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Abstract	This deliverable consists of a report on unconscious motivators with implicit cues for motivations translated motivation patterns and results of tests from small scale trials.
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1. Executive summary

With-Me project could have a great impact on the life-style of the people that belong to the categories studied in the pilots of the same project. In order to obtain the desired behavior change goal, it is very important to have a good behavior change plan and address the right motivational factors of the target people. Task 2-3 focuses on how to engage people to adopt a healthy lifestyle and to stimulate them to adhere to the coaching plan by addressing the unconscious processes that influence human behavior. In addition to the explicit measures done in T2-2, in this task implicit measures will be performed to expose the unconscious thoughts about exercise, health and coaching. These will help to identify the needs, motivators, expectations and barriers of the With-Me users.

Automated evaluations that people perform over objects are called implicit attitudes (eg, Bargh , Chaiken , Govender , and Pratto , 1992, Greenwald and Banaji , 1995). According to Fazio (1989) , repeated evaluation of an attitude object generates a memory foot print for the association of the attitude object and its evaluation , which can be subsequently activated by the mere presentation of the attitude object (Fazio , Sanbonmatsu , Powell and Kardes , 1986). Implicit attitudes are evaluations that: (a) the source are unknown for the subject , (b) are automatically activated with the attitude object , (c) require a certain history of presentation and a previous assessment for their training, and (d) influence in the implicit and involuntary responses of people (Greenwald and Banaji , 1995; Wilson , Lindsey and Schooler , 2000). Activation of these automatic evaluations could be critical for information processing , since the most accessible attitudes guide the encoding and interpretation of stimuli, and the subsequent behavior, especially under certain circumstances (for review , see Fazio, 1989).

Implicit Association Test (IAT)
The implicit measure of attitudes involves automatic evaluation of stimuli based on reaction times. Among the methods of implicitly measure attitudes, it highlights the called Implicit Association Test (IAT, Implicit Association Test, Greenwald, McGhee and Schwartz, 1998). In the IAT it requests to the participants to rank a set of words presented in the center of a computer screen in a different categories of response. Each of these categories, located left and right of the screen, are constituted by two distinct concepts. The task of the participants is to press a button as quickly as possible to sort the word center in one of the two categories.
The latest research shows that the psychometric properties of the IAT as a measure are sufficiently robust. The test-retest reliability of the IAT measures oscillates around r = .60. Furthermore, the high correlations between the IAT and priming tasks automatic support their convergent validity.

Furthermore, we know that human behavior is largely automatic and also that human motivations are not always at conscious level. For this, it is recognized that implicit measures are often a better representation or prediction of real-life situations than explicit measures. In human being, if the brain detects an association correct and congruent, it makes possible that the subject reacts faster than if his brain detect the association incongruent. If a subject thinks that some exercise is boring and dull he will respond faster when those two constructs are paired than when exercising is paired with cool. So, this deliverable pretends to collect the most valuable biography regarding the unconscious motivators in order to understand them better and to be able to develop tools in order to activate them because the users will be able to get over the barriers which inhibit them to achieve their objectives.
Several motivational theories can be used to increase motivation. Self-regulation theory provides insight into how people regulate their behavior to reach a goal. Self-determination theory handles the basic psychological needs that all people strive for. Dual process theory states that there is a fast way of thinking that is automatic and a slow way of thinking that requires more effort. Since most of the time we use the fast way of thinking, we should anticipate this. Theory of planned behavior handles the slow way of thinking, and stresses the importance of the social norm: the behavior that is normal in a certain situation. The use of emotions is important because people's behavior is also motivated by emotions experienced in performing the behaviors and the anticipated emotions when reaching their goal. Based on these theories several behavior change techniques are described. The theories and behavior change techniques are published in an online wiki, which makes the information easily accessible for longer periods of time.

2. Introduction

Self-regulation is one of the most important aspects of human existence. Deciding which goals to pursue and then engaging in goal-directed action is a fundamental process underlying many of a person's daily thoughts, feelings, and actions. The first half of the 20th century was dominated by Freudian and behaviouristic models of behaviour regulation, which held that behaviour was determined either by biological impulses and the unconscious or by the external environment, respectively. In reaction to this, the humanistic movement, in particular in 1955 Rogers produce a self-theory placed the conscious "self" as the most important causal agent in self-regulation. Behaviour regulation was driven not by the unconscious or by the environment but rather by the self, a critical mediator between the environment and behaviour.

2.1. Purpose, context and scope of this deliverable.

Many current models of motivation and goal pursuit maintain continuous, conscious choice and guidance of behaviour - directed by the individual's chronic intents and desires - as the cornerstone and foundation of self-regulation. This view has intuitive appeal.. Thus, intuition tells us that the goal pursuit sequence is available to conscious awareness, and many current theories of motivation reflect and support this.

Now, there is substantial evidence that we are in fact often not aware of our own mental processes or of what is guiding our daily moods, thoughts, and behaviour. For instance, the sizeable priming literature suggests that recent activation of a given category or construct can have tremendous influence on one's perceptions, judgments, moods, and behaviors (Bargh, Bond, Lombardi, & Tota, 1986; Bargh, Chen, & Burrows,1996; Chartrand & Bargh, 2000; M. Chen & Bargh, 1999; Dijksterhuis & van Knippenberg, 1998; Dijksterhuis et al., 1999; Higgins, Rholes, &Jones,1977)

In fact, research has recently uncovered many automatic, unconscious mental processes that affect nearly all aspects of human existence outside of the individual's awareness, intent, and control. The number and range of these automatic processes is growing exponentially, and their effects seem ubiquitous. Wegner and Wheatley in 1999 have gone so far as to say that the experience of free will, believing that our conscious thought causes our actions, is merely an illusion.

Specifically, they argued that unconscious processes can cause one's actions and also simultaneously cause one's thoughts, creating an illusory correlation between thought and action.

Thus, researchers are building the case that people are often not aware of the true causes of their behaviour. However, in discovering the various unconscious processes that affect our daily lives, because unconscious processes have been shown to affect evaluation, mood, judgments, and behaviour, it should not seem surprising that they also affect motivation and self-regulation.

Unconscious goal pursuit provides another way by which our behaviour can be determined by something other than conscious reflection, deliberation, and choice. They are especially effective in keeping a person "on task" and moving in thought and action toward the desired goal, even when the conscious mind is distracted or focused elsewhere

The auto-motive model of self-regulation proposes that the entire goal pursuit sequence can occur outside of conscious awareness.

In this deliverable we review past and current research of unconscious motivators and barriers to explore new ways to engage users, get them going and to keep them motivated and stimulated throughout the coaching process. In order to identify the needs, motivators, expectations and barriers of With-Me users, we will explore implicit measurements with which we can expose the unconscious thoughts about exercise, health and coaching.

Firstly we will start with an analysis of the dynamic models of the motivation and behaviour and their application to the emotions and to the social interaction. Chapter 4 will give a panoramic view on the automatic activation strategies. In the chapter 5 we will study the evidence showing that priming manipulations activate motivational states. The automatic association among goals and situation will be analysed in chapter 6 through the study of the implicit stereotyping and the situational power. The consequences of the automatic goal investigation are the centre of the discussion in chapter 7: in the detail, mood, self-enhancement and goal-relevant performance will be taken into account.

Identification of needs, motivations, expectations and barriers of users in With-Me is the argument of chapter 8 and in chapter 9 we will focus our attention in the unconscious motivational patterns.

2.2. Process methodology.

Task 2.3 will be used to identify and select the principal unconscious motivators and the barriers of individuals or patients that could be addressed during their training or rehabilitation process. We will also plan the best manner to implement and use the selected tools. The work is divided in three main steps:

1. First step will be the analysis of the state of the art of the methodologies. This study will be oriented to the most important theories on unconscious motivational factors. From this analysis we will be able to select the best techniques to motivate people to reach their goals and proposes Dynamic Models of Motivation and Behavior
2. Secondly we focus the analysis on the association between situations and goals for the patients and non-patient users, how to manipulate their motivational state in order to activate automatically the internal patterns that push the patient to reach his objectives.
3. Finally we will give practical recommendations for developing typical and new unconscious motivator solutions.

3. Dynamic models of motivation and associated behavior

Dynamic models' representations describe further interactive processing potentialities; one of them is the aspect of anticipating the flow of interaction. First step is to address what is taken as the problem of motivation. One of the most classical construct of motivation has been the factor which induces an individual to do something rather than not do anything. Normally an organism is assumed to be inert unless motivated to do something, thus metaphors such as various kinds of pushes and pulls, drives and "motivations" are used to describe motivation. It is important to remember that every being is alive and it cannot stop living or cannot be inert, without simply ceasing to exist as a living being and die. For this, the problem of motivation cannot be about what makes an organism to do something rather than nothing but what makes an organism to act upon one thing rather than another thing, what are the processes of choice in the course of further activity, of further interactive activities. The motivation is the main aspect of selection of processes, and representation is the aspect of anticipation in the service of such selection. Not all motivation is simple selection or goal directed selection, but this is a first minimal model of motivation, as is the initial model of representation, and requires the same attention as the more complex and more familiar kinds of definitions of motivation.

3.1. Models' applications to the emotions and social interactions.

Every people that interact and learn in an insufficiently variable environment, experiment a potentially serious limitation. If this being will have an encounter with a novel situation, he only could response with direct interactions. Learning process usually does not involve the generation of a version of a signal, and if this signal may be fed back to the interactive system as input, then the interactive system would be able to interact with its own conditions of uncertainty in a similar way with the environmental conditions. Interactive systems will understand and will learn and stabilize on interactive ways that are successful in case of internal uncertainty in the same way that the brain learns to interact with other sensation and feelings like for example pain, hunger, happiness, fear or shocks. If we start to think about different kind of emotions and feelings (negative and positive) we could affirm that the first successful interaction is the elimination of the uncertainty. We have to remember that usually the situation that produces or have uncertainty is not the same that the people interact with. Normally uncertainty could create more uncertainty and in the worst cases kind of panic attacks, and this is considered a serious problem to solve. The situation with interactive uncertainty is very important for the adaptation: the anticipation of success or failure is basic for the positive or negative character of that importance. Modelling development of emotion differentiation should take the process a lot more elegant and detailed forms of uncertainty categorization, response styles, and skills of regulation (Gross, 1998), starting from an undifferentiated excitement. After the differentiation between positive and negative, negative arousal seems to differentiate into fear and anger, for example.

3.2. Unconscious functioning of human mind

At every moment, our senses are being bombarded by a large amount of information that is processed initially in sensory memory. Very little of this information is consciously attended to. Nevertheless, there is much evidence that we register the information in some way. For example, if someone is talking to you but you are thinking about something else, that person might complain, "you haven't heard a word I've said!" At that point, you then may have repeated verbally what the person had said even though you really hadn't been paying attention. In this case, you attended to the preconscious information in sensory memory that you had automatically processed. The unconscious mental processes that automatically process the information needed for us to consciously think, feel, and behave make up what is called the cognitive unconscious. But it is important to remember that the cognitive unconscious also may refer to preconscious, as well as unconscious, mental processes.

The cognitive unconscious consists of a large set of unconscious mental processes involved in knowing the world around us — mental processes involved in cognitive tasks such as perception, memory formation, memory retrieval, decision-making, and so on. These automatic processes determine conscious cognitions, emotions, and behaviors. For example, when you have a name on the "tip of your tongue," you often consciously recall its first letter and the number of syllables it has because of the influence of the implicit memory of the name on your conscious thoughts. After trying to recall the name for a few minutes, you may eventually give up and start doing something else. Even after you stop trying to retrieve the name, however, unconscious automatic processes may continue to work on its retrieval: sometimes the name "pops" mysteriously into awareness. The sudden recall is not so mysterious when one understands that unconscious mental processes perform the most of the processing of information in our minds.

One important set of "structures" in the cognitive unconscious are schemas. A schema is a set of beliefs and knowledge about a category of events, such as objects, people, situations, activities, and so on. A schema is acquired (learned) through experiences that provide information about the events that make up the category. For example, each of us has a self-schema (also called a "self-concept"), which consists of everything we know and believe about ourselves.

The self-schema seems quite negative: he ascribes many negative characteristics to himself. How might a self-schema as negative as this one affect a person in everyday life? It seems likely that such a person would have many interpersonal difficulties and would find it difficult to be successful in many occupations, especially those requiring interpersonal skills. Furthermore, this person probably would be depressed and angry most of the time, and would express behaviors that would make him appear quite odd to others. In short, our self-schemas are extremely important for how we react cognitively, emotionally, and behaviorally to situations. They affect the following:

- which events we attend to in a situation;

- how we perceive these events;

- how we interpret these perceptions;

- how we respond cognitively, emotionally, and behaviorally to the events;

- which aspects of the events are encoded and how they are encoded into semantic and episodic memories.

This is true for all types of schemas, not only for self-schemas. For example, you undoubtedly have developed a college-professor schema based on your experiences with college professors. You also probably have developed subdivisions of this college-professor schema — perhaps subdivided by discipline (such as psychology professors versus chemistry professors) or educational institution (such as professors at two-year teaching-oriented colleges versus professors at four-year teaching-oriented colleges versus professors at research-oriented universities with graduate schools). When you speak with a college professor of a particular type, the relevant schema is activated. This schema then determines the following:

- How you perceive and interpret what is happening during the conversation, which allows you to organize the events in a meaningful way;

- And then, based on the meanings you have assigned to the events, how you respond to them (with respect to thoughts, feelings, and behaviors).

For instance, if your professor asks you: "Have you read the book?", you will interpret the question as one asking about the course textbook (because of the schemas activated in you by seeing and hearing the professor), which will determine how you then will answer the question. If, on the other hand, a well-dressed young man appears at your front door and asks, "have you read 'the book'?" you will interpret the same question in a very different way, which will lead to a very different set of cognitive, emotional, and behavioral responses.

What is most interesting about schemas is that, once a schema has developed, it causes us to attend to, perceive, and interpret events related to it unconsciously and automatically. That is, the activation of a schema causes us to automatically process incoming formation (see Figure 1). For example, when your professor asks you if you've read the book, you needn't think carefully about all the books you own, or all the books you've seen on various bestseller lists, or all the books you've bought for your college courses, and then determine which one she is referring to. Instead, your schema leads you to process the question automatically and to immediately respond cognitively by thinking of the textbook for her course. However, if she stops you and states: "No, I was asking if you've been reading the Good Book", you probably will become confused. At this point, controlled processes will take over in order to understand what is happening in this unfamiliar situation.
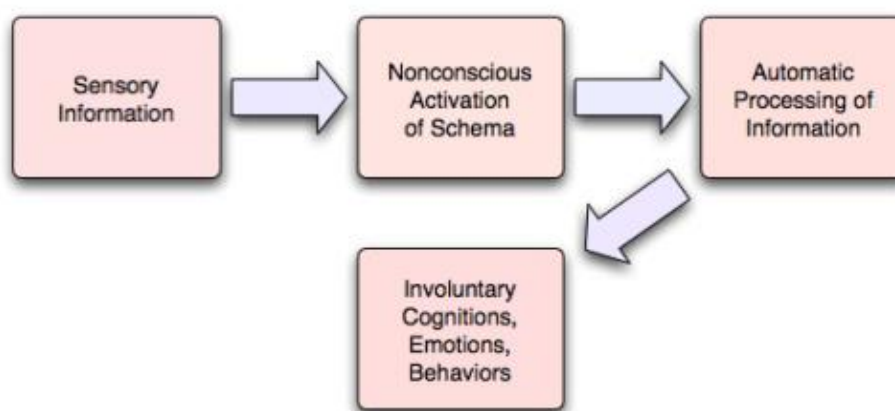

Figure 1. The unconscious activation of a schema causes the automatic processing of sensory information and the expression of involuntary conscious cognitions, emotions, and behaviors.

Schemas, however, not only influence how we perceive and interpret current situations, they also influence what we remember about them later on. For example, when you retrieve a memory of an experience with a professor, your college-professor schema is again activated so that you are able to reconstruct a complete memory for the event. Because of this, you will tend to distort the memory so that it becomes more consistent with the schema. Thus, you will tend to add details that are consistent with the schema even though they never happened. For example, you may remember that your professor wore a sports jacket yesterday (because professors often wear such things) when, in fact, he actually wore a sweater. In addition, you will tend to accurately remember details that are consistent with the schema and forget details that are not consistent with it. For example, you might remember correctly that he wore laced shoes of a conservative style, probably because many professors do so. On the other hand, you may forget that you saw your professor at the car wash because that is not consistent with your schema of professors.

If schemas can cause us to introduce inaccuracies into our perceptions and interpretations of current situations, and also into our explicit memories of past events, why do we use them at all? The answer is that schemas are essential for our ability to function in everyday life. As suggested above, schemas allow us to organize and respond appropriately to events in the external world. For example, on the first day of this class, your classroom schema allowed you to walk in and immediately organize all of the information you were presented with. You knew, for example, that the person standing behind the desk at the front of the class was probably the instructor, and that everyone else was probably a student. You also knew that the instructor's words were something you needed to write down, but that what other students were saying typically did not need to be written down. The effects of schemas on our perceptions, interpretations, and memories of social situations are referred to as social cognition.

3.3. The auto-motive model for the research of unconscious goals

In the past scientists tested the auto-motive model by activating the objectives of information processing of impression formation against mind-storing with semantic priming procedures. Chartrand and Bargh (1999) obtained effects on reaching these goals just as Hamilton, Katz, and Leirer (1980) did for the respective consciously set goals. Other studies with a variety of different goals observed that unconscious activation of goals are as effective in producing desired outcomes as consciously activated goals. Evidence has been provided that unconscious activation of goals is not only equally effective as consciously set goals: it also works through the same mechanisms.

Parallelisms in conscious and unconscious goal pursuit are detected when the desired outcomes have been reached. Reaching a conscious objective leads to positive self-evaluation thoughts associated with a positive mood, pushing the subject to look for more challenging goals. It is common to think that competitive people are usual to find or produce excuses, pretense and theories which can explain and justify their behavior by pointing to the goal prefixed and so easing negative feelings linked with breaking norms, the opposite seems to happen for the people with unconscious condition. For this reason, individuals in conscious norm-violating goal conditions experienced less negative effect because they felt that the norm to be accommodating did no longer apply. Studying the differences between unconscious and conscious goal pursuits require differentiating between results of goal pursuit on the one hand, and the experience of goal pursuit on the other. Behaving combatively in a cooperative situation is not "legal" and so this behavior needs to be justified. If breaking norms is supported by a conscious goal, people can quickly justify the reasons for not to follow the imposed rules.

4. Automatic Activation and Operation of Goals

Many auto-motive models can be triggered automatically by the environment (Bargh, 1990). The model argues that, although many of the goals that an individual pursues are the result of conscious deliberation and choice, the choice is not necessary to activate a goal. In addition, the deliberation mode of activation, goals and intentions also can be started in motion by environmental stimuli. Firstly the model says that the intentions and the objectives are represented in our mind in the same way that social behavior and stereotypes are represented. Secondly, since constructs and stereotypes could be automatically activated by relevant environmental stimulation, the same holds for goals and objectives. With repeated and consistent choice (i.e., activation) of a particular goal in a certain social situation over time, the representation of that goal may become directly and automatically linked in memory to the representation of that situation. The main goal will come to be unconsciously activated within that situation, in an independent way of the individual's conscious purposes at that time. Situational features in the environment can trigger goals chronically associated with those features and, once activated, the goals operate to lead cognition and behavior in the same way that consciously held goals do. Thus, how a goal representation becomes activated-whether consciously or unconsciously, has no consequences on whether it operates and produces its effects. (Chartrand & Bargh 1999)

4.1. Information processing goals.

Recent studies show that regardless of how a goal is selected, people will pursue the goal in the same way. Other studies of Chartrand and Bargh in 1996 demonstrated that information-processing goals can be activated unconsciously and guide cognition. Thus, the results of these experiments support the idea that individuals do not have to be aware or cognizant of having a goal for it to affect their information processing.

4.2. Motivations: differences among intrinsic and extrinsic typology.

. Deci and Ryan in 1985 and after in 1990 have done a research that has demonstrated that when people engage in activities to satisfy intrinsic or "self-determined" motives, people enjoy these activities for their own sake. On the other hand, if people engage in activities to satisfy extrinsic motives, these activities are done for external reasons, such as expectations of reward or punishment. Other studies' results revealed that people who worked on the crossword puzzles with an unconsciously operating intrinsic motivation enjoyed the work better, reported that they worked on it through their own free will, and found significantly more words on the puzzle.

4.3. Behavioral goals.

An important point is to understand if behavioral goals become automatically activated to lead subsequent behavior (JA Bargh 2001). Psychologist experts think that automatic goal activation is not limited to information-processing motives but can include goals related to desired behavioral outcomes.

Motivational researchers share the view that achievement behavior is an interaction between situational variables and the individual subject's motivation to achieve. Two motives are directly involved in the prediction of behavior, implicit and explicit. Implicit motives are spontaneous impulses to act, also known as task performances, and are aroused through incentives inherent to the task. Explicit motives are expressed through deliberate choices and more often stimulated for extrinsic reasons. Also, individuals with strong implicit needs to achieve goals set higher internal standards, whereas others tend to adhere to the societal norms. These two motives often work together to determine the behavior of the individual in direction and passion.

Explicit and implicit motivations have a compelling impact on behavior. Task behaviors are accelerated in the face of a challenge through implicit motivation, making performing a task in the most effective manner the primary goal. A person with a strong implicit drive will feel pleasure from achieving a goal in the most efficient way. The increase in effort and overcoming the challenge by mastering the task satisfies the individual. However, the explicit motives are built around a person's self-image. This type of motivation shapes a person's behavior based on their own self-view and can influence their choices and responses from outside cues. The primary agent for this type of motivation is perception or perceived ability. Many theorists still cannot agree whether achievement is based on mastering one's skills or striving to promote a better self-image. Most research is still unable to determine whether these different types of motivation would result in different behaviors in the same environment.

Whether a goal becomes active with an action of will, for example a deliberate choice, explicit instructions from an experimenter, or automatic activation through priming, the same outcomes are obtained. All the results described support two tenets of the auto-motive model: first, that goal structures can be activated automatically and unconsciously, the second concept is that unconscious goals, if correctly activated, will produce the same effects that conscious goals can produce.

5. Priming manipulation: evidence of motivational state activation and mood regulation

In many studies, although the exposure to goal-related words in many studies scientists is intended to activate a goal state. However, scientists think that it is possible and that this simply induced goal-primed participants to construe the experimental situation that followed differently from the control participants. We know that motivational states increase in strength over time, and people follow to be directed to the goals in the face of obstacles and resume goal-directed action and choose following an interruption. The presence of each of these three qualities in the primed goal states were demonstrated yet in a series of studies by Bargh.

5.1. Increase in goal strength over time and persistence against barriers

It is well known that once a motivational state is activated, motivation to reach goals increases in strength over time until the goal is attained. Perceptual priming, which is an implicit memory effect in which exposure to one stimulus influences a response to another stimulus, effects decay or decrease in strength over time. This quality is very useful when we want to demonstrate the dissociation between motivation and perceptual priming effects. The perception of the time has different effects on goal and perceptual priming, increasing and decreasing the effects, respectively. Many scientists expected that for those given the perceptual task, the achievement-related words would have a stronger impact on subsequent judgments of a target in the no-delay condition than in the delay condition due to the fact that perceptual priming effects decay rather than increase over time. Many studies show that the priming manipulations yielded dissociation over time between the behavioral and perceptual tasks. With no delay, there is a significant priming effect such that achievement primed patients outperformed the control participants on the Scrabble word construction task. Moreover, this effect was increased, after the more or less 5-minute delay. This can suggests that a motivational state was indeed induced by the priming, independently of any perceptual priming effect. People

studied were again questioned during a post-experimental funneled debriefing and did not report consciously taking on any goal. Another important aspect is whether those triggered with an achievement objective would persist on a task if some obstacle is found. Recently some studies show that if somebody is stopped while performing a task, this command to stop the activity is not respected if they were not controlled, differently if the people were under control. This shows that for achievement-primed participants, an achievement goal was unconsciously activated, which push them to follow their activities at the achievement task even if some barriers were met.

5.2. Interruption effects on goal-Directed Action after Interruption

Other experiments also tested whether achievement-primed participants would be more likely to resume an interrupted task so as to reach the goal of completing it. Patients were again primed with an achievement goal or not in a first, "unrelated" task. They were then told that for the next experiment, they would work on two different tasks: (a) finding words from a series of Scrabble tiles and (b) rating a series of cartoons. While participants were doing the first task, a black out programmed occurred. When electric power was restored, the experimenter announced that there was no time to finish both tasks. People were then given the choice of which one to work on, taking into account that second task was clearly more enjoyable, almost twice as many in the achievement-primed condition compared to participants in the control condition chose to return to the interrupted verbal task. This situation provided a good test whether motivated people would resume their former, interrupted task. This study also demonstrates that participants were not consciously aware of their achievement goal.

6. Automatic Association between Situations and Goals

In the examples of studies showed before, objectives become activated through the presentation of goal synonyms during a priming task. Experts suppose that synonyms activate the representation of the goal in the mind, activating motivation. For this, these studies show that goals can be directly activated with external stimuli bypassing conscious, deliberate choice of the goal. Automatically activated goals guide people to subsequent cognition and behavior. However, the auto-motive model posits a two-step process: (a) Goals become linked to situations in which they were consciously chosen in the past, and (b) the features of these situations can then directly activate the goal. Priming manipulations that directly activate the goal itself serve as a proxy for what happens in regular situations when the situation automatically activates the goal (e.g., Bargh et al., in press; Chartrand & Bargh, 1996; Seguin & Pelletier, 2001). Experiments using this technique bypass the environment activating of the goal and that is important to define it in the first stage of the model. This is very interesting, because if the environment has not been taken into account in relation to activate the goal, then the studies would create artificially something that would never happen in the "real world."

6.1. Automatic Activation of Goals That Lead to Implicit Stereotyping.

There is a lot of research about providing evidence for the link between situations and goals. Spencer, Fein, Wolfe, Fong, and Dunn in 1998 tested whether self-image threat makes individuals more likely to activate stereotypes when perceiving members of an ethnic minority group. Researchers hypothesized that the condition of a negative self-feedback could threaten the self-image, which would automatically activate a goal to restore the threatened ego. The results of their experiments demonstrate that the activation of stereotypes about minority groups in the presence of minority group members occurs automatically when people experience self-image threat but is not fully automatic when people do not experience self-image threat.

Other researchers, based on the idea underlying the auto-motive model, argued that to the extent that the motivation to restore one's threatened self-image often and consistently leads to the use of stereotypes on exposure to people of stereotyped groups, the connection through self-image threat and activation of available stereotypes may become automatic. It is very important to underline that these researchers demonstrated that implicit stereotype effect was deleted in cognitive load conditions: the drain on attention resources "knocked out" the automatic activation of the stereotype.

6.2. Goals Activated by Situational Power.

Powerful individuals more easily acquire desired outcomes compared to powerless individuals. Individuals in positions of power relative to others often engage in thoughts and behaviors that serve to maintain their positions of authority. For instance, powerful individuals tend to disregard individuating information who do not hold positions of power, relying instead on category-based information such as stereotypes (Erber & Fiske, 1984, Goodwin, Gubin, Fiske, & Yzerbyt, 2000) If someone is oriented to keep on an objective whenever he has power in a given situation, it follows that those objectives could be automatically linked to the power situation, and in this way that being in power will automatically activate those goalsIt would not hold for any of the other demonstrations of unconscious goal pursuit. In addition, other studies examining the goals automatically activated by situational power used dependent measures more directly linked to objective states. These kinds of studies were oriented to the relationship orientation that could moderate the effects of social power. The hypothesis was that people with a communal relationship orientation link power with social-responsibility goals and have such goals activated automatically when in power. Those with an exchange relationship orientation were thought to chronically associate self-interest objectives with power situations. In other occasions, researchers demonstrated that with an exchange relationship orientation in roles of power, self-interest goals automatically activated when primed with power, and those with a communal orientation have social-responsibility goals automatically activated when primed with power. They also showed a link between the situation and the goal, there was no direct activation of the goal. Resuming a lot of researches suggest that exist a link between situation and goal, this connection provides strong evidence that the environment activates goals. These objectives have been frequently and consistently chosen in that same environment in the past.

7. Consequences of Automatic Goal Pursuit

7.1. Consequences for self-enhancement and stereotyping and mood.

Three experiments were conducted by Chartrand in 2001 to explore the consequences of unconscious goal achievement. Results revealed that for people primed with an achievement objective, those given the easy anagram task reported being in a better mood than those given the harder version. This was in contrast with participants without goal condition, because they did not show any difference in mood. Chartrand's second experiment extended this by attempting to replicate the effects using subliminal technique and using impression formation as goal. Researchers provide a success failure manipulation describing the target person as either performing various clumsy acts or as engaging in some clumsy acts and some agile, graceful acts. Experimental results permitted an assessment of the relative strength or magnitude of the consequences of unconscious goal activation, compared to those of conscious goal operation. Results also showed that among people either explicitly given an impression formation goal or primed with such a goal, those given the consistent target description, who succeeded, were in a better mood than those given the inconsistent description that leaded to failure. In any cases, the consistent versus inconsistent goal manipulation did not produce any important effect on people's mood to form an impression. In 1996 researchers Tesser, Martin, and Cornell demonstrated that exists a relationship within various self-enhancement mechanisms all them have the same trigger that sets them into motion-is mood of unknown origin. If somebody is in a bad mood and not knowing why, patient will engage more in self-enhancement, it is a type of motivation that works to make people feel good about themselves and to maintain self-esteem, using the easiest available mechanism. In that way it suggest that, better self-enhancement should is negative unconscious mood (do not come from unconscious goals) than when they succeed at positive unconscious mood (unconscious goals) or when process any outcome in status of understood moods or conscious goal. A series of studies about the testing of self-enhancement hypotheses have been conducted by Chartrand, Cheng, & Tesser, 2001. In one experiment in which all the participants failed at the goal results demonstrated that those who missed to reach a unconscious objective formulated many more self-serving definitions of success, like for example the importance ratings for qualities they share, in contrast who had no reached goal created the least self-serving definitions, but if they failed at a conscious goal fell in between. However, another study where conceptual replication was conducted indicated that only those who failed and not those who succeeded exhibited self-enhancement on the self-serving bias measure. Another study (Chartrand, Cheng, & Tesser, 2001) has demonstrated that stereotyping have the same function that other self-enhancement mechanisms: It improves the ego and self-esteem during the self-threat. All these studies show that who fail at a unconscious goal would stereotype more than those who fail at a conscious objective or do not have

it. Many other results revealed that people who failed at unconscious achievement goals and were not given an attribution for their mood state like remained a negative mystery mood, enrolled in more implicit stereotyping. As predicted to attenuate the stereotyping effect they must receive an attribution for their mood state. If they received further evidence that it is being unaware of the cause of a bad mood that increases the need to self-enhance they do not needed to stereotype others. Were no differences between attribution conditions was not significant for those who failed at a conscious goal or no goal.

7.2. Consequences for subsequent goal-relevant performance.

In another experiment Chartrand tested for possible behavioral consequences of success or failure at unconscious goal pursuit by measuring performance on a subsequent task. He did it by measuring performance on a subsequent task. Participants of the experiment were either primed with an achievement goal or not. They next were administered either the easy or the difficult anagram task (manipulating success and failure, respectively). Finally, participants were given a portion of the verbal section of the Graduate Record Examination (GRE) to test their subsequent performance at a verbal task. Participants primed with an achievement goal who had succeeded on the earlier anagram task scored significantly higher on the verbal GRE than did those who had failed. There was no such difference for those not primed with an achievement goal. Again, no participant reported having a conscious goal to achieve during the study.

People may often have goals triggered by social situations and work toward them unwittingly. For instance, at a party situation a person may have a self-presentational goal activated, or in an interview an ingratiation goal, or with siblings a competition goal, without the individual's awareness or intent that the goal is operating to guide cognition and behavior.

He could not find a difference for those not primed with an achievement goal. These kind studies represent a test to better understand the consequences of unconscious goal pursuit. Some experiments provided strong evidence that success at unconscious goal pursuit improves one's mood, whereas failure depresses one's mood, others demonstrated that success and failure at unconsciously pursued goals modify future performance; success leads to improve people's performance, and failure leads to worse. Successful goal attainment is dependent on individuals' ability to focus attention on the goal and ignore distracting information. When individuals pursue a goal, information that is relevant to the goal becomes more accessible like accessibility from motivation. For this reason, people respond more to relevant information in the environment respect the information that is considered not important for reaching the objective. Specifically, we could say that power situation facilitates goal pursuit by increasing the readiness to act in a goal-consistent way and by improving resistance, persistence, flexibility, and ability to keep or create good opportunities for goal pursuit.

8. Needs, motivations, expectations and barriers of users in With-Me: identification

8.1. Implicit unconscious behavior measurements.

Due to the complexity of the interaction among the potential variables of behavioral changes, many of the barriers to exercise for the older people are usually employed as motivators to promote physical activity. In some cases the factor of deteriorated health, where ability to exercise is reduced, of older people, is cited as a motivator for young people to increase physical activity. Other motivators are to try to have more time, receive more information on exercise benefits or physician recommendation, and living closer to an exercise facility. For this reason the awareness of the cognitive processes specific to motivation and behavioral change is primary to know and understanding exercise adherence. Self-efficacy is the key of this process. In scientific literature self-efficacy is always indicated as one of the most important determinants of exercise behavior in many kinds of behavioral learning. In social cognitive theory of Bandura self-efficacy is defined as an individual's belief in their ability to successfully perform a specific behavior and is indicated as a product of both expectations (perceived ability to achieve a certain behavior) and outcomes (expected success the behavior will provide). The most common context in the association rules generation is the "support-confidence". In scientific research there are cases where many uninteresting rules may be produced. During the year,

many tests were conducted in this field proving that exist algorithms that could identify strong patterns of behavior measurements, generating also many types of confined rules, allowing theirs availability in different applications where all these types of rules could be needed or just a subset of them might be needed. While a lot of works has been done, both in propositional and multi-relational setting, as well as on mining classification models, only a few studies deal with classification models to be discovered in spatial database, and for this reason they presents only two main sources of complexity, that is, the implicit definition of spatial relations and the granularity of the spatial objects.

8.2. Behavior factors identification

In our conscious minds, present patterns of thought, feelings, emotions and motivations are not deep. We are not able to see immediately them, but they wield a powerful influence over how we behave and react to situations, events or goals. We can discover under our conscious surface, the reasons of our behavior and take a look of motivations. We can understand the primary sources of behaviors that we want to modify when we are not happy about ourselves. Many people had thought, in their life, that they are not living or behaving in unhealthy ways. The reason is that even though certain behaviors are unhealthy, in some way they fulfill our needs. For example negative or self-destructive behavior might lead people that brief feeling of being purified through punishment and pain, this also send away at self-esteem and physical health. People have to identify and analyze their unconscious behavior patterns, understand them and finally lead them with self-analysis if they want to change their life through changing their behaviors that run against their healthy life-style. Only in this way they can reach the ideal model of person that they hope they want to be, In this way people can reach important goals and produce big changes in their life-styles. The first steps that they have to give are to identify their behaviors that produce unhappy mood inside them, understanding where they come from. Second step is to try to identify the moment and the situations when they are tempted to engage in an unhealthy behavior and finally having greater control over their actions with exercises and complete cognition of themselves, only in this way they will make healthier choices about their life. The behaviors that are keeping people from what they want out of life could be explained with just a few examples:

- Feeling anger and snapping at the partner, even when he/she are right.
- Going on shopping sprees, without finances control.
- Eating even without hungry feeling or vice versa has no desire to eat.
- Getting angry with himself/herself for having feelings of guilt.
- Spending most of free-time doing things unwanted and annoying.

To start to solve the problem if any of these apply to subject, patient will have to include them in a list of the five most frustrating behaviors he engage in and try this process dived in 3-step:

Describe the pattern.
After identifying the behavior, the subject has to describe the pattern in detail (how it comes about, what ensues, the fallout and the resulting feelings). He has to try to write down the degree of this behavior's intensity, thinking if it is strong or weak (from weak to strong). Patient has to think and admit if he can delete this pattern quickly or not, and just in few sentences, explore why he find this behavior negative.

Identify potential goals.
Subject has to remember that people have not to enroll in any negative behavior if they didn't have potential goals. Goals can be economical success, psychological or spiritual satisfaction, physical, social or related to achievement. Goals may help the subject to trap them in the behavioral pattern. Also in this case for each of the five most frustrating behaviors, write down the potential rewards associated with them.

Question potential goals.
Study, question and test the potential payoffs that feed these negative behaviors. Try to answer honestly. For this objective subject can use the following questions, because they could really help shed light on their habits and the manner with people behave:

- • What do you gain through this behavior?
- • Does is it make your life easier? At what cost?
- • What risks does it enable you to avoid?
- • What pain does it allow you to escape from?
- • What immediate results are you trading for what deferred results?

Implement change.
The last step is considering the changes that the patients want and need in their life. They must imagine themselves living it out. Like in the previous exercises they have to down in detail how this changes would take place, describe accurately the challenges, the efforts and the goals they will meet along the way. They must be sure to include any things they are willing to give up along the process and what hold onto. Patient must know that any change always requires risk.

If people understand and remember that some unconscious patterns could drive unhealthy behavior and they are able to identify the negative ones, they could help to empower and give them the courage to step out of the "comfort zone" that does not permit to reach the objective of their life, the condition and the situation that people desire and enact the change necessary for the payoffs and the achievement of expected life-style.

9. References

1. Bargh, J. A., Chaiken, S., Govender, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. Journal of Personality and Social Psychology, 62, 893-912.
2. Anthony G. Greenwald and Mahzarin R. Banaji (1995). Implicit Social Cognition: Attitudes, Self-Esteem, and Stereotypes, Psychological Review, Vol. 102, No. 1, 4-27.
3. Fazio, R.H. (1989). On the power and functionality of attitudes: The role of accessibility. En A.R. Pratkanis, S. J. Bre ckler y A.G. Gre e n wald (Eds.), Attitude structure and function (pp. 153-179). Hillsdale, NJ: Erlbaum.
4. Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, E R. (1986). On the automatic activation of attitudes. Journal of Personality and Social Psychology, 50, 229-238.
5. Timothy D. Wilson Samuel Lindsey, Tonya Y. Schooler (2000). A Model of Dual Attitudes. Psychology Review Vol. 107. No. 1, 101-126.
6. Anthony G. Greenwald, Debbie E. McGhee, and Jordan L. K. Schwartz (1998). Measuring Individual Differences in Implicit Cognition: The Implicit Association Test. Journal of Personality and Social Psychology. Vol. 74, No. 6, 1464-1480
7. Rogers, Carl R. (1955). Facilitation of Personal Growth. The School Counselor 2, no. 1, January 1955.
8. Bargh, J. A., Bond, R. N., Lombardi, W. J., & Tota, M. E. (1986). The additive nature of chronic and temporary sources of construct accessibility. Journal of Personality and Social Psychology, 50, 869-878.
9. Bargh, J. A., Chen, M. & Burrows, L. (1996). Automaticity of social behavior: Direct effect of trait construct and sterotype activation on action. Journal of Personality and Social Psychology, 71, 230-244.
10. Bargh, J.A. & Chartrand, T.L., (2000). The mind in the middle: A practical guide to priming and automaticity research. In H.T. Reis and C.M. Judd (Eds.), Handbook of research methods in social and personality psychology, New York: Cambridge University Press.
11. Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation: Immediate behavioral predispositions to approach or avoid the stimulus. Personality and Social Psychology Bulletin, 25, 215-224.
12. Dijksterhuis, A., & van Knippenberg, A. (1998). The relation between perception and behavior or how to win a game of Trivial Pursuit. Journal of Personality and Social Psychology, 74, 865-877.

13. Dijksterhuis, A., Spears, R., Postmes, T., Stapel, D., Koomen, W., van Knippen berg, A., & Scheepers, D. (1999). Seeing one thing and doing another: Contrast effects in automatic behavior. Journal of Personality and Social Psychology, 75, 862-871.

14. Higgins, E. T, Rholes, W. S., & Jones, C. R. (1977). Category accessibility and impression formation. Journal of Experimental Social Psychobgy , 13, 141 - 154.

15. Wegner, D. M., & Wheatley, T. (1999). Apparent mental causation: Sources of the experience of will. American Psychologist, 54, 480-492.

16. James J. Gross (1998). The Emerging Field of Emotion Regulation: An Integrative Review. Review of General Psychology, VoL 2, No. 3, 271-299.

17. Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist, 54*, 462-479.

18. Hamilton, D. L., Katz, L. B., & Leirer, V. 0. (1980). Organizational processes in impression formation.

19. Bargh, J. A. (1990).Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), Handbook of motivation and cognition (Vol. 2, pp. 93-130). New York: Guilford.

20. Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behawior. New York: Plenum.

21. Deci, E. L., & Ryan, R. M. (1990). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), Nebraska Symposium on Motivation: Perspectiwes on motiwation (Vol. 38, pp. 237-288). Lincoln: University of Nebraska Press.

22. Bargh, J.A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Troetschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. Journal of Personality and Social Psychology, 81, 1014-1027.

23. Seguin, C., & Pelletier, L. G. (2001). Automatic activation of intrinsic and extrinsic motivation. Manuscript submitted for publication, University of Ottawa.

24. Spencer, S. J., Fein, S., Wolfe, C. T., Fong, C., & Dunn, M. A. (1998). Automatic activation of stereotypes: The role of self-image threat. Personality and Social Psychology Bulletin, 24, 1139-1 152.

25. Erber, R., & Fiske, S. T. (1984). Outcome dependency and attention to inconsistent information. Journal of Personality and Social Psychology, 47, 709-726.

26. Goodwin, S. A., Gubin, A., Fiske, S. T., & Yzerbyt, V. Y. (2000). Power can bias impression processes: Stereotyping subordinates by default and by design. Group Processes & Intergroup Relations, 3, 227–256.

27. Chartrand, T. L. (2001). Mystery moods and perplexing perfurmance: Consequences of succeeding or failing at a nonconscious goal. Manuscript submitted for publication,Ohio State University.

28. Tesser, A., Martin, L. L., & Cornell, D. P. (1996). On the substitutability of selfprotective mechanisms.

29. Chartrand, T. L., Cheng, C. M., & Tesser, A. (2001). Consequences of failing at nonconscious goals for self-enhancement and stereotyping. Manuscript submitted for publication, Ohio State University.