

Info-QcABA

The Quebec Association for Behaviour Analysis'
official newsletter

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First Issue of Info-QcABA

By Marc Lanovaz, M.Sc., BCBA

Dear members and friends,

We are very proud to launch the first issue of Info-QcABA, Quebec Association for Behaviour Analysis' official newsletter. We hope to be able to publish two issues per year.

In each issue, you will find an article that clarifies a term often misused in behaviour analysis (see page 1), an interview with a professional or researcher who works in behaviour analysis here or elsewhere (see page 3), an article on behaviour analysis in Quebec (see page 5) and an article summarizing a topic of research for clinicians in the field.

We strongly invite you to contact us if you have original ideas to share, wish to write an article for the newsletter, or want to offer your help for publishing our next issue. Do not hesitate to forward your comments and suggestions so that we can improve the newsletter.

Enjoy our first issue!

Differential Reinforcement

By Myra-Jade Lui, BCaBA

“Differential reinforcement is a procedure involving two or more physically different behaviours; one behaviour is reinforced, and all other behaviours are extinguished. All three elements must be present before the procedure can be called differential reinforcement.” (Miller, 2006, p.193).

In essence, differential reinforcement (DR) is the attack of behaviours from two different positions: increasing desirable ones using reinforcement, and decreasing undesirable ones by simultaneously applying extinction. It is a term frequently misused or misunderstood by many parents, paraprofessionals, and sometimes even professionals working in the field of applied behaviour analysis (ABA). Miller's simple, yet clear definition of DR above describes the elements that complete this procedure, and in doing so clarifies what it is not. Most commonly, differential reinforcement seems to be mistaken with using either different schedules of reinforcement, different magnitudes of reinforcement or discrimination training.

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Myra-Jade Lui

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Looking at the “popular culture” media available on the topic it is easy to find examples of this term being misused. For example, doing a search under “differential reinforcement” on Google and YouTube will get you the following <http://www.youtube.com/watch?v=1NelgTwEcpM>, <http://abatherapists.com/differential-reinforcement-aba-therapy/>, and <http://www.autismtreatment.info/what-is-differential-reinforcement.aspx>, all within the first few pages of this search. In the YouTube video, the learner is given a little bit of cookie for 1) a response under the control of a full verbal prompt, 2) an independent but poorer approximation of the target response, and finally 3) is given lots of cookie for the full, independent response. The use of better quality or larger quantities of reinforcement is actually an example of using differing magnitudes of reinforcement, or additional reinforcement for certain responses. In the video example, reinforcing responses within the same response class (approximations of the same response) with lesser magnitudes of reinforcement could fall under the classification of DR if the less desirable response had been put on extinction.

Another example often misused is when new skills are reinforced after each occurrence, whereas known mastered skills are reinforced less frequently. Let’s say a child is learning a new word “ball” (when he is shown a picture of a ball) and already knows the words “car”, “cup”, and “apple”. The adult will reinforce the child’s response of “ball” in the initial phases of teaching, but the other words will likely be reinforced less frequently. This is an example of using different schedules of reinforcement for different responses. In this example although there are two physically different behaviours (saying “ball” versus the others “car” or “cup”), extinction is not applied to any of the behaviours, but a thinner schedule of reinforcement is applied to the behaviours that are already likely to recur in the future.

Lastly, there are times when discrimination training is confused with DR. For example, these sites <http://www.usu.edu/teachall/text/behavior/LRBIpdfs/Differential.pdf> and <http://www.autismnetwork.org/modules/behavior/dr/lecture01.html#topic1> define DR as a discrimination process. This is not entirely wrong, but to define DR as discrimination training is like saying that DR is shaping. Yes, shaping is a process that utilizes the procedure of DR, but they cannot be used interchangeably.

Differential reinforcement is used constantly by behaviour analysts in their work in procedures such as shaping, discrimination training, and the reduction of problem behaviour. In shaping, reinforcement is given for the closer and closer approximations towards a target response, with the lesser approximations systematically extinguished at the same time. For the reduction of problem behaviour, several variations are effective such as DR of an alternative behaviour (DRA), other behaviours (DRO), and low/high levels of behaviours (DRL/H). Interestingly, these do not tend to be as misused by the general public as much as the basic definition of DR. However, it is undeniable that DR itself is so commonly and frequently misunderstood that our field has some work to do to clarify one of its most fundamental and important procedures to those who apply them.

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Sustaining Members

QcABA thanks you for your support!

Sylvie Bernard

Sylvie Donais

Jacques Forget

Nathalie Garcin

Marc Lanovaz

Marie-Pierre Leblanc

Gisela Regli

Interview with Kathy Pickel, behaviour analyst

By Kelly Kerr

Kathy Pickel, M. Ed., BCBA, is the clinical advisor of Miriam Home and Services' early intensive behavioural intervention (EIBI) program, Learning to Learn. She began her career in behavior analysis in the 1970's as summer staff for the Butters Centre, which at the time was a private institution. Studying part-time, she completed her Bachelor's degree in Psychology from Loyola University while working for the centre during its de-institutionalization. As such, she became one of the first educators in Quebec and later became a coordinator.

After completing her Master's degree in Education in Maryland, she returned to Quebec to teach at Vanier College in the Special Care Counseling program and began training others to become educators. During the next twenty years of teaching, she also worked as a behaviour consultant for Miriam Home and Maison Shalom with all age groups. From 2003 to 2009, she relocated to Kingston, Ontario, to become the clinical supervisor for the entire southeast of Ontario as part of the South East Regional Autism

Project and also became one of the provincial trainers for EIBI. Both in Kingston and at Miriam Home, Kathy oversaw the transition from an approach almost exclusively based on discrete trial teaching to one that puts a stronger emphasis on the functions of verbal behaviour and natural environment teaching.

What do you see as the most challenging parts of running EIBI programs using an approach that encompasses both discrete trial and natural environment teaching?

"The preparation time. Since intensive table teaching (ITT) presentation is at such a quick pace, you need cue cards or some sort of system in place in order for instructors to be efficient. This, combined with the multiple exemplars needed for each target as well as the need for well prepared natural environment teaching (NET) sessions means a lot of preparation time is needed per week. You need about 6 hours of indirect time each week per child for this preparation time including data input and graphing.

The approach that we use is also a challenge in a clinic setting, because you have to create the natural environment, which requires ample furniture, toys, etc. For this reason and the administrative costs, it is actually more cost effective to run home sessions. However, the home has own drawbacks, namely that supervision is not readily available. Personally, I like the clinic model with at least one home session every two weeks. In this scenario, it's important that we are flexible with home vs. clinic time depending on the individual needs of the child, and that we are also open to go to daycares and schools too."



*Kathy Pickel and children who
receiving EIBI*

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Kathy Pickel from page 3

What motivated you to become a Board Certified Behavior Analyst (BCBA) and what benefits does it bring to your practice?

“It began as a professional goal and then became both professional and personal. I received more satisfaction out of attaining that certification than any before it. Of all the aspects of getting certified, I found the supervision to be the most valuable part for me. It’s so productive to receive feedback from other professionals. To have to defend what, why or how you are doing something ‘keeps you on your toes’ and proves valuable to ones professional growth as no one person has all the answers.”

Would you recommend certification to other professionals?

“People have to make themselves credible. This is one way to do so but its not the only way. There are other avenues. Whatever the route, I think its important to back one’s education with experience. You need both the theoretical and years of application in your repertoire. I think that in 10 years you will need to be board certified in order to practice anywhere in the role of senior therapist or clinical supervisor. It is already mandatory in Ontario. We seem to be a little behind here in Quebec. “

Having lived and worked in other places, what do you think of Behaviour Analysis in Quebec? What do you think would improve it?

“I think that there is a lot of confusion about what is and what is not applied behaviour analysis (ABA) and most seem to intertwine the terms EIBI and ABA as one and the same without realizing that ABA is the science and EIBI is one way of applying the science. In looking ahead we need to ensure consistency in delivery and that we are collecting data so that we can make evidence based decisions. This will also help with quality assurance.

I am proposing that we set guidelines to be adhered to by both public and private providers and that are readily available for families seeking services. Short of word of mouth, there are not any clear or formal avenues for families to find private therapists. I am hopeful that the QcABA will play a role in rectifying this.

Funding needs to be increased to the public sector in order to gain a higher quality of service and also serve more children and thus decrease the waiting list. The Quebec ministry gives less than half of the funding than that in Ontario per child, for the same hours.

I also think that we need to be more open here in Quebec to collaborate at every level and across ministries. Particularly interdisciplinary collaboration not only between ‘public providers’ and speech language pathology, occupational therapy, and physiotherapy professionals, but also between public and private EIBI providers, schools and daycares.

We also could improve peer support between clinical supervisors, to have venues where we can present cases to each other and give and receive ideas, resources, strategies and recommendations. There is a lot to be learned from others!”

How has the science of Behavior Analysis changed during your career?

“I think we are better at it, that is, more knowledgeable and careful about applying it. We are better at assessing children and basing curriculum on those assessments. Best practices are being more thoroughly adhered to and keeping all on the ‘straight and narrow’. We’ve become better at starting with procedures that are less intrusive and using more intrusive measures only when necessary.

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There is so much more available in terms of appropriate schooling and training, so we are seeing better trained people in the field. We are also better at training staff and also parents by realizing that we need to use more of a layman's interpretation of the techniques.

I think professionals now rely more on research than they did previously. Often, I go to the literature to see what is current when I am deciding how to approach something. The Internet of course has helped a lot with this with the inclusion of many journals and free sites such as the Journal of Applied Behavior Analysis (JABA) are invaluable.

Functional Analysis has helped considerably in how we deal with challenging behavior. Before, we would just look at a problem behavior and try to decrease it with whatever means was available, usually time out. We are also better at realizing the value of communication in decreasing challenging behaviors, with functional communication training, and teaching in the NET."

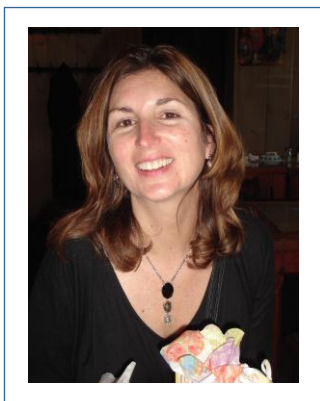
Where do you see the science and clinical practice going? Where would you like to see it go?

"Certainly technology is changing the way we do things, and helping us to be more efficient in terms of report writing, data taking, graphing, and analysis. I am a little worried about the use of the iPad and other such devices - they are a great tool and we should embrace them, but at the same time we know that many of our clients have a strong affinity for computer games and devices, so we have to be wary about them being the 'be all and end all'.

In terms of research, I'd like to see more comparative literature between the various approaches (e.g., Lovaas vs. Sundberg approach). I also think we need more investigation into the use of strategies to decrease behaviours. This will help guide us in delivering the most effective treatment."

EIBI Effectiveness: An Answer to Critics

By Dr. Sylvie Donais, psychologist



Sylvie Donais

The current article is written as a reply to the recent articles published in La Presse (LaCoursière, 2011), which criticized the choice of EIBI as an intervention for children with pervasive developmental disorders (PDD). The intervention is currently provided by Readaptation Centers in Intellectual Disabilities and Pervasive Developmental Disorders (CRDITED) in Quebec and by professionals who have private practices.

The critics on EIBI are not new (see the debate between Lovaas & Schopler: Lovaas, Smith & McEachin, 1989; Schopler, Short & Mesibov, 1989; see also www.autismtreatmentcenter.org/contents/other_sections/aba-son-rise-program.php). One reason for these critics is that behaviour analysts have not been efficient in communicating information about their practices

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(Chance, 2006).

In our opinion, this debate between professionals is not helping children with PDD or their families. Therefore, this article aims to inform the reader on how to choose a treatment and on the status of research on EIBI. Secondly, the current services offered in Quebec are described. Lastly, suggestions are made to ensure that we respect the right of children with autism and their families to receive the most effective treatment.

Choice of Treatment

In order to help parents choose a treatment among numerous interventions for children with PDD, Green (1996) presented a three-choice model to classify the current research for various interventions.

Option 1. Effective treatment, following controlled studies

These treatments include interventions based on ABA for various populations and EIBI for young children with PDD. The Picture Exchange Communication System (PECS), developed by Frost & Bondy (2010), is also one of these interventions.

Option 2. Ineffective treatment, following controlled studies

These types of intervention were assessed by studies that included a control group. An example of an intervention that is detrimental for children with autism is facilitated communication. The therapist prompts the child to communicate his or her requests and thoughts with a computer keyboard. Following many studies, the American Psychological Association (2003) has issued a notice to inform the public of the non-effectiveness of this intervention.

Option 3. Treatment with a lack of research

Many interventions are actually offered to children with autism without being proven by controlled research, such as Sensory Integration, Gluten free diet and Relationship Development Intervention (RDI) developed by Gustein (2007). Controlled research is necessary to evaluate the effectiveness of these interventions.

Professional Obligations

As professionals consulting families about treatments, it is our obligation to follow our Code of Ethics. The Code of Ethics of psychologists states that “Psychologists must practice according to generally recognized scientific and professional principles, in keeping with good practice in psychology” (article 5, Ordre des psychologues du Québec). As a psychologist who has been implementing behavioural interventions with children with PDD for 20 years, the following question is asked: which treatments have scientific support for children with autism, what are components and treatment conditions related to their effectiveness?

Consequently, our work is to individualize the treatment for the child and family consulting us, and to stay updated about new studies in the field.

The Behavior Analyst Certification Board (BACB) in the United States has developed guidelines for a responsible conduct (see <http://www.bacb.com/index.php?page=57>) to ensure the quality of services offered by behaviour analysts. These guidelines state that the work of the behaviour analyst involves the following responsibilities toward his client:

- 1) To protect the client’s rights,
- 2) To offer a treatment based on the most recent scientific knowledge and technology,
- 3) To apply a treatment following high standards of quality, and

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4) To ensure that no client is being refused the right to an effective treatment.

Some statements that are not based on research, such as those published in *La Presse* (Lacoursière, 2011), are not helping parents who have to choose an effective treatment for their child. The Association for Science in Autism Treatment (ASAT; www.asatonline.org) has published a set of guidelines to help journalists base their writings on research instead of reporting only opinions of people interviewed. In addition, the Website reviews the scientific data available and makes recommendations on available interventions for children with autism.

The critics in *La Presse* stating that « there is mild evidences of the effectiveness of EIBI » is surprising, because it comes from professional, who have to follow a scientific approach in their practice.

Status of Research on EIBI

Because studies on EIBI have used various methodologies, it is difficult to compare them and to make conclusions on the effectiveness of the treatment. Furthermore, the children are responding differently to EIBI. However, two recent meta-analyses were published and make conclusions about the intervention (Makrygianni & Reed, 2010; Eldevik, Hastings, Hughes, Jahr, Eikeseth & Cross, 2009). These types of study measure the strength of the relationship between the treatment and measures of the child's behaviours.

Makrygianni & Reed (2010) have analyzed fourteen studies published from 1987 to 2007 on EIBI as applied across the world. They conclude that EIBI is more effective at improving various abilities than eclectic treatments. The variables correlated with behavioural treatment effectiveness were the intensity (25 hours and more), the duration of intervention, the parent's training, the child's age and a high level of adaptive behaviours before treatment. However, the authors report the following limitations of the studies analyzed: a small sample of children; the absence of a control group, comparison group or random assignment of participants; and the use of non-uniform measures of child progress. They conclude that researchers have to coordinate their measurements of children's progress in order to be able to compare their results more effectively.

Eldevik et al. (2009) have analyzed nine studies with an experimental group and either, a control group or a comparison group (i.e., eclectic interventions). These authors conclude that, compared to the absence of intervention or an eclectic treatment, EIBI produces moderate to large changes in IQ and adaptive behaviours. These results support the choice of EIBI as a treatment for children with PDD. However, in order to compare EIBI to other interventions, other controlled studies are necessary, including the same number of hours of intervention and the same type of therapist training and supervision.

EIBI in Quebec

Based on the conclusions of the Office canadien de coordination de l'évaluation des technologies de la santé (2001), the Ministry of health and social services has mandated the CRDITED of Quebec to offer EIBI to young children with PDD in 2003. Since 2004, an average 700 preschoolers have been receiving EIBI every year. Furthermore, more than 600 educators have been trained to apply EIBI and more than 100 people have received training as a clinical supervisor (FQCRDITED, 2011). This treatment has also been applied by clinicians in private practice in the Montreal for more than 20 years.

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This initiative has given the opportunity for children with PDD and their family to receive a treatment based on scientific evidence in public services. Currently, some studies are being conducted to assess treatment effectiveness in Quebec (Des Rivières-Pigeon, Courcy, Savourin, & Granger, 2010; Ministère de la Santé et des Services sociaux et le Fonds québécois de la recherche sur la société et la culture, 2010; Rivard, Mercier, Gladu, & Lemaire, 2010).

Following 20 years of experience training parents and therapists in the delivery of EIBI, it is clear that improvements have to be made for both public and private services. First, the Ministry should develop guidelines, as in Ontario (Ministry of Children and Youth Services, 2006), to ensure the consistency in behavioural interventions and therapist training. Because of the cost related to this intensive treatment, we observe differences in training between CRDITED. Consequently, some apply behavioural interventions based on research, and others include interventions that are not supported scientifically, such as sensory integration. Although the province of Quebec offers staff and clinical supervisors training, other training programs in ABA and EIBI have to be implemented in order to follow the BACB criteria.

In addition, as behaviour analysts, we need to improve our ability to inform parents about interventions supported by research to assist them in choosing an effective treatment for their child with autism. Finally, a database should be created on EIBI offered in private practice and in CRDITED in Quebec. This database could be designed by independent researchers in order to compare the children's progress based on the intensity of treatment and variety of approaches in EIBI. This type of study would help to answer questions about the choice of treatment for children with PDD and would greatly improve service delivery in Quebec.

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Ruled-Governed Behaviours

By *Mélanie Laberge*

Recent studies suggest that at times there seems to be a gap between research in experimental behaviour analysis and its clinical applications. This text presents results on research in the experimental analysis of behaviour. It examines the sensitivity towards rules in children with autism spectrum disorders (ASD). Many studies have looked at the effects of rule-governed behaviours in adults, yet studies with children show differing results and only a few studies have been conducted with children with ASD. The purpose of this review is to present the results of studies on rule-governed behaviours performed with typical children and with children with ASD. In addition, the authors' hypotheses regarding certain clinical problems are emphasized, to illustrate the relation between experimental studies and their clinical applications.

“The concept of rule-governed behaviour is present in several studies concerning intervention modalities for children with ASD.”

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Behaviour under the control of a rule is rule-governed behaviour. A rule is defined as a verbalization which tells an individual what he or she should do (Hersen, Gross, & Drabman, 2005; Malcuit, Pomerleau & Maurice, 1995). It must describe the contingency of reinforcement (Skinner, 1969). The behaviour of adults is often under the control of rules. Actually, it is not necessary to experience the contingency of burning oneself on the stove to follow the rule “ do not touch the stove, it is still hot ”. In everyday life, reinforcement contingencies are not always specifically identified by rules. A request such as “Come here ” can be considered to be a rule, but does not represent the contingency. Rules can therefore represent idiosyncratic functional relations, specific to an organism or a culture (Glenn, 1987).

The status of a rule is not unanimously agreed upon between different authors in behaviour analysis. Some consider them to be a form of discriminative stimulus (S^D ; Catania, 1989; Cerutti, 1989; Galizio, 1979; Skinner, 1969). Others argue that a rule can maintain its effect on behaviour without being presented beforehand (Ferster & Skinner, 1957) and that an S^D should always be presented before the behaviour (Schlinger, 1990). The fact that a rule can maintain its effect over time can influence the analysis of a behaviour by an observer.

In experimental analysis of behaviour, certain authors defend the hypothesis that behaviours of children are first shaped by reinforcement contingencies. With the development of language, behaviour patterns become governed by rules. This change happens between four and six years old (Lowe, 1979). Studies with young children who have not acquired language have shown that reinforcement programs using a fixed interval (FI), where the reinforcer is available after the first response following a fixed interval of time, resulted in a scallop behaviour pattern (Clément, 2006; Forget, 2008). A scallop effect is defined by a post-reinforcement pause proportional to the length of the interval followed by an accelerated rate of response toward the end of the interval (Clement, 2006).

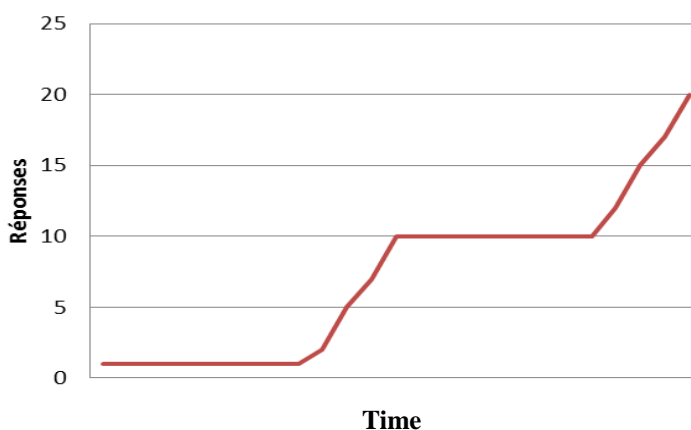


Figure 1. Rates of responding with scalloping

Other studies with older children who have developed language have shown mixed behaviour patterns. These patterns include scallop effects of slow and maintained rates (Bentall & Lowe, 1987; Bentall, Lowe, & Beasty, 1985). The older children presented slow and maintained

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response rates, similar to those presented by adults during a fixed interval (FI) reinforcement schedule. Behaviours of older children who have developed language are sensitive to rules, like those of adults. In addition, one study showed that typically developing four-year-old children were capable of describing contingencies of reinforcement. However, they explained them in an inexact manner (Pouthas & Jacquet, 1987). In children, the behaviour controlled by rules depends on two factors: the development of verbal self-regulation skills and the understanding of what a rule is made of (Droit et al., 1990).

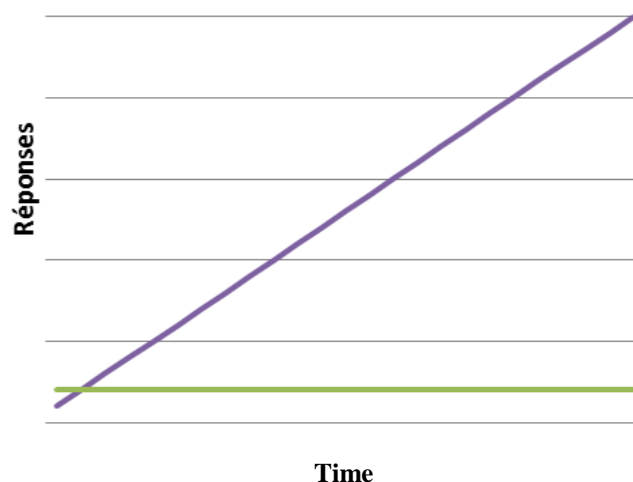


Figure 2. Slow and maintained rates of responses.

On the other hand, other studies (Darcheville, Rivière et Wearden, 1993) have shown results, which seem contradictory to those obtained by Lowe and his colleagues (Bentall & Lowe, 1987; Bentall et al., 1985; Lowe, Beasty, & Bentall, 1983). Although the results of Darcheville et al. (1993) did not contradict Lowe's hypothesis, they showed that children under two years old can show similar behaviour patterns to those of adults. These results would explain that the differences in results between both groups of researchers are artefacts of experimental research methods. In effect, the methods used in both studies were different and hence could have influenced the results. Other studies are necessary to learn more about children's sensitivity to rules or to reinforcement contingencies.

Few studies have been done on the sensitivity towards rules and on reinforcement contingencies in children with ASD (Newman, Buffington, Hemmes, 1991). One study with two teenagers on the autism spectrum who were verbal and presented intellectual disabilities, showed that reinforcement was maximized, even when they received a precise rule, a wrong rule, or no rule at all. According to the results of this study, it seemed that the teenagers with ASD could maximize reinforcement in an environment, which was adequately structured, no matter what type of rule was received (Newman et al., 1991). These results show that behaviours of teenagers with ASD would be more sensitive to reinforcement programs than to rules. The study only contained two participants; further studies are necessary in order to learn about the topic.

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Rule-Governed Behaviours from page 10

In applied analysis, the concept of rule-governed behaviour is present in several studies concerning intervention modalities for children with ASD. For example, rule-governed behaviours are often practiced with social scenarios or illustrations (Rogers, 2000). With these interventions, the person's understanding of poorly articulated rules (social, situational, or abstract) is developed (Shopler & Mesibov, 1986). The differentiation between rule-governed behaviours and those shaped by contingencies is useful to set up interventions if different performances are related to the children's behavioural deficits (Catania, 1990), which first requires a functional assessment of behaviours.

Some authors hypothesize that, since all children do not respond the same way to proposed interventions, the presence of rule-governed behaviours could explain the failure of certain interventions (Kasari, 2002; Love, Carr, & LeBlanc, 2009; Hasting & Brown, 2000). Problematic behaviours presented by people with ASD who have acquired language could be due to rule-governed behaviours, which may be insensitive to the functional analysis of behaviour (Love et al., 2009). Functional analysis identifies variables favouring the appearance of problem behaviours and provides a framework for assessment and intervention (Hanley, Iwata, & McCord, 2003). This method reaches its targets by experimentally observing behaviours, which are often shaped through reinforcement contingencies. As such, a client could generate for himself a rule that governs his behaviour which possibly could interfere with the functional analysis because the behaviour would not be sensitive to reinforcement contingencies in the environment (Love et al., 2009). More studies are necessary to learn more about rule-governed behaviours in typically developing children and especially in those who have an ASD. Several interventions build on rule-governed behaviour to help children with ASD develop new behaviour, but little is known on their sensitivity to rules. In the future, hypotheses will have to be experimentally tested to examine whether rule-governed behaviours may interfere with certain interventions.

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