Behavior Analysis and the Treatment of Human Psychological Suffering

Yvonne Barnes-Holmes[1] and Ciara McEnteggart[1]

[1]National University of Ireland Maynooth

Corresponding author: Dr. Yvonne Barnes-Holmes
Room SF11
Department of Psychology
2nd Floor John Hume Building
Maynooth
Co. Kildare
+353 1 7086080
yvonne.barnes-holmes@nuim.ie

Abstract

While one might believe that behavior therapy (as an application of behavioral principles) would have functional analysis at core, this is not the case. In fact, many behavior therapies focus on symptom excesses, and do not account for the complex nature of human suffering. In Section 1 of this chapter, we offer a potted history of the successes and failures of the 'three waves' of behavior therapy. Specifically, the first and second waves pertain to classical and operant conditioning techniques respectively, but neither account for the complex nature of human suffering. Consequently, third-wave therapies began to adapt elements from outside of behavior-analytic tradition (e.g., acceptance). In Section 2, we introduce Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001) as an alternative to traditional behavior analysis. Indeed, this radical rethink of language and cognition, that stems from a functional and behavioral perspective, appears to suggest functional-analytic ways to understand and manipulate complex human behavior. Thus, we outline some interesting ways in which this basic account of language can offer a *functional*, *bottom-up* approach to suffering that modern behavior therapies appear to have lost.

Keywords: behavior analysis, behavior therapy, Relational Frame Theory, Acceptance and Commitment Therapy, Dialectical Behavior Therapy, Functional Analytic Psychotherapy, functional analysis

For decades, clinical psychology has organized behavior and individuals within categorical symptom-based systems of classification, most notably as in the Diagnostic and Statistical Manual (DSM, e.g., American Psychological Association, 1994). This topographically-based method of categorization does not resonate easily with the behavior-analytic tradition, deeply rooted in functional contextualism (Hayes, Long, Levin, & Follette, 2013). Indeed, topographies offer little direction on the function of any behavior and thus, organizing behavior along topographical dimensions says little about how behavior comes to emerge, is maintained, or can be altered. For the behavior analyst, this limitation applies equally to appropriate and 'dysfunctional' behavior.

Applied Behavior Analysis (ABA) as the dominant application of behavioral principles, and its focus on developmental disabilities in particular, often relies upon a simple distinction between behavioral excesses and deficits. And, perhaps surprisingly, this simple distinction has proven very useful in guiding categorizations of behavior and directing programs of behavior change. For example, if a child with autism shows deficits in eye contact, and eye contact is an essential prerequisite to socialization, than establishing eye contact is an obvious place to start towards social aptitude. Hence, the categorization of eye contact as a *deficiency* in a broad social repertoire is helpful. A range of intervention tools (similar to those used to train other behaviors) then become available for establishing this skill.

Interestingly however, no functional analysis is involved in the type of diagnostic process described above. What occurred clinically was a simple set of working assumptions: eye contact is essential for socialization; the frequency of eye contact was deemed to be at a level that was inappropriately low (e.g., by virtue of age), and likely to reduce access to reinforcers; hence the frequency of that behavior needed to be increased; and this was likely needed before more complex social skills could be established. The primary functional-

analytic piece of this puzzle concerns two aspects. First, there may be an alternative behavior which is currently reinforced (and thus may be categorized as excessive) and which provides reinforcement that would otherwise follow eye contact. Second, one needs to ensure that eye contact is established with appropriate (social) reinforcers and that when the behavior occurs, this is what maintains it in the child's repertoire.

As can be seen from Point 1 above, an excessive behavior often accompanies a deficiency, but is more functional analytic in nature. That is, as soon as one suspects that a child engages in a behavior which she/he should not, or should do so to a much lesser extent, this immediately begs the question about what contingency maintains the behavior. Again, in most cases, a more appropriate alternative behavior occurs at a low rate (i.e., is deficient), and the observed behavior provides access to reinforcement not enabled by the deficient response. For example, a child might tantrum for attention instead of manding. Much of ABA is like this and operating this simple model has been hugely successful for establishing those types of target behaviors in developmentally disabled populations.

There is little evidence that such a simple distinction between behavioral excesses and deficits would have similar benefits with the complex problems that characterize psychological suffering. In other words, perhaps this latter clinical context requires sophisticated functional analyses because topographies are so varied, and the histories of the individuals in question are already so well established (Barnes-Holmes, Barnes-Holmes, McHugh, & Hayes, 2004). We are not proposing that the simple distinction between behavioral excesses and deficits has *no* utility in this context, we are moreso suggesting that it alone is not enough. Indeed, the proliferation of extensive fine-grained systems of categorical classifications, such as DSM, appears to support this suggestion.

As a result, one might assume that the behavior therapies traditionally used as applications of behavioral principles to complex clinical problems rely heavily on

sophisticated functional analyses. Interestingly, however, this is not as much the case as one would think. Section 1 of the current chapter offers a potted history of how behavioral principles have been used to understand and treat clinical or psychiatric problems, and to what extent these applications have been successful. The history of what is collectively referred to as "behavior therapy" has been loosely summarized as 'three waves' (Moran, 2008). The first wave was mostly influenced by the principles of classical conditioning and largely comprised counter-conditioning techniques. The second wave[1] moved forward with the newly discovered principles of operant conditioning and mainly comprised exposure techniques. Although they represent a clear progression towards greater behavioral complexity, neither of these waves rested upon particularly complex accounts of human behavior, nor did they suggest that there was anything different at the level of process about psychological suffering versus more typically-observed behavior. For example, classical and operant conditioning processes are both readily observed in nonhuman behavior.

Section 1 thereafter summarizes the third wave of behavior therapies, including Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991); Dialectical Behavior Therapy (DBT; Linehan, 1993); and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). These appear to represent a fundamental shift in thinking from their second-wave predecessors, with a new approach to complex behavior that was stimulated, at least in part, by Skinner's account of verbal behavior. According to this perspective, classical and operant conditioning principles, such as those observed with nonhumans, cannot fully explain the types of behaviors that are psychologically problematic.

While even greater behavioral complexity can be accounted for by this shift upwards to verbal behavior, it is interesting that all three therapeutic approaches that comprise the

[1] We would like to highlight that some authors might include the cognitive revolution within the second wave of behavior therapies (i.e., the introduction of cognitive behavioral therapy [CBT]), however, the present classification is simply another way of organizing the history of behavior therapy for the purposes of this chapter.

third wave of behavior therapy also possess elements that are not germane to the behavioral tradition. For example, DBT, FAP, and ACT all focus heavily on facilitating psychological acceptance, and DBT is directly influenced by Buddhism. Our key point from Section 1 of the present chapter is that although Skinner's account of verbal behavior (1957) clearly moved the field forward in its ability to tackle greater complexity, the various transitions evident in the third wave of behavior therapies suggest that even this was not adequate in accounting for the types of complex behavioral problems that comprise psychological suffering. In other words, it appears that behavior therapy has difficulty adhering only to its behavioral roots when trying to generate comprehensive accounts of human suffering and how it can be alleviated.

In Section 2, we introduce Relational Frame Theory (RFT) -- a radical rethink of language and cognition from a functional and behavioral perspective. Although the theory has not specifically generated clinical applications (i.e., it is a scientific account, not an application), the deeply rooted functionality inherent in its concepts appears to suggest functional analytic ways in which clinically relevant behavior can be understood and manipulated. Indeed, the latter end of the chapter explores some interesting examples of ways in which RFT concepts can be translated directly into clinical application, thereby offering the type of functional bottom-up approach to psychological suffering that even behavior therapy has not seen before.

We would like to be explicit from the outset about our choice of using the phrase 'psychological suffering' over the standard term "psychopathology". In truth, we do not believe that there is much 'pathological' about psychological suffering, and even if there are physiological elements to this, they would not be of interest to behavioral psychologists or behavior therapists whose job is to understand and manipulate behavior directly. Furthermore, we believe that the pathology model of this type of suffering has done the

science of understanding and sufferers a great deal more harm than good. Hence, in functional-analytic terms, nothing is to be gained from continuing to operate this model. Indeed, *novel* (non pathology-oriented) behavior by scientists and clinicians in terms of identifying new models and approaches is to be strongly encouraged. The current chapter is a move towards this aim.

SECTION 1: DEVELOPING BEHAVIOR THERAPY

First-Wave Behavior Therapy

As a direct result of a massive body of evidence in support of the basic principles of learning, it was not long before someone asked about whether these principles, although largely abstracted from work with nonhumans, could be applied to the understanding and treatment of various patterns of psychological suffering. And this application of principles is precisely what Watson and Rayner (1920) did, even before operant learning principles were fully articulated. While there are little or no other psychological therapies against which Watson and Rayner's suggestions can be compared, what is important to note is their emphasis on directly applying basic learning principles with nonhumans to human problems. This translation or abstraction appears to rest on two basic assumptions that may or not be correct (Barnes-Holmes et al., 2004). First, the continuity assumption states that the principles observed with nonhuman behavior operate somewhat similarly in the context of human behavior (Hayes, Fox et al., 2001; Skinner, 1938). Indeed, this assumption proved particularly useful in the development of ABA as therapy for autism (e.g., Lovaas, 1981), which rests primarily on operant conditioning principles abstracted by Skinner from animal behavior. Second, all behavior (normal and 'abnormal') involves the same behavioral processes, such as classical and operant conditioning. Watson and Rayner's account of phobia as conditioned fear responding to previously neutral stimuli is a classic example. However, in spite of enormous support for the basic principle of classical conditioning, the

concept saw little translation into applied settings beyond Watson and Rayner's account of phobia, and even that had many critics (e.g., Harris, 1979; Samelson, 1980).

Second-Wave Behavior Therapy

Within 40 years, even greater scope and depth were promised with the emergence of the new broader learning principles that governed operant responding. This suggested a wholly novel method of tackling the complexity of human behavior and suffering, and how they might be influenced. For example, Wolpe (1958) proposed systematic desensitization and counter-conditioning for the treatment of anxiety and phobia. Mowrer (1960) proposed that repeated exposure to a feared stimulus extinguishes the fear response and reduces avoidance. Bandura and Menlove (1968) proposed the concept of modeling as an explanation for the development of substance abuse and phobia. Seligman (1974) proposed the learned hopelessness model of depression.

What coordinates each of these approaches is that they tried at their core to remain close to the basic scientific principles of operant learning, much the same as these principles applied to nonhumans. Indeed, although Skinner's account of verbal behavior was available to them, this was not readily harnessed in any of these second-wave approaches. This transition did not fully occur until the emergence of the third wave of behavior therapies.

Third-Wave Behavior Therapy

Functional Analytic Psychotherapy (FAP). The core techniques of FAP are firmly rooted in radical behaviorism, particularly a behavior analytic account of the therapeutic relationship (Kanter, Tsai, & Kohlenberg, 2010). These techniques are not normally packaged as a therapeutic program, but are rather designed to be used in conjunction with other behavior therapies *or* to be introduced specifically when a client's relationship skills are problematic. The basic principle of FAP is that therapeutic benefits are maximized when problematic behaviors are activated in vivo (Kohlenberg & Tsai, 2002). This principle arises

from two traditional behavioral assumptions. First, behavior is most likely to be changed when the context is changed, rather than trying to change responding directly. Second, shaping is more likely to be effective when consequences are immediate rather than delayed. As such, FAP focuses more on in-session behaviors, rather than talking about behaviors that occur elsewhere, as is common in therapy. As a result, the therapeutic relationship lies at the core of this contextual contingency-based approach.

FAP's strict adherence to its behavioral roots is readily illustrated by its five core rules (Kohlenberg & Tsai, 2002). First, therapists should identify clinically relevant behaviors in terms of: (a) Problematic behavior *in-session* that relates to the client's reported problem; (b) Absence of behavior that would alleviate the problem; and (c) How the client *describes* the problem and its cause. Second, therapists should create an environment in which the likelihood of these behaviors occurring in-session is increased. Third, therapists should reinforce behaviors that will alleviate the problem, preferably with natural reinforcers to aid generalization outside of therapy. Fourth, therapists should be aware of the influence of their own behavior on the client's clinically-relevant behavior. Fifth, repertoires for describing their own behavior in functional terms should be developed with clients. Although, not as behaviorally consistent, FAP argues that it promotes acceptance through improved self-observation, reduced self-criticism and more consistent reinforcement of positive behavior in-session. Specifically, the change of context increases the likelihood of the acceptance of aversive situations outside of therapy. With the exception of the middle-level term 'acceptance', FAP is otherwise an almost entirely functional-analytic form of therapy, with functional analyses required by all of its core principles.

While there no current no randomized-controlled trials investigating the efficacy of FAP, there are a vast number of case studies which support FAPs effectiveness in treating human suffering, for example: depression; smoking cessation; obsessive compulsive disorder;

sex offending; personality disorders; and panic (Holman et al., 2012; Lopez Bermudez, Ferro, & Calvillo, 2010; Manduchi & Schoendorff, 2012; McClafferty, 2012; Newring, & Wheeler, 2012; Pankey, 2012).

Dialectical Behavior Therapy (DBT). DBT operates a much broader biopsychosocial model that is most often applied to para-suicidal behavior and Borderline Personality Disorder (BPD; Linehan, 1993). Specifically, the core psychological problems targeted by the therapy are emotional dysregulation and invalidation of one's sense of self (Linehan, 2001). The treatment model's primary focus concerns the dialectic between acceptance and behavior change across four main therapeutic stages. Stage 1 seeks to reduce life-threatening behavior and increase mindfulness, interpersonal skills, emotional regulation, distress tolerance, and self-management. Stage 2 focuses on exposure to emotional difficulties. Stage 3 focuses on life skills, including employment, education, and relationships. Finally, Stage 4 promotes the acceptance and normality of human suffering, and enhances the life skills necessary to live with contentment and difficulties simultaneously. This final stage includes contingency management, where individuals learn to observe consequences of their own behavior such that workable, adaptive responding is increased, and maladaptive responding is decreased (Linehan et al., 2006). In spite of this strong behavioral focus, at least the language and techniques of DBT borrows heavily from fields far beyond behavior analysis and traditional behavior therapy (e.g., influences from Zen Buddhism; Robins, 2002).

To date, the efficacy of DBT has been investigated in a number of meta-analyses. First, Öst (2008) investigated the efficacy of all third-wave behavior therapies, in which DBT yielded a significant effect size. Notably, for RCTs that recruited waiting-list control participants, the effect size was largest, whereas those using treatment-as-usual (TAU) or active treatment controls yielded only moderate effect sizes. Second, in a more recent meta-

analysis, Panos, Jackson, Hasan, and Panos (2014) investigated the efficacy of DBT for suicidal and depressive symptoms, and also treatment attrition in BPD. The authors reported that DBT effectively stabilized self-destructive behavior and was marginally better than TAU in reducing treatment attrition; however there was no significant difference in reducing depressive symptoms. Third, Clarkin (2013) conducted a meta-analysis of DBT for BPD that demonstrated a significant benefit over TAU for anger, parasuicidality, and mental health. And finally, Frazier and Vela (2014) reported similar effects for anger and aggression in various populations (not solely BPD participants) in their meta-analysis. Overall, in a review, Burmeister et al. (2014) concluded that the effects from these meta-analyses are robust and stable, and the effects of individual RCTs and small-scale studies support the promise of DBT adaptations for wider aspects of human suffering.

Acceptance and Commitment Therapy. The roots of ACT lie in functional contextualism, although, similar to DBT and to a lesser extent to FAP, a number of its core concepts (e.g., acceptance) are not germane to that tradition. The full ACT treatment model specifies six related concepts organized centrally around psychological flexibility. First, acting in the present moment promotes an ongoing awareness of internal and external events and minimizes other influences over behavior. Second, acceptance (used synonymously with willingness) is promoted as a superior strategy for dealing with private events (positive and negative) over avoidance. Third, defusion techniques (that target emotional and/or cognitive fusion) attempt to separate individuals from their literal psychological content (i.e., thoughts and feelings). The ability to achieve this in the context of previously avoided psychological content is referred to as operating in self as context -- the fourth concept in the ACT model. Individuals should fully discriminate their content as only content (without evaluation) for fusion and avoidance to be minimized. Fifth, values are a highly personalized and potentially unique set of objectives that are pivotal to one’s sense of self. In short, in suffering,

avoidance predominates and interferes with valued action. Sixth, ACT relies heavily on the concept of behavior change to emphasize the need to alter patterns of behavior towards personal values – this is referred to as committed action.

ACT strongly advocates its roots in functional contextualism, while recognizing the tension between this and the need to employ terms not germane to the behavioral tradition (Barnes-Holmes, Hussey, McEnteggart, Barnes-Holmes, & Foody, in press). In wrestling with this tension, authors of ACT propose that middle-level terms, such as acceptance and fusion, are essential at least in the interim to allow therapeutic developments while more basic scientific terms emerge (Hayes et al., 2013). There is nothing inherently problematic with this approach at a clinical level, and clinicians from almost all traditions employ a mix of concepts that serve their purposes best (e.g., acceptance is used in many therapeutic traditions). However, some recent ACT authors have argued that clinicians, especially from the behavioral tradition (whose philosophical roots are purely prediction and influence) should be clear about when they are and are not using behavioral terms (Barnes-Holmes et al., in press).

The efficacy of ACT has been investigated in a small number of meta-analyses. First, in the Öst (2008) review, ACT yielded a significant effect size, and followed the same pattern as DBT, where the effect size was largest when compared to waiting list controls, and moderate when compared to TAU or active treatment controls. Second, Ruiz (2012) conducted a meta-analysis of RCTs comparing ACT to traditional CBT. Overall, ACT was found to yield a greater effect size, specifically for depression, quality of life post-treatment (PT), but not anxiety. Notably, ACT had a large impact on its proposed processes of change; however, this finding was absent for CBT. Third, Ducasse and Fond (in press) reported that in controlled-outcomes studies, ACT had a moderate overall effect size both at PT and at follow-up (FU). Indeed, when compared to waiting list controls, TAU, or placebo, the effect

was stronger both at PT and FU, than when compared to active treatments. Finally, in a meta-analysis of component analyses of ACT's core concepts, Levin, Hildebrandt, Lillis, and Hayes (2012) reported that significant effect sizes were found when compared to inactive comparison conditions, with greater effect sizes for: theoretically-specified outcomes (i.e., targeted by the model of psychological flexibility); and components that included metaphors and exercises. Notably, these effects were stable between at-risk (i.e., distressed) and convenience samples.

Behavior Therapy: The successes and shortcomings

The third wave of behavior therapies clearly represented a more sophisticated, although in some cases less obviously behavioral, approach to psychological suffering and its treatment. For example, ACT emphasizes acceptance and cognitive defusion, while DBT emphasizes dialectics. On the other hand, these therapies include a number of core principles of operant condition, such as functional analysis, skills building, and shaping (for a review, see Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004). As a result, one might question why this more eclectic mix of behavioral and non-behavior concepts appeared necessary, at least to all three contemporary behavior therapies?

Chomsky's (1959) indictment of the limitations of Skinner's (1957) account of verbal behavior inflicted little direct damage on second-wave behavior therapies because, as noted above, they were not built on Skinner's account of language, only his account of operant conditioning. In fact, second -wave behavior therapies declined precisely because the dominance of behavioral psychology had begun to seriously unravel, and Eysenck's seminal (1952) paper undermined the whole perception of the benefits of talking therapy (see Zimmerman & Pomini, 2013). As a result, it was not necessarily the case that behavior therapy declined because it was limited in scope (although this was undoubtedly the case; Chomsky, 1959). It was more the case that the professional appetite for behavioral

psychology was enormously undermined (see Watrin & Darwich, 2012). Hence, any therapy based on behavioral principles was disregarded by virtue of dislike for these principles. Indeed, this was all somewhat ironic given that behavior therapy's initial strength was the very fact that applications translated basic principles directly from the lab to the treatment room, and it was these basic principles that ultimately caused their demise. It is perhaps not surprising, therefore, that even when the new third-wave behavior therapies emerged, they looked much less behavioral than their predecessors.

But, behavior therapies did have their limitations, at least conceptually, and these too played an important role in the types of alternative approaches that would ultimately succeed them. Consider Chomsky's (1959) core criticism of Skinner's account of verbal behavior as falling short of complex psychological phenomena such as language and cognition, thus massively undermining the continuity assumption from nonhumans. For Chomsky, the two species were fundamentally distinguishable by language and cognition, and principles in nonhumans would have limited accounts of complex human behavior. Consider also the implications of this criticism for psychological suffering. Exposure techniques are used to overcome avoidance responding, such as those that appear to operate in phobia. In short, exposure to the *conditioned* stimulus is said to extinguish avoidance responding that has been acquired in the context of that stimulus. But there has long been debate about the conditioning history that gave rise to fear, which is believed to be the source of the avoidance (for a review, see Rachman, 2002). In other words, individuals become highly fearful and avoidant of stimuli in the absence of a history of direct fear conditioning. This is not observed in nonhumans. So, how did that stimulus acquire those fear and avoidant functions, if not by direct training? There is indeed very little in Skinner's account of verbal behavior that can adequately account for these novel effects. And yet, they occur for a sizeable number of

individuals across a whole manner of stimuli (including, for example, sub-mechanophobia in which individuals fear underwater man-made objects, see Doctor, Kahn, & Adamec, 2008).

As a result, we suggest that this limited scope results directly from the limits within the traditional Skinnerian account of verbal behavior. In short, our thesis is that behavior-therapy interventions were limited in terms of both scientific understanding and clinical outcomes because they were not based on a coherent functional account of complex behavior. Put another way, complex (but not necessarily "abnormal") processes are at work in complex organisms, and complex interventions will be needed to alter these complex processes, if those organisms are to behave differently. Indeed, the almost complete absence of clinical suffering in nonhumans, relative to its pervasiveness in humans, suggests that there is something fundamentally very different between these two species. As a result, the traditional behavioral approach of abstracting principles from nonhumans to humans is unlikely to offer much that will help clinicians to understand uniquely human patterns of psychological suffering.

As an alternative, in Section 2 we propose RFT which posits itself specifically as a *post-Skinnerian* account of human language and cognition (Hayes et al., 2001). If this is the case, and theory does indeed offer that level of depth and breadth, then by definition, it must have conceptual implications for human suffering. These implications may be summarized as follows. First, for RFT, human behavior is predominantly verbal from approximately childhood onwards. Second, these verbal processes can be defined behaviorally. Third, psychological problems are manifestations of these typical verbal processes. Fourth, therapy interventions need to target these verbal processes. In Section 2, we explore the implications of RFT for psychological suffering and its remediation through functional behavioral means.

SECTION 2: THE RADICAL RE-THINK OF VERBAL BEHAVIOR AND HUMAN SUFFERING: A RELATIONAL FRAME PERSPECTIVE

The current section firstly comprises an overview of the radical rethink of language that separates RFT from Skinner. We will briefly review RFT's core concepts, but readers are referred to the original book on RFT by Hayes, Barnes-Holmes et al. (2001). Although the theory has not specifically generated clinical applications (i.e., it is a scientific account, not an application), the deeply rooted functionality inherent in its concepts of verbal behavior appears to suggest directly functional ways in which clinically relevant behavior can be understood and manipulated. Towards the latter end, the chapter explores some interesting ways in which these concepts can be translated into direct application, thereby offering the type of functional bottom-up approach to psychological suffering that even behavior therapy has not seen before. We will then close the section with some RFT-based suggestions for specific therapeutic techniques (e.g., metaphor) that may complement contemporary behavior therapies, but which fundamentally do not require integration with non-behavioral concepts.

Relational Responding

For RFT, the bidirectional nature of stimulus relations is a defining feature of language and cognition, and is likely in turn to be central to its account of human suffering and its alleviation. For example, in reporting a traumatic event, the bidirectional relations between words and the event allow the reporting to acquire many of the aversive and painful functions of the actual event (Hayes & Gifford, 1997). In RFT terms, the words and the events to which they refer are in a relation of coordination, and as a result the original functions attached to the event now transform through the coordination relation to the words. Hence, saying the words can bring almost all of the features and trauma of the past event into the present.

Coordination relations are synonymous with Sidman's concept of equivalence (e.g., Sidman and Tailby), and both terms critically refer to the ability to relate two stimuli as 'the same' *without direct training of that behavior*. For RFT, the types of coordination relations

noted above are based on a developmental history that is full of object-word and word-object exemplars. For example, imagine a child is told that another word for "teddy" is 'kino' and there is a direct history of saying "teddy" in the presence of the teddy (e.g., by showing the teddy and saying the word and/or by saying the word and showing the teddy). When the child hears the word 'kino', she will be able to select the teddy and could also select the word "teddy", even though the word 'kino' has never been directly associated with the physical object teddy (i.e., this word-object relation is novel or derived).

Another defining feature of RFT is its focus on multiple stimulus relations, above and beyond coordination. This is where RFT parts company with the concept of equivalence. For RFT, other types of stimulus relations include: difference, opposition, comparison, hierarchy, and perspective-taking, although this list is not definitive. For example, if a verbally-able child is taught that A>B, she can readily derive then B<A. Similarly, if she is then instructed that C<D, she will derive that D>C. If sufficient exemplars of these types of training exist, now simply telling the child that X>Y will readily enable her to derive that Y<X, even though explicit training in this relation among these two stimuli has never occurred. RFT pivots heavily on this concept of derived relational learning (often called derivation) in its attempt to account for the generativity and complexity of language and cognition.

Essential Features of Relational Framing

According to RFT, the various patterns in which derived relational responding can emerge are referred to as relational frames. All frames are believed to share three common properties: mutual entailment, combinatorial entailment, and the transfer or transformation of stimulus functions. Mutual entailment refers to the relations between two stimuli. For example, if you are told that A=B, you can derive that B=A. That is, the specified A=B relation mutually entails the (symmetrical) B=A relation. Combinatorial entailment refers to the relations among three or more stimuli. For example, if A>B and B>C, then you will

derive that A>C and C<A. That is, the A-B and B-C relations combinatorially entail the A-C and C-A relations.

Perhaps the most important property of relational frames is the transfer or transformation of stimulus functions that provide the psychological content for derived relations. For example, if A>B, and a reinforcing function is attached to B, then A will acquire an even greater reinforcing function than B, even though the function was directly attached to B but not to A. Although at one level this outcome would seem paradoxical in that one could argue that a stronger function would emerge for B not A because of the direct history in which the function came to be attached to B. For RFT, however, this outcome is easily explained by the transformation of the reinforcing function through the comparative relation between A and B (Dymond & Barnes, 1995). Specifically, the reinforcing function of A is transformed by virtue of its comparative (more-than) relation with B, hence any functions attached to B will be stronger with A.

Given the incredible complexity and specificity that is available with derived relational responding, the theory would have to account for the very precise ways in which language appears to control the derived relations among stimuli and the functions that transform accordingly. And contextual control is RFT's answer to this (Hayes, Fox et al., 2001). For RFT, derived relational responding is under the control of contextual cues, and everyday language provides these cues. For example, if you are asked to imagine that B is A, the word "is" now acts a contextual cue to control a coordination relation between A and B (i.e., "is" means that A and B are hypothetically the same). Of course, for the theory it is irrelevant that you do not actually know what A and B are or that you may have never seen either. Instead, what is crucial is that with an adequate history of language training, the word "is" permits you to coordinate the stimuli and functions of one will transfer to the other. Indeed, RFT relies heavily on the concept of arbitrarily applicable relational responding to

indicate that this coordination relation and the fact that the word “is” are both arbitrarily applied. In other words, there is nothing about the actual word “is” that implies coordination. The verbal community could just have easily come to use an alternative word for this. Furthermore, because A and B are completely verbal, there is nothing about their physical form (even if they had one) that suggests that the two stimuli are the same. In other words, the relating of these two stimuli together is an entirely verbal behavior. For RFT, contextual cues, usually in the spoken environment but not necessarily, control the specificity and arbitrariness of derived relational responding.

RFT as an Account of Psychological Suffering

It is not surprising that the concept of the transformation of functions seems vital to understanding human suffering from the perspective of RFT. Consider a simple example of an early, relatively minor traumatic event. Imagine a boy who went horse riding for the first time and experienced a traumatic fall off the horse; thus, a fear of horses is now classically conditioned through aversive consequences. When the boy is told that donkeys are like horses (i.e., frame of coordination), he will also likely fear donkeys despite having no direct negative experience with a donkey. In this case, the fear functions of horses are transferred to donkeys via the relations of coordination between horses and donkeys. And the same would occur if he is told that camels are like horses. And zebras are a type of horse, and so on. With only a small number of coordination relations, the class of animals that instill fear in the child might be so great that, for example, a trip to the zoo could become a potentially terrifying event, even though the zoo might not contain a single horse.

But again, there are more complex derived relations than coordination, and a whole range of psychological functions will also be transformed in accordance with these. For example, imagine a man who has intrusive cleaning obsessions and a history of panic attacks. In therapy, he is asked to describe the dirtiest imaginable scene that would, in principle, make

him have a full-blown panic attack. Paradoxically, the man describes a slum in India, which he has never visited. For RFT, the slums in India are likely to be in a number of comparative frames with dirty scenes in daily life for this man such as: dirtier than; more risk of disease than; less control over, etc. Therefore, the functions of the Indian slum transform in accordance with these multiple stimulus relations and the functions that have indirectly or directly become attached to scenes from daily life. Indeed, it is easy to imagine that this man would have difficulty in going on holidays, using public toilets, eating at restaurants, taking his children to recreational facilities, etc. And all of these limitations could exert their own strain on his interpersonal relationships with family.

While RFT is now well established and soundly supported by empirical evidence, it is only in the last decade that the full implications of the theory for psychological suffering are being explored. And it is important to add here that the empirical basis for this extension remains limited (see Hussey & Barnes-Holmes, 2012; Nicholson & Barnes-Holmes, 2012). However, there are a number of aspects of RFT that appear to have clear conceptual implications for how we understand human suffering, as well as clear practical implications for how this might be alleviated. The three most obvious such areas at present are the perspective-taking relations, rule-governed behavior, and metaphor. In the paragraphs below, we address these three areas and their clinical implications.

Deictic Relations

According to RFT, the deictic relations provide a functional way of talking about perspective-taking and self more broadly. RFT research has demonstrated functional distinctions among: interpersonal I-YOU relations; spatial HERE-THERE relations; and temporal NOW-THEN relations (Barnes-Holmes, 2001). This also appears to be the order in which these relations develop in our natural learning histories (McHugh, Barnes-Holmes, &

Barnes-Holmes, 2004) and appears to reflect increasing levels of relational complexity (McHugh, Barnes-Holmes, O'Hora, & Barnes-Holmes, 2004).

Deictic frames appear to be more complex than other types of relations, in part because they do not have persistent formal or nonarbitrary counterparts. For example, if I say "here," I only mean where I am at that point in time, whereas if I say "here" later, I mean a different place. In other words, there is no formal property of "here," it is always only the place in which I am at present. As a result, learning to respond to and from "here" in terms of acquiring a constant perspective (i.e., I am always responding from here) likely requires many multiple exemplars (e.g., "What were you doing there?"). Indeed, what appears to be abstracted across these exemplars is the ability to respond from a constant perspective (Barnes-Holmes, Foody, & Barnes-Holmes, 2013). It is not surprising that the I-YOU relations would likely be established before the HERE-THERE relations, because one needs to have an interpersonal (I) perspective along with which the constancy of the perspective HERE can develop.

As one's perspective becomes more established, the integration of I-HERE as noted above appears to increasingly incorporate constancy with regard to time, as the temporal relations develop. Specifically, the perspective of verbally-sophisticated individuals appears to be anchored I-HERE-NOW, even though the realities of NOW are ever-changing. For example, if I say "now" I am referring to this specific and current point in time, whereas if I say "then", I am referring to a different time. Again, there is no formal property of "now;" it is always only the time at present. So again, what appears to be abstracted across exemplars is the ability to respond from a constant temporal perspective (Barnes-Holmes et al., 2013).

In a broader definition of self that incorporated the importance of perspective-taking, Hayes (1995) referred to the dual functions of self in terms of "functioning both as a doer (content) and as an observer (perspective) of the doing" (p.95). Foody, Barnes-Holmes, and

Barnes-Holmes (2012) used this distinction to propose an RFT account of ways in which psychological problems emerge. Specifically, these authors proposed that one's perspective as doer is constant in terms of always operating from I-HERE-NOW, as would be entirely consistent with one's developmental history, as noted above. However, one's relationship with regard to one's psychological content is more variable. That is, when one's psychological content is located HERE-NOW, and given that one's perspective is always I-HERE-NOW, this coordination of perspective and content (both HERE-NOW) leads to problematic transformations of function, for example, such that you can believe that you are what you think (rather than just being the person who is doing the thinking). For instance, if I am having the thought that I am depressed, then I must be depressed. When these relations between perspective and content are coordinated, an individual would have no control over the transformation of psychological functions between them. A synonymous way of describing this using the language of Acceptance and Commitment Therapy (ACT) is 'self as content.' Indeed, ACT employs the concept of 'fusion' to denote the fact that this level of attachment of one's content to one's self is obstructive to psychological wellbeing.

Foody et al. (2012) described a second place from which you can relate to your psychological content. They proposed that psychological content at this level is also located HERE-NOW, but fusion or attachment can be considerably reduced if one responds to one's content in a dynamic and on-going way. This serves to minimize the transformations of psychological functions even though the relations are still coordinated. This proposition is synonymous with ACT's concept of 'self-as-process' that refers to the ongoing and experiential description of thoughts, feelings, and behavior. Operating at this level likely increases psychological flexibility because psychological content is less likely to control behavior. As a result, both RFT and ACT would argue that this is a much more psychologically health place from which to operate. Nonetheless, given that the perspective

and content remain coordinated, the individual would need to be wary because functions can transfer readily through these (and you would be operating in self as content).

Foody et al. (2012) described a third place from which you can relate to your psychological content. They proposed that psychological content only at this level is located THERE-THEN, hence fusion or attachment are unlikely. This is because the perspective and content are now in a relation of distinction (possibly even opposition), hence psychological functions will transform accordingly. For example, if I can see that I just had unpleasant thought about myself and can notice that this was only a thought, then the content of the thought will have little or no impact on who I am at that time. For instance, I can have the thought that I am depressed while discriminating from my experience that I have achieved a great deal, hence an opposition relation between the thought and experience, making it likely that I will completely disregard the thought rather than believing it. This proposition is synonymous with ACT's concept of 'self-as-context' or 'defusion'. Operating at this level likely facilitates maximum psychological flexibility because psychological content is unlikely to control behavior. Indeed, Hayes (1995) referred to self as context as follows "*I* in some meaningful sense is the location that is left behind when all of the content differences are subtracted out" (p.96).

As you can see, although our developmental histories establish complex perspective-taking abilities that are essential for the development of the self, the same histories also make psychological suffering inevitable because it occurs through the same 'normal' verbal processes. For ACT and RFT, learning to switch perspective on your content from HERE-NOW to THERE-THEN is a key feature of psychological flexibility and an important index of psychological wellbeing, although at one level it goes against your developmental history. As a result, one can easily see why psychological suffering is almost unavoidable.

Rule-Governed Behavior

From an early age, we learn to follow the rules given to us by from influential others (e.g., parents). And these rules provide us with useful strategies for controlling our own behavior and predicting the behavior of others (e.g., "If you're a good boy at the party, you can have ice-cream when you get home"). For RFT, rule-governed behavior is a type of complex verbal regulation (Törneke, Luciano, Barnes-Holmes, & Bond, in press) that has both advantages and disadvantages (Törneke, Luciano, & Salas, 2008).

In an RFT articulation of rules, Törneke et al. (in press) suggested that excessive rule following may be obstructive to psychological wellbeing, because the behavior continues even when the consequences cease to occur, have never occurred, and are aversive. Furthermore, excessive rule-following is particularly problematic when one attempts to apply it to one's psychological content, because content by its very nature is so complex that even a series of rules on how to manage it is unlikely to be helpful, even if one could adhere to them all the time.

Consider an individual who verbally constructs the rule "I must always appear strong". Now consider the additional rules generated by this: "I mustn't let my guard down", "People can't see me upset", "I shouldn't be so sensitive", etc. If this was a man, it is not difficult to see how this type of rule-following would potentially work well in his professional environment, especially for example if he was the leader of a team. But consider a different aspect of his life, such as his relationship with his wife. In this context, some aspects of following the rule might be beneficial at times when his wife needs support or needs her husband to act like a strong father for their unruly children. However, following the rule excessively in this context could equally be problematic, if it means, for example, that he perceives that he cannot openly share negative or vulnerable experiences with her.

ACT employs various interventions to facilitate an awareness of one's own rule-following and the various contexts in which this occurs, often unknowingly. In this case, the

therapist seeks to have the client abstract exemplars of rule-following in relation to discriminating whether this worked in the various contexts in which it occurred. This relationship between the rule-following and its consequences is often referred to as "workability" that provides clients with a defused perspective from which to view their own behavior (Barnes-Holmes et al., 2004). Specifically, Torneke et al. (in press) proposed that the safest place from which to operate regarding self-rules is in a relation of hierarchy (rather than coordination) between one's perspective and one's psychological content. They also argued that this type of flexible, workable discriminations of one's own behavior is critical to psychological flexibility and wellbeing.

Metaphor (Relating Relations)

According to RFT, complex relational networks and the relations among these lie at the root of metaphors (Stewart, Barnes-Holmes, Hayes, & Lipkens, 2001). While, this complexity may not be obvious when metaphors are apparently simple, for RFT the same complex verbal process is at work.

In a paper applying RFT's basic account of metaphors to the development and use of *clinical* metaphors, Foody et al. (under submission) explained why metaphors have such well-established clinical utility, as well as what needs to be considered in the construction of metaphors that work in a clinical context. To illustrate the extent to which RFT's basic account provides a useful approach to the clinical context, the authors took one of ACT's stock metaphors 'struggling with anxiety is like struggling in quicksand'. This example contains two relational networks: the target (struggling with anxiety) and the vehicle (struggling with quicksand). The vehicle relational network illustrates metaphorically and in relational terms a critical aspect of the client's situation, as represented by the target network.

The key therapeutic aims of coordinating these two relational networks may be summarized as follows:

- What the client is doing with her anxiety can be collectively called "struggling", and this will contain various topographies that refer to all of the ways in which she tries to deal with or manage all of the feelings, etc. that she collectively refers to as "anxiety".
- The therapist will use the metaphor to encourage the client to discriminate and tact these various experiences, both in terms of what is felt and in terms of how she behaves when these events occur.
- There is something about struggling with anxiety that, from the therapist's perspective, suggests that it is similar to struggling with quicksand.
- Talking about one's psychological content in a new metaphorical way helps to alter one's perspective on it, and reduce fusion and attachment. This is in part because the client can discriminate that she is talking about her content in an external way, rather than dealing with it in a primarily internal way (i.e., a strong feature of struggling).
- The metaphor can be used to highlight the fact that just as struggling physically in quicksand can lead to drowning, so too can struggling with anxiety can lead to panic attacks (assuming panic attacks are an issue for this client).
- That is, the client had probably not before discriminated that her attempts to avoid anxiety had *caused* her panic attacks. Rather, she will likely have believed that avoiding anxiety also helped her avoid panic attacks.
- As a result, the therapist is encouraging the client to more accurately discriminate the consequences of her own actions.
- Part of the power of this particular metaphor rests in the coordination of panic attacks and drowning through the metaphor. That is, panic attacks are

> coordinated with not being able to breathe, while drowning is coordinated with choking and not being able to breathe. Not only does this coordination indicate to the client that the therapist fully appreciates how serious it feels when it seems that she can't breathe (i.e., it feels like dying), it also highlights for the client that this severity is caused by her own actions.

For Foody et al. (under submission), the use of metaphor in therapy may simply allow the therapist to provide an alternative metaphorical perspective for the client on her situation, and as such metaphors need have no obvious 'solution'. For example, in the quicksand metaphor, the solution indirectly is for the client to stop struggling with anxiety, and to expose herself to anxiety, much the same way as one survives quicksand by exposing oneself to it as fully and calmly as possible. Even without this, the metaphor may have utility by virtue of the fact that it offers a shift in perspective.

Constructing the target relational network forces the therapist to make a *functional* assessment of the client's situation. That is, the therapist first needs to ask herself what is the client's specific problem, otherwise the therapist will have difficulty identifying the target relational network. For example, if the type of anxiety experienced by a particular client does not include a sense of struggling to breathe, then the coordination with drowning in quicksand may not work at all. Similarly, only accurate functional analyses will permit a string match between the vehicle and target networks. For example, if a client has never heard of quicksand, then there is no point in trying to create a relational network around this. Critically, the closer the vehicle matches the target relationally, the greater will be the transformation of functions (e.g., exposing oneself to anxiety, just as one would do with quicksand) and the greater the likelihood of behavior change.

Behavior Therapies: Getting Back to Functionality

Many contemporary therapies advocate the use of protocols in their treatment of psychological problems, as a means of guiding therapists generally to deal with broad symptom-based categories or to target therapeutically-designated problems. But, we would argue that from a functional-analytic perspective this is a bit like using a sledge hammer to insert a thumb tack. That is, in order to target the highly complex nature of psychological suffering, and the problematic relational networks at play, a highly individualized set of functional analyses is required. Imagine a client comes into therapy and the therapist concludes that the client struggles often with the thought 'I am not clever enough', and much of her behavior is an attempt to remove or reduce this thought. For instance, she might engage in distraction or may attempt to remind herself with a self-generated rule that she is a good person deep down. From a functional-analytic RFT perspective, the client's problem here is much more than uncertainty about intellectual attainment (i.e., cleverness). While the topography of clever may be relevant to the client, and thoughts about this may indeed be part of her struggles, for RFT this is more likely to be a problem with the deictic relations. That is, it is likely that this client struggles with *all psychological content that is negative* because her perspective is coordinated with it. In other words, she is what she thinks and when much of that is evaluated negatively, that would be a pretty awful psychological space in which to live. Furthermore, when one is coordinated with one's negative content, it is likely that others appear comparatively better or superior on many fronts (e.g., cleverer than, richer than, more attractive, etc.). As a result, a strong comparative relation may emerge between the self and others, in which others are always better. This, in turn, generates more negative content, hence more to be avoided, and so on. As a result, one can easily see how the very relations that give us healthy development also bring us very unhealthy adulthood.

While RFT appears to offer remarkable precision and clinical applicability, these can only be harnessed through adequate functional analyses. Part of one's clinical narrative

(especially with clients directly) will of course involve many middle and higher level terms, even folk psychology terms. But critically, the clinician does not *need* to incorporate these into the analyses. The analyses can be conducted in a bottom-up way, using scientifically-generated purely functional concepts (e.g., deictic relations, etc.) Indeed, a functional or relational analysis can be conducted by the therapist using the client's verbal and other behavior as it is relayed.

Concluding Comments

Even in describing the analyses in the current chapter, we have found ourselves providing alternative descriptions using concepts, such as acceptance, fusion, etc. This is often as helpful for readers as for clients in terms of exemplar training. But critically, when engaged in the therapeutic process, RFT appears to offer the clinician a possible language for conducting functional analyses that are highly individualized in a way that may facilitate lasting behavior change. This bottom-up analysis is something, we would argue, that has been missing in behavior therapy for some time. It should be noted that we are not proposing bottom-up thinking for the sake of it. If therapeutic outcomes across the board were uniformly positive and the majority of sufferers achieved long-term valued living, there would be no urgency in seeking alternative ways to understand and change suffering. However, the fact is that clinical outcomes still indicate that a great many clients are not helped (Steinert, Hofmann, Kruse, & Leichsenring, in press). Looking metaphorically to our counterparts in ABA, one can readily see the incredible success a simplistic, functional bottom-up analysis has had in that field. While the application of behavioral principles seemed to stumble in its account of complex verbal behavior thus far, that limitation is now relieved with RFT, and the fact that it appears to account for both complexity and generativity. The strength of RFT lies in the very fact that it is a basic science, only constrained by its philosophical roots in functional contextualism. But, paradoxically, these

two very facts may also be the theory's greatest assets as it may lead the way for precise functional analyses that explain human suffering and its alleviation in purely behavioral, functional and effective ways.

References

American Psychiatric Association (APA). (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Bandura, A. & Menlove, F.L. (1968). Factors determining vicarious extinction of avoidance behavior through symbolic modeling. *Journal of Personality and Social Psychology, 8,* 99-108.

Barnes-Holmes, Y. (2001). *Analysing relational frames: Studying language and cognition in young children.* Unpublished doctoral thesis. National University of Ireland, Maynooth, Ireland.

Barnes-Holmes, Y., Barnes-Holmes, D., McHugh, L., & Hayes, S. C. (2004). Relational Frame Theory : Some implications for understanding and treating human psychopathology. *International Journal of Psychology and Psychological Therapy, 4,* 355–375.

Barnes-Holmes, Y., Hussey, I., McEnteggart, C., Barnes-Holmes, D., & Foody, M. (in press). Scientific ambition: The relationship between Relational Frame Theory and middle-level terms in Acceptance and Commitment Therapy. In Hayes, S., Biglan, A., Barnes-Holmes, D., & Zettle, R. (Eds.), *Manual for contextual behavioral science.* Wiley.

Barnes-Holmes, Y., Foody, M., Barnes-Holmes, D., & McHugh, L. (2013). Advances in research on deictic relations and perspective-taking. In S. Dymond and B. Roche (Eds.), *Advances in Relational Frame Theory: Research and application* (pp. 127-150). Oakland, CA: New Harbinger.

Burmeister, K., Höschel, K., von Auer, A.K., Reiske, S., Schweiger, U., Sipos, V.,…Bohus, M. (2014). Dialectical Behavior Therapy (DBT) - developments and empirical evidence. *Psychiatrische Praxis, 41*(5), 242-249.

Chomsky, N. (1959). A review of B.F. Skinner's verbal behavior. *Language, 35,* 26-58.

Clarkin, J.F. (2013). Review: Some evidence of benefit for psychotherapies in borderline personality disorder. *Evidence-Based Mental Health, 16*(1), p. 17.

Doctor, R.M., Kahn, A.P., & Adamec, C. (2008). *The encyclopedia of phobias, fears and anxieties* (3rd Ed.). New York: Facts on File.

Ducasse, D., Fond, G. (in press). Acceptance and Commitment Therapy. Encephale. Retrieved from: http://www.scopus.com/inward/record.url?eid=2-s2.0-84887544604&partnerID=40&md5=0ca06dac474807b6fb67e52296130542.

Dymond, S. & Barnes, D. (1995). A transformation of self-discrimination response functions in accordance with the arbitrarily applicable relations of sameness, more-than, and less-than. *Journal of the Experimental Analysis of Behavior, 64,* 163-184.

Eysenck, H. J. (1952). The effects of psychotherapy: An evaluation. *Journal of Consulting Psychology, 16,* 319-324.

Foody, M., Barnes-Holmes, Y., & Barnes-Holmes, D. (2012). The role of self in Acceptance and Commitment Therapy (ACT). In L. McHugh and I. Stewart (Eds.), *The self and perspective taking: Research and applications* (pp. 125-142). Oakland, CA: New Harbinger.

Foody, M., Barnes-Holmes, Y., Barnes-Holmes, D., Torneke, N, Luciano, C., Stewart, I., & McEnteggart, C. (under submission). RFT for clinical use: The example of metaphor. *Journal of Contextual Behavior Science.*

Frazier, S.N., & Vela, J. (2014). Dialectical Behavior Therapy for the treatment of anger and aggressive behavior: A review. *Aggression and Violent Behavior, 19*(2), 156-163.

Harris, B. (1979). What ever happened to little Albert? *American Psychologist, 34,* 151-160.

Hayes, S.C. (1995). Knowing selves. *The Behavior Therapist, 18,* 94-96.

Hayes, S.C., Barnes-Holmes, D., & Roche, B. (2001) (Eds.). *Relational Frame Theory: A post-Skinnerian account of language and cognition.* New York: Plenum Press.

Hayes, S. C., Fox, E., Gifford, E. V., Wilson, K. G., Barnes-Holmes, D. & Healy, O. (2001). Derived relational responding as learned behavior. In. S. C. Hayes, D. Barnes-Holmes, & B. Roche (Eds.), *Relational Frame Theory: A post-Skinnerian account of language and cognition* (pp. 21-50). New York: Plenum Press.

Hayes, S.C. & Gifford, E.V. (1997). The trouble with language: Experiential avoidance, rules, and the nature of verbal events. *Psychological Science, 8,* 170-173.

Hayes, S. C., Long, D. M., Levin, M. E., & Follette, W. C. (2013). Treatment development: can we find a better way? *Clinical Psychology Review*, *33*(7), 870–82.

Hayes, S. C., Masuda, A., Bissett, R., Luoma, J., & Guerrero, L. F. (2004). DBT, FAP, and ACT: How empirically oriented are the new behavior therapy technologies? *Behavior Therapy, 35,* 35–54.

Hayes, S. C. Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and Commitment Therapy: An experiential approach to behavior change.* New York: Guilford Press.

Holman, G., Kohlenberg, R.J., Tsai, M., Haworth, K., Jacobson, E., & Liu, S. (2012). Functional Analytic Psychotherapy is a framework for implementing evidence-based practices: The example of integrated smoking cessation and depression treatment. *International Journal of Behavioral Consultation and Therapy.* 7(2), 58-62.

Hussey, I., & Barnes-Holmes, D. (2012). The implicit relational assessment procedure as a measure of implicit depression and the role of psychological flexibility. *Cognitive and Behavioral Practice, 19*(4), 573-582.

Kanter, J., Tsai, M., & Kohlenberg, R.J. (Eds.) (2010). *The practice of Functional Analytic Psychotherapy.* New York: Springer.

Kohlenberg, R. J., & Tsai, M. (1991). *Functional Analytic Psychotherapy.* New York: Plenum Press.

Kohlenberg, R.J., & Tsai, M. (2002). Functional Analytic Psychotherapy. In M. Hersen and W. Sledge (Eds.), *Encyclopedia of psychotherapy* (841-845). New York: Academic Press.

Levin, M. E., Hildebrandt, M., Lillis, J., & Hayes, S. C. (2012). The impact of treatment components suggested by the psychological flexibility model: A meta-analysis of laboratory-based component studies. *Behavior Therapy*, *43*, 741-756.

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford.

Linehan, M.M. (2001). Dialectical Behavior Therapy. In Smelser, N.J. & Baltes, P.B. (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 3631-3634). Pergamon: Oxford.

Linehan, M.M., Comtois, K., Murray, A.M., Brown, M.Z., Gallop, R.J., Heard, H.L., …Lindenboim, N. (2006). Two-year randomized controlled trial and follow-up of Dialectical Behavior Therapy vs therapy by experts for suicidal behaviors and borderline personality disorder. *Archives of General Psychiatry, 63*(7), 757-766.

Lopez Bermudez, M.A., Ferro, R. & Calvillo, M. (2010). An application of Functional Analytic Psychotherapy in a case of anxiety panic disorder without agoraphobia. *International Journal of Behavioral Consultation and Therapy, 6*(4), 356-372.

Lovaas, O.I. (1981). Teaching developmentally disabled children: The ME book. Texas: Pro-ed.

Manduchi K., & Schoendorff, B. (2012). First steps in FAP: Experiences of beginning Functional Analytic Psychotherapy with an obsessive-compulsive personality disorder client. *International Journal of Behavioral Consultation and Therapy*, *7*(2), 72-77.

McClafferty, C. (2012). Expanding the cognitive behavioural therapy traditions: An application of Functional Analytic Psychotherapy treatment in a case study of depression. *International Journal of Behavioral Consultation and Therapy, 7*(2), 90-95.

McHugh, L., Barnes-Holmes, Y., Barnes-Holmes, D. (2004). Perspective-taking as relational responding: A developmental profile. *Psychological Record, 54*(1), 115-144.

McHugh, L., Barnes-Holmes, Y., O'Hora, D., & Barnes-Holmes, D. (2004). Perspective-taking: A relational frame analysis. *The Experimental Analysis of Human Behavior Bulletin, 22*, 4-10.

Moran, D. J. (2008). The three waves of behavior therapy: Course corrections or navigation errors? *The Behavior Therapist*, Special Issue, Winter, 147-157.

Mowrer, O. H. (1960). *Learning theory and behavior.* New York: Wiley.

Newring, K. A. B. & Wheeler, J. G. (2012). Functional Analytic Psychotherapy (FAP) with juveniles with sexual offense behaviors. *International Journal of Behavioral and Cognitive Therapy, 7*(2-3), 102-110.

Nicholson, E., & Barnes-Holmes, D. (2012). Developing an implicit measure of disgust propensity and disgust sensitivity: Examining the role of implicit disgust-propensity and -sensitivity in obsessive-compulsive tendencies. *Journal of Behavior Therapy and Experimental Psychiatry*. *43*, 922-930.

Öst, L.G. (2008). Efficacy of the third wave of behavioral therapies: A systematic review and meta-analysis. *Behaviour Research and Therapy, 46*(3), 296-321.

Pankey, J. (2012). Functional Analytic Psychotherapy (FAP) for cluster B personality disorders: Creating meaning, mattering, and skills. *International Journal of Behavioral Consultation and Therapy, 7*(2), 117-124.

Panos, P.T., Jackson, J.W., Hasan, O., & Panos, A. (2014). Meta-analysis and systematic review assessing the efficacy of Dialectical Behavior Therapy (DBT). (2014) *Research on Social Work Practice, 24*(2), 213-223.

Rachman, S. (2002). Fears born and bred: non-associative fear acquisition? *Behaviour Research and Therapy*, *40*(2), 121-126.

Robins, C.J. (2002). Zen principles and mindfulness practice in Dialectical Behavior Therapy. *Cognitive and Behavioral Practice, (9)*1, 50-57.

Ruiz, F. (2012). Acceptance and Commitment Therapy versus traditional Cognitive Behavioral Therapy: A systematic review and meta-analysis of current empirical evidence. *The International Journal of Psychology and Psychological Therapy, 12*(2), 333-357.

Samelson, F. (1980). Watson's little Albert, Cyril Burt's twins, and the need for a critical science. *American Psychologist, 35,* 619-625.

Seligman, M.E.P. (1974). Depression and learned helplessness. In R.J. Friedman and M.M. Katz, (Eds.*), The psychology of depression: Contemporary theory and research* (p83-126). Washington, DC: Winston-Wiley.

Sidman, M., & Tailby, W. (1982), Conditional discrimination versus matching to sample: An expansion of the testing paradigm. *Journal of the Experimental Analysis of Behavior. 37,* 5-22

Skinner, B.F. (1938). *Behavior of organisms.* New York: Appelton-Century-Crofts.

Skinner, B.F. (1957). *Verbal behavior.* New York: Appleton-Century-Crofts.

Steinert, C., Hofmann, M., Kruse, J., & Leichsenring, F. (in press). Relapse rates after psychotherapy for depression - stable long-term effects? A meta-analysis. *Journal of Affective Disorders.* Retrieved from: http://dx.doi.org/10.1016/j.jad.2014.06.043.

Stewart, I., Barnes-Holmes, D., Hayes, S.C., & Lipkens, R. (2001). Relations among relations: Analogies, metaphors and stories. In. S. C. Hayes, D. Barnes-Holmes, & B. Roche (Eds.), *Relational Frame Theory: A post-Skinnerian account of language and cognition* (pp. 73-86). New York: Plenum Press.

Törneke, N., Luciano, C., Barnes-Holmes, Y., & Bond, F. (in press). Relational Frame Theory and three core strategies in understanding and treating human suffering. In Hayes, S., Biglan, A., Barnes-Holmes, D., & Zettle, R. (Eds.), *Manual for contextual behavioral science.* Wiley.

Törneke, N., Luciano, C., & Salas, S. V. (2008). Rule-governed behavior and psychological problems. *International Journal of Psychology and Psychologicl Therapy, 8*(2), 141–156.

Watrin, J., & Darwich, R. (2012). On behaviorism in the cognitive revolution: Myth and reactions. *Review of General Psychology*, *16*(3), 269-282.

Watson, J.B. & Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology, 3*, 1-14.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition.* Standford, CA: Stanford University Press.

Zimmermann, G., & Pomini, V. (2013). Meta-analysis and psychotherapy efficacy: Facts and fictions. *Psychologie Francaise, 58*(3), 167-175.