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# An understanding of influence on human behavior

**ABSTRACT.** We describe a candid model for learning, why and how learning transpires. We investigate the original as well as the leading conditions of the learning process. We provide an insight into the realm of beliefs and their formation, their interaction and influence with the actor's environment. In addition, we provide to our terms (and terminology) real definitions, thus differentiating between nominal and real definitions. Having this approach, the same terminology can be employed by other models, theories or frameworks without creating 'expert language' barriers. Moreover, we provide an understanding of the influence that learning in general has on human behavior.

Keywords: conceptual conglomerate, learning, learning process, human behavior.

## 1. Introduction

In order to have a proper analysis of different predicaments, one must possess the appropriate tools. Some concepts do not have one true and clear definition or understanding of what they really try to convey. The terms are not clear, and different models employ different definitions. The definitions in use do not properly reflect reality for most of them tend to be theoretical. Of course, there are currently different schools of thought that debate the theoretic-reality relationship. However, one cannot compare models if they use different definitions, thus, intrinsically having different intentions and measures, using different contrasts, different tools.

One must make the distinction between nominal and real definitions. Hemple (1969, p. 2) describes this distinction very well and very accurately: "A real definition is conceived of as a statement of the essential characteristics of some entity.... A nominal definition, on the other hand, is a convention which merely introduces an alternative ... notation for a given linguistic expression ..."

Moreover, we must take in consideration the fact that most notions are super-system concepts. The elements themselves and their interactions (or interactions between clusters of elements) in these types of systems are extremely complex.

In order to shed some of the *human behavior* shadows and bring some light on certain elements that influence the former, we provide a common ground for certain definitions. Moreover, we describe the basics of human nature, how actors are influenced by different information (may that be external or internal), and how their behavior changes based on the information available.

## 2. Beliefs

It is within human nature to have beliefs. For us, *belief* has two aspects: 1) It is the result/conclusion of internal contemplation; and, 2) it is a mental state that manifests itself as an attitude vis-à-vis a conceptual conglomerate (ConC)<sup>1</sup>.

We have to note that the terms 'assumptions' and 'beliefs' are not analogous. Beliefs correspond to certain precepts, elements or situations of reality. They are derived from certain evidence or information. This process requires time in order for beliefs to consolidate. Thus, a belief has a time-component incorporated. Assumptions do not have this feature because they are taken for granted, for the sake of the argument. Assumptions are presuppositions that aid an

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<sup>1</sup> Conceptual Conglomerate is a reference to any specific of elusive system (may the latter be formed by elements, concepts or states).

argument. These presuppositions are only valid for use in a specific situation. Taken out of their context, they become just propositions (that are neither true nor false).

Moreover, there are two aspects when referring to a belief that must be included in the models that incorporate beliefs in their operationalization:

1. the subject (the actor who is engaged in believing);
2. the object (the ConC that the specific belief is pointing to).

The interactions between the actor's beliefs and its environment are extremely complex. Moreover, these interactions create a non-linear dynamic system that is sensitive to the initial conditions. Beliefs shape the way an individual *sees* its environment, and on the other hand, the environment influences the formation, shaping and annihilation of beliefs.

### 3. Learning

Education is the corner stone of any society. Through education, one learns and acquires the credentials to function in the society that he is a member of. Moreover, from an economic point of view, any work environment requires specific knowledge that is acquired only through training.

We point out that where learning is present, an environment (E) is also present. When actors enter in an environment, the former have a set of beliefs (which are personalized and specific to each actor). Moreover, an actor positioned (or is placed) in an environment for a specific purpose (there is a valid reason why *that* actor is in *that* E). In the same time, the actor has specific goals that need to be accomplished (achieved). In order to fulfill this, an actor may learn certain new procedures.

We incorporate learning in our analysis for the former is crucial in the understanding of human behavior. We acknowledge *learning* as being the acquisition and adaptation of concepts and patterns, and the consistency of the already assimilated elements.<sup>2</sup>

Learning is a mental process that refers to the acquisition of information in order to enlarge the *means*-set for the coordination between means and ends. It is through this process that actors learn (willingly or unwillingly).

Learning is expressed through behavior. Even though mostly it is, behavior is not only dependent on learning. As we have seen for beliefs, E also has a powerful influence on behavior by imposing conditions and constrains. Actors can learn how to reduce this influence, yet the latter cannot be fully eliminated. Moreover, behavior is also dependent on beliefs. We note that beliefs are acquired by the individual through different processes of learning.

Ayer (Blanshard 1962, p. 25) argued that “‘being rational’ entails being guided in a particular way by past experience.” However, experience is not only the actor having some action in some environment. Experience depicts a ConC that is more complicated. It is: 1. interaction with the environment; 2. acquiring information; 3. transforming this information into knowledge; 4. having the ability to reason and deliberate regarding the knowledge obtained. We point out that experience by itself is meaningless, unless there is a lesson to be learned from it. Another aspect that needs to be mentioned is the undisputed fact that without learning, there is no rationalization.

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<sup>2</sup> In this instance, ‘elements’ are concepts, patterns and/or processes.

#### 4. Learning processes

The *learning model* is characterized by five steps. The description and interpretations of these steps are the following:

$t_0$  – Status Quo – Behavior  $i$ : the behavior that an actor is already engaged in ( $B_i$ ).

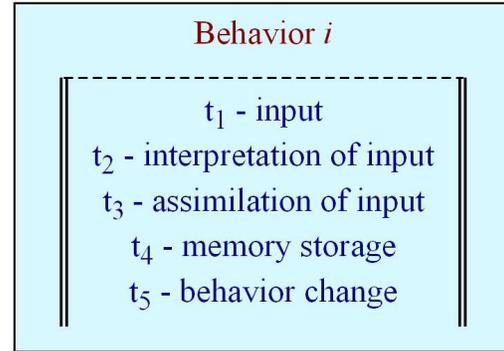
$t_1$  – Input: the actor receives a specific input confronted to a situation (or environment), or is subject to a stimulus. This input can be provided by nature (the external environment), or it can be internal (internal contemplation).

$t_2$  – Interpretation of input: at this stage, the actor is trying to understand the situation at hand, the input. This interpretation is characterized by how much information and knowledge the actor already has regarding the situation. Experience, more information, more knowledge, proper understanding of the *language* of the input will enable a higher degree of (a better) interpretation of the input.

$t_3$  – Assimilation of input: after the actor interpreted the input, he has the choice either to assimilate the new information, or to discard it. In both cases, the actor has an overview opinion of the input.

$t_4$  – Memory storage: in this stage, the actor is placing his understanding of the input in appropriate categories. There are different methods of storing information. Moreover, there is a ‘recall’ function for further use of the elements that were learnt by this specific input. It is this recall function that enables the actor to use past situations for the understanding of future ones.<sup>3</sup>

$t_5$  – Behavior change:  $B_i$  changes due to the fact that new information (experience) was introduced and assimilated in either one (or more than one) of the actor’s set(s) of beliefs, options, capabilities, etc.  $B_{i_{t_5}}$  is not the same as  $B_{i_{t_0}}$ .  $B_{i_{t_5}}$  is  $B_i'$ . Thus, the original conditions have changed.<sup>4</sup>



We note that conditioning is present at stages  $t_2$  and  $t_3$  and it is dependent on how the individual reacts to the stimulus (the input). The conditioning may be of positive or negative reinforcement because the reaction to the stimulus is dependent of the previous inputs that were already learnt.

Moreover, in step  $t_2$  of the learning model, beliefs help in the interpretation of the input. However, new information (sedimental information) influences the actor’s beliefs by either supporting or contradicting them. Once sedimental information is assimilated and placed in the appropriate category(ies), the actor’s behavior changes. By changing the beliefs, an individual changes what he will learn, which in turn changes his behavior.

We also note that steps  $t_1$  to  $t_5$  are sequential. However, we point out that steps  $t_2$  and  $t_5$  can be triggered by a prior input, a past stimulus. In this case, the stimuli would be internal (contemplation), not external. We call  $t_2$  and  $t_5$  stand-alone steps ( $t_{s2}$ ,  $t_{s5}$  respectively). Once an actor is engaged in a stand-alone step and the former is completed, we return to step  $t_1$  of the

<sup>3</sup> This is part of Pierce’s intelligence.

<sup>4</sup> We note that there is a feedback loop. The  $B_i$  changes in the same manner that the Mandelbrot set changes.

learning process (formed by the  $t_1 \rightarrow t_5$  sequence). However, in this case, the actor will not face an external stimulus, but an internal one. In this case,  $t_2$  and  $t_5$  are the basis for the initiation of the learning process. The latter is still the same, leading ultimately to a behavioral change.

The leaning model is very sensitive to the history of the actor. The actor's history (past experience) has consequences in the present and will determine future (re)actions. One can observe that learning is dynamic. This dynamism is composed by different elements at different levels. Any change in an organism is denoted as a mutation of the specific organism. Therefore, after actors learn something, they mutate (these are somatic mutations). The somatic mutations undergone by evolution cannot be passed-on in their original form to other individuals. When individuals pass knowledge (the possessor's knowledge is already acquired, therefore it is information already interpreted), they will pass it distorted, i.e. having certain biases. Moreover, the methods of passing knowledge (which influence the accuracy of the knowledge passed) play an important role also.<sup>5,6</sup>

Notwithstanding the dynamism of learning, there are three main aspects that describe this entire structure: 1. the new knowledge that one is facing (the knowledge is important, however the manner in which the individual is faced to it is also important); 2. the willingness and capacity of assimilating the new knowledge; 3. and, the change in behavior of the actor.

This learning process restarts every time there is a new input, when new information is available for analysis, resulting ultimately in a change of an actor's behavior.

## 5. Human behavior

For us, *behavior* is a (re)action concerning the (internal and/or external) environment. Through their interaction with the environment, individuals make choices. We identify *choice* (the process of choosing) as a mental process that involves judging different options; the option that is selected is 'choice' (the noun).

Decision and choice are different in that choice does not have a time dimension. When referring to a decision, the latter is final and cannot be changed or taken back without consequences.<sup>7</sup>

Behavior is manifested internally and externally. The external behavior influences the environment. Internal behavior determines the internal state of the individual.<sup>8</sup> By understanding these two aspects, the actors are able to take decisions that would be in agreement with the actors' belief systems, thus reducing any cognitive dissonance that could arise from difficult decisions.

In order to properly understand human complex nature, one must understand two systems: 1. what are the elements and the interactions of these elements within the specific actor; and 2. the environment in which the actor is in (and the influence it has on the individual). Any

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<sup>5</sup> There are many examples in regular human daily activity. Looking at a training situation, one can analyze the trainer (possessor of knowledge), the trainee (his  $B_i$  and his capacity of assimilation), and the training process (in all its entirety which includes the methods and frequency of training, as well as the level of distortion of information). The same process is also present when an individual is facing operational changes. His behavior needs to change in order to be able to adapt to the parameters of the specific change.

<sup>6</sup> We warn that  $B_i$  can change drastically, resulting in the actor to have a very different  $B_{i_{t_5}}$  in comparison with  $B_{i_{t_0}}$ . However, the behavior change can also be very subtle.

<sup>7</sup> There is the Options set  $\Lambda=(c_1, c_2, \dots, c_j)$  of choices where, let us assume,  $c_1$  is the best choice (on the basis of being the best alternative to the situation at hand). Thus,  $c_1$  is chosen. At this point, the actor decides to use choice  $c_1$  to achieve its goal, transforming option- $c_1$  in decision- $c_1$ .

<sup>8</sup> This is important because it is the internal state of behavior that determines how an individual sees facts, learns and changes beliefs.

human behavior dwells in a particular state of existence. This state is dependent on the experience of the individual, as well as on the perception that the individual has regarding this state. Extensive research has already been done on this topic. Even though elements have been brought to light, there are many aspects that remain to be discovered in the chapter of human self-perception.

One may argue that it is ‘easy’ to understand people because they are deterministic in nature, meaning that they are ‘determined’ by prior causes.<sup>9</sup> Understanding these causes, scientists can prescribe and predict specific actions of actors. Of course, determinism is only one school of thought on this topic.

However, an important element that needs to be understood and analyzed regarding human behavior is that *people satisfice*. There are many reasons for this: it is easier, it is more comfortable, people satisfice out of self-pity, in order to protect themselves from undesired attention, and because their ability to reason varies. From an economic perspective, *satisficing* is the acumen of an individual to achieve a minimal level of a goal, the minimal value of that goal. The actor is not attempting to get the maximum possible value. He just wants to be content. Actors use bounded rationality (where some limits are imposed for various motives) when satisficing. The latter is a conditional rationality, which is any constrain on rationality or on the methodology to achieve a specific goal. Most of the time these conditions are imposed by nature.

## 6. Conclusion

Emotions must be taken in consideration due to their impact on human behavior. It is in the nature of humans to have emotions, feelings and moods. Some may be pleasant, some may not be. Bechara and Damasio (2005, p. 368) arrive at the following conclusion:

*Emotions are a major factor in the interaction between environmental conditions and human decision processes, with these emotional systems [...] providing valuable implicit or explicit knowledge for making fast and advantageous decisions. Thus the somatic marker view of decision-making is anchored in the emotional side of humans as opposed to the construct of homo economicus. Although the view of maximizing utility of decision-making is pervasive and has a useful benchmark function, human decision-makers seldom conform to it. The process of deciding advantageously is not just logical but also emotional.*

Taking in consideration the previous statement, a proper human behavior model (one which also encompasses the decision process) must also capture the emotional state of the individual.

We have presented a quick overview of what is involved in *learning*. We have acknowledged that the initial conditions that precede the learning sequence play an important role in the latter. We have also provided some insight on how information (through the assimilation of this information) sways the individual in his beliefs and opinion formation, and how beliefs and opinions influence human behavior.

We note that the devices and insight provided in this paper can be employed by an actor to understand himself, but also for an actor to understand other agents.

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<sup>9</sup> We note that these causes can have many aspects, characteristics and traits.

We acknowledge that our model presents a short synopsis in understanding the learning process. Our intentions were to provide a common basis for future research where certain terms were provided with real definitions, not nominal. We encourage researchers (especially in the field of psychology) to build on this model and provide a deeper insight in the (pre-)conditions that influence human behavior.

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