

Applications of Functional Analysis in the Management of Problem Behaviors and Intervention Strategies

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Abstract

This paper reports on the work carried out in a school setting, focusing on a case study of an individual with intellectual disabilities who had significant behavioral challenges. The problematic behavior was operationally defined by describing its form, function, intensity, duration, and frequency. Functional analysis was then conducted, in accordance with the behavioral and psycho-educational literature, by analyzing the relationship between Antecedents, Behavior, and Consequences, in order to predict and control the problem behavior. Once the behavior was defined and the link between A, B, and C was analyzed, it was possible to modify the behavior by intervening in the triggering factors of the antecedent situation, as well as the contingent reinforcement in the consequent event.

Keywords: functional analysis; observational tools; problem behavior; behavior diary; observation sheet; antecedent situation; intensity; duration; frequency; stimulus situation.

1. Introduction

Behavior can be defined as the way in which a subject interacts with the surrounding world, including every word, action, and reaction that characterizes their behavior, or their way of responding to environmental, physical, and relational stimuli. Our behaviors have various functions, and they are always oriented towards communicating something, responding to a need, avoiding certain situations, fulfilling desires, and achieving goals. Hence, all behaviors are oriented toward adaptation, communication, and the satisfaction of various needs (primary, contact, recognition, etc.).

Received: 4/2/2023

Accepted: 4/30/2023

Published: 5/17/2023

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A behavior can be defined as 'problematic' when it is maladaptive, hinders learning, obstructs the development of new skills, interferes with or obstructs the maintenance of already acquired skills, poses danger to oneself and others, interferes with the performance of normal daily activities, and interferes with the performance of daily and non-daily activities.

Problematic behaviors, especially in schools, represent a barrier to functional adaptation and the development of new skills, as well as learning since they entail excessive psychophysical overload for the student and are associated with anxious, tense, fearful, and uncomfortable states.

An example of problematic behavior can be excessive emotional reactions to certain situations, such as anger crises over small frustrations or systematic opposition to adult requests (such as teachers, tutors, etc.). Moreover, behavior that receives pleasant consequences, such as attention from an adult, has a greater likelihood of being repeated, while behavior that receives an unpleasant response or no response is less likely to be repeated. The function of problematic behavior is linked to the situation or context.

Problematic behavior is, in fact, a complex and varied manifestation of actions (escaping, throwing objects, attacking others, self-injury, screaming, etc.), but it is not necessarily the manifestation of a psychopathological disorder, although problematic behaviors are often positively correlated with intellectual disabilities and autism [1]. The risk factors for the onset of problematic behavior include difficulty in language, limited communication skills, learning difficulties, and a limited behavioral repertoire.

Some time ago, the present report documented the work carried out in a school setting, focusing on a case study of an individual with intellectual disabilities who exhibited severely compromised emotional-identity profiles on the behavioral level, including unstable outbursts, hetero-aggressive behavior, oppositional-provocative behavior, stereotypies, and destructiveness towards objects. These manifestations are classified as problem behaviors (PB) according to the literature of Special Education [1].

2. Materials and Methods

In this report, we specified the subject's problem behavior in terms of observable and measurable actions, as suggested by scientific literature. To do so, we used the following observational tools: indirect tools, including interviews with family members, analysis of available documentation, and reports from operators and teachers who knew the subject; and direct tools, which included the Behavior Diary and Functional Analysis, the latter utilizing the ABC observation sheet, which specifies the Antecedent, Behavior, and Consequence of the problematic behavior.

Table 1: Categories of Problem Behaviors (PB) Organized by Frequency.

Primary category of Problem Behaviors (PB)	Medium-low frequency.	Low frequency
Yelling/swearing. :^^^/ / ooooo	Objects throwing: II II Kicking : I I	Hitting (apparently)

After identifying the frequency of PBs, the duration of each behavior, and the intensity of the response (B), Functional Analysis allowed for hypotheses to be formulated about the causes of the PB, as well as the consequences (C) that were perpetuating it. In the present case, when presented with a stimulus (A), the subject engaged in the "category" of PB (B) represented below as an example:

Table 2: Antecedent, Behavior, Consequence.

(A) Antecedent	(B) Behavior	(C) Consequence
Welcoming in the classroom, some activities are proposed to the subject.	The subject starts with yelling, swearing, and stereotypes.	The subject is asked to stop (attention is given).
The subject is invited to want to stop.	The subject continues with the problematic behavior.	The subject is distracted and taken outside for a walk.

2.1 Hypotheses about the function of the observed CPs

The functional analysis allowed to hypothesize:

- the context in which the CP occurred, A Antecedent,
- what happened after the subject had manifested the CP (B Behavior), C Consequence.

From the analysis of the A B C observation sheet, it emerged that the category of problematic behaviors analyzed (including the most recurring and transversal ones to several examined situations, such as "screaming, swearing") was maintained first of all by the attention of others: operators, classmates, teachers. The subject evidently had experienced reinforcement.

Table 3: Inventory of Agitated Behaviors Over Time.

1. Exemplificative representation

∏ Object throwing ° swearing
 ∩ kicking ^ yelling

Monday	Tuesday	Wednesday
n ^^^ oooo ∏ ∩	^^^ ooo ∩	^^ ooo ∏
Thursday	Friday	Saturday
^^^ oo ∏	^^^^ ooo ∏	^^^ oo ∩

In addition, the environmental context (i.e. the A, Antecedent) that was poorly structured, unpredictable, and distracting, including events, situations, and classroom dynamics, may have represented a stimulus situation for the occurrence of the analyzed CPs.

2.2 Intervention strategies

The above findings provided the basis for considering the type of intervention strategies to be implemented, aimed at achieving at least a reduction in the observed CPs. Such strategies, which have been widely known and applied as evidenced by the vast literature of scientific works and publications on behavioral psychology, were implemented by acting on the events:

- Antecedents (A),

- Consequences (C).

According to the scientific literature, strategies that act on antecedent events are called proactive, as they aim to prevent the CP by reducing the probability of its occurrence. On the other hand, those that act on consequences and are used to manage the CP when it occurs are called reactive, as they prevent the CP from obtaining reinforcement.

In the present case, priority was given to proactive strategies, while not excluding some reactive strategies, as will be seen later.

To achieve an effective process leading to a reduction in the CP exhibited by the subject, the first step was to intervene in the environmental context, both physical and social (psychological environment, in [2].), i.e., on Antecedents by creating the following conditions:

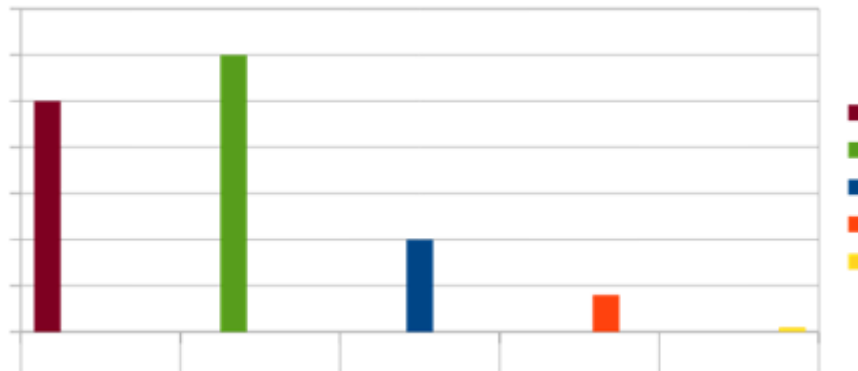
A well-defined and organized environment, less distracting, constant, understandable, predictable, and controllable:

- A serene and reassuring relational climate favorable to dialogue and collaboration
- A positive attitude towards the boy
- Modulating communication in a lively and fun way
- Clarity in requests and rules, the latter expressed with images (visual supports)
- Teaching other forms of communication using multimedia means
- Leveraging the subject's skills and interests
- Agreed-upon reduction in hours
- Using appropriate "reinforcements"
- Offering the possibility to choose a preferred activity (empowerment)
- Promoting and developing communicative exchanges with peers
- Effectively organizing participation and rest times, avoiding dead times.

Moreover, interventions were carried out in parallel on the consequences of the CP (C Consequence) to ensure that an event followed it that could reduce the likelihood of that specific CP recurring in the future. In this case, the chosen interventions on the consequences C (reactive procedures) were:

- extinction, whereby a problem behavior exhibited by the subject was countered by ignoring it, thus removing the positive reinforcement that could be the attention of the operators;
- extinction combined with differential reinforcement (proactive procedure), in the sense that instead of reinforcing a specific problem behavior exhibited by the subject, alternative behaviors were reinforced (e.g. rewarding, giving attention), so that reinforcement was not given to the problem behavior, but to the absence of it;
- maintenance of instruction and, parallelly, reinforcing adequate responses to the instructions.

Table 4: Representation of the C.P. acts and their evolutionary decrease over time.



legend : C.P. priority (units)

time (01 ,02, months)

It should be noted that there is a general evolutionary trend in which there appears to be a substantial reduction in problem behaviors, with the exception of a few isolated events, several weeks after the interventions were implemented.

3. Results

The results of the educational intervention, which lasted for over four months, were very positive. The graph shows the evolution of the subject's inappropriate behaviors, which were monitored throughout the intervention using a systematic observation sheet. Specifically, the graph shows the average values of the number of times the subject exhibited the most recurrent problem behavior (yelling and cursing) during the four-month intervention period. The trend shows a progressively decreasing, albeit non-constant, pattern, characterized in general by a reduction in the frequency of problem behaviors, even some months after the intervention was terminated. This containment did not undergo appreciable changes over time.

4. Conclusions

This experience, beyond the opportunity it represents for us professionals in terms of psycho-educational and behavioral issues, can also be an occasion, in our view, to draw attention to the problematic behaviors, more or less severe, that arise and are sustained nowadays in many schools in our country. These behaviors tend to reappear in the classroom context in the majority of cases, with greater frequency where students with a more vulnerable emotional and identity sphere (students with special educational needs, hyperactivity, borderline, low self-esteem, etc.) are present.

Therefore, ultimately, only by analyzing the psycho behavioral function that a certain problematic behavior plays in a specific context can we hope to reduce or modify it and promote a virtuous process that guarantees these students their involvement in school life, with positive effects on their individual and social growth. This is the challenge that educators are called upon to face and, hopefully, overcome today, in the perspective of a real policy of inclusion, using strategies and tools that psycho-educational and behavioral science provides us.

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