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Contingential Analysis: Interbehavioral Methodology for the Applied Field

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Additional information is available at the end of the chapter

Abstract

The main purpose of this chapter is to introduce contingential analysis and to generate interest on this subject. This is an interbehavioral methodology for applied field. Theoretical and philosophical foundations are briefly described at first; this was considered important because this methodology is an alternative and naturalistic way to approach professional work. Its basis is found on the interbehavioral model developed by Kantor such as on the functional taxonomy developed by Ribes and López in 1985. This system has five steps: microcontingential analysis, macrocontingential analysis, behavior origin, solution analysis, and selection, design, and application of intervention strategies; each one is explained in this text. Finally, some effective applications of the methodology are mentioned.

Keywords: contingential analysis, interbehavioral theory, microcontingential problem, macrocontingential analysis, intervention procedures, professional field

1. Introduction

A methodology for the analysis and change of individual humans' behavior in their social environments is presented in this chapter. Despite the fact that methodology is based on the interbehavioral theory created in 1986, it does not have the dissemination it requires. The chapter describes the theoretical framework and categories that support the same. The aim here is to introduce this system for it to be known outside Latin America.

2. Contingential analysis

Contingential analysis is a methodology developed for psychologists' professional work which enables analysis and modification of individual human behavior. It was developed by Ribes et al. [1], based on Ribes and López's [2] work, who developed an interbehavioral theory based on Kantor's work [3]. This theory presents a naturalistic behavior approach which is radically different from the dualistic conceptions that permeate our discipline.

The subject matter of the interbehavioral approach, also known as the field model, is interbehavior, understood as a series of interdependent relationships—of varying degrees of complexity—between specific elements of the environment and of the organism that are built in the ontogenetic history. This approach's specific premises and characteristics make it different from others.

From this perspective and using a functional criterion, all of an individual's interactions with his/her environment comprise different elements that can be grouped into three specific categories: the stimulus-response function, dispositional factors, and the means of contact.

Generally, it is important to mention that the stimulus-response function refers to the response and stimulus segments that make contact. This can take place at different qualitative levels.

Dispositional factors refer to the series of events conducive to certain types of interactions by facilitating or inhibiting the same. Such factors include situational and environmental factors (temperature, objects, places, and organisms, among others), the interbehavioral history (stimulus evolution and reactive biography), and the organism's conditions (diseases, ailments, deprivation fullness, drug effects, or tendencies).

Finally, the physical-chemical, biological, and regulatory means of contact refer to the conditions that enable a specific interaction [2, 3].

These elements constitute the interbehavioral field, which is *a conceptual representation of an interaction segment of the individual organism with its environment* ([2], p. 42). In this field, elements are interrelated synchronously, establishing contingencies between events, in other words, establishing mutual dependencies between them.

Based on this model, Ribes and López [2] developed a taxonomy of the different levels of behavior organization mainly based on two parameters: (1) *mediation*, which is the process by which different factors of a psychological event relate through the critical element, which is the mediating element [2] and (2) the functional *detachment*, which refers to the possibility of an organism to respond in a relatively autonomous manner to the physical-chemical properties of the environment, in other words, its capacity to interact with objects, events, or absent people in the here and now [2].

Thereby, some of this theory's basic characteristics are briefly described hereunder:

a. In a specific context, the relationship between the stimulus and response functions represents the psychological analysis unit.

b. The behavioral approach is naturalistic—the relationships between elements of the person or people with their environment never refer to entities, phenomena, or supernatural

variables. This involves the elimination of: observable/unobservable, public/private, internal/external dichotomies, and, evidently, any mentalist approach.

c. Behavior is conceived as an interdependent relationship between different elements of the person and his/her environment where the different explanatory weights of such relationships can be assigned as an analysis function and not prior to the same.

d. As interbehavior is an abstraction, the relationships that make up behavior are understood as a synchronous event, regardless of their occurrence in real time. A succession of events in time is not assumed.

e. Categories that designate occurrences and dispositions are used. As mentioned, dispositional factors refer to occurrence collections and their function is to make a behavior more or less likely [4].

f. Considering Ribes and López's [2] functional taxonomy, processes with different functional complexity levels that may range from the relationship of an organism with its immediate context in terms of reaction to the same to the relationship that a human being can establish with abstract and conventional products such as mathematical languages are analyzed.

g. The model goes beyond ordinary language with the aim of creating unequivocal terms that enable specific phenomena's precise definition and analysis.

In addition, the existence of different forms of producing knowledge, such as science and technology as part of the interbehavioral model's assumptions, is conceived. The first one has an analytical method and is abstract and general. The second one uses a synthetic method and is concrete and particular if it aims to be scientific. Hence, this approach deems that psychology must be a science and that the creation of technologies or application forms should result from scientific knowledge. Based on this, contingency analysis was developed with the same premises and general conception of the interbehavioral model, with categories and concepts that have a correspondence relationship with the theory in a synthetic language.

This methodology enables analysis and change of individual behavior with different purposes: detection and diagnosis, planning and prevention, development, and intervention and research in different professional practice fields such as organizational, health, sports, educational, and clinical, among others.

Contingential analysis consists of the following five steps to achieve these purposes: (1) identification of the microcontingency relationships, (2) evaluation of the macrocontingential system, (3) origin of problem, (4) solution analysis, and (5) selection, design, application, and evaluation of intervention strategies. Each one of these steps of the contingential analysis methodology is explained as follows.

3. Microcontingential system

The microcontingential system refers to the series of relationships that a person establishes with objects, people, circumstances, or environmental events [5], in which any of these

elements structures the form in which such relationship occurs (mediating element). It is limited according to the conventionally defined situation of interest, family relationship, work relationship, upbringing, and love relationships, among others. It consists of four elements: behavior morphologies, situations, other people's behavior, and effects. Each one is explained herein.

3.1. Behavior morphologies

This first category of the microcontingential system refers to the identification of the ways in which a person, whose behavior is studied, relates to circumstances, objects, or events of his/her environment, as well as with the significant people in that relationship. According to Rodríguez [5], forms of behavior are identified in this paragraph, what a person says, does, thinks, and feels in a specific situation, for example, cry, scream, blackmail, get angry, say something to himself/herself, and drink alcoholic beverages, among others.

Effective morphologies can be identified (those that affect others' or one's own behavior), such as when a person yells at, blackmails or seduces another; or when a person sets his/her alarm clock to get up early the next day; whereas affective morphologies are those without affecting others 'behavior, such as trembling, feeling agitated, nervous, elated or angry.

Likewise, other significant people's behavior morphologies must be included for the behavior of interest, as well as some of these morphologies' parameters (latency, frequency, and intensity), if some are relevant to the analysis [5].

3.2. Situations

Situations are deemed as the set of dispositional physical and social characteristics, of the individual, and his/her environment, which, without belonging to the occurrence category, play a probabilistic role in an interaction, facilitating or inhibiting the same.

Inclusion of dispositional factors in psychology makes it possible to study many phenomena that traditionally have been studied in a dualistic manner, that is, considering them as something "internal", "mental", "unobservable", and those that are generally understood as "causes" of behavior. We are talking about terms such as "emotions", "memory", "imagination", "perception", and "intention", among others.

Based on Ryle's [4] *dispositional* concept, these factors, when they belong to the user, are formed by capabilities and tendencies, whereas when they refer to the environment, they refer to physical and social properties that make up the context in which a relationship takes place. These factors are not occurrences, in other words, specific or discrete variables, but collections of the same. To clarify the latter we give an example of a person who considers himself/herself as jealous which, in psychological terms, refers to a tendency and in this regard to a dispositional factor; the collection of occurrences means that he/she has complained to his/her partner for relating to members of the opposite sex in the past, who makes fidelity demands and pays attention to the way his/her partner observes members of the opposite sex, among others. These ways of behaving make it more likely that in the present situation with

his/her partner, he/she repeats these types of behaviors. To be jealous is a tendency, in other words, a dispositional factor.

The situations that give a context to a relationship comprise different elements with a possible dispositional function. Some of them refer to specific components of the person's interbehavioral history, whereas others refer to certain environmental characteristics. Thereby, the subcategories that correspond to situations are (1) social circumstance, (2) place or places, (3) objects or physical events, (4) socially expected behaviors, (5) competencies and incompetences to carry out what is socially expected, (6) inclinations and propensities, and (7) tendencies [5].

a. Social circumstance: the type of circumstance in this category is identified according to conventional criteria, in which the behavior that is going to be studied is presented. Examples of these circumstances are family circumstances, couple relationships, and work relationships, among others.

b. Place or places: a physical space can have a dispositional function for a certain behavior, for example, a school can facilitate the habit of studying.

c. Objects or physical events: in this category the possible dispositional function of objects or physical events that are part of the physical context is identified. For example, hot weather can facilitate people wearing light clothing or abundant food, for a person to overeat.

d. Socially expected behaviors: in all social circumstances there are tacit or explicit demands for people. These demands have a dispositional function. What a person or a group of people expects from another can make a behavior more or less likely. For example, in a family relationship, children are regularly expected to behave respectfully with their parents, whereas in a peer relationship what can be expected is for peers to bully each other.

e. Competencies or incompetences to do what is socially expected: this category refers to a dispositional factor related to the history of the person whose behavior is studied. It refers to the ability or inability of this person to meet what is expected of him/her in a specific situation. For example, a person is expected to study, pass his/her exams, and do his/her homework in an academic situation. If this person does not have an effective studying method and does not understand the texts, his/her lack of competency is a factor that makes it less likely for him/her to pass his/her exams and get good grades.

f. Inclinations, propensities, and motives: these categories fall within the broadest tendency category, although they have more specific characteristics. Inclinations refer to tastes and preferences; propensities refer to short-term temporary states, particularly states of mind/moods (sadness, happiness, infatuation), to emotional shocks (intense short-term emotions such as rage, elation, anger, fear, etc.), and to biological conditions (such as a headache, drug or alcohol intake, different diseases, sexual deprivation); on the other hand, motives refer to tendencies linked with short-, medium- and long-term possible consequences. It should be noted that these concepts are the ones used the most in a dualistic form as categories that "explain" behavior when from this perspective are a part of the behavior that will be explained. According to the specific analysis of each case, inclinations, propensities, and motives may have a dispositional function and would be a part

of the studied behavior. In some cases, particularly propensities, these may be affective morphologies, that is, affective components of some form of responding; analysis of the case will determine their function. For example, if we are studying a couple's relationship and we realize that she fights with him when she feels sad, due to reasons outside their relationship, her state of mind—sadness—in this case would have a dispositional function of making fights and arguments more likely. But if the person feels sad because her husband tells her that he does not love her anymore, then we would talk about an affective morphology.

g. Tendencies: according to Rodríguez [6], "this concept refers to customs, habits and forms of behavior that have been linked with specific effects in the past and for this reason have a high emission probability under certain circumstances" (p. 94). Those tendencies that make the behavior of interest more or less likely are identified. For example, those kind of behaviors referred in terms such as "irascible", that can make a problem with another person more likely, or an addiction to some drug that may interfere with work, if this is what is being studied.

The described subcategories designate factors that make up a situation; however, not all have a dispositional function for a behavior in particular. In this methodology, it is the psychologist's task to analyze the function of the different factors.

3.3. Other people's behavior

Under this heading the different functions that other people's behavior can exercise and that are significant for the person whose behavior is studied are considered. To analyze the same, the core dimension is the one of *mediating individual/mediated individuals*. The other functions that are conceptually contemplated are dispositional.

- *Mediator* is the behavior that determines (prescribes) the manner in which an interaction takes place; in other words, the contingencies for a specific relationship are predicted/prescribed with this behavior, whether, through instructions, specifying rules of behavior and establishing sanctions, among others. In ordinary language terms, we would think about the behavior that *dominates* other people's behavior.

- *Mediated* is the behavior that is adjusted or regulated by the contingencies prescribed by the mediator's behavior.

The other dispositional functions are:

- Sponsor: this behavior consists of facilitating the conditions for another behavior, without the participation of the person in that interaction. Because of these properties this type of behavior has a dispositional function.

- Propensities and/or inclinations' regulator: there are people whose behavior can modulate tastes, preferences, states of mind/moods, or emotional shocks in another person and this behavior is known as a propensities or inclinations' regulator. As in the sponsor behavior, a relevant regulator behavior does not exist in all of the interactions as in the interaction

under study. It is also important to mention that this regulation does not take place by a prescription of contingencies in such a manner that a person with a mediator function in a relationship cannot have dispositional functions in the same way.

• Tendency regulator: it is similar to the foregoing behavior only that in this case a person's behavior modulates a habit or tendency in another person. For example, if a person's best friend smokes frequently, it is likely that the person in question will smoke too when he/ she is with that person.

It is important to bear in mind that people's behaviors do not always have a dispositional function in all studied interactions.

3.4. Effects

The last microcontingential analysis category is the one pertaining to effects. These refer to the consequence relationship that exists between what the user says, does, or thinks and the changes that this can have in the environment, other people's behavior, or one's own behavior [5, 7]. Depending on the type of generated change, the effects are classified in different ways:

On others or on the environment: they refer to the change that one's own behavior generates in other people's behavior or in any environmental physical-chemical property; for example, if a person yells at other people when they interrupt him/her at work, it is very likely that others stop interrupting him/her in that circumstance, as an effect of the person in question's behavior.

On himself/herself: this type of behavior only refers to the one that affects the person that emits the same, producing modifications in what he/she does, thinks, or feels. For example, when a person constantly thinks that thieves are going to break into his/her house and has nightmares and loses his/her appetite, even though this does not occur, his/her behavior has dispositional effects on himself/herself. His/her behavior affects his/her biological and emotional conditions.

Ineffective: a behavior is deemed ineffective when it does not generate changes in the environment or in the person himself/herself, such as some adjustment behaviors.

In summary, the microcontingential system consists of identifying the factors implied in an interaction, its function within the same, and later to determine the explanatory weight of the different components. Each behavior is analyzed in an individual basis, and, as far as morphology does not determine function, every factor is analyzed with functional basis.

4. Macrocontingential system

All human psychological interaction takes place through a means of contact and the regulatory framework is the one that makes our relationships possible [5]. The possibilities of detachment of human behavior regarding the physical-chemical aspects of situations in the here and now

allow a person to behave according to established social conventions by the members of his/her culture that share practices with him/her. This possibility is linked to the language [2], which allows him/her to individualize socially but likewise to socialize to adapt to a culture's practices.

All human interactions thus have a value dimension that depends on the cultural context where they occur [5]. In this regard, behaviors will be rated as moral to the extent that they adjust to the value criteria that regulate the practices in groups of socially ranked individuals [5] and on the contrary, they shall be rated as bad or immoral, when they do not adjust. Due to the fact that there are social hierarchies, individuals' behavior will be assessed differently depending on who emits the same and on who it affects.

It is important to consider that assessments do not occur due to internal or abstract entities or internalizations of cognitions or beliefs. Behavioral assessment is regulated by functional aspects that are not present in an effective manner when such behaviors occur. Ribes [8] mentions that we can only talk about beliefs based on individuals' behavior: *when we talk about believing we do not refer to any uncertain or incomplete knowledge inside our heads. Actually, we refer to the tacit or express acceptance of the adjustment criteria that regulate our actions in a given situation* (p. 84). The possibility of saying that someone believes in something occurs as a result of the observation of an individual's behavior, so we cannot explain beliefs as something different or independent. To say that a person has a belief does not mean that he/she has something inside but rather that he/she will tend to behave in a certain way with people and things [9, 10], in other words, to behave according to certain criteria.

Values, such as actions and beliefs, are acquired before other individuals explicitly impose behavior modes in the "ought to be" manner in a specific social context [5], and these situations, in which one or more people explain the "ought to be" of a relationship, are the ones that regulate individuals' behavior in other situations in which these criteria are tacit. In this manner, *the person acts in a situation which assessment criteria are tacit, as if he/she were in a situation with explicit criteria* ([5], p. 105).

A person may behave according to the rules established by some of the members of his/her social reference group in a particular situation, which would result in a correspondence between his/her behavior and the behavior that the reference group established as appropriate; in another situation, the person may behave differently from his/her social reference group's forms of behavior in exemplary situations, which would result in a lack of correspondence between his/her behavior and the behavior demands of the social group that should act as the model. This situation would be considered as a moral problem due to that lack of correspondence or adjustment.

Taking the foregoing into consideration, this methodology's second analysis dimension, the *macrocontingential system*, was developed. The said system refers to the psychological analysis of the moral dimension of behavior and, in a simplified manner, consists of an analysis of the correspondences between the valorative practices—such as actions and beliefs—of a person and of the people of his/her reference group.

The way of studying the moral dimension of behavior, from a psychological perspective, is to focus on a person and his/her social environment.

In order to be able to analyze the correspondence between a person's valorative practices and his/her social group and considering that these values were learned in a circumstance where values are explained as the "ought to be" of a type of relationship, two microcontingencies are identified, an exemplary and a situational one [6, 7].

a. Exemplary microcontingency is a microcontingency in which a person or several people explicitly establish or established a behavior mode as the "ought to be" of a certain type of relationship, so to say, it is the relationship that works as an "example".

b. Situational microcontingencies are those microcontingencies that are regulated by the exemplary ones and in which the value/assessment criteria are tacit.

Taking these two microcontingencies into account, the macrocontingential analysis is performed by studying the correspondences between the two dimensions of the assessed behavior. First, correspondences or lack of same between the practices and beliefs in the two types of microcontingencies (exemplary/situational) are analyzed. Then, the correspondence or lack of same between practices and beliefs in each type of microcontingency is analyzed. In both cases the two dimensions of the assessment behavior, the effective practices, in other words, the assessment actions, and the alternative practice of such actions are identified, namely his/her beliefs in relation to those type of actions. This relationship between the two microcontingencies, between doing and believing, and between people in each type of microcontingency, is classified in two types: intrasubject, in which the correspondence or lack of same between what a person does and believes, is related to what he/she does, and inter-subject, which refers to those that can or cannot exist between the different significant people in an interaction [7]. For example, in a clinical context, if a mother complains that she hits her children and says that she cannot avoid it and that she feels very bad afterward, because she is convinced that what she does is an abuse and a sin, as a brief description, we would analyze a lack of intra-subject correspondence in the mother herself in the situational microcontingency. What she believes does not match what she does. It is worth mentioning that this analysis is supplementary to what has been found in the microcontingential analysis.

5. Source of problem

The source of behavior is proposed with a set of categories that can identify relevant aspects in a person's interactive history, considering the functional historical role of the person himself/herself and of the significant people to the behavior under study. The origin/source may have a dispositional function in the currently studied behavior.

Two aspects are evaluated: (1) history of the microcontingency and (2) evaluation of competencies [6]. Each one is described in more detail hereunder.

5.1. Microcontingency history

a. Circumstance in which the behavior started: this refers to the description of specific conventional circumstances in which the studied behavior acquired its particular functionality.

b. Situation in which the current microcontingency started: it refers to how the studied inter-action originated in the microcontingential system and how it evolved.

c. Mediating history of behavior: if the studied behavior has had a mediating function/role in the person's past, in other words, if his/her behavior has regulated other people's behavior.

d. Dispositional functions in significant people's past in the present microcontingency: In this part we analyze if the people considered as significant in the interaction in the past have exhibited behaviors that regulate states of mind, shocks, tendencies, or those that have sponsored the studied person's behavior in different situations to the one studied.

5.2. Competencies evaluation

The non-problematic behavior that enables the identification of skills, non-problematic contexts, and resources must also be evaluated in the contingential analysis:

a. Non-problematic exercise of the problem behavior: the situation where the problem behavior is not assessed as such according to the social circumstances and places, the people involved and their role/function, and finally, other behavior morphologies of the user in these situations that must be evaluated.

b. Functionality of behaviors in said contexts: this functionality is evaluated in three ways: (1) as mediating of other people's or the user's own behavior, (2) possible dispositional functionality of behavior, and (3) effectiveness of the problem behavior in these contexts in which it is not assessed as a problem.

c. Availability of potentially functional non-problematic responses in the present microcontingency: here, non-problematic microcontingential relationships, appropriate behavior morphologies in similar contingencies which are assessed as problematic, and user's non-problematic behavior morphologies in relationships with significant people of the problem microcontingency or similar are identified.

From this step on, the following two are the strictly technological components of the contingential analysis and are used when an intervention has to be done and there is an assessed problematic behavior. These two steps are used more in professional fields such as the clinical or health fields. In other professional fields analytical steps are regularly used. In case changes are required in other professional fields, the technological components are carried out adjusting to the nature of the interaction that will be changed (individual/group and type of professional duties that will be performed, among others).

6. Solution analysis

The solution analysis outlines the elements considered for relevant decision-making to change behavior. This step was raised based on breaking with the traditional system where

predetermined problems are classified and thus solutions. From this perspective, each studied interaction is considered unique and if it is necessary to intervene to look for a change, all of the previously analyzed elements must be considered to reach an "ideal" solution. Possible solutions or changes in the behavior of interest are raised to begin with. After this, an analysis of each one of the outlined solutions is carried out considering different criteria, for example, their feasibility, the possible short-, medium- and long-term effects, the necessary and available resources, and the possible emotional cost, among others. When a solution analysis is performed in clinical cases, the user must actively participate in this stage. Once the analysis has been carried out, the most appropriate solution or solutions are selected and are identified in **Table 1**.

The horizontal axis in **Table 1** represents the macrocontingential dimension where there are two options: macrocontingential maintenance or macrocontingential change. If the detected problem is macrocontingential, in other words, when the decisive factor is a lack of correspondence between a person's behavior and his/her reference group's behavior, the macrocontingential change column is chosen; however, when the problem does not have anything to do with a moral evaluation, then the macrocontingential maintenance column is chosen. It is worth mentioning that the type of microcontingential change is specified in the lines and even though a change may be required to achieve correspondence between a person's and his/her group's assessment practices, or of a member of his/her group, this cannot be done without altering any aspect in the microcontingential order. The main direction of the chosen solution is selected in the table.

As indicated, the specific type of foreseen change as a solution is found in the lines.

- Microcontingential maintenance: in this heading there are solutions that must be carried out at a macrocontingential level and that are usually related to a person's change of beliefs, in the direction of his/her substitutive behavior.

- Change other people's behavior: the aim is to change other significant people's behavior in the interaction.

- Change one's own behavior: the possible solution is found in the user's behavior change in terms of its function, with the objective of developing competencies/skills, reducing or eliminating conflicting responses, and thus altering its effects.

	Macrocontingential change	Macrocontingential maintenance
Microcontingential maintenance		
Change other people's behavior		
Change one's own behavior		
Options due to new microcontingencies		
Other functional options of the same behavior		

Table 1. Solution analysis table.

- New microcontingencies options: in this option the user leaves the problem microcontingency and moves on to a new one.

- Other functional options of the same behavior: they consist of the modification of the microcontingency, taking advantage of the user's resources.

This step of the methodology gives rise to setting specific intervention objectives.

7. Selection, design, application, and evaluation of the intervention procedures

The selection, design, implementation, and evaluation of the intervention program are the last steps of the methodology and arise from the analysis performed in the previous steps. The emphasis at this point is to design or select strategies based on functional criteria consistent with the functional nature of the studied behavior, the type of procedure according to its effects, and the roles that the psychologist must perform.

Considering that each behavior of interest is unique and therefore there are no "ad hoc" techniques to solve some or to make changes, a selection or individualized design that may consider the use of already established behavioral techniques or of non-standardized procedures is required [11].

According to the foregoing, Díaz-González et al. [12] propose that the design and selection of the intervention must be based on the identification or performed analysis in the first three steps, as well as in the chosen solution. Subsequently, the type of intervention is selected or designed considering the following functional criteria: (1) nature of the therapeutic interaction, (2) type of procedure in terms of its effects, and (3) counselor's roles.

7.1. Nature of the therapeutic interaction

This first section considers the studied interaction's characteristics, as well as the specific characteristics of the behavior to which the technique or procedure is addressed. For this, there are five categories that account for the interaction's functional nature [1].

a. Opportunity: when the behavior is not properly evaluated because it is emitted under circumstances and places in which it must not be emitted.

b. Accuracy: when the behavior of interest is not emitted with the appropriate accuracy.

c. Tendency: when a historically frequent behavior is important for change and therefore, chances that some will be emitted when the current interactions are high.

d. Effect ratio: when the critical factor for the assessment of a behavior as a problem is related to the consequences of the same.

e. Acquisition: as its name implies, a behavior is assessed as a problem because the person lacks some skill and therefore the aim is for the behavior to acquire a new functionality.

7.2. Types of procedure in terms of its effects

For this second set of criteria the expected effect after the application of a given technique or procedure must be taken into account. Four categories are proposed for this:

a. Procedures to change dispositions are those aimed at changing properties of objects or environmental aspects, inclinations, propensities, tendencies, or moving available skills through the user's behavior.

b. Procedures to change other people's behavior are those aimed at changing the function of other significant people's behavior in relationships.

c. Procedures to change one's own behavior imply changing the function of the user's behavior by either creating or changing skills, establishing behaviors that change dispositional or certain effects.

d. The procedures to change macrocontingential practices have the effect of changing beliefs or assessment practices to adjust to those of their reference group or change practices or assessment beliefs of the reference group itself [1].

7.3. Counselor's roles

Great importance is placed on the psychologist-user relationship in contingential analysis. The counselor or psychologist's behavior is deemed to have effects on user's behavior when he/she is in his/her environment and that this is something that cannot be overlooked. Other authors have already talked about this relationship; for example, Ruiz-Sancho [13] performed an analysis of counselor-user language interactions because they consider that the counselor or psychologist's verbalizations shape the user's behavior and in turn, the user's verbalizations shape the counselor's behavior [14]. They conducted research in the clinical context using recordings of clinical sessions and identified four functionally different verbal behaviors throughout the sessions:

1. Evaluate: identify the problem behavior and understand the organism's interaction as a whole in its physical-chemical, biological, and social environment.

2. Explain: present the hypothesis on the learning processes that explain the acquisition and maintenance of the problem behavior to the client.

3. Treat: explain the treatment plan based on the functional analysis that has been explained previously.

4. Maintain: maintain the behavioral changes achieved during the therapy session.

Functionally speaking, these authors claim that evaluating has a discriminatory function, explaining an informative function, treating an instructional function, and maintaining a reinforcing function.

On the other hand, the authors mention that every type of counselor's/psychologist's verbal behavior leads to a type of user's verbal behavior. They classified them in three:

1. Pro-therapeutic verbalizations are verbalizations related to the clinical change in a positive way (achievement, well-being, and follow-up of instructions outside the session, among others).

2. Anti-therapeutic verbalizations are verbalizations related to the clinical change in a negative way (failure, distress, or discomfort, no follow-up of instructions outside the session, among others).

3. Neutral verbalizations are verbalizations related to the clinical change in an impartial or neutral way (request information, provide information, show disagreement, etc.).

A preliminary classification of the counselor's/psychologist's possible roles is proposed in the contingential analysis:

1. To sponsor: this refers to creating the necessary conditions for an interaction to take place between certain people but without being a direct part in this interaction. This is a dispositional function.

2. To inform: it is characterized because the psychologist describes the circumstances, factors, and effects that are related to an interaction taking place or not.

3. To regulate: the psychologist establishes the times and morphological factors affecting the behavior that should be involved in certain forms of behavior.

4. To incite: this is related to the psychologist persuading the user to behave in a certain manner.

5. To train: this consists of exercising the ways a patient must behave.

6. To instruct: this is related to explaining the specific type of behavior that a particular interaction requires.

7. To participate: this refers to the psychologist taking part in the interaction.

It is important to say that the mean difference on this stage is the criteria used to select procedures. Instead of thinking about problems with morphological basis, such as anxiety or depression, the psychologist must consider procedures in terms of their effects and plan his/her own behavior, as part of the intervention stage. For instance, if a microcontingential problem is identified, such as the fear of one mother to establish limits with their children, and it is analyzed that the main explanatory element for this behavior is a propensity, because she has the required competence but she is afraid that children could leave home, intervention should be directed to this propensity. The counselor could select behavioral procedures to change this fear, but it is important he/she should incite and inform about the risks or benefits of the establishment of limits and perform the required changes.

In many cases behavioral techniques are selected, especially if the counselor has to train behaviors, because the microcontingential problem is mainly due to a lack of competences. Modeling, behavioral rehearsal, contingencies' management training, and social skills training are all useful procedures when the nature of the problem relates to acquisition, opportunity, accuracy, among others.

	Used procedure	Type of observed change
I. Problem definition		
II. Solution analysis		
III. Change procedures		
IV. Follow-up		

Table 2. Changes' assessment.

When a macrocontingential problem is identified, there are no standard techniques to be used, but the purpose is to change beliefs, as substitutive behavior. Counselor's behavior is very important on these kinds of cases, because he/she has to use all the required information to change beliefs in a very inciting way. He/she needs to discuss the implications of certain beliefs and to contrast one type with another.

Finally, every time this methodology is used, the changes generated throughout its different stages are evaluated [1]. For this purpose, the change evaluation guide which is a functional classification of the user's changes at different times is used for this (**Table 2**).

7.4. Change evaluation guide (GEC by its acronym in Spanish)

As shown in **Table 2**, the vertical axis of the guide (GEC) comprises each one of the stages the psychologist gets involved with and in which a change can be observed. On the other hand, the used procedure and the user's change at that time must be registered in the horizontal axis.

To register the type of change that may occur, 17 categories gathered in the following five groups are used:

a. dispositional alteration is the alteration of dispositional factors that give the problem behavior a context

(1) properties of objects and physical events

(2) competencies displacement

(3) inclinations

(4) tendencies

(5) one's own behavior with dispositional effects on oneself

(6) interaction strategies

b. Alteration of other people's behavior: this category covers changes in other people's behavior according to their function/role.

(7) sponsors' behavior

(8) propensity and inclination regulators' behavior

(9) tendency regulators' behavior

(10) mediators' behavior

c.   Alteration of one's own behavior includes user's changes according to his/her own behavior.

(11) effects of one's own behavior on oneself

(12) one's own mediating behavior

(13) development of competencies/skills

(14) establishment of behaviors that alter the effects of other behaviors

d.   Alteration of macrocontingential practices consists of the possible changes of the user's assessment practice.

(15) own behavior that alters others' assessment practices

(16) own behavior to be adjusted to others' assessment practices

(17) another person's behavior that changes one's own and/or others' assessment practices

e.   Without change: this is the last category that refers to a lack of change by the user.

8. Final comments

A general description of the contingential analysis was made in this chapter, trying to generate reader's interest in the topic. It overpasses our purpose to illustrate the full application of the analysis, but we recommend reading more about it. This methodology has been successfully applied in a clinical context with different main complaints such as parent-child relationships, fear to walk among elder people, violent familiar relationships, and couples' problems, among many others [15–18]; in a health context where with the basis of the psychological model of biological health and contingential analysis, several researches had been made to understand and change diabetes risk behaviors and HIV risk behaviors, among others [19–25]; in an education context, assessing instructional models to teach contingential analysis, analyzing therapeutic relationships, or developing educative educational workshops for diabetic patients [26–29]; and in a work context developing models and tools to assess laboral competences [30–32].

Considering the fact that the methodology results from an interbehavioral theory, that is, a general human behavior theory, it enables to approach behavior in different professional contexts, in a coherent manner with a scientific position and giving clarity, coherence, and relevance to the application of scientific knowledge; in this regard, this methodology constitutes an alternative to professional psychology. Also, the heuristic value of this approach and the link with basic science must be considered. If we go for a scientific psychology, we need to consider that the adjective *applied* refers to basic and scientific knowledge.

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