


Functional behavioural assessment (FBA) and challenging behaviours; Supporting behaviour change for children with Autism Spectrum Disorders (ASD)

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Structure of the Workshop

- 💡 Basics regarding autism and challenging behaviours
 - 💡 Indirect Assessment
 - 💡 Direct Assessment
 - 💡 Functional Analysis
 - 💡 Concluding remarks / Summary
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Diagnosis and Related Characteristics

Autism is one of the extensively and broadly discussed disorders, and therefore a generally accepted definition is hard to find. Thus, although there are many definitions of autism all of them identify impaired ability for social interaction and communication, and idiosyncratic behaviours and deficits.

Etymologically, autism derives from the Greek “auto” which means “self” and it is used to describe a pervasive developmental disorder characterised by severe impairments in several areas of development including *reciprocal social interaction skills, communication skills and the presence of restricted, repetitive, and stereotyped patterns of behaviour, interests and activities.*

Challenging behaviours

A common co-varying group of behaviours with autism are challenging behaviours. These behaviours are problematic in that they are physically dangerous and can impede learning and access to normal activities. Additionally, they require a considerable amount of resources, and compound the difficulty in treating core symptoms.

A general definition of challenging behaviour may be:

“Culturally abnormal behaviour(s) 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 behaviour which is likely to seriously limit or deny access to and use of ordinary community facilities” (Emerson 2001)

From a more practical 'perspective', challenging behaviours are challenging because they are highly resistant to change. They tend to persist in children with ASD and serious chronic problem behaviour can endanger a child's access to educational and social opportunities. They are often harmful to the people who exhibit them or to others, a factor that substantially increases clinical concern.

In autism, challenging behaviours include: *self-injury, physical aggression, verbal aggression, non-compliance, disruption of the environment, inappropriate vocalizations, stereotypies.*

While challenging behaviours are not considered central to the core features of autism, their presence can be a major impediment to activities, socialisation and other learning opportunities.

Undoubtedly, treatment of challenging behaviours or their management during therapeutic sessions appears to be more than essential. Refined methodologies such as functional assessment help to empirically determine variables maintaining the problem behaviours and to identify effective reinforcers for individuals who need treatment. With this information in hand, treatment procedures can be developed which are more likely to be effective than they might be able to do otherwise. *Functional (Behavioural) Assessment* is based on the science of behaviour analysis; treatment procedures derived from this science are nowadays the best empirically validated ones.

Functional Behavioural Assessment

Functional behavioural assessment (FBA) is a precise description of a behaviour, its context, and its consequences, with the intent of better understanding the behaviour and those factors influencing it.

The purpose of the FBA of behaviour is to determine which contingencies maintain an individual's problem behaviour.

Approaches to assessment

- 1) Indirect Assessment
- 2) Direct Descriptive Assessment
- 3) Functional (Experimental) Analysis

These approaches differ in terms of the type of data collected and the extent to which environmental events are merely observed or actually manipulated during the course of assessment.

1. Indirect assessment

A number of structured interviews and checklists have been developed to solicit information about situations in which problem behaviour occurs.

- ✓ Quick and easy, but data sources can be subjective.
 - Interviews are based upon retrospective recall.
 - Triangulating a number of different data sources minimised these disadvantages.
- ✓ Goal is to identify which of the main antecedent and consequence event in the environment are linked to behaviour.
 - To identify how the environment (not the individual) should be changed to better ensure student success (adaptive behaviour).

1. Indirect assessment (cont)

- ✓ Areas of enquiry
 - What are the problem behaviours?
 - What events or physical conditions occurring well before the behaviour appears to predict its occurrence?
 - What events/situations occurring just before the behaviour appears to predict its occurrence/non-occurrence?
 - What consequences appear to maintain the behaviour?
 - What adaptive/appropriate behaviours might produce the same consequences as the problem behaviour?
 - What is the behaviour intervention history and what does it tell us about the problem behaviour?

1. Indirect assessment (cont)

Functional Assessment Interview

- ✓ Used to develop hypotheses or summary statements about the distal and immediate antecedents, and the immediate or contingent consequences related to the occurrence of a challenging behaviour. It involves the following tasks:
 - i. Identify the target (problem) behaviour.
 - ii. Obtain information on the behaviour history.
 - iii. Identify the consequences of the target behaviour.
 - iv. Identify the replacement (more acceptable and adaptive) behaviour.
 - v. Identify the consequences of the replacement behaviour.
 - vi. Identify antecedents for both target and replacement behaviour.

An example / Multimedia



1. Indirect assessment (cont)

The primary advantage of indirect methods is their simplicity and efficiency: assessment occurs during the course of an interview and takes only a few minutes. However, because the data consist solely of verbal report, which can be inaccurate for a number of reasons, these methods have been found to be unreliable (Sturmey, 1994). Therefore, they should be used only as preliminary information-gathering devices and should not serve as the basis for developing intervention plans.

Functional Behaviour Assessment

Section I: Description

Data Sources: ☐ Observation | ☐ Student Interview | ☐ Parent Interview

Date: _____

Child: _____

Assessed by: _____

Description of the behaviour

Setting(s) in which the behaviour occurs

Frequency of behaviour

Duration of behaviour

Consequences to peers, staff members, or instructional environment

Descriptions of or references to previous interventions

Functional Behaviour Assessment

Section II: Analysis of Function

Check the hypothesised function(s) for the behaviour and describe

Date: _____

Child: _____

Assessed by: _____

☐ Gain attention

☐ Gain a tangible consequence

☐ Gain a sensory consequence

☐ Escape from or avoidance of an undesirable situation

☐ Affective regulation / emotional reactivity

☐ Make a comment or declaration

☐ Release tension

☐ Fill a habitual need

☐ Other

Functional Behavior Assessment

Section III: Behavioral Intervention Plan

Date: _____

Child: _____

Assessed by: _____

	Expected Outcomes / Replacement Behaviors	Interventions & Frequency of Interventions	Intervention Review Notes	
1				Person Responsible
				Review Dates
				1 _____
				2 _____
				3 _____
2				Person Responsible
				Review Dates
				1 _____
				2 _____
				3 _____
3				Person Responsible
				Review Dates
				1 _____
				2 _____
				3 _____
4				Person Responsible
				Review Dates
				1 _____
				2 _____
				3 _____

Behaviour Observation Form 1

Child: _____

Page: _____ of _____

Date: _____ Record #: _____ Use Intensity Scale # _____

Start		Antecedents	Behaviour	Consequences
End				
Intensity				
Initials				
Setting		People	Activity	Comments

Intensity Rating Scales

Student: _____

Page: _____ of _____

Behaviour: _____ Scale # _____

1	2	3	4	5
6	7	8	9	10

1. Indirect assessment (cont.)

Rating Scales

- ✓ **Analysis of Sensory Behavior Inventory – Revised [1994 by Kimble Morton and Shiela Wolford].**
- ✓ **Communicative Behaviors Checklist [O’Neil et al (1997). *Functional assessment and program development for problem behavior: A practical handbook*. Pacific Grove, CA: Brooks/Cole].**
- ✓ **Problem Behavior Questionnaire [Lewis et al. (1994). The problem behavior questionnaire: a teacher-based instrument to develop functional hypotheses of problem behavior in general education setting. *Diagnostic*, 19, 103-115].**

Rating Scales (cont.)

- ✓ **Motivational Assessment Scale** [Durand, V. M., & Crimmins, D. B. (1988). Identifying the variables maintaining self-injurious behavior. *Journal of Autism and Developmental Disorders*, 18, 99–117].
 - 16-item questionnaire rated on a seven-point Likert-type scale.

- ✓ **Functional Analysis Screening Tool** [Iwata B. A. & DeLeon I. G. (1995). *The Functional Analysis Screening Tool (FAST)*. University of Florida, FL].
 - 16-item functional assessment tool designed to assess four functional properties of a problem behaviour: (1) Social (attention/preferred items), (2) Social (escape from tasks/activities), (3) Automatic (sensory stimulation), (4) Automatic (pain attenuation).



Rating Scales (cont.)

- ✓ **Questions About Behavioral Function Scale** [Matson, J. L., & Vollmer, T. R. (Eds.). (1995). *User's guide: Questions About Behavioral Function (QABF)*. Baton Rouge, LA: Scientific Publishers].
 - 25-item questionnaire
 - It includes five subscales (i.e., attention, escape, tangible, non-social, and physical).
 - It is scored on a 4-point Likert scale from 0 (never) to 3 (often).
- ✓ **Functional Assessment for Multiple CausaliTy** [Matson et al. (2003). The development and factor structure of the Functional Assessment for multiple causaliTy (FACT). *Research in Developmental Disabilities, 24*, 485-495].
 - It is scored on a 4-point Likert scale from 0 (never) to 3 (often).
 - It uses a forced-choice question procedure .
 - The subscales of the FACT (i.e., attention, escape, tangible, non-social, and physical) are identical to the QABF.

2. Direct Descriptive Assessment

This approach involves direct observation of behaviour and the environmental situations in which it occurs (Bijou, Peterson, & Ault, 1968).

The most common form of descriptive analysis is known as A-B-C recording (A - antecedent, B - behaviour, C - consequence), in which an observer enters data whenever problem behaviour occurs: time and setting, problem behaviour, and events occurring immediately prior to and following the target behaviour.

Antecedents are the environmental events immediately preceding the behaviour while the environmental events immediately following the behaviour are called the consequences.

Behaviour Observation Form 2

Child: _____

Page: _____ of _____

Date:	Setting	Activity	Antecedent	Behaviour	Consequence	Comments
Record #:						
Start:						
End:						
Intensity:						
Scale #:						
Initials:						

An example / Multimedia



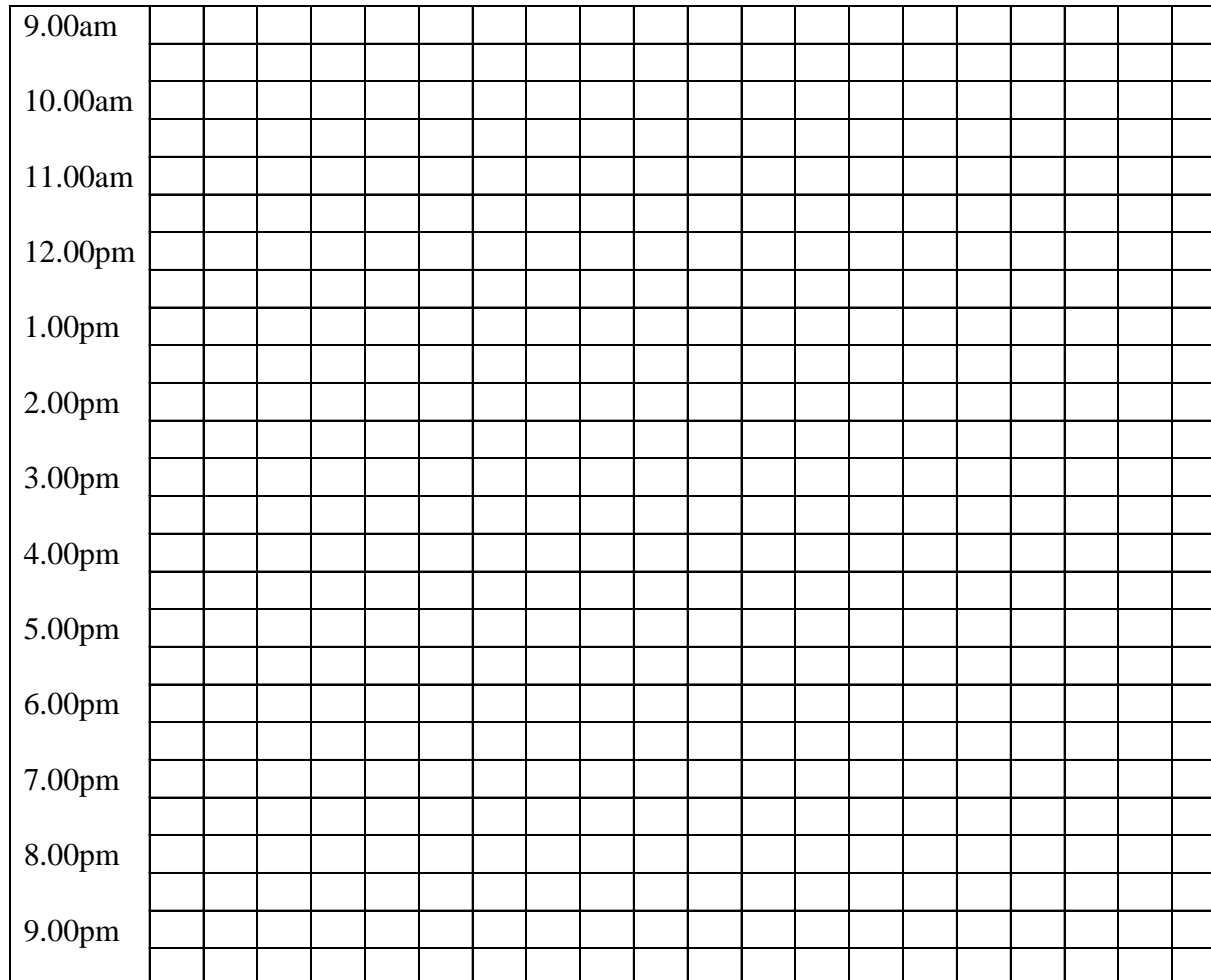
An example of a Scatter Plot*

Client_____

Starting Date_____

☐ No present ☒ Low Frequency ☐ High Frequency

TIME OF DAY
THIRTY MINUTE INTERVALS



Based on Touchette et al (1985). A scatter plot for identifying stimulus control of problem behaviour.

Journal of Applied Behavior Analysis, 18, 343-351.

2. Direct Descriptive Assessment (cont)

Because the descriptive analysis is based on direct observation rather than on informant recall, it is far superior to the indirect approach and is perhaps the most frequently used method of assessment.

Limitations

- it does not allow control over the environmental contexts in which behaviour occurs;
- the occurrence of problem behaviour may be related to multiple events; and
- the data may not reveal relationships between behaviour and intermittent sources of reinforcement that result in low conditional probabilities.

3. Functional (Experimental) Analysis

When descriptive analysis yields ambiguous results, a functional analysis may be conducted to allow systematic introduction and removal of environmental events during predefined test and control conditions.

A VIDEO

The background of the slide is a solid blue color. In the lower half, there are several sets of concentric circles, resembling ripples in water, rendered in a lighter blue shade. These circles are of varying sizes and are positioned towards the bottom right of the slide.

What are the goals of functional analysis?

- a) Define the problem behaviour
- b) Identify possible causes of behaviour
- c) Predict when the problem behaviour will occur
- d) Design effective treatment programmes

a) Define the problem behaviour

One of the first and most important steps when planning to assess and treat someone's problem behaviour is to objectively and specifically define that behaviour. A well-defined behaviour is important so the behaviour can be reliably or consistently observed and treatment can be administered as intended.

b) Identify possible causes of behaviour

General categories of causes include: (i) positive reinforcement or events, objects or sensory stimuli that, when they immediately follow a behaviour, result in an increase in rate of the behaviour (automatic reinforcement is included which refers to the occasions when the behaviour can be maintained by consequences delivered via the behaviour itself) and (ii) negative reinforcement or stimuli or events (e.g., demands, tasks, internal stimulation, attention) that, when removed immediately after a behaviour, increase its rate. The *function matrix* is a useful tool for identifying the possible causes or the ways that a behaviour was reinforced.

Using the Function Matrix

There are only two ways that a behaviour is reinforced (i.e., through positive reinforcement or negative reinforcement). To decide whether positive or negative reinforcement maintains the behaviour, we simply ask whether the behaviour (a) allows access to something (*positive reinforcement*) or (b) allows escape from something (*negative reinforcement*).

The next thing you need to know is the **something**.

We can divide all reinforcers into three simple (main) categories:

- (a) attention,
- (b) tangibles and/or activities, and
- (c) sensory (e.g., warmth, touch, pleasant sounds or avoid pain, discomfort, noise etc).

Using the Function Matrix (cont.)

The Function

Because there are two functions of behaviour and three types of reinforcers, there are six unique possibilities you might identify:

1. Positive reinforcement (access) - attention
2. Negative reinforcement (escape/avoid) - attention
3. Positive reinforcement (access) - tangibles/activities
4. Negative reinforcement (escape/avoid) - tangibles/activities
5. Positive reinforcement (access) - sensory stimulation
6. Negative reinforcement (escape/avoid) - sensory stimulation

Using the Function Matrix (cont.)

The Function Matrix

The 'Function Matrix' presents the principles necessary to determine function as part of a grid that has three columns and four rows.

	Positive Reinforcement (Access Something)	Negative Reinforcement (Avoid Something)
Attention		
Tangibles/ Activities		
Sensory		

Using the Function Matrix (cont.)

The Function Matrix - A more analytical description

This example demonstrates how the grid design of the Function Matrix results in the six combinations of functions and reinforcers

	Positive Reinforcement (Access Something)	Negative Reinforcement (Avoid Something)
Attention	Positive Reinforcement— Attention	Negative Reinforcement— Attention
Tangibles/ Activities	Positive Reinforcement— Tangibles/Activities	Negative Reinforcement— Tangibles/Activities
Sensory	Positive Reinforcement— Sensory Stimulation	Negative Reinforcement— Sensory Stimulation

Using the Function Matrix (cont.)

Aside from simply using one of the previous six phrases to describe function of the target behaviour, you should also create a statement of function that clearly communicates the function of the target behaviour.

Writing a Statement of Function - Purpose of the Statement of Function

The goal of writing a statement of function is twofold: (a) to provide information relevant to making effective intervention decisions, and (b) to clearly communicate the function of the behaviour to other persons in crafting and implementing the intervention.

To meet these needs, the statement of function should include (a) the antecedent, (b) the person, (c) the target behaviour, (d) the function(s) of the behaviour, and (e) any brief additional information that may aid other professionals in understanding the statement.

EXERCISE

Using the Function Matrix - Multiple Functions

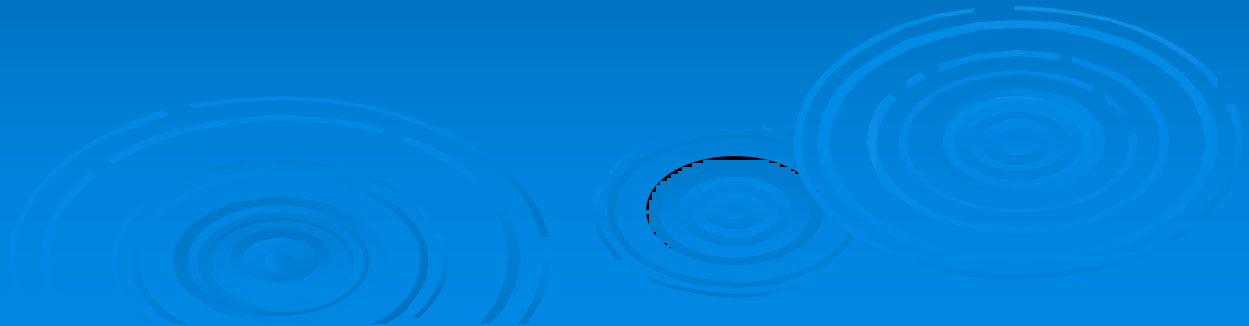
Function Matrix for Charlie

	Positive Reinforcement (Access Something)	Negative Reinforcement (Avoid Something)
Attention		
Tangibles/ Activities		
Sensory		

EXERCISE

Using the Function Matrix - Multiple Functions

Function statements for Charlie



c) Predict when the problem behaviour will occur

Information gathered from functional analysis may allow prediction of the circumstances under which the problem behaviour is likely to happen and alter them in some way to decrease the likelihood of the problem behaviour.

d. Design effective treatment programmes

Consideration of the possible causal variables for the problem behaviour is important for the selection of effective treatment.

Treatment will vary depending on the functional hypothesis or reason for the problem behaviour.

If one could specify which aspects of a procedure led to more problem behaviour, one should then be able to change the procedure so as to effect a reduction in problem behaviour.

3. Functional Analysis (cont.)

Advantages:

- It is the only approach to assessment that identifies cause – effect relations.
- Its flexibility allows one to examine the influence of numerous and potentially subtle variables on behaviour

Limitations:

- It is the most complex form of assessment, requiring therapists to maintain a high degree of consistency in implementing assessment conditions.
- The procedure can be time consuming and sometimes arranging the different situations can be difficult (e.g., in a classroom with many students).
- When the problem is multiply determined or low rates of occurrence of the problem behaviour exist, then interpretation of the results of a functional analysis may also be difficult.

Functional analysis in action

Typical conditions in which levels of the problem behavior can be measured and compared include:

- (a) attention condition wherein reprimands (e.g., “No, don’t do that”) are delivered after each problem behaviour;
- (b) tangible condition wherein a preferred object (e.g., toy, food) that is out-of-reach is given to the child following each problem behaviour;
- (c) demand condition wherein a task is presented and following instances of the problem behaviour it is removed for a brief period;

Functional analysis in action (cont.)

- (d) play condition wherein toys are provided, the therapist interacts positively with the child and any instances of the problem behaviour are ignored; and
- (e) alone condition wherein the child is placed in a therapy room alone with no toys available. The alone and play conditions are typically used as a control or comparison conditions with the other conditions (i.e., demand, tangible, attention). These conditions can be conducted in a laboratory situation (analogue) or in the situation where the child's problem behaviour naturally occurs (e.g., classroom, home).

An example / Multimedia



Summary

☞ A functional behavioural assessment (FBA) is a precise description of a behaviour, its context, and its consequences, with the intent of better understanding the behaviour and those factors influencing it. Its purpose is to determine which contingencies maintain an individual's problem behaviour.

☞ Approaches to assessment

- 1) Indirect Assessment (e.g., behavioural interview, checklists, rating scales etc.)
- 2) Direct Descriptive Assessment (A-B-C recording)
- 3) Functional (Experimental) Analysis

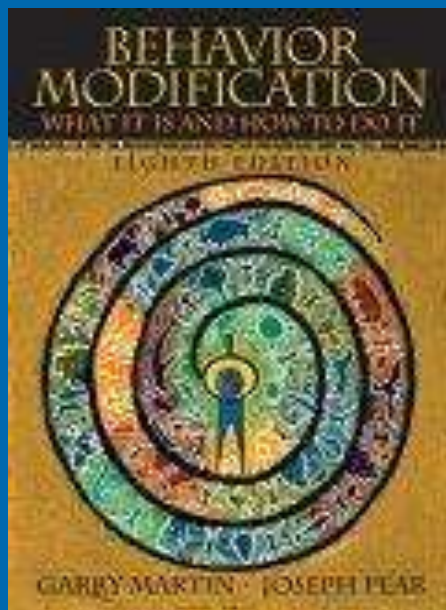
Summary (cont.)

- ☞ The functions of many problem behaviours (e.g., aggression and self-injurious behaviours), can be grouped into two main categories; positive reinforcement (including automatic reinforcement) and negative reinforcement.
- ☞ Among the positive reinforcers that may be responsible for increasing an individual's problem behaviour can be negative attention, preferred tangibles, and sensory stimulation.
- ☞ Negative reinforcers may include escape from difficult work, certain situations (e.g., crowds, noise), or a certain level of stimulation (e.g., too hot, hungry, or boring).

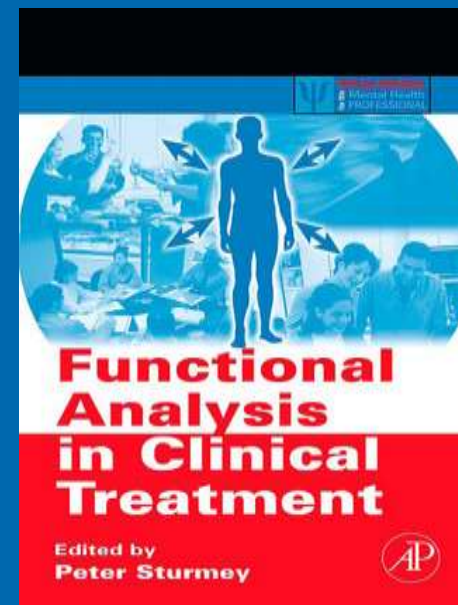
Suggested introductory reading



Cooper, J.O., Heron, T.E., & Heward, W.L. (2006). *Applied behavior analysis*. (2nd ed). New York: Macmillan.



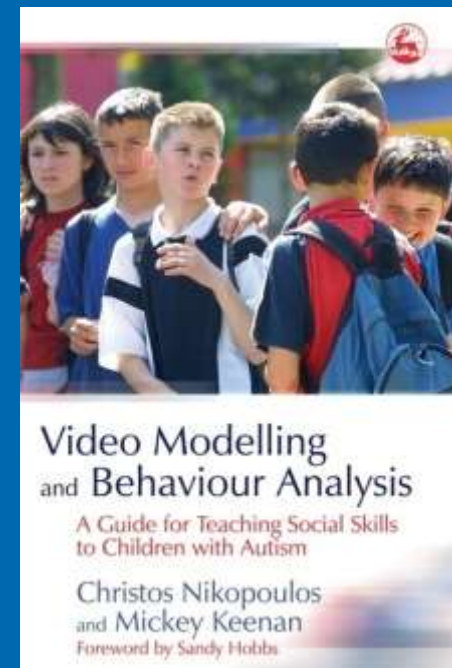
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