behavior. This finding was interpreted as supporting the notion that staff responses to challenging behavior may be partly affected by advice or information (or in behavioral language, rule-governed; see Hastings & Remington, 1994b). In addition however, there was some evidence to suggest that the schedules of reinforcement in operation within the simulation had an effect on the attending behavior.

In particular, there was a tendency for participants to spend less time with the social avoider during the second experimental session compared to the baseline or first experimental session. This may suggest that with increased exposure to the contingencies in operation, participants' behavior was modified by the contingencies in place for their attending behavior.

Finally, Oliver, Hall and Nixon (1999), using an experimental functional analysis, established that both aggressive and communicative behaviors (vocalisations and signing) in a seven year old boy were evoked by the presentation of task demands. They then carried out continuous observations of the boy and his teacher in the classroom setting. Analysis of the observation data revealed that both aggressive and communicative behaviors typically resulted in the termination of task demand, suggesting that both behaviors were being maintained by negative reinforcement. Most importantly here is the finding that even though the behaviors were functionally equivalent, the teacher was more likely to respond to the aggressive behavior (by removing task demand) than to the communicative behavior. A possible interpretation of this finding is that aggressive behavior was more aversive to the teacher than the communicative behavior, and was therefore more likely to evoke escape behavior.

The five studies outlined above show that caregivers act to avoid or escape challenging behavior, lending some supportive evidence to the claim that challenging behaviors are aversive stimuli. Further supportive evidence would come from caregivers actually reporting that challenging behaviors are aversive. There has been research of this kind, and this will now be reviewed.

Caregivers' emotional reactions to challenging behavior

Two areas of research suggest that affect may be important in our understanding of staff behavior. In recent years, an increasing amount of research has focussed on the issue of staff stress in services for people with intellectual disabilities (see Rose, 1995, for a review), and a few studies have looked specifically at the relationship between challenging behavior and staff stress. Other studies have asked caregivers to report on their emotional reaction to challenging behavior. First, studies on staff stress in relation to challenging behavior will be examined.

Challenging behavior and staff stress. Research suggests that there are long-term negative effects of working with challenging behavior. Staff working in services for people with profound intellectual disabilities have identified challenging behavior as contributing significantly to their level of stress (Bersani & Heifetz, 1985; George & Baumeister, 1981; Quine & Pahl, 1985). Staff cite challenging behavior as one of the main factors that contribute to the demands of the work, and staff burnout has been found to be significantly related to challenging behavior and other service user characteristics (Dyer & Quine, 1998). Staff working with challenging behavior are significantly more likely to report being anxious than those working in units with no challenging behavior, and it has been found to be a significant predictor of staff anxiety (Jenkins et al., 1997). Caregivers' anxiety levels have been found to be increased significantly from baseline one week after an incident of challenging behavior, and returned to baseline within one month (Cottle, Kuipers, Murphy & Oakes, 1995). Stressors relating to the emotional impact of the work, and aggressive challenging behavior (to self, others or property) have been found to be reliable predictors of

perceived work stress (Hatton, Brown, Caine & Emerson, 1995). Finally, the most significant sources of stress associated with caring for individuals with challenging behavior have been reported to be the 'daily grind' of caring, difficulty in understanding challenging behavior, the unpredictability of the behavior, and the absence of an effective way forward in terms of intervention (Bromley and Emerson, 1995).

The behavioral systems model of challenging behavior (Oliver, 1995) suggests that there are short term effects of challenging behavior, not just long term effects culminating in stress. The easiest way to assess the short term effects is to ask caregivers about their emotional responses.

Caregivers' self-report emotional reactions to challenging behavior. One hypothesis relating to the behavioral systems model is that challenging behaviors elicit negative emotions, and these emotions constitute the 'aversiveness' which acts as an establishing operation for caregiver escape behavior (i.e. behavior which results in the cessation of the experience of negative emotion). This is similar in argument to Skinner's (1957) consideration of emotion, in which it is proposed that emotional states act as predispositions to behave in particular ways. To date, six studies have investigated the emotional responses of caregivers to challenging behavior, and these will be described below.

Fallon (1983) interviewed nine direct care staff working with adolescents with intellectual disabilities who engaged in self-injurious behavior. Participants were asked to report on their current emotional reactions to self-injury, and also on their initial emotional reactions when they had first started working with this particular group of young people. Typically, participants reported having initially experienced empathy,

optimism, curiosity and fear. Reported current emotional reactions included frustration, anger, guilt and detachment. This study suggests that the nature of emotional reactions changes over time with increased exposure to challenging behavior, but also that caregivers experience negative emotions in the short term.

Hastings and Remington (1995) presented written vignettes of an individual engaging in three different topographies of challenging behavior: stereotypy, self-injurious behavior and aggressive behavior. Participants were asked to rate the probability of experiencing each of five emotional states (anger, sadness, fear, disgust, and 'nothing') if they were to witness the person in the vignette engaging in challenging behavior. The results indicate that the emotions that participants expected they would feel were influenced by the participants' level of experience and by the topography of the challenging behavior. Experienced people were more likely to rate that they would feel nothing, and rated the likelihood of feeling frightened significantly less than inexperienced people. Participants expected that they would feel more sad and frightened when witnessing self-injurious behavior and aggression as compared to stereotypy. Participants were also given an open ended question prompting them to describe any additional emotional reactions. In order of frequency, frustration, feeling a need to help, helplessness, empathy/sympathy, concern, confusion and discomfort were suggested.

Hastings (1995), using a semi-structured interview, asked nineteen direct care staff to report on their emotional reactions in situations where they witnessed incidents of challenging behavior. Interview transcripts were subjected to content analysis, inter-rater reliability was found to be 90 percent on average. Emotional reactions were found

to differ according to the topography of challenging behavior, with self-injury being associated with feelings of sadness and anger, aggression with fear/anxiety, and stereotypy with annoyance. Of the total number of staff interviewed, 58 percent reported that they found self-injurious behavior upsetting, and 32 percent reported feeling fear/anxiety in response to aggression.

Bromley and Emerson (1995), in a survey of 70 direct care staff working with people with intellectual disabilities and challenging behavior, asked participants to estimate on a five-point scale the proportion of the staff team within which they worked usually felt anger, annoyance, despair, disgust, fear and sadness in response to an individual known to them engaging in challenging behavior. Thirty-eight percent of participants reported that most or all of care staff experience sadness in response to destructiveness and self-injury, and 41 percent reported that most or all of the staff experience annoyance in response to aggression. All of the emotion terms listed were reported by participants to be experienced to some extent by staff in response to incidents of challenging behavior.

As part of a large intervention study, Harris, Cook and Upton (1996) interviewed teachers from nine schools and asked them to describe the feelings they experienced towards pupils with whom they worked who presented with challenging behaviors. The teachers were given a list of emotion terms and were also given the opportunity to provide others. It was found that the teachers reported experiencing a range of emotions in relation to working with children with challenging behaviors, including anger, anxiety, fear, frustration, inadequacy, helplessness and determination.

Finally, Mitchell and Hastings (1998) developed a measure of caregivers' emotional reactions to challenging behavior. The emotion terms used in the development of the scale were based on previous research with staff working with individuals who engage in challenging behavior (Hastings, 1995), and on research concerned with care staff responses to physical aggression in psychiatric settings. Participants were 83 direct care staff working in community residential services in which at least three residents engaged in challenging behavior. Participants were given a list of 18 emotion terms and were asked to rate each on a four point Likert scale, with the descriptors 'no, never', 'yes, but infrequently', 'yes, frequently', and 'yes, very frequently'. The ratings were completed twice. Firstly, participants were asked to consider their own recent experience of challenging behavior and to rate the frequency with which they experienced each emotion when an act of aggressive challenging behavior was directed towards them. Secondly, they were asked to rate their emotional reactions to witnessing aggressive challenging behavior directed towards others. Factor analysis revealed two dimensions of negative emotional reactions: feelings of depression/anger (which contained ten items: betrayed, angry, sad, humiliated, hopeless, resigned, helpless, frustrated, guilty, and disgusted), and feelings of fear/anxiety (which contained five items: frightened, afraid, nervous, incompetent and shocked). Three of the original items (stressed, confident and sympathetic) failed to meet the inclusion criteria in terms of reliability, and were excluded from the final scale. Measures of internal consistency and test-retest reliability suggest that both of the resultant scales have sound psychometric properties.

The six studies described above suggest that caregivers report experiencing a range of emotions in response to challenging behavior. In addition, the nature of these emotional responses may be influenced by factors such as the topography of the behavior, and the level of experience that caregivers have in working with challenging behavior. In summary, the studies lend support to Oliver's (1995) model of challenging behavior by suggesting that the negative emotions experienced by caregivers is the 'aversiveness' which is central to the model. However, some consideration needs to be given to the types of methodologies employed in these studies.

Critical analysis of existing caregiver emotion research and directions for future research

Seven critical points will now be made. First, all of the studies described above have relied either on retrospective self-report data (Bromley & Emerson, 1995; Fallon, 1983; Harris et al., 1996; Hastings, 1995), or self-report in response to written vignettes (Hastings & Remington, 1995; Mitchell & Hastings, 1998). The problem with the use of retrospective self-report data is that it relies heavily on memory. Given that emotional reactions will inevitably fade over time (Cottle et al., 1995) it may be difficult for caregivers to reliably report on how they responded emotionally to an incident of challenging behavior some time after the event. Also, there is a lack of control over the qualities of challenging behavior on which caregivers are focussing when reporting their emotional reactions.

Second, studies which have used written vignettes have the advantage of overcoming the difficulty of using retrospective data, and in addition afford control over

the qualities of challenging behavior presented. However, the ecological validity of research is compromised when using this methodology. Written vignettes typically describe a fictitious character engaging in challenging behavior, and participants are asked to imagine how they would respond emotionally if they were to experience the situation described. Oliver's (1995) systems model proposes that challenging behavior constitutes an establishing operation for caregiver escape behavior by virtue of its aversive nature. It follows that attempts to establish the aversive nature of challenging behavior should aim to simulate as closely as possible the nature of challenging behavior as it occurs in natural settings. It may be that the use of written vignettes fails to elicit emotional reactions of the magnitude at which they would be experienced in real-life situations. Hence, vignettes are likely to be limited in the extent to which they present an establishing operation of aversive stimulation.

Third, the methodology used by Fallon (1983) and Hastings (1995) required participants to generate their own emotion terms, whereas in the other four studies participants were presented with a list of emotion terms. The problem with the latter approach is that typically a small number of emotion terms have been used, and these are not likely to be representative of the possible range of emotions that may be experienced. Also, (with the exception of Mitchell and Hastings, 1998) the emotion terms used have not been based on research with people working with challenging behavior, but rather have represented researchers' predictions.

Fourth, asking participants to generate their own emotion terms has the advantage that it is more likely to result in a wider and more representative range of emotions. On the other hand, this methodology does not afford the experimental control

that would be needed in order to make comparisons of emotional reactions across groups or time.

Fifth, the study by Mitchell and Hastings (1998) is interesting in that it has identified two distinct dimensions of emotional response (depression/anger and fear/anxiety). Previous studies have tended to focus on 'positive' and 'negative' dimensions of emotion only, and these terms are broad ranging and lack specificity in their description. Sixth, no studies to date have looked at characteristics of challenging behavior which may have an effect on emotional reactions other than that of topography. Finally, most studies have used rating scales with unknown psychometric properties, thus issues of reliability and validity are brought in question.

As discussed above, the methodology which has been used to measure emotional reactions is problematic. Mitchell and Hastings (1998) have made a significant advance in this area in the development of a rating scale, which can be used to allow comparisons between staff working in a variety of contexts. However, the ecological validity of future studies needs to be considered, as do the elements of control which would be needed to make comparisons across groups or contexts.

One method by which the ecological validity could be improved would be to set up conditions in which caregivers report their emotion reactions to challenging behavior in vivo, but this type of methodology would still lack experimental control. Perhaps the only way in which to preserve ecological validity and achieve experimental control over variables would be to use realistic visually presented material in experimental conditions, using valid and reliable self-report measures. The use of filmed material of actual service users would be ethically problematic, particularly in relation to issues of

consent. In addition, there would be a lack of control because, if for example the effect of topography were to be studied, each filmed stimulus would show a different client. Perhaps the next best ecologically valid approach would be to use filmed material of actors engaging in what appears to be challenging behavior, thus simulating as closely as possible the nature of challenging behavior.

In summary, the use of a realistic stimulus in an experimental setting, together with a self-report measure of emotional reactions would overcome the problems associated with retrospective reporting, whilst improving on the ecological validity and degree of experimental control of previous studies.

Qualities of challenging behavior which may influence emotional reactions

It is likely that certain aspects of challenging behavior will have an impact on caregivers' emotional reactions. We know that the topography of challenging behavior has an effect, with aggression, self-injurious behavior, destructive behavior, and stereotypy being associated with certain emotions (Bromley & Emerson, 1995; Hastings, 1995; Hastings & Remington, 1995). We know little about emotional reactions to other less researched forms of challenging behavior, such as non-compliance. One might predict, on the basis that care staff are less likely to consider non-compliance as 'challenging' (Lowe, Felce & Blackman 1995), that emotional reactions would be less severe than those in relation to other forms of challenging behavior.

Other qualities of challenging behavior, such as its severity, frequency and behavioral function, may impact on the emotional reactions of caregivers, although these possibilities have not yet been addressed in research. Within existing models, there is

no explicit reference to whether the behavioral function of challenging behavior has an impact on emotional reactions, but there are several reasons why function may be important.

Firstly, there is some evidence that the attributions caregivers make about the causes of challenging behavior may be related to emotional responses. Secondly, there is some suggestion in the literature that the behavioral function of challenging behavior has an impact on causal attributions. Therefore, it may be the case that function has an impact on emotional reactions. Thirdly, we know that caregivers' behavioral responses to challenging behavior are affected by the function of the behavior, and it may be that emotion is one factor involved in this. Finally, the function of a challenging behavior has an effect on the extent to which the role of the caregiver is impacted upon, and this may be a factor which determines emotional responses. Each of these issues will now be explored in turn.

The relationship between causal attributions and emotional reactions. The study of caregiver attribution is important in its own right because there is some suggestion that attribution is one factor which influences staff intervention behavior (see Hastings, 1997a, for a review). Moreover, a small number of studies have suggested that the attributions caregivers make about the cause of challenging behavior and emotional reactions may be closely related (Dagnan, Trower & Smith 1998; Stanley & Standen 2000). These studies have applied Weiner's (1980) attributional model of helping behavior to the carers of individuals who present challenging behavior.

Briefly, Weiner's (1980) model predicts that the perceived cause of an event influences the emotions experienced in relation to that event, which in turn influence

behavior in relation to that event. It suggests that attributions (along the dimensions of locus, stability and controllability) determine emotional responses, and emotional responses in turn determine behavioral responses. Applied to caregivers and challenging behavior in people with intellectual disabilities, the model predicts that if a challenging behavior is seen as being outside of the individual's control, and/or being due to factors external to the person, then a caregiver will be more likely to experience sympathy/concern, and will be more likely to engage in helping behavior. On the other hand, if a challenging behavior is seen as being within the individual's control and/or as being due to causes internal to the individual, then the caregiver will be more likely to experience negative emotions and will be less likely to engage in helping behavior.

Dagnan et al. (1998) presented 40 care staff with written scenarios of challenging behavior, and asked them to give ratings for each on attributions of stability, internality, globality and controllability for their cause, and also to rate their optimism about being able to change the behavior (i.e. the degree to which they perceived themselves as having some control over the behavior), their emotional responses, and their willingness to help provide an intervention. Path analysis showed that willingness to help was best predicted by the extent to which participants perceived themselves as having control over the behavior, in turn, this was best predicted by negative emotion (an inverse relationship), and negative emotion was best predicted by the attribution of controllability (by the individual) to the cause of the behavior. Hence, an attribution of high controllability (by the individual) is associated with high levels of negative emotion, negative emotion is associated with low levels of caregivers' perceived control over the behavior, which in turn is associated with less willingness to help. This study

suggests that perceived control is an important factor in determining emotional responses: when participants rated themselves as having some control over a challenging behavior, they reported fewer negative emotions.

More recently, Stanley and Standen (2000) conducted a similar study of 40 care staff working in a challenging behavior unit. Using correlational analysis, it was found that positive emotion was related to helping behavior, as predicted by Weiner's (1980) model. Perceived control over a challenging behavior was not found to mediate between emotion and helping behavior. In this study, it was positive emotion rather than attributions of controllability which best predicted helping behavior.

These studies suggest that firstly, the causal attributions that staff make in relation to challenging behavior may have an influence on their emotional responses. Secondly, there is some suggestion that differences in emotional responses may lead to differences in whether or not people help, and that this relationship may or may not be mediated by caregivers' attributions of control in relation to the behavior.

Behavioral function and causal attribution. Research looking at caregiver's causal attributions about challenging behavior suggests that staff find it easier to understand positive reinforcement processes compared to negative reinforcement processes (Hastings, 1997a). Also, clinical experience tells us that this seems to be the case. When asked to rate the likely causes of challenging behavior described in vignettes, experienced care staff are more likely to choose positive reinforcement processes as causal hypotheses than negative reinforcement processes (Berryman, Evans & Kalbag, 1994; Hastings, 1997b; Hastings, Remington & Hopper, 1995). In addition, it has been shown that in experienced care staff, negative reinforcement processes are

more likely to be given as causal hypotheses following training in non-aversive behavior management strategies (Berryman et al., 1994).

These findings are important for two reasons. Firstly, studies employing functional analyses of challenging behavior have found that in 40 to 50 percent of cases, challenging behavior is maintained by negative reinforcement (e.g. Derby et al., 1992; Iwata et al., 1994), and so it represents a significant clinical problem. Secondly, if staff are not sensitive to information about a behavior's function when making attributions (i.e. if staff do not understand the behavioral contingencies in operation), then the behavior is likely to be perceived as being outside of staff control. The perception that little can be done to change a person's challenging behavior is identified by staff as being a significant stressor (Bromley & Emerson, 1995). Optimism about being able to change a challenging behavior has been found to be inversely related to negative emotion experienced in reaction to it, i.e. if a behavior is perceived as being difficult to control, it is more likely to elicit negative emotion (Dagnan et al., 1998).

Morgan and Hastings (1998) have carried out the only study to date which has looked directly at the relationship between attributions and the behavioral function of challenging behavior. They presented two vignettes to experienced care staff, one in which a child's challenging behavior was serving an attention seeking function, and the other in which it was serving a task avoidance function. It was found that participants were more able to correctly identify the cause of the challenging behavior in the task avoidance vignette than in the attention seeking vignette. Although these data appears to contradict earlier findings, the authors argue that this unexpected pattern of results is likely to be due to the participants' use of the term 'attention seeking' in response to the

attention seeking vignette. This response, without any further indication that the behavior is learned was not deemed to be a correct causal hypothesis. The term 'attention seeking' is a commonly used term in lay models of children's problem behavior, and does not necessarily indicate an understanding of a positive reinforcement process. The research methodology used did not allow for participants to be prompted to give more accurate or comprehensive reports about the functions of the behaviors described. Morgan and Hastings (1998) argue that it is likely that if participants had been prompted to give more detailed responses, then those who had used the term 'attention seeking' may have demonstrated an accurate understanding of positive reinforcement processes. Nonetheless, of importance to the current discussion is that this study suggests that attributions do indeed differ according to the behavioral function of challenging behavior. If attributions affect emotional reactions, and behavioral function affects attributions, then a case may be made for exploring the effect of behavioral function on emotional responses.

Behavioral function and caregiver behavior. Thirdly, observational and experimental studies reviewed earlier have shown that the behavioral function of challenging behavior has a significant effect on intervention behavior. Typically, these studies found that participants interacted less with, and made less demands on, individuals who were categorised as social/task avoiders, than individuals who had been categorised as attention seekers. Given that emotion may be a predictor of helping behavior (Dagnan et al., 1998; Stanley & Standen, 2000), it may be that one mechanism involved in these different ways of responding to challenging behavior is the experience of different emotions.

In the case of challenging behavior serving an attention seeking function, the caregiver may experience emotions of sadness/sympathy if they perceive the individual to be deprived of attention. In the case of challenging behavior serving a task avoidance function, the caregiver may experience emotions of frustration/anger because the behavior interferes with meeting the needs of the individual. Indeed, Bromley and Emerson (1995) found that anger was more likely to be reported in response to challenging behavior if it was considered that services were not meeting the needs of the individual concerned. Also, they found that participants were less likely to report feelings of sadness and despair if the behavior was seen to be motivated by escape from demands. Thus it may be that the differences observed in behavioral responses to attention seeking and task avoidance challenging behaviors not only reflect the caregivers' motivation to avoid the aversive stimulus of challenging behavior, but may also reflect qualitative differences in emotional experiences.

Behavioral function and the impact of challenging behavior on caregivers' roles.

An additional reason why negatively and positively reinforced behaviours may be associated with qualitatively different emotions may be in terms of the effect that it has on the role of the caregiver. Although not grounded in the literature, this makes intuitive sense when considering the role that staff play in each case. In the case of challenging behavior being positively reinforced by staff attention, the behavior does not necessarily interfere with the aims of the caregiver, such as providing personal care or teaching a skill. In the case of challenging behavior being negatively reinforced by task or social avoidance, the behavior typically does interfere with the role of the caregiver. Consequently, staff may have feelings of frustration/anger if they attach importance to

the person's engagement in the task at hand. It is interesting to note that in the Harris et al. (1996) study, the most frequently reported emotion was frustration, with 68 percent of teachers saying that they experienced frustration in response to challenging behavior in the classroom. This may be a reflection of one of the primary reported concerns regarding the social and education consequences of challenging behavior, namely that it interferes with access to the curriculum for the children themselves, and also disrupts the teaching of other children in the classroom. It may be that in the case of teachers, the feeling of frustration is elicited when challenging behavior presents an obstacle to successful teaching, a situation in which the teachers may perceive themselves as having a significant personal stake.

The role of emotion in caregivers' behavioral responses to challenging behavior

We know that caregivers report that their emotional responses significantly influence the way in which they respond to challenging behavior (Hastings, 1995). From a theoretical perspective, it is important that future research focuses on the relationship between caregivers' emotional reactions and their actual intervention behavior. If it can be shown that challenging behavior elicits negative emotions in caregivers, then a further test of Oliver's (1995) behavioral systems model would be to show that these emotions are related in reliable ways to staff behavior. This is a very difficult area to research, because the literature suggests that there is a discrepancy between what staff say they would do in a particular situation, and what they actually do in response to the demands of the immediate situation. For example, staff beliefs about interventions for challenging behavior in the long term tend to be congruent with current behavioral

theory, but their beliefs about interventions in the short term tend to be more concerned with immediately stopping an episode of challenging behavior (Hastings, 1996; Watts, Reed & Hastings, 1997).

In the light of this, perhaps the only reliable way to examine the relationship between emotional reactions and behavioral responses would be to incorporate the use of self-report measures of emotion into systematic observation methodologies, such as those used by Carr et al. (1991) and Taylor and Carr (1992). Also, physiological measures of emotion could be used. One might predict that the emotions of fear and anxiety would be associated with the behavioral response of avoidance, whereas those relating to depression and anger may be associated with more punitive intervention responses.

Other factors which may influence emotional reactions

It is likely that certain characteristics of caregivers themselves will have an effect on their emotional reactions to challenging behavior. There is some suggestion in the literature that emotional reactions change over time (Fallon, 1983) or diminish over time (Hastings & Remington, 1995). It may be that factors associated with experience such as self-efficacy (i.e. the confidence to deal with challenging behavior), behavioral knowledge and skills, and coping resources may have an effect. If emotional reactions decrease with increased experience in working with challenging behavior, and if this is reflected in caregivers' intervention behavior, then there is the likelihood that more severe forms of challenging behavior will be differentially reinforced over time.

Longitudinal designs focussing on the development of caregivers' emotional reactions to challenging behavior would perhaps be useful.

Implications for clinical practice

The analysis of challenging behavior

The current review highlights the importance of extending the functional analysis of challenging behavior to include a functional analysis of caregiver behavior. At a theoretical level, our understanding of staff behavior is at a very early stage, and more research is warranted. However, the research reviewed here does suggest that, in terms of the field effectiveness of behavioral interventions, the clinician needs to give as full a consideration as possible of the factors which may impact upon caregiver responses to challenging behavior.

In practical terms, an analysis of caregiver behavior may be conducted using the technologies that are already available to us as clinicians. Direct observations in natural settings, measures of caregiver attribution, and self-report measures of emotional responses may all help the clinician to formulate hypotheses about the functions of caregiver behavior. These hypotheses can then be incorporated into a formulation of the maintenance of the target individual's challenging behavior. The value of such an approach has been demonstrated in a study by Taylor and Romanczyk (1994), in which it was found that hypotheses about the function of challenging behavior could be generated by observing the amount of attention that teachers provide to students in the classroom setting. Thus, by observing the behavior of teachers, it was possible to reliably predict those students whose behavior would be found (by experimental

functional analysis) to be maintained by attention, and those whose behavior would be found to be maintained by escape from demand.

The planning of intervention for challenging behavior

If challenging behavior elicits negative emotions in caregivers, then clinicians designing interventions for challenging behavior need to be aware of this, not least because Oliver's (1995) behavioral systems model predicts that the aversiveness of challenging behavior will affect intervention behavior. If a behavioral programme exposes those who implement them to an increase in the frequency of challenging behavior in the short term, then clinicians need to give careful consideration to the impact that this may have on the implementation of and adherence to that programme. If caregivers have developed effective strategies for dealing with challenging behavior (albeit in the short term), then it may be very difficult for them to see the merit of working in alternative ways. This is especially likely to be the case when an intervention programme leads to a temporary escalation in challenging behavior (i.e. an extinction burst). Moreover, even when an intervention programme is perceived by caregivers as effective, it may not always be implemented when the immediate demands of the situation appear to be incongruent with the guidelines of the intervention (Watts et al., 1997).

For these reasons, clinicians must take into account the needs of staff when designing interventions. Importantly, consideration may be given to effective interventions which do not typically give rise to a temporary increase in challenging behavior. This issue has been explored by McConnachie and Carr (1997), who

compared the adherence to two alternative behavioral interventions (escape extinction and functional communication training) in a quasi-experimental study. It was found that adherence to intervention was much higher in the functional communication training approach (which led to a prompt reduction in challenging behavior) than in the escape extinction approach (which led to a temporary increase). It was concluded in this study that the extinction burst serves to punish the programme implementers for their intervention efforts (by virtue of its aversive nature), and hence adherence to the programme is significantly reduced. Also, the participants in this study rated the escape extinction intervention as being more stressful than the functional communication training intervention.

In addition, consideration must be given to how best to support caregivers in their emotional reactions to challenging behavior, and how to ameliorate the negative effects of emotional reactions. If challenging behavior is an aversive stimulus which provides the setting conditions for escape behavior, then clinicians need to consider the function that caregiver behavior serves for the caregivers themselves. Interventions which require caregivers to respond in alternative ways (and in particular, cease their escape behavior) are unlikely to be implemented, unless clinicians are proactive in putting into place mechanisms which will enable caregivers to cope with the aversive aspects of their work. As outlined earlier, many studies have found an association between challenging behavior and staff stress, and it may be that negative emotional reactions may lead to stress in the long term. If negative emotions in response to challenging behavior can be reduced, then it may be that stress and its associated problems could be reduced also.

An educative approach, teaching stress reduction techniques such as anger and anxiety management, may equip caregivers with the necessary skills to cope with negative emotions. Another proactive approach is the use of cognitive-behavioral therapeutic techniques with groups of caregivers (Kushlick, Dagnan & Trower, 1998). The advantage of this approach is that it may enable caregivers to understand how their beliefs and emotions may influence their behavior. Also, reactive strategies are needed in order to support staff in the aftermath of particularly serious incidents of challenging behavior (e.g. Doyle, Dunn, Allen & Hadley, 1996; Robb, 1995).

Training for caregivers

Weiner's (1980) model predicts that modifying attributions will influence emotional responses to challenging behavior. For example, if a challenging behavior is perceived to be controllable by the individual, then it is more likely to be associated with negative emotions in caregivers. This point is relevant given that a large proportion of caregivers perceive challenging behaviors as intentional (Hastings, 1995).

Previous research has suggested that behavioral knowledge is associated with the accuracy of beliefs about the causes of challenging behavior, and with beliefs about how to intervene (Oliver, Hall, Hales & Head, 1996). It may be that training in behavior analytic principles and their application to challenging behavior may impact on attribution, which may in turn impact on emotional reactions. In particular, if caregivers find it more difficult to recognise and understand negative reinforcement processes, then an improvement in behavioral knowledge may lead to an increased understanding of the processes by which challenging behavior can be maintained over time. This may in turn

lead to more therapeutic behavioral responses to challenging behavior. This issue will be of particular importance if future research identifies that negative reinforcement processes are associated with more negative emotional reactions compared to positive reinforcement processes.

Conclusions

Additional data are needed to establish the aversive nature of challenging behavior. This would lend further support to models that conceptualise caregiver behavior as maintained by negative reinforcement processes. Taking into consideration the methodological problems associated with the existing research on emotional responses to challenging behavior, it may be that more experimental designs are needed. In addition the ecological validity of future research in this area is a priority. If the aversive nature of challenging behavior is established (or indeed otherwise), then there will be significant implications for behavioral interventions, in terms of designing programmes, and in terms of enabling and supporting caregivers in their implementation of programmes. Our current knowledge about how best to overcome the barriers that emotional responses to challenging behavior may pose to the successful implementation of interventions is at a very early stage. Also, further research is needed to establish some of the factors that may influence emotional reactions.

The research agenda needs to expand our knowledge of the factors which influence caregiver behavior in relation to challenging behavior. This knowledge can

be used to improve upon the external validity of behavioral interventions, and this will ultimately impact upon the quality of life of those who engage in challenging behavior.

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Figure 1 Behavioral systems model of challenging behavior as applied to self-injury being maintained by positive reinforcement (adapted from Oliver, 1995, p. 912)

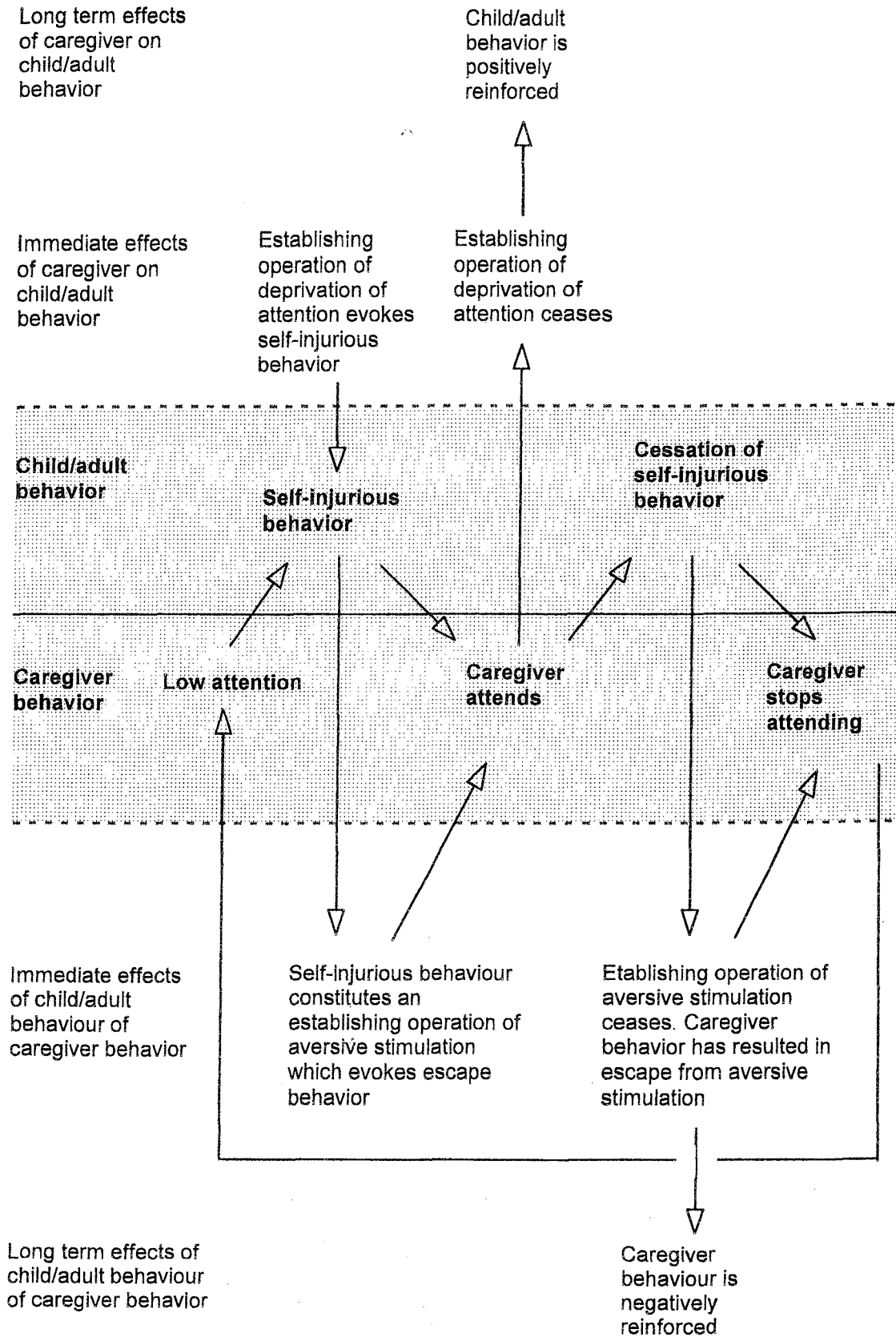


Figure 2 Behavioral systems model of challenging behavior as applied to self-injury being maintained by negative reinforcement (adapted from Oliver, 1995, p. 913)

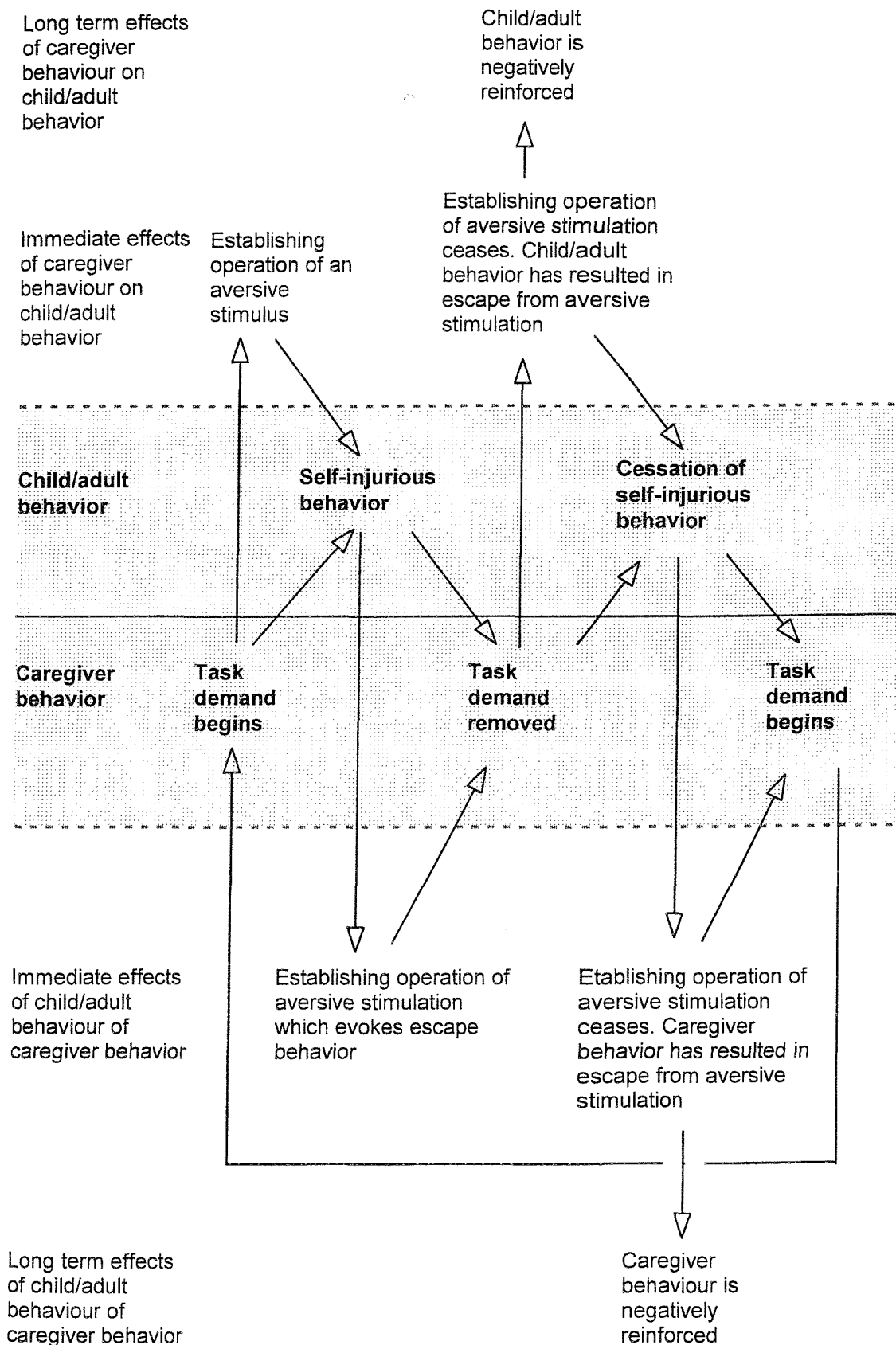
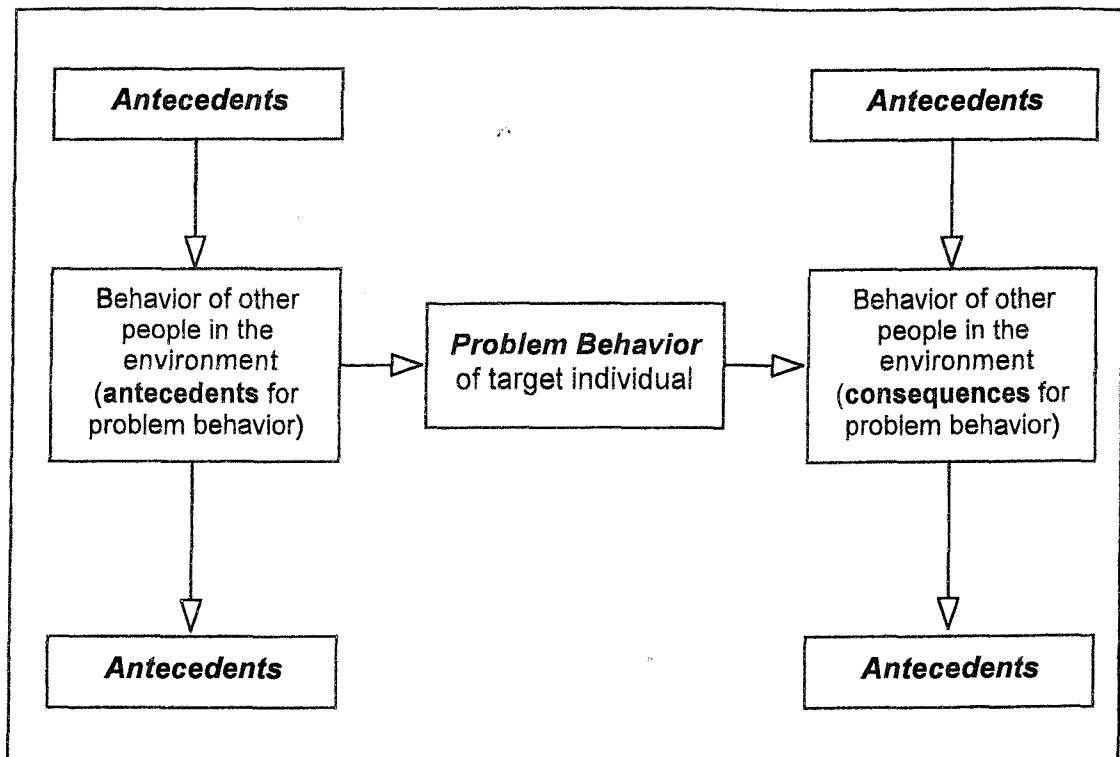


Figure 3 The H model of challenging behavior (Hastings, 1997, p. 776)



Empirical paper

Is challenging behaviour aversive?

Emotional reactions and the effect of behavioural function

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**Is challenging behavior aversive? Emotional reactions and the effect
of behavioral function**

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Running head:

Challenging behavior and emotional reactions

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Abstract

Behavioral systems models of challenging behavior predict that such behaviors are aversive to others. The current study aimed to establish that challenging behavior elicits negative emotions, to investigate the effect of behavioral function, and to explore whether this effect can be accounted for by attributions of controllability.

Sixty participants were presented with one of four video stimuli, three of which depicted self-injurious behavior, and varied according to the function of the behavior. The results indicate that more negative emotions were reported when self-injury was depicted than when it was not. There was some evidence that behavioral function had an effect on emotional reactions, but this was not accounted for by attributions of controllability. Implications for research and behavioral interventions are discussed.

Introduction

Current behavioral models of the development and maintenance of challenging behaviors in people with intellectual disabilities stress the importance of the environmental context in which they occur. In particular, the relationship between caregiver behavior and challenging behavior has become an area of research interest. Many challenging behaviors occur in social contexts and serve social functions. Studies based on referred samples have suggested that approximately 70 percent of challenging behaviors may serve social functions (Derby et al. 1992; Iwata et al. 1994). Socially mediated challenging behaviors typically involve one of two processes. Firstly, a behavior may be positively reinforced if it results in access to desired objects/events, such as attention from others. Secondly, a behavior may be negatively reinforced if it results in escape from or avoidance of undesired attention or academic demand. Both reinforcement processes increase the likelihood that the challenging behavior will occur again in the future in similar situations. Thus, in the majority of instances, the antecedents and consequences of challenging behaviors are the behaviors of others in the environment.

Caregiver behavior in services for people with intellectual disabilities has been shown to be likely to contribute towards the development and maintenance of challenging behavior (see Hastings and Remington, 1994, for a review). A number of studies suggest that not only are challenging behaviors affected by the behavior of caregivers, but also that challenging behaviors have effects on caregiver behaviors. One explanation for this may be that caregiver behavior is partly shaped by the contingencies involved in challenging behavior. The behavioral systems model (Oliver, 1995)

proposes that caregiver behavior and challenging behavior may be considered as a dynamic system. Central to this model is the hypothesis that self-injury and other challenging behaviors affect the behavior of others by virtue of their aversive nature. It is proposed that caregivers experience challenging behavior as aversive, and that their behavior serves to escape or avoid these aversive experiences. For example, in the case of challenging behavior being maintained by attention, challenging behavior is evoked by deprivation of social contact. Challenging behavior is experienced as aversive by the caregiver, and thereby constitutes an establishing operation (i.e. a setting condition) for caregiver escape/avoidance behavior. If the caregiver provides social contact, then challenging behavior ceases, and caregiver behavior is negatively reinforced because it has resulted in the cessation of (or escape from) an aversive stimulus. In turn, the challenging behavior is positively reinforced, thus caregiver behavior serves to ensure the long-term maintenance of challenging behavior.

Studies using quasi-experimental and observational designs support the notion that some challenging behaviors are sufficiently aversive so as to set the conditions for caregivers to engage in escape and avoidance behaviors (Carr, Taylor & Robinson, 1991; Hall & Oliver, 1992; Oliver, Hall & Nixon, 1999; Hastings, Remington & Hall, 1995; Taylor & Carr, 1992). For example, Carr et al. systematically observed the behavior of student teachers who were asked to work with pairs of children. In each pair, one of the children typically engaged in challenging behavior in response to task demand, and the other typically did not engage in challenging behavior at all. It was found that the adults interacted less, made less task demands, and avoided using more difficult tasks with those children who responded to instruction with challenging

behavior. The authors concluded that the child's challenging behavior constitutes an aversive stimulus (a punisher) for any adult behavior that it follows, and that the adults in this study behaved in ways so as to minimise the levels of punishment they received by presenting fewer task demands to the children whose challenging behavior was contingent on demand. In the short term, the behavior of the adults would have led to low rates of challenging behavior, but it would serve to maintain the behavior in the long-term.

Further support for the claim that challenging behaviors are aversive stimuli comes from research which shows that caregivers report challenging behavior to be associated with a range of negative emotions such as sadness, anger, fear, anxiety and frustration (Bromley & Emerson, 1995; Fallon, 1983; Harris, Cook & Upton, 1996; Hastings, 1995; Hastings & Remington, 1995; Mitchell & Hastings, 1998). These studies, using self-report methods, lend support to Oliver's (1995) model of challenging behavior by suggesting that the negative emotion experienced by caregivers is the 'aversiveness' which is central to the model. However, some consideration needs to be given to the methodologies employed. To date, all studies looking at the emotional reactions to challenging behavior have relied either on retrospective self-report data (the accuracy of which is influenced by memory), or on self-report in response to written vignettes. The written vignettes used have typically described a fictitious character engaging in challenging behavior, and participants are asked to imagine how they would respond emotionally if they were to experience the situation described. Oliver's systems model relates to actual interaction with challenging behavior, and therefore methods of presenting challenging behavior in research studies should aim to simulate as closely as

possible the nature of the behavior as it occurs in natural environments, whilst maintaining experimental control. Written vignettes are likely to be limited in this sense, and therefore the ecological validity of existing research is compromised.

It is likely that certain aspects of challenging behavior will have an impact on caregivers' emotional reactions. There is evidence that topography has an impact, with for example self-injury being associated with feelings of sadness (Bromley & Emerson, 1995; Hastings, 1995; Hastings & Remington, 1995). Other qualities, such as severity, frequency, and behavioral function, may impact on emotional reactions, although these possibilities have not yet been addressed in research. Within existing models, there is no explicit reference to whether the behavioral function of challenging behavior has an impact on emotional reactions, but there are reasons why function may be important.

Firstly, a small number of studies have suggested that the attributions caregivers make about the cause of challenging behavior may be closely related to emotional reactions (Dagnan, Trower & Smith, 1998; Stanley & Standen, 2000). These studies have applied Weiner's (1980) model, which links attribution, emotion and helping behavior, to the caregivers of individuals who present challenging behavior. Using path analysis, Dagnan et al. found that helping behavior was best predicted by levels of optimism about being able to change challenging behavior, and in turn, optimism was found to be inversely related to negative emotion. Therefore, when staff perceived themselves as having some control over challenging behavior, they reported fewer negative emotions. Stanley and Standen found that positive emotion, rather than attributions of controllability, correlated positively with predicted helping behavior.

It is likely that the extent to which caregivers believe that they have control over

challenging behavior will vary according to its behavioral function. This is because research suggests that negative reinforcement processes may be more difficult to understand than positive reinforcement processes (Berryman, Evans & Kalbag, 1994; Hastings, 1997a; Hastings, 1997b; Hastings, Remington & Hopper, 1995). If this is the case, one would predict that negative reinforcement processes will be perceived as less controllable than positive reinforcement processes. In turn, one would predict that a greater degree of emotion will be associated with negative reinforcement processes as compared to positive reinforcement processes. In the case of non-social challenging behavior, which is unresponsive to levels of staff attention or task demand, the behavior may be even more difficult to understand because it is not related to environmental events and hence is less within the control of people in the environment. Therefore, it may be predicted that non-social challenging behavior will also elicit more negative emotion than positively reinforced challenging behavior.

Secondly, research has shown that the behavioral function of challenging behavior has a significant impact on intervention behavior. This is perhaps most clearly demonstrated in a study by Taylor & Carr (1992). Adults were asked to interact with two children who engaged in challenging behaviors. One child's behavior was maintained by attention (attention seeking), and the other's was maintained by escape from social contact (social avoidance). There were clear differences in the adults' responses to the challenging behaviors of each child. Generally, they responded to the attention seeking challenging behavior by increasing the level of attention given to the child, and to the social avoidance behavior by decreasing attention. Given that emotion may be a predictor of helping behavior (Stanley & Standen, 2000), it may be that the experience

of different emotions is one mechanism which determines these different ways of responding to challenging behavior.

The current study has two aims. Firstly, it aims to improve methodologically on previous studies looking at caregivers' emotional reactions to challenging behavior. This will be achieved by the use of a more ecologically valid method of presenting challenging behavior, namely the use of filmed stimuli. Emotional responses will be compared between groups who watch video stimuli depicting challenging behavior and a control group who watch a video stimulus which is the same in all respects except that no challenging behavior is depicted. Secondly, it aims to explore the effect of behavioral function of challenging behavior on the emotional responses of caregivers, and if differences exist, whether these can be accounted for by attributions of controllability. This will be achieved by comparing the emotional responses of participants across three different video stimuli, which will depict challenging behavior being maintained by positive, negative and automatic (non-social) reinforcement processes.

First, it is hypothesised that participants who view the video stimuli depicting self-injurious behavior will report experiencing a greater degree of negative emotion than those who view the control (no self-injurious behavior) video stimulus. More tentatively, it is hypothesised that more negative emotion will be elicited in response to self-injurious behavior serving an avoidance/escape function (i.e. maintained by negative reinforcement processes) and self-injurious behavior serving a non-social function (i.e. maintained by automatic reinforcement processes), compared to self-injurious behavior serving an attention-seeking function (i.e. maintained by positive reinforcement processes). Finally, if differences in emotional reactions arise because of

differences in attributions of controllability, then it would be expected that statistically controlling for attributions of controllability will remove the effects of behavioral function.

Method

Design

A between-subjects experimental design was used. Participants were assigned to one of four experimental groups. Each group viewed a different video stimulus (see Stimulus Materials for details):

Group 1: positive reinforcement condition.

Group 2: negative reinforcement condition.

Group 3: automatic reinforcement condition.

Group 4: no self-injurious behavior condition.

In the allocation of participants across the experimental groups, the variables of age, gender, length of experience, and qualified/not qualified in teaching were balanced as far as possible, although it was not possible to achieve an exact balance.

Participants

Sixty staff from two schools for children with intellectual disabilities participated in this study. Staff were selected for inclusion in the study if they were involved directly in the teaching of children within the schools, and if they consented to take part. Twenty were qualified teachers, and the remaining 40 were teaching assistants who did not have formal qualifications. Demographic characteristics of the sample are summarised in Table 1.

Insert Table 1 about here

Measures

The following measures were used (and presented in the following order):

Measurement of emotional responses. Emotional Reactions to Challenging Behavior Scale (Mitchell & Hastings, 1998). This is a 15 item self-report rating scale which was developed using a sample of 83 care staff working in community residential units for adults with intellectual disabilities. Participants are asked to rate, using a four point scale, the degree to which they experience each of 15 emotions in response to challenging behavior. A higher score indicates higher levels of negative emotion. It has two subscales derived through factor analysis: feelings of depression/anger (10 items: betrayed, angry, sad, humiliated, hopeless, resigned, helpless, frustrated, guilty, disgusted), and feelings of fear/anxiety (5 items: frightened, afraid, nervous, incompetent, shocked). The subscales have good internal consistency: Cronbach's alpha coefficient is .85 for the depression/anger subscale, and .82 for the fear/anxiety subscale. Test-retest reliability properties are also good (depression/anger: $r = .74$; fear/anxiety: $r = .81$) (Mitchell & Hastings, 1998). This scale is presented in Appendix D.

In addition, a 'disturbingness' rating scale (Hastings & Remington, 1995) was used to measure how disturbed the participants were by watching the self-injurious behavior on the video. A seven point Likert scale with the descriptors 'not at all disturbed', 'moderately disturbed' and 'extremely disturbed' was used. A higher score indicates higher levels of feeling disturbed. This scale was intended to be an additional measure of negative affect. This scale is presented in Appendix E.

Attributions of controllability. A rating scale to measure attributions of controllability of the challenging behavior seen on the video was used. This scale was based on some of the items used by Dagnan et al. (1998), and this itself had been derived from work by Sharrock, Day, Qazi & Brewin, (1990), Garety and Morris (1990) and Moores and Grant (1976). Items tapping caregivers' attributions relating to the extent to which they themselves can beneficially intervene and influence challenging behaviors were used. Items were rephrased for the purpose of the current study, e.g. the original item 'This patient's behavior problems are so ingrained that they are unresponsive to treatment' was rephrased as 'Mikeys's self-injury would respond well to psychological intervention'. Originally, the following five items were used:

1. Mikeys's self-injury would respond well to psychological intervention.
2. There was nothing that Tim could do to stop Mikey self-injuring.
3. If Tim had responded in the right way, Mikey's self-injury would not have been so bad.
4. Mikey's self-injury was unpredictable.
5. It would be difficult for anyone to control Mikey's self-injury.

Participants were asked to rate each item on a five point Likert scale ranging from 'strongly agree' to 'strongly disagree'. The first item was subsequently dropped from the scale because it did not correlate with the other items. Chronbach's alpha coefficient for the resulting four item scale with this sample was .70. A higher score on this scale indicates a higher level of perceived control over the behavior.

Behavioral knowledge. A shortened version of the Knowledge of Behavioral Principles as Applied to Children (KBPAC) test (Furtkamp, Giffort & Schiers, 1982),

based on the original measure developed by O'Dell, Tarler-Benlolo and Flynn, 1979. This is a 10 item multiple forced-choice measure designed to assess understanding of the application of behavioral principles to child behavior (see Appendix F). Cronbach's alpha coefficient for internal consistency is .77 (Sturmey, Newton, Milne & Burdett, 1987).

Demographic information. A questionnaire was used to collect the demographic characteristics of age, gender, length of time working with people with intellectual disabilities, teaching qualifications, and training courses attended on challenging behavior (see Appendix G). The data for training in challenging behavior were coded as follows: no training: score 0; five days or less training: score 1; more than five days training: score 2. These data were coded by a person unconnected with the research, and there was 97 percentage agreement.

Stimulus materials

The video material was created in collaboration with a university based Teaching and Media Department. Two actors were used, both of whom have experience of working with people with intellectual disabilities and challenging behaviors. One actor played the role of a person with intellectual disabilities who engages in self-injurious behavior. A professional make-up artist was used to create the illusion of injury sites to the face. The other actor played the role of a therapist whose aim was to engage the person with intellectual disabilities in an educational task. The therapist presented a total of eight tasks, each of which involved the individual copying the actions of the therapist when prompted: (a) drink from a cup, (b) stack cups, (c) operate a switch, (d) put a block in a cup, (e) close a book, (f) draw a cross, (g) answer a telephone, (h) wipe mouth

with a napkin. The order of presentation of the tasks remained constant across the four videos.

The actors were filmed while seated at a table, so that they were in view from the knees upwards. Also in view was the table, and a box situated on the table to the left of the screen, which contained the task materials. The background was a wall and window blinds. There was no background noise. The layout of the scene is shown in Figure 1.

Insert Figure 1 about here

The self-injurious behavior took the form of a clenched fist of the right hand making forceful contact to the right side of the face. The number of hits was held constant across the three challenging behavior video clips. Also, the actor tried to use the same force of hitting across the videos. All other variables were also held constant, i.e. the same setting, tasks, and actors were used. The filmed extracts were edited to randomly insert some close-up frames of the individual's face whilst self-injuring. The purpose of this was to enable the participants to see the self-injurious behavior in detail. Each video contained four close-up frames, and there were two self-injurious hits per close-up (with the exception of the 'no challenging behavior' video, which contained close-ups with no self-injury). At the beginning of each video stimulus, a close-up frame of the individual's face was shown, with an introduction (of 33 seconds duration) giving brief details of the individual and the context (see Appendix H).

Four videos of approximately five minutes duration were used. In each, the tasks

were presented to the individual (first actor) by the therapist (second actor), and a contingent self-injurious behavior response followed. The content of each varied according to the behavioral function of the challenging behavior displayed. The actor reproduced self-injurious behavior according to the following schedules:

Video 1 - positive reinforcement condition. Self-injurious behavior was contingent on the deprivation of attention from the therapist, and followed the withdrawal of social attention (i.e. when the therapist directed attention away from the individual by collecting new materials for the next task presentation). The purpose of this was to demonstrate a positive reinforcement process.

Video 2 - negative reinforcement condition. Self-injurious behavior was contingent on task demand, and followed the presentation of each task. The purpose of this was to demonstrate a negative reinforcement process.

Video 3 - automatic reinforcement condition. Self-injurious behavior was exhibited randomly and not contingent on either withdrawal of social attention or on task demand. The purpose of this was to demonstrate a non-social (or automatic) reinforcement process.

Video 4 - no self-injurious behavior condition. No self-injurious behavior occurred across the session. The purpose of this was to provide a control, to ensure that participants' emotional reactions to the videos were a result of being exposed to the self-injurious behavior, and not other variables such as the presence of the individual with intellectual disabilities.

Schematic representations of the four schedules are given in Figure 2. The timing for the presentation of each task was estimated and held constant as far as

possible across each condition.

Insert Figure 2 about here

Ecological validity of the stimulus materials. Although the filmed material was developed by people with expert knowledge in challenging behavior and behavioral principles, a measure of the ecological validity of the stimuli was included in the study. Three questions designed to measure participants' understanding of the behavioral function of the challenging behavior seen on the video were used:

1. What do you think was causing this behavior? That is, why was Mikey injuring himself?
2. From what you saw on the video, what do you think made Mikey's self-injurious behavior increase?
3. From what you saw on the video, what do you think made Mikey's self-injurious behavior decrease?

These questions were based on those used by Morgan & Hastings (1998) in a study looking at teaching staff's understanding of the behavioral function of challenging behavior. Responses were scored according to the criteria given in Appendix I.¹ A score of 1 was given for a correct response (a clear statement of the behavioral hypothesis) and for a partially correct response (which includes some aspects of the behavioral hypothesis). A score of zero was given for an incorrect response (a causal hypothesis unrelated to the behavioral function displayed on the video). All of the responses were

¹ It was not possible to achieve a satisfactory level of inter-rater reliability using a more precise scoring system.

scored by a person unconnected with the research in order to estimate the reliability of the scoring. Kappa coefficient for inter-rater reliability was .89.

Correct or partially correct responses were given by 87 percent of participants in the positive reinforcement condition, by 80 percent in the negative reinforcement condition, and by 47 percent in the automatic reinforcement condition. This suggests that the video material has good ecological validity. The lower percentage of participants identifying the behavioral function in the automatic reinforcement condition would perhaps be expected, because the challenging behavior in this case occurs essentially at random.

Procedure

Participants were tested at their place of work in a quiet room. Where possible, participants were tested individually. Where this was not possible (because of time constraints imposed by the management of the school) participants were tested in groups of no more than four. In these cases, participants were asked not to consult with each other. Firstly, basic demographic information and data about teaching qualifications and experience in working with people with intellectual disabilities were collected. Secondly, the following instructions were given: 'I am going to show you a piece of film which is five minutes long. You will see two people on the video. One is a man with intellectual disabilities who will at times engage in self-injury. The other man is a member of staff working with him. When the video is finished, I will ask you to complete some questionnaires'. (The reference to self-injurious behavior was omitted for the control group).

Results

Before looking at differences between the four experimental groups, certain considerations need to be made. Firstly, the distribution of the scores on the dependent measures will be examined. Secondly, because some of the participants were tested individually and others in groups, it is necessary to consider whether this had any impact on the data. Thirdly, any differences between the four groups on demographic variables will be explored. Finally, relationships between the demographic variables, behavioral knowledge (KBPAC short version), and the dependent variables will be considered.

Preliminary data analysis issues

In a check for normality of distribution, one sample Kolmogorov-Smirnov tests revealed that the depression/anger emotion scores, the fear/anxiety emotion scores, and the disturbingness ratings differed significantly from normal distributions. Therefore, non-parametric tests were used for the analysis of these variables. The data for the controllability ratings were normally distributed.

Because some of the participants ($N = 27$) were tested individually, and others ($N = 33$) were tested in groups, the data for each method of presentation were compared. Mann-Whitney U tests showed that there were no significant differences between individual and group presentation methods on all of the dependent measures.

Kruskal Wallis tests revealed that there were no significant differences across the four experimental groups on the demographic variables of age, experience in intellectual disability services, and training in challenging behavior. Chi-square tests revealed that there were no significant differences between expected and observed frequencies in male/female and qualified/unqualified participants across the four

experimental groups.

Relationships between demographic and dependent variables

Even though there were no differences between the groups on demographic and behavioral knowledge variables, non-parametric correlations were carried out to check for any significant relationships between the continuous demographic variables (age, length of experience in months, training in challenging behavior), behavioral knowledge, and scores on all the dependent measures. A significant correlation was found between participant age and scores on the anger/depression emotion subscale ($r = .27, p < .05$). This suggests that the older the participant, the more depression/anger emotions are reported. In addition, a significant correlation was found between length of experience in intellectual disabilities services and scores on the controllability attributions scale ($r = .32, p < .05$). This suggests that the more experience a participant has, the greater their attribution of controllability. No other correlations were significant. Differences between participants who held and did not hold a teaching qualification were investigated using Mann-Whitney U tests. No significant differences were found on the dependent measures. Gender differences were investigated using Mann-Whitney U tests and again, no significant differences were found.

In summary, the effect of age will need to be controlled for in analysis of the anger/depression emotion scores. Because the data for the anger/depression emotion measure differed from normal distribution, it is not ideal to use parametric tests, but controlling for a covariate is not possible using non-parametric tests. Transformation of the data was not possible because of a high frequency of scores of zero. For this particular set of scores, both parametric and non-parametric analyses will be presented.

Descriptive statistics

Table 2 shows the means and standard deviations of the dependent measures for each experimental group. For each of the measures of emotional reactions, ratings are higher in the negative reinforcement condition than in the other three conditions. The depression/anger emotion ratings and the disturbingness ratings are lowest in the no self-injurious behavior condition.

Insert Table 2 about here

Group comparisons of self-reported emotional reactions

Differences between the four experimental groups on the self-report emotional reactions scale were investigated using Kruskal Wallis tests, followed by Mann-Whitney U tests.

Depression/anger subscale. A Kruskal-Wallis test revealed that there was a significant difference between the four groups on the depression/anger emotion subscale ($\chi^2 = 27.73$, $df = 3$, $p < .001$).

Mann-Whitney U tests were carried out to investigate which groups differed from each other. These were one-tailed tests. Compared to the no self-injurious behavior (control) condition, more negative emotional reactions were reported in the positive reinforcement condition ($Z = 2.45$, $p < .05$), the negative reinforcement condition ($Z = 4.74$, $p < .001$), and the automatic reinforcement condition ($Z = 3.99$, $p < .001$).

With regards to the differences between the three self-injurious behavior experimental conditions, more negative emotions were reported by participants in the

negative reinforcement condition than those in the positive reinforcement condition ($Z = 2.52, p < .05$), but there was no significant difference between the automatic reinforcement condition and the positive reinforcement condition ($Z = .89, p = ns$).

Because the depression/anger emotion data were found to be related to the demographic variable of age, the above comparisons were re-analysed whilst statistically controlling for age. This was carried out using a between subjects, one-way ANCOVA, with age as a covariate. This revealed a significant group effect ($F(3, 56) = 10.71, p < .001$). Post hoc analyses using Sheffe's multiple comparison test revealed a significant difference between the negative reinforcement condition and the no self-injurious behavior condition, and between the automatic reinforcement condition and the no self-injurious behavior condition, with both differences being in the predicted direction and significant at the .05 level. However, there was no significant difference between the positive reinforcement condition and the no self-injurious behavior condition. With regards to the differences between the three self-injurious behavior experimental conditions, significantly more negative emotions were reported by participants in the negative reinforcement condition than by those in the positive reinforcement condition ($p < .05$), but there was no significant difference between the automatic reinforcement condition and the positive reinforcement condition. These results remain the same if attributions of controllability are also statistically controlled.

Fear/anxiety subscale. A Kruskal-Wallis test revealed that there was a significant difference between the four groups on the scores for the fear/anxiety subscale ($\chi^2 = 10.48, d.f. = 3, p < .05$). Mann-Whitney U tests were carried out to investigate which groups differed from each other. These were one-tailed tests. Compared to the no self-

injurious behavior (control) condition, significantly more negative emotions were reported in the negative reinforcement condition ($Z = 2.74, p < .01$), but not in the positive reinforcement condition ($Z = .78, p = ns$), or the automatic reinforcement condition ($Z = .07, p = ns$).

There were no significant differences in reported fear/anxiety emotional reactions between participants in the positive reinforcement condition and those in the negative reinforcement condition ($Z = 1.83, p = ns$), or the automatic reinforcement condition ($Z = .81, p = ns$). Because there were no group differences, the effect of controlling for attributions of controllability using ANCOVA was not explored.

Disturbingness ratings. A Kruskal-Wallis test revealed that there was a significant difference between the four groups on the disturbingness ratings ($\chi^2 = 12.18, d.f. = 3, p < .05$). Mann-Whitney U tests were carried out to investigate which groups differed from each other. These were one-tailed tests. Compared to the no self-injurious behavior (control) condition, ratings of disturbingness were higher in the negative reinforcement condition ($Z = 3.15, p < .01$), and in the automatic reinforcement condition ($Z = 2.79, p < .01$), but not in the positive reinforcement condition ($Z = .99, p = ns$).

With regards to the differences between the three self-injurious behavior experimental conditions, there were no significant differences in the disturbingness ratings between the positive reinforcement condition and the negative reinforcement condition ($Z = 1.91, p = ns$), or the automatic reinforcement condition ($Z = 1.40, p = ns$). Again, because there were no group differences, the effect of controlling for attributions of controllability using ANCOVA was not explored.

Discussion

The hypothesis that more negative emotion would be elicited in the three self-injurious behavior conditions compared to the no self-injurious behavior (control) condition has been partially supported. Generally, more negative emotion was reported when self-injurious behavior was present than when it was not. Participants who viewed the self-injurious behavior serving an avoidance/escape function reported experiencing more negative emotion than participants in the control condition on all three dependent measures. Participants who viewed the self-injurious behavior serving a non-social function reported experiencing more negative emotions than those in the control group on two of the three dependent measures. Only one difference was found between the group who viewed self-injurious behavior serving an attention seeking function and the control group, and this was found to be non-significant in the parametric analysis. In this case, it is perhaps reasonable to interpret the most conservative result, and assume that there may be no difference between these conditions. These findings suggest there is some evidence that challenging behavior elicits negative emotions, and this lends support to the central assumption of the behavioral systems model (Oliver, 1995) that challenging behavior is experienced as aversive.

There was also some suggestion that the behavioral function of challenging behavior has an effect on emotional reactions. More emotions were elicited by self-injurious behavior serving an escape/avoidance function compared to the self-injurious behavior serving an attention-seeking function (as measured by the depression/anger scale). This suggests that negative reinforcement processes may be more likely to elicit negative emotions, and future research could examine this further. This group difference remained when attributions of controllability were statistically controlled for. Thus, the

hypothesis that the group differences in emotional reactions may be accounted for by group differences in attributions of controllability was not supported.

Overall, fewer group differences were found in ratings of fear/anxiety emotions and disturbingness compared to depression/anger emotions. Firstly, the measure of disturbingness may have lacked sufficient specificity to identify group differences. Secondly, it may be that self-injurious behavior is associated more with the kinds of emotion measured by the depression/anger scale, and less so with those measured by the fear/anxiety scale. Previous research looking at the effects of topography of challenging behavior on emotional reactions suggests that this may be the case. Bromley and Emerson (1995) found that participants were more likely to feel sad than anxious in response to self-injurious behavior, and also that participants were more likely to feel anxious in response to aggression compared to self-injurious behavior. Hastings (1995) found that self-injurious behavior was most likely to be associated with feelings of sadness and anger, whereas aggression was most likely to be associated with fear and anxiety. Therefore, a replication of the current study using aggressive challenging behavior may lead to a different pattern of results.

The scale used to measure emotional reactions in the current study has strengths in terms of its reliability and validity. However, consideration should be given to the appropriateness of placing anger and depression in one subscale. Further development of the scale may allow differentiation between emotions associated with depression and those associated with anger.

No differences were found in emotional reactions between the control group and the group who viewed self-injurious behavior serving an attention-seeking function. A possible explanation for this may be in terms of the impact that the behavioral function

of challenging behavior has on the role of caregivers themselves. Using the example of a teaching situation (as depicted in the filmed scenarios used in the current study), attention seeking challenging behavior is less likely to interfere with the teaching process (i.e. the individual's completion of a task) because the behavior only occurs when the caregiver's attention is diverted away. In comparison, challenging behavior serving an escape/avoidance function typically does interfere with the teaching process because it occurs in response to task demand. If the participants in the current study attached importance to the successful completion of the tasks presented, then it may be that fewer negative emotions were elicited in response to the attention-seeking behavior because it appeared less likely to interfere with the individual's completion of the tasks. Indeed, it is interesting to note that in the Harris et al. (1996) study, the most frequently reported emotional response to challenging behavior in the classroom was frustration, and this may be a reflection of the primary reported concern regarding the social and educational consequences of challenging behavior, namely that it interferes with access to the curriculum.

If challenging behavior does not impact upon the role of the caregivers themselves, then it may be less likely to elicit negative emotional reactions. Further support for this argument comes from studies which have found that the caregivers rate externalising challenging behaviors (i.e. those that impact on others as well as the individual) as more serious than internalised behaviors (i.e. those which affect the progress of the individual, but which do not disrupt other people in the environment). This pattern has been shown to be reflected in referral patterns to specialist challenging behavior services (Lowe, Felce & Blackman, 1995). Also, externalising challenging

behaviors have been found to be associated with higher levels of intervention than internalising behaviors (Stancliffe, Hayden & Lakin, 1999).

Because previous research has suggested that attributions and emotions are related, further research could address the role of other dimensions of attributions which may account for differences in emotional reactions according to behavioral function. For example, Dagnan et al., (1998) and Stanley and Standen (2000) found that attributions relating to the extent to which the individual with intellectual disabilities has control over challenging behavior were related to emotional responses. It may be that the behavioral function of challenging behavior impacts upon this kind of 'intentionality' attribution. Alternatively, it may be that factors other than attribution differences can account for differences in emotional reactions. One possibility that warrants further attention is the impact that challenging behavior has on the role of the caregiver, as discussed.

In addition, given that previous research has suggested that negative reinforcement processes are more difficult to understand than positive reinforcement processes (Berryman et al., 1994; Hastings, 1997b; Hastings, Remington & Hopper, 1995), it may be that dimensions of attribution (other than controllability) relating to this lack of understanding may be relevant, and further research in this area is warranted. An initial step would be to examine the effect of increased understanding of negative reinforcement processes on emotional reactions to challenging behavior serving an escape/avoidance function. Berryman et al. (1994) have shown that understanding of negative reinforcement processes may be improved by training caregivers in non-aversive behavioral techniques.

The finding that caregivers experience negative emotional reactions to challenging behavior has implications for the planning of interventions. Oliver's (1995) behavioral systems model predicts that the aversiveness of challenging behavior will affect intervention behavior. Therefore, the clinician needs to consider emotional reactions as one factor which may impact upon caregiver behavioral responses to challenging behavior, and a thorough analysis needs to consider the functions of caregiver behavior. If caregivers are responding in ways which lead to escape from an aversive stimulus in the short term, but which maintain challenging behavior over time, then the field effectiveness of behavioral intervention is likely to be compromised unless this factor is taken into account. If a behavioral programme exposes those who implement them to an increase in the frequency of challenging behavior in the short term, then this may have an impact on the implementation of and adherence to that programme. If caregivers have existing strategies which are effective in reducing challenging behavior in the short term, then a challenge for the clinician is to consider how to motivate them to respond in alternative ways. This is likely to be particularly difficult when an intervention programme leads to a temporary increase in challenging behavior (i.e. an extinction burst), as this may mean that caregivers will experience a temporary increase in negative emotions.

Consideration may be given to interventions which do not typically lead to an extinction burst. McConnachie and Carr (1997) compared adherence to two alternative behavioral interventions (escape extinction and functional communication training) in a quasi-experimental study. It was found that treatment adherence was much higher in the functional communication approach, which led to a prompt reduction in challenging

behavior, compared to the escape extinction approach, which led to a temporary increase. In addition, the participants rated the escape extinction procedure as being more stressful. It may be that the extinction burst served to punish the participants' intervention effort (by virtue of the aversive nature of challenging behavior), and hence adherence to the intervention was reduced.

In addition, consideration must be given to how best to support caregivers in coping with the aversive aspects of their work, and how to ameliorate the negative effects of emotional reactions. An educative approach, teaching stress reduction techniques such as anger and anxiety management, may equip caregivers with the skills to cope with negative emotions. Also, some researchers have reported on the use of cognitive-behavioral therapeutic techniques with groups of caregivers (Kushlick, Dagnan & Trower, 1998), and the advantage of this approach is that it may enable caregivers to understand how their beliefs and emotions may influence their behavior. In addition, reactive strategies are needed to support staff in their emotional reactions to particularly serious incidents of challenging behavior (e.g. Doyle, Dunn, Allen & Hadley, 1996; Robb, 1995).

The current study suggests that challenging behavior maintained by negative reinforcement processes may elicit more negative emotions than challenging behavior maintained by positive reinforcement processes. This finding is important, because studies employing functional analyses suggest that in 40 to 50 percent of cases, challenging behavior is maintained by negative reinforcement (Derby et al., 1992; Iwata et al., 1994), and therefore it represents a significant clinical problem. If more emotion is associated with negative reinforcement processes, then these behaviors are more likely to be maintained, and more difficult to intervene with, particularly in the absence

of appropriate staff support.

Therefore, the function of challenging behavior may be a key dimension to consider when planning intervention and staff support. For example, if assessment reveals that an individual's self-injurious behavior is maintained by negative reinforcement, then the clinician might predict that caregivers will be experiencing a considerable degree of negative emotional response, and (in the light of research on the effect of topography), that these emotions are likely to include feelings of sadness. Such formulations can help the clinician to plan the type of support that will be needed to enable caregivers to adhere to behavioral interventions. The current study has not identified why negative reinforcement processes may elicit more negative emotion, and therefore it is not clear at this stage whether any further steps can be taken by the clinician to counteract the effect of behavioral function.

Ultimately, research will need to focus on the relationship between caregivers' emotional reactions and their actual intervention behavior in order to demonstrate the significance of emotional reactions. It is known that caregivers report that their emotional responses influence the way in which they respond to challenging behavior (Hastings, 1995), but this functional relationship needs to be demonstrated. Research of this kind could incorporate the use of self-report (and perhaps physiological) measures of emotion into systematic observational methodologies. If reliable relationships are found between emotions and behavior, and if emotional reactions can be addressed, then it may be that caregivers will be more likely to respond to challenging behavior in therapeutic ways. Consequently, adherence to behavioral programmes may be improved, and a key advance towards the reduction of challenging behavior would be made.

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Table 1: Demographic characteristics of the sample.

Characteristic	N (%)	
Gender		
Male	18	(30%)
Female	42	(70%)
Teaching qualification	20	(33%)
Training in challenging behavior		
None	11	(18%)
5 days or less	34	(57%)
More than 5 days	15	(25%)
	Mean (SD)	
Age in years	38.80	(11.18)
Experience in intellectual disability services (months)	112.97	(73.95)

Table 2: Means and standard deviations for the three dependent measures per experimental condition.

		Depression / anger	Fear / anxiety	Disturbingness ratings
Positive reinforcement condition	Mean	4.60	1.26	2.13
	SD	4.39	1.53	1.60
Negative reinforcement condition	Mean	8.73	2.27	3.00
	SD	3.92	1.62	1.51
Automatic reinforcement condition	Mean	5.47	0.73	2.60
	SD	3.76	1.03	1.12
No self-injurious behaviour condition	Mean	1.13	0.73	1.47
	SD	0.64	0.96	0.64

Figure 1 Layout of scene in filmed stimuli

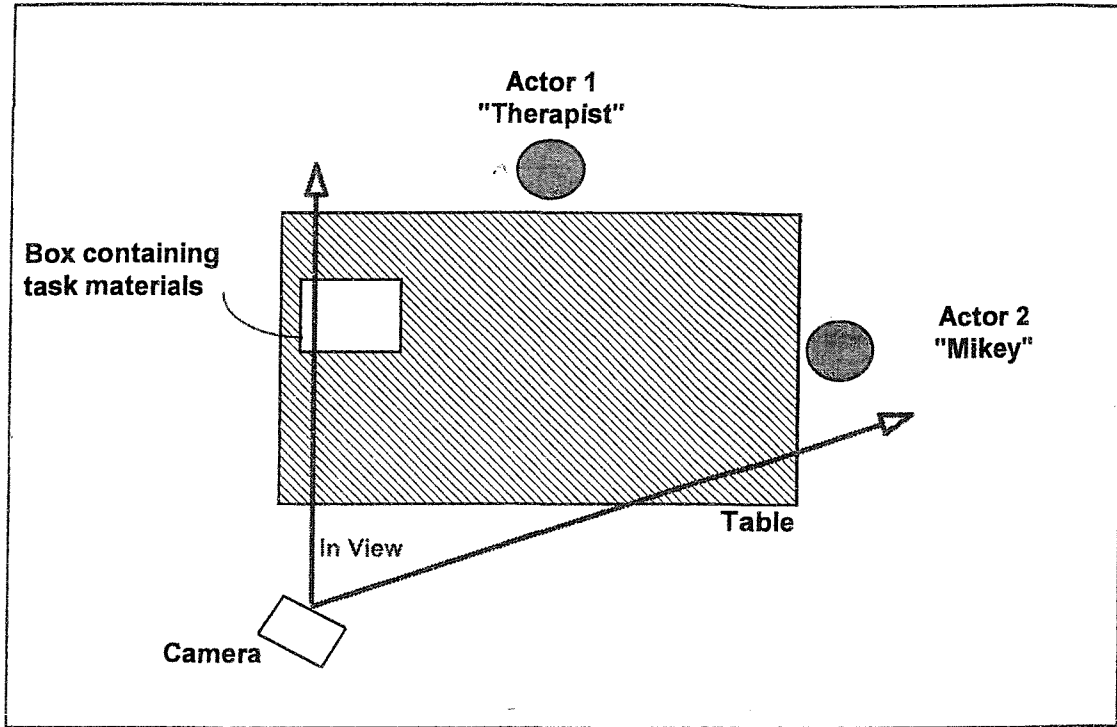
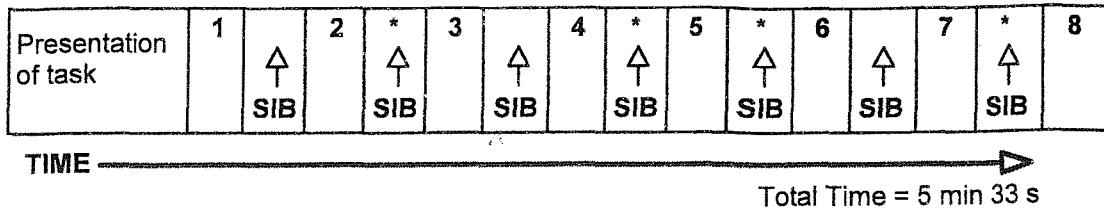
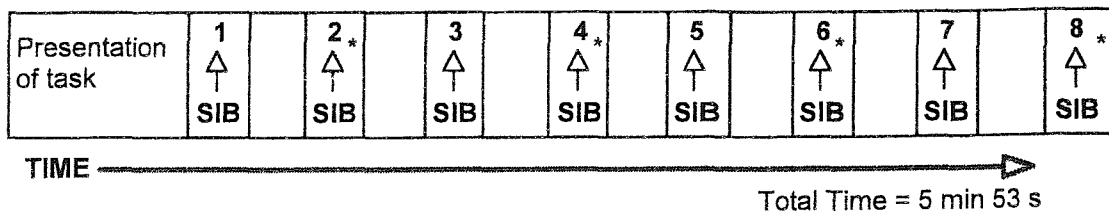


Figure 2 Schematic representation of schedules of self-injurious behavior

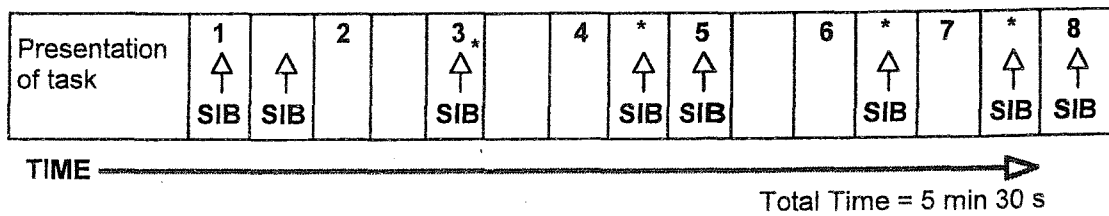
1) Positive reinforcement condition



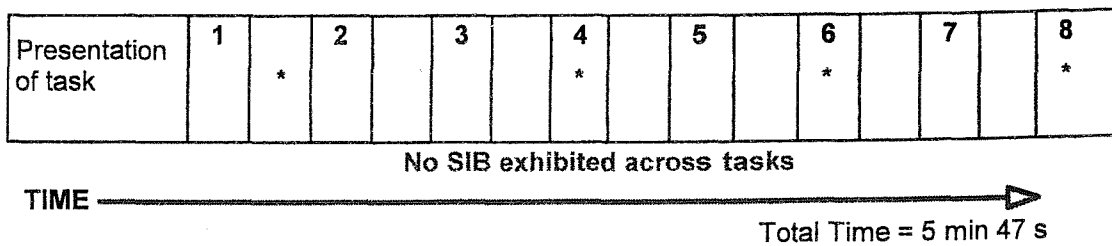
2) Negative reinforcement condition



3) Automatic reinforcement condition



4) No self-injurious behavior condition



SIB = Self-injurious behavior

* Close-up views of 'Mikey'

Critical Review

The main criticisms of this study relate to the time constraints under which it was conducted, and the related issue of the limited number of participants.

Firstly, the allocation of participants to the experimental conditions was not random, because an attempt was made to balance a number of demographic variables across conditions. Because of the small numbers of participants in each group and the number of variables to consider, it was not possible to achieve an exact balance.

Ideally, a mixed design would have been used, with the presence or absence of challenging behaviour as a within-subjects variable, and the function of challenging behaviour a between-subjects variable. This would have been a more rigorous test of the hypothesis that more negative emotion would be elicited when challenging behaviour is present than when it is not. However, this would have involved testing each participant twice. Because it was anticipated that the stimuli would elicit emotions, it would not have been possible to test participants twice in one session, as the emotional reactions elicited in response to the first stimulus may have affected emotional reactions to the subsequently presented stimulus. Consequently, this would have been more demanding on the time of the participants.

Even though the video stimuli were developed in collaboration with people with expert knowledge in challenging behaviour and behavioural principles, ideally they would have been piloted to ensure that they depicted the intended behavioural processes. In addition to time constraints, it would have been very difficult to find a group of people with sufficient knowledge of behavioural principles to comment on the videos. A measure of the ecological validity of the stimuli was consequently included in the

study, and fortunately the outcome of this suggested that the participants could identify the behavioural processes depicted.

Due to factors outside of my control, some of the participants were tested in small groups rather than individually. Although no significant differences were found on the dependent measures between the two methods of presentation, it is possible that this may have had an effect. For example, although participants in the groups were asked not to consult with each other, some did talk about the video whilst completing the measures. This may have affected the emotional responses of the people within those groups.

The strengths of this study relate to the stimuli used, and the degree of experimental control afforded by the design. The use of filmed material of a real person engaging in what appeared to be real self-injurious behaviour represents a significant methodological improvement on previous studies attempting to establish the aversive nature of challenging behaviour. It was an attempt to elicit as closely as possible the kinds of emotional reactions that the participants may experience in their day to day work with individuals who engage in challenging behaviour. Also, the use of filmed material enabled variables such as the severity and frequency of the self-injurious behaviour to be highly controlled. This means that the only difference between the three self-injurious behaviour conditions was the function of the self-injurious behaviour depicted. In addition, the use of a control condition means that the differences in emotional reactions between the control condition and the three self-injurious behaviour conditions are likely to reflect differences in reactions to the self-injurious behaviour itself, and not other variables that may be associated with interaction with individuals with learning disabilities. For example, if a control condition had not been used, it

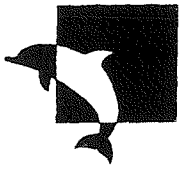
would not have been possible to be certain that emotional reactions were elicited in response to the behaviour, rather than in response to the injury sites on 'Mikey's' face.

Appendices

Appendix A:	Ethical approval
Appendix B	Information to participants
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Appendix J (i)	Instructions to authors - Clinical Psychology Review
Appendix J (ii)	Instructions to authors - American Journal on Mental Retardation

Appendix A

Ethical approval



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12th September 2000

Miss Dominique Mossman

Dear Dominique,

Re: Application for Ethical Approval

I am writing to confirm that your ethical application titled "Is challenging behaviour aversive to others? Special educators' self-report emotional reactions to self-injurious behaviour" has been given approval by the department.

Should you require any further information, please do not hesitate in contacting me on (023) 80 593995.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'KMS' followed by a stylized flourish.

Miss Kathryn Smith
Ethical Secretary

Appendix B

Information to participants

INFORMATION SHEET

Is challenging behaviour aversive to others? Special educators' self-report emotional reactions to self-injurious behaviour

As part of my doctoral degree in Clinical Psychology, I am conducting a research study which looks at emotional reactions to challenging behaviour. The study will be supervised by Dr Tony Brown and Dr Richard Hastings, University of Southampton.

If you agree to take part in this study, you will be asked to watch a video which will show a person with learning disabilities and a staff member working together on a task. The person with learning disabilities will engage in self-injurious behaviour. After viewing the video, you will be asked to complete some rating scales, which are measures of emotional reactions to challenging behaviour. You will then be asked to answer some questions about the challenging behaviour you saw on the video. Finally, you will be asked to complete a short questionnaire which is intended as a measure of knowledge of behavioural principles. The video will be approximately five minutes long, and it is anticipated that the completion of the rating scales and questions will take approximately ten minutes.

The results of this study will indicate whether people experience negative emotions in response to challenging behaviour. It is anticipated that this information will be useful in informing training and support programmes for people who work with challenging behaviour.

If you agree to take part in this study, you will be free to withdraw your participation at any time. This includes the point at which you are viewing the video. If, for any reason, you wish to stop watching the video, you may do so at any time. You will not be asked to justify your decision.

Participation will be anonymous and a copy of the findings will be available for your information.

Your participation would be greatly appreciated. If you are willing to participate, please complete and sign the attached consent form and return it to me.

If you would like any further information about the study, or if you have any questions, please do not hesitate to contact me.

Thank you.

Dominique Mossman, Trainee Clinical Psychologist,
University of Southampton.

Appendix C

Consent form

CONSENT FORM

**Is challenging behaviour aversive to others? Special educators' self-report
emotional reactions to self-injurious behaviour**

Name:.....

Please complete the following:

Have you read the information sheet? Yes / No

Have you had the opportunity to ask questions and discuss this study? Yes / No

Have you received satisfactory answers to all your questions? Yes / No

Have you received enough information about the study? Yes / No

Do you understand that you are free to withdraw from the study:

- At any time?
- Without having to give a reason for withdrawing? Yes / No

Do you agree to take part in this study? Yes / No

I.....hereby consent to take part in the above named clinical research investigation about which I have received written information.

Signed.....

Date.....

Appendix D

Emotional Reactions to Challenging Behaviour Scale

Challenging behavior and emotional reactions

Below is a list of emotions that caregivers have said they experience when they have to work with children and adults who display challenging behaviors. We want to know how you felt in response to the self-injurious behavior you have just seen on the video. Consider each of the emotional reactions below, and select the response next to each item that best describes how you were feeling whilst watching the video. Please circle a number next to each of the emotions listed.

	No, not at all	Yes, slightly	Yes, moderately	Yes, very much
SHOCKED	0	1	2	3
BETRAYED	0	1	2	3
GUILTY	0	1	2	3
HOPELESS	0	1	2	3
AFRAID	0	1	2	3
ANGRY	0	1	2	3
INCOMPETENT	0	1	2	3
SAD	0	1	2	3
FRUSTRATED	0	1	2	3
HELPLESS	0	1	2	3
DISGUSTED	0	1	2	3
NERVOUS	0	1	2	3
RESIGNED	0	1	2	3
FRIGHTENED	0	1	2	3
HUMILIATED	0	1	2	3

Appendix E

Disturbingness rating scale

Challenging behavior and emotional reactions

Please indicate on the scale below how disturbed you were by what you saw on the video. Please circle your response.

Not at all
disturbed

Moderately
disturbed

Extremely
disturbed

|
1

|
2

|
3

|
4

|
5

|
6

|
7

Appendix F

Knowledge of Behavioral Principles as Applied to Children Scale (short version)

Challenging behavior and emotional reactions

The following questions ask generally about how parents and education staff might deal with children's desirable and difficult behaviour. Please read each question and each of its four possible answers. Sometimes, more than one answer could be correct under certain circumstances. However, please select the answer that you think is the BEST answer or the answer that is most generally true. Tick the box next to the answer that you select. Please only select one answer for each question. Please answer every question even if you have to guess for one or more of the questions.

Which of the following is most important for parents in controlling their child's behaviour?

- The rules that parents make about behaviour.
- The parents' understanding of the child's feelings.
- The behaviours to which the parents attend.
- Being strict, but also warm and gentle.

A boy loves football. What is most likely to happen if, each time he is playing nicely with his sister, his father invites him to play football?

- He will always be asking his father to play football.
- He will play nicely with his sister more often.
- He will be annoyed with his father for interfering with his activities.
- He will be encouraged to teach his sister to play football.

If you want your child to say 'please' and 'thank you' at the table, it is probably most important to:

- Reprimand him/her when he/she forgets to say them.
- Explain why good manners are important.
- Remember to compliment him/her when he/she remembers to say them.
- Praise other members of the family when they use these words.

A father tells a child that she cannot go to the shop with him because she didn't clean her room as she had promised. She reacts by shouting, crying and promising that she will clean her room when she gets home. What should the father do?

- Ignore her and go to the shop.
- Take her to the shop, but make her clean her room when they return.
- Calm her down and help her to clean her room.
- Talk to her and find out why she doesn't take responsibility.

Challenging behavior and emotional reactions

A baby often screams for several minutes and gets his parents' attention. Which of the following is probably the best way for his parents to reduce his screaming ?

- If there is nothing physically wrong with the child, ignore his screaming even though the first few times he screams even louder.
- Distract the child with something he finds interesting every time he screams.
- Ignore all noises and sounds the child makes.
- None of the above.

Babies usually have good reasons for screaming. A child begins to whine and cry when his parent explains why he can't go outside. How should the parent react?

- Ask the child why going outside is so important to him.
- Explain that it is a parent's right to make such decisions.
- Explain again why he should not go outside.
- Ignore the whining and crying.

If punishment is used for a behaviour such as playing football in the house, which type is probably best to use?

- Make the child do extra homework.
- Clearly express your disapproval.
- Remove the child to a boring situation each time.
- A reasonable smack.

Parents who use lots of rewards for good behaviour and few punishments will probably tend to have children who :

- Do not understand discipline.
- Will not co-operate unless they are 'paid'.
- Take advantage of their parents.
- Are well behaved and co-operative.

Johnny has just torn up a new magazine. Of the following choices, which is the best way for his mother to discipline him?

- Tell him he will get smacked by his father when he gets home.
- Punish him there and then.
- Explain to Johnny about the wrongness of his actions.
- Angrily scold Johnny so that he will learn that such an act is bad and upsetting to his mother.

Which of the following is probably most important in helping a child behave in desirable ways?

- To teach him/her the importance of self-discipline.
- To help him/her understand right and wrong.
- Providing consistent consequences for his/her behaviour.
- Understanding his/her moods and feelings as a unique person.

Appendix G

Demographic information sheet

Participant Information

1. Date of birth:

2. Gender: male female

3. Length of time working directly with people (children or adults) with learning disabilities/autism
.....years months

4. Qualifications relating to your current occupation

.....
.....
.....

5. Training courses on challenging behavior and/or content of professional training on challenging behavior

.....
.....
.....

Appendix H

Introduction to videos

Challenging behavior and emotional reactions

‘This is Mikey. He is 26 years old and has severe learning disabilities. Mikey has a history of self-injurious behavior. He hits himself on the side of the face, usually on the left hand side, but sometimes on the right. Mikey lives in a group home with four other men who have similar needs, and he attends a day centre every day. In the following video, you will see Mikey working with a Speech and Language Therapy Assistant, who is called Tim. As part of a speech therapy programme, Tim is trying to get Mikey to imitate certain actions’.

Appendix I

Scoring criteria for behavioural function questions

Attention seeking

Correct or partially correct causal hypothesis Score 1

Clear statement that the behavior results in attention from Tim when attention is at a low level. Alternatively, the behavior has been learned (e.g., Mikey has learned the consequences of the behavior, the behavior has been rewarded in the past); or a clear description of the antecedents or consequences of the behavior.

Description of the behavior as 'attention seeking' but without a clear statement of the antecedents or consequences of the behavior or any other indication that the behavior is learned.

Incorrect hypothesis Score 0

Hypotheses either related or unrelated to attention seeking that do not describe the antecedents or consequences of the behavior. A second order explanatory concept may be described (e.g. inattention, insecurity).

Task avoidance

Correct or partially correct causal hypothesis Score 1

Clear statement that Mikey is engaging in challenging behavior in order to escape or avoid the task. Alternatively, a description of the behavior as learned (Mikey has learned the consequences of the behavior, the behavior has been rewarded), or as leading to the avoidance of the task.

Statement that Mikey found the task difficult, or disliked the task. Some statement of task difficulty (e.g., Mikey did not understand the task, or task is inappropriate).

Incorrect causal hypothesis Score 0

Hypotheses either related or unrelated to task avoidance that do not describe the antecedents or consequences of the behavior. A second order explanatory concept may be described (e.g. lack of interest, lack of motivation, Mikey is trying to communicate something).

Non-social

Correct or partially correct causal hypothesis Score 1

Clear statement that the behavior has no relationship to Tim's behavior.

Alternatively, the behavior results in automatic reinforcement.

Description of the behavior as relating to causes internal to Mikey (e.g., self-stimulation, boredom).

Incorrect hypothesis Score 0

Description of the behavior as learned as a means of gaining attention or avoiding the task, or description of the behavior relating to Tim's behavior.

Appendix J (i)

Instructions to authors :

Clinical Psychology Review

CLINICAL PSYCHOLOGY REVIEW

INSTRUCTIONS TO AUTHORS

AIMS AND SCOPE: *Clinical Psychology Review* publishes substantive reviews of topics germane to clinical psychology. Its purpose is to help clinical psychologists keep up-to-date on relevant issues outside of their immediate areas of expertise by publishing scholarly but readable reviews. Papers cover diverse issues, including: psychopathology, psychotherapy, behavior therapy, behavioral medicine, community mental health, assessment, and child development.

Reviews on other topics, such as psychophysiology, learning therapy, and social psychology, often appear if they have a clear relationship to research or practice in clinical psychology. Integrative literature reviews and summary reports of innovative ongoing clinical research programs are also sometimes published. Reports on individual research studies are not appropriate.

SUBMISSION REQUIREMENTS: All manuscripts should be submitted to Alan S. Bellack, The University of Maryland at Baltimore, Department of Psychiatry, 737 W. Lombard St., Suite 551, Baltimore, MD 21201, USA. Submit three (3) high-quality copies of the entire manuscript; the original is not required. Allow ample margins and type double-space throughout. Papers should not exceed 50 pages (including references). One of the paper's authors should enclose a letter to the Editor, requesting review and possible publication; the letter must also state that the manuscript has not been previously published and has not been submitted elsewhere. One author's address (as well as any upcoming address change), telephone and FAX numbers, and **E-mail address** (if available) should be included; this individual will receive all correspondence from the Editor and Publisher.

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COMPUTER DISKS: Authors are encouraged to submit a 3.5" HD/DD computer disk to the editorial office. Please observe the following criteria: (1) Send only hard copy when first submitting your paper. (2) When your paper has been refereed, revised if necessary, and accepted, send a disk containing the final version with the final hard copy. If the disk cannot be converted, the hard copy will be used. (3) Specify what software was used, including which release, e.g., Word-Perfect 6.0a. (4) Specify what computer was used (IBM compatible PC, Apple Macintosh, etc.). (5) The article file should include all textual material (text, references, tables, figure captions, etc.) and separate illustration files, if available. (6) The file should follow the general instructions on style/arrangement and, in particular, the reference style of this journal as given in the Instructions to Contributors. (7) The file should be single-spaced and should use the wrap-around end-of-line feature, i.e., returns at the end of paragraphs only. Place two returns after every element such as title, headings, paragraphs, figure and table call-outs. (8) Keep a back-up disk for reference and safety.

TITLE PAGE: The title page should list (1) the article; (2) the authors' names and affiliations at the time the work was conducted; (3) a concise running title; and (4) an unnumbered footnote giving an address for reprint requests and acknowledgments.

ABSTRACT: An abstract should be submitted that does not exceed 200 words in length. This should be typed on a separate page following the title page.

KEYWORDS: Authors should include up to six keywords with their article. Keywords should be selected from the APA list of index descriptors, unless otherwise agreed with the Editor.

STYLE AND REFERENCES: Manuscripts should be carefully prepared using the *Publication Manual of the American Psychological Association*, 4th ed., 1994, for style. The reference section must be double spaced, and all works cited must be listed. Avoid abbreviations of journal titles and incomplete information.

Reference Style for Journals:

Raymond, M. J. (1964). The treatment of addiction by aversion conditioning with apomorphine. *Behavior Research and Therapy*, 2, 287-290.

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Appendix J (ii)

Instructions to authors:

American Journal on Mental Retardation

INFORMATION FOR AUTHORS

Manuscripts should be prepared in accordance with the *Publication Manual of the American Psychological Association* (4th 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 Assistant Editor, Yvette Taylor, 10886 Ravel Ct., Boca Raton, FL 33498; E-mail, ytaamr@aol.com; phone, 561-482-0341. For this purpose, an electronic version of the accepted manuscript should be provided. It is preferable for this to be IBM-compatible, in WordPerfect or Word on a 3.5 inch diskette.

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 and submit four copies of the manuscript and figures to the editor, Donald K. Routh, Dept. of Psychology, University of Miami, PO Box 249229, Coral Gables, FL 33124-0721. Copies will not usually be returned. If the manuscript is prepared for blind review, a cover sheet should be submitted including title, authors, affiliations, and the address of the author to whom correspondence should be directed, as well as a running head (not to exceed 40 characters). Manuscripts will be reviewed anonymously if this is requested. For anonymous review, the running head rather than the author's name should appear on each page of the manuscript, and other identifying material should be removed. Titles should not exceed 15 words. Only standard abbreviations should be used. 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 measure, 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 Assistant 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 (not typewritten) and large enough to withstand a reduction of approximately 50% in size. 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.

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.

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