Context Sampling Descriptive Assessment: A Pilot Study of a Further Approach to Functional Assessment

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Introduction

Despite the clinical and research utility of experimental functional analysis (Vollmer & Smith 1996), concerns regarding ethical issues, ecological validity and resource demands of implementing experimental analyses have ensured ongoing interest in descriptive methods of functional assessment (Lerman & Iwata 1993; Vollmer et al. 2001). Current descriptive methods however provide information regarding temporal contingencies between events, and conditional probabilities of one event in the presence and absence of another, but not about functional relationships. Furthermore, problem behaviour and functionally relevant stimuli may not be observed during assessments because carers avoid antecedents which they have observed to occasion problem behaviour. Anderson & Long (2002) and Freeman et al. (2000) therefore suggested a ‘structured descriptive assessment’ (SDA) strategy in which antecedent variables are systematically manipulated during observation of the client’s behaviour in his/her natural environment, leaving consequences for behaviours unprogrammed.

Hodge et al. (2001) further proposed that antecedent conditions prevailing in naturally occurring educational contexts such as individual instruction, group instruction and unstructured time may parallel those used in experimental assessments in that they reliably involve particular combinations of establishing operations and discriminative stimuli (e.g. task demands, reduced attention but with carers remaining present, withdrawal of attention together with withdrawal of carers), which may differentially impact on behaviours maintained by different consequences. They argued that a descriptive analysis which systematically samples a variety of such contexts may yield information comparable with that obtained through SDA. This approach, referred to here as ‘context sampling descriptive assessment’ (CSDA), however, characteristics of one situation were not as expected. Levels of problem behaviour were reliably higher in one context than in the other two.

Conclusions The demand and attention characteristics of two natural contexts were found to reliably resemble some antecedent conditions typically used in experimental functional analyses. Context sampling may improve the power of descriptive assessments to differentiate functions of problem behaviour.

Keywords: context sampling descriptive assessment, problem behaviour, severe intellectual disabilities, structured descriptive assessment
assumes that natural contexts involve consistent establishing operations on different occasions despite possible differences in approach between carers. The present study illustrates the use of CSDA in functional assessment of the challenging behaviour of a girl with severe intellectual disabilities and examines whether this assumption of consistency is justified.

**Method**

**Participant**

Ruth was a 10-year-old female student at a residential school for students with severe intellectual disabilities. Fourteen carers were also observed throughout the study.

**Response definitions**

Data were collected on two carer behaviours, ‘demand’, defined as any request (verbal, gestural or signed) made to Ruth by carers to do or not do any action, and ‘attention’, defined as any form of adult interaction (verbal, gestural or signed) with Ruth which was not classified as a demand, including praise, assistance, etc. One problem behaviour presented by Ruth was also observed, namely ‘spitting’, defined as her wiping with her hand, licking or projecting from her mouth saliva onto herself, any other person, or any object or surface.

**Procedure**

Ruth and her carers were observed in three conditions (listed in Table 1) hypothesized to involve varying levels of carer demand and attention. In ‘Academic Demand’, Ruth was observed in classroom lessons where she was asked to participate in group academic activities (e.g. describing weather conditions) and to work at tasks specified by her Individual Education Plan. In ‘Unstructured Play’, Ruth was observed during her school morning break where following a drink and snack she could engage in activities of her choice (e.g. riding a bike) while accompanied by a carer. In the ‘Reduced Attention’ condition, Ruth was observed during sessions, e.g. in a multisensory room, where non-social stimulation was available and we expected carers to place few demands on her and initiate few interactions. Three observations in each condition per week were planned over 4 weeks (36 observation sessions in total); seven planned sessions were however cancelled because of the participant’s other activities. All observations lasted 20 min and were video recorded and coded for occurrence of the carer and participant behaviours defined above using a 60-s partial-interval system.

**Interobserver reliability**

A second observer independently viewed videotapes and coded data for 11 sessions (four for each of the Academic Demand and Unstructured Play contexts and three for the Reduced Attention context). Interobserver agreement for each behaviour was calculated by dividing the number of 60-s intervals for which both observers agreed on the occurrence or non-occurrence of the behaviour by the number of 60-s intervals involving agreement plus the number involving disagreement and expressing this as a percentage; Cohen’s kappa was also calculated. Mean interobserver reliability was 85% (range 65–100%) for demand, 90% (range 60–100%) for attention, and 95% (range 75–100%) for spitting. Mean kappa values were 0.65 for demand, 0.43 for attention and 0.83 for spitting.

**Results**

**Consistency of contextual characteristics**

Figure 1 shows that, as hypothesized, the ‘Academic Demand’ context was reliably characterized by relatively high levels of demand (mean 50% of intervals, range 35–65%) and high levels of carer attention (mean 88% of intervals, range 55–100%). The characteristics of the ‘Unstructured Play’ context were also as hypothesized; it consistently involved low levels of demand (mean 10% of intervals, range 0–25%) but high levels of attention (mean 96%, range 80–100%). The observed characteristics of the ‘Reduced Attention’ context were however not as expected; instead, this situation was again reliably characterized by low levels of demand.

<table>
<thead>
<tr>
<th>Observation situations (description in parentheses)</th>
<th>Level of Demand</th>
<th>Level of Attention</th>
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<tbody>
<tr>
<td>Situation 1: ‘Academic Demand’ (classroom teaching session)</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Situation 2: ‘Unstructured Play’ (participant’s break period)</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Situation 3: ‘Reduced Attention’ (session in sensory room)</td>
<td>Low</td>
<td>Low</td>
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observed across contexts on 10 of the 11 days on which it was observed, and with the joint highest level of spitting on the 11th. By contrast, the levels of spitting observed in the ‘Reduced Attention’ and ‘Unstructured Play’ contexts did not differ systematically. Spitting was observed in a mean of 30% of intervals (range 5–55%) in the ‘Academic Demand’ context, in a mean of 10% of intervals (range 0–45%) in the ‘Unstructured Play’ condition, and in a mean of 9% of intervals (range 0–20%) in the ‘Reduced Attention’ condition.

As we did not succeed in identifying a context characterized by reduced levels of carer attention, we compared the overall (unconditional) probability of spitting with the probabilities of spitting occurring in intervals characterized by the presence or absence of carer interaction in aggregate data from the seven ‘Reduced Attention’ and ‘Unstructured Play’ sessions for which the analysis was meaningful (i.e. some spitting occurred and attention was recorded in under 100% of intervals). The unconditional probability of spitting, and its probability in intervals with carer attention present, were both 0.19; the probability of spitting in the absence of interaction was 0.18.

**Discussion**

The present study found some characteristics of naturally occurring contexts potentially relevant as establishing operations occasioning problem behaviour to be rather stable despite observations being conducted with 14 different carers. All three contexts were reliably characterized by the levels of demand expected. The levels of attention observed were also stable within each context and were, as hypothesized, high for the ‘Academic Demand’ and ‘Unstructured Play’ contexts, but were...
unexpectedly high also for the ‘Reduced Attention’ context. The highest levels of problem behaviour were consistently found in the ‘Academic Demand’ context, suggesting that academic demands served as an establishing operation occasioning spitting, with consequent interruption or withdrawal of demands reinforcing the behaviour.

Our ability to find, within a special education setting, naturally occurring contexts with antecedent characteristics similar to those of the ‘Academic Demand’ and ‘Unstructured Play’ conditions typical of experimental analyses and structured descriptive assessments suggests that Hodge et al.’s (2001) method is valid even where considerable numbers of different carers are involved. Our failure to identify an effective ‘Reduced Attention’ context probably relates to specifics of the setting (high staffing levels) and participant (an active and sociable girl) involved in this study. Although we identified a context in which carers would typically be present but initiating few interactions, Ruth herself initiated frequent interactions to which carers responded. Further research will be necessary to determine whether contexts can be identified which reliably show the features we expected of the ‘Reduced Attention’ context, i.e. carers present but interacting relatively little with clients.

The current study has various limitations which should be addressed in future research. First, replication in various settings will be necessary to determine whether contexts reliably characterized by relevant establishing operations can be identified in diverse settings. Second, the low kappa figure for attention should be noted. Given the relatively high corresponding percentage agreement figure and the high levels of attention recorded in all conditions, the extent to which this reflects limitations of kappa as a measure of agreement given high levels of event occurrence, and the extent to which it suggests problems with our definition and observation of this variable, is uncertain. Third, the present study demonstrated differentiation of levels of problem behaviour in the ‘Academic Demand’ and ‘Unstructured Play’ (i.e. control) contexts, but because of our failure to identify an effective ‘Reduced Attention’ context we did not examine levels of problem behaviour under such conditions. Comparison of unconditional levels of spitting in the ‘Reduced Attention’ and ‘Unstructured Play’ conditions with levels given the presence or absence of carer attention in the same interval did not suggest that spitting was increased under conditions of temporarily reduced attention. As, however, we used a rather large observation interval, and within intervals did not differentiate between attention prior to and consequent on spitting, it remains possible that high levels of problem behaviour might also have been seen in an effective ‘Reduced Attention’ condition, suggesting gaining attention as well as task avoidance as a probable function of Ruth’s behaviour. To demonstrate the utility and validity of the CSDA approach, further research is required which clearly establishes behavioural function (ideally of several functionally distinct behaviours) through experimental or more rigorous descriptive methods and demonstrates variation in levels of problem behaviour across different CSDA contexts consistent with previously identified function. The results of this preliminary study suggest however that CSDA merits consideration as a clinically feasible method for using descriptive assessment to produce some of the information which has traditionally been sought through experimental methods.

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References