A FRAMEWORK FOR ORGANIZATIONAL LEARNING TYPES: GENERATIVE, ADAPTIVE AND ZERO LEARNING

Ricardo Chiva

University Jaume I

12071 Castellón

Spain

rchiva@uji.es

Abstract

Although organizational learning types like adaptive and generative learning are considered to follow different development processes, a general framework of organizational learning that includes them has remained elusive. The proposed framework also incorporates facets such as emotions, stress, complexity consciousness and orders. These facets are essential in the framework as they bind the process together and represent a sequence and progression through the learning process.

Keywords: organizational learning process, adaptive learning, generative learning, emotions, mindfulness.

In this paper, I propose a framework of organizational learning based on emotions, stress, complexity, consciousness, and Bohm's (1980) concept of order, which will allow me to differentiate the processes of three types of organizational learning: generative, adaptive and zero learning (Bateson, 1972).

Organizational learning, or the process through which organizations change or modify their mental models, processes or knowledge, maintaining or improving their performance (Cyert and March, 1963; Hedberg, 1981; Argyris and Schon, 1974, 1978; Senge, 1990; Brown and Duguid, 1991; Dibella et al., 1996), is one of the most fruitful fields of research in management and organization literature. However, and even though organizational learning is a process, there are few proposals on how organizations learn (e.g. Huber, 1991; Kim, 1993; Crossan et al., 1999). Moreover, there are even fewer frameworks that take into consideration typologies of organizational learning, mainly adaptive and generative learning (e.g. Kim, 1993; Chiva et al., 2010), as the literature understands that their processes are different (Argyris and Schön, 1974; Fiol and Lyles, 1985; Senge, 1990).

Consequently, I propose an organizational learning framework that incorporates three subprocesses: one for generative learning, one for adaptive learning, and one for zero learning (Bateson, 1972, Argyris and Schon, 1974, 1978; Senge, 1990). In order to do so, I will base the framework on several emotional types: compassion-dispassion, passion, and apathy-anxiety; on Selye's (1987) differentiation between eustress and distress; on complex system behaviors: edge of chaos, stability and chaos (Stacey, 1996); on three levels of consciousness: mindfulness, flow and mindlessness (Weick and Sutcliffe, 2006; Dane, 2011; Langer, 1989, 1997); and on Bohm's (1980) concepts of implicate and explicate order.

In this paper I consider alterations in organizational explicate order (Bohm, 1980) as the underlying phenomenon of interest, and the key dependent construct on which this study focuses. Organizational learning can be conceived of as a principal means of achieving improved or new organizational explicate order. But what is an explicate order? Bohm (1980) considers that there are two orders in the universe: explicate and implicate orders. Within the implicate order everything is connected and enfolded into everything else. This contrasts with the explicate order or manifested world where things are unfolded. Explicate order, as referred to by Bohm (1980), is the manifested world, which is represented through knowledge, schemas, rules, mental models, paradigms etc. Organizational explicate order means any mental model, paradigm, idea, process, knowledge, information, schema, rule, etc., shared by most of the members in an organization. The explicate order derives or unfolds from the implicate order. These concepts are closely related to Plato's theory of forms and appearances, respectively. Plato suggested that the world as it seems to us is not the real world, but only a shadow of the real world: the world of appearances (explicate order) is the shadow of a more profound world of forms or ideas (implicate order). So, when one approaches the implicate order, where everything is related, a new explicate order unfolds.

Following Crossan et al. (1999), in order to develop a theoretical framework it is relevant to identify the phenomenon of interest (organizational explicate order), and also state the key premises underlying it (Bacharach, 1989). The relationship among the elements of the framework should also be described (Sutton and Staw, 1995; Whetten, 1989; Crossan et al., 1999).

This framework is grounded on six assumptions (figure 1):

Premise 1: Stressors, external or internal forces or conditions acting on organizations, are the catalysts of organizational learning. Individuals and groups notice and appraise stressors depending on the organizational explicate order and their level of consciousness, which determine their emotions. A high level of consciousness is related to positive emotions; a low level of consciousness is related to negative emotions.

Premise 2: Individuals' and groups' emotions determine whether the stressor will become eustress (positive stress), or distress (negative stress). Positive emotions like passion, compassion and dispassion bring about eustress. Negative emotions like apathy and anxiety cause distress.
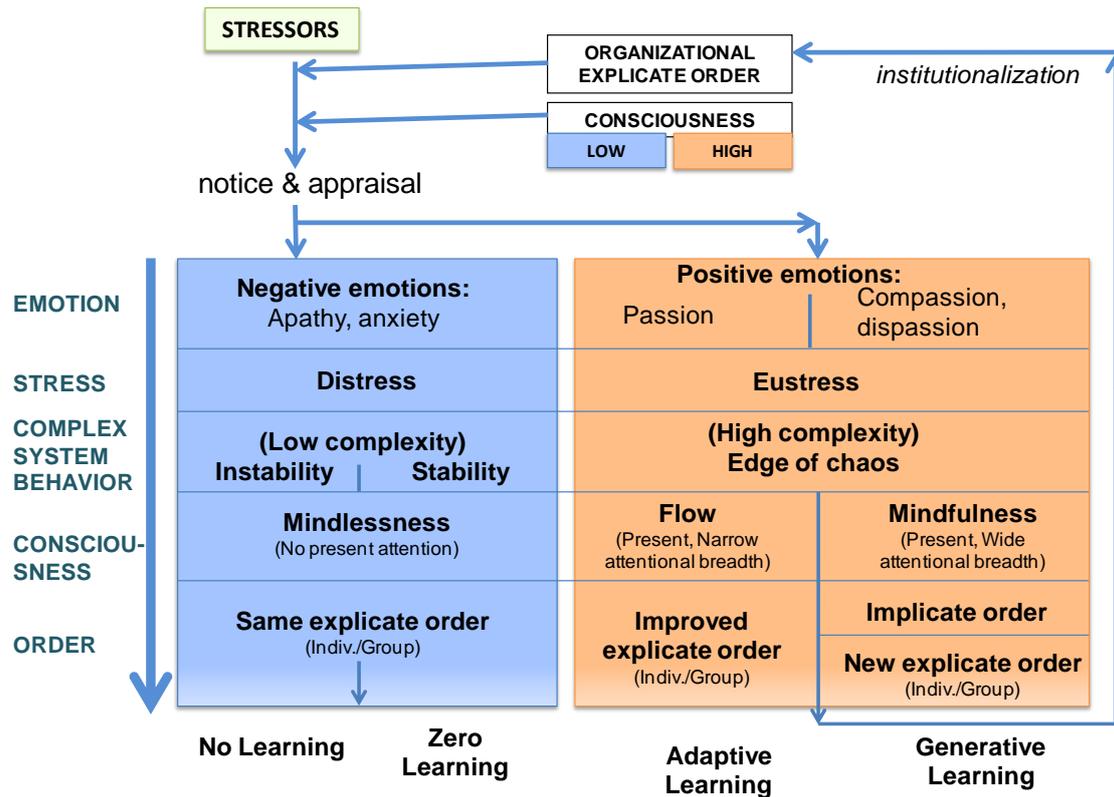
Premise 3: Individuals and groups within organizations can either respond positively to stressors (eustress), assimilating new learning at the edge of chaos; or respond negatively to stressors (distress), using what has been learned at stability, or creating high instability.

Premise 4: At the edge of chaos, attention to the present moment flourishes and two levels of consciousness emerge: flow and mindfulness, depending on the level of attentional breadth. At stability, there is no attention to the present and only mindlessness arises.

Premise 5: Mindfulness allows the implicate order to be approached and then a new explicate order unfolds (generative learning). Flow allows improvement of the existing explicate order (adaptive learning). Mindlessness does not provoke any changes in the existing explicate order, as it implies responding to stimuli but making no changes (zero learning).

Premise 6: Learning may start in individuals and in relationships. Once individuals and groups learn, a process of institutionalization converts new or improved individual or group explicate order into new or improved organizational explicate order.

Figure 1: The Framework for Organizational learning types

STRESSORS		ORGANIZATIONAL EXPLICATE ORDER	*institutionalization*
		CONSCIOUSNESS	
		LOW	HIGH	

notice & appraisal

	Negative emotions: Apathy, anxiety	Positive emotions: Passion	Compassion, dispassion
EMOTION	Negative emotions: Apathy, anxiety	Positive emotions: Passion	Compassion, dispassion
STRESS	Distress	Eustress	
COMPLEX SYSTEM BEHAVIOR	(Low complexity) Instability | Stability	(High complexity) Edge of chaos	
CONSCIOUS-SNESS	Mindlessness (No present attention)	Flow (Present, Narrow attentional breadth)	Mindfulness (Present, Wide attentional breadth)
ORDER	Same explicate order (Indiv./Group)	Improved explicate order (Indiv./Group)	Implicate order / New explicate order (Indiv./Group)
	No Learning **Zero Learning**	**Adaptive Learning**	**Generative Learning**

As stated in premise 1, stressors are conceived as triggers of organizational learning. Stressors are anything that causes stress in an organism, in our case, organizations. They might be external or environmental factors (Hedberg, 1981) or internal or organizational conditions (Cook and Yanow, 1993; Brown and Duguid, 1991).

Individuals and groups notice and appraise these stressors and develop emotions toward them depending on the organizational explicate order and their level of consciousness. The specific qualities of an emotion are determined by noticing the event and also by interpreting it (appraisal) (Lazarus, 1991; Gross and Thompson, 2007; Atkins and Parker, 2012). The higher the level of consciousness, the more positive the emotions will be. In this vein, Atkins and Parker (2012) consider that a high level of consciousness, mindfulness, has a positive effect on compassion, a positive emotion. The more aware we are of the stressor (event, change, etc.) and ourselves, the more attentive and present we will be, the more interested, passionate, and the less egocentric, fearful, anxious, and apathetic we will feel about it, and therefore the more positive we will be.

In reference to premise 2, emotions affect how we manage stressors, or what form our stress will take: good or bad. Stress, considered by Selye (1987) as an inevitable consequence of living, is defined as the physical and psychological responses to adverse conditions or influences. However, Selye (1987) distinguished between two types of stress: eustress or good stress, and distress or bad stress, meaning that the former implies a positive response to stressors and the latter a negative response. According to Le Fevre et al. (2003) and Selye (1987), positive emotions are determinant for maximizing eustress and negative emotions for maximizing distress.

The term emotion comes from the French word *emouvoir*, which means to stir up, move; in fact it is considered as a driving force behind some actions. Fischer et al. (1990: 84) define emotion as a "discrete, innate, functional, biosocial action and expression system", and posit that emotions can be divided into two groups. The first group or positive emotions, like love and joy, imply goal advancement. The second group, negative emotions such as anger, sadness and fear, imply goal hindrance. In this framework I propose that positive emotions like passion, compassion and dispassion promote eustress, and negative emotions like apathy and anxiety bring about distress.

Concerning premise 3, I consider that individuals and groups within organizations try to respond to diverse and adverse conditions with either positive behaviors (eustress) that improve or create new conditions i.e., creative tension, edge of chaos (Stacey, 1996), or negative behaviors (distress), based on indolence, simply doing the same, i.e. stability, or anger, provoking instability.

Premises 4 and 5 explain the three subprocesses of organizational learning, generative, adaptive and zero learning, based on levels of consciousness: mindfulness, flow and mindlessness, and relate them to Bohm's (1980) orders. This part will be explained in detail in the next section.

Premise 6 underlines our approach to the levels of organizational learning (Crossan et al., 1999): individual, group and organization. I consider that learning within organizations happens and is initiated both at individual and group level: organizations learn through individuals (Simon, 1991), and also through communities (Brown and Duguid, 1991), which entails support for both the individual and social perspectives of organizational learning (Örtenblad, 2002; Elkjaer, 2004; Chiva and Alegre, 2005). This implies that emotions, stress, complex system behaviors, or consciousness might also take place simultaneously at individual and social levels.

In the following section I expand these key premises by describing the three subprocesses of learning: generative, adaptive and zero learning (Bateson, 1972), incorporating into the process concepts such as consciousness, emotions, stress, complex system behaviors, and order. Finally, I suggest that the framework has important implications for academics and practitioners.

GENERATIVE, ADAPTIVE AND ZERO LEARNING: A NEW FRAMEWORK

The organizational learning framework presented in this paper contains three related subprocesses that occur at different levels—individual, group and organization—and that incorporate different facets like consciousness, emotions, stress, complex system behaviors, and orders. These facets are essential in the framework as they bind the process together. They represent a sequence and progression through the learning process.

As mentioned above, I consider that organizational learning can occur in individuals, who then transfer it to groups, and finally to the organization (Crossan et al., 1999), or it can be initiated in relationships in groups, and then become institutionalized (Brown and Duguid, 1991). I consider, thus, that emotions, behaviors, or consciousness can happen at individual and group levels. In fact, similarly to concepts like social and organizational learning, previous research has already considered concepts like social emotions (Bernett et al, 2009), social behaviors (Homans, 1958) or organizational consciousness (Pandey and Gupta, 2008).

Stressors, stress, eustress and distress: the importance of emotions

Stressors are considered to be the initial triggers of organizational learning: something different or challenging happening within the organization, the effects of unwanted decisions, external deadlines, shifts in decision making, new interactions within the organization or with groups external to it, etc. The organizational learning literature has traditionally considered that learning within organizations is generated by external or environmental factors (Hedberg, 1981) or internal or organizational conditions (Cook and Yanow, 1993; Brown and Duguid, 1991).

Once stressors emerge, individuals and groups within an organization may notice them, and then appraise them (Atkins and Parker, 2012). In fact, Daft and Weick (1984) or Huber (1991) consider that learning is the consequence of a process that starts with noticing or scanning data and its interpretation or appraisal. Once the stressor is noticed, individuals and groups appraise it, or give meaning to it (Daft and Weick, 1984; Atkins and Parker, 2012). However, both noticing and interpreting will be affected by two elements: first, what we know, or the organizational explicate order, and second, our level of consciousness.

Maturana and Varela (1980), based on their logic of self-reference, consider that the information we obtain from the environment is not gained impartially; we are self referential; we see and interpret what we know. We assign patterns of meaning and significance to the world in which we operate. Therefore knowledge can be considered as a hindrance to learning (Chiva et al., 2010); in other words the organizational explicate order might condition how we see and interpret a stressor.

Consciousness can be defined as the degree of awareness of one's inner and outer worlds, being mentally perceptive and feeling the undivided wholeness of existence (Wilber, 2000). A high level of consciousness, or mindfulness, implies being present, attentive; avoiding thoughts of the past or the future (Dane, 2011). According to Boucouvalas (1993) the more conscious an individual or a group is, the more complex reality is seen and interpreted, the more aware one is of situations and the less egocentric one is toward them.

Several authors (Lazarus, 1991; Gross and Thompson, 2007; Atkins and Parker, 2012) state that emotions are determined by noticing the event and also interpreting it, which I consider is moderated by the organizational explicate order and the level of consciousness. The higher the level of consciousness, the more aware we are about the stressor (event, change, etc.) and ourselves, the more attentive and present we are, avoiding thoughts about the past and the future, the more connections we will see between the situation and other aspects. Therefore, we will feel less frightened, worried and uninterested; so, anxiety and apathy, negative emotions, are moved aside, and positive emotions like passion, compassion or dispassion appear. In this line, Atkins and Parker (2012) consider that compassion is developed through mindfulness.

Internal and external organizational stressors provoke stress within organizations that, depending on individuals' and groups' emotions, will fall into the categories of either eustress or distress (Selye, 1987). In this paper I consider that two negative emotions, apathy and anxiety, will bring about distress. Kaplan and Sadock (1991: 29) define apathy as a state of lacking inner feeling and emotion, a lack of interest and emotional involvement with one's environment. The term apathy is synonymous with lack of participation, reluctance, lack of incentive, and isolation (Ghadimi and Nir, 2011). On the other hand, anxiety is the displeasing feeling of fear and concern (Davison, 2008), and consequently can create feelings of fear, worry, uneasiness, and dread (Bouras and Holt, 2007). In fact, the two emotions are highly connected (Charlton, 1995), (Charlton and Birkett, 1995) and cause goal hindrance (Fischer et al., 1990), which implies difficulty in solving the stressor. According to Le Fevre et al. (2003), negative emotions will provoke distress, or negative stress, that will impede solving the problem or incidence. Two main options will come out from this, either stability or instability.

On the other hand, I consider that eustress (Selye, 1987) or positive stress, is fostered by positive emotions such as passion, compassion and dispassion, which bring about goal advancement (Fischer, 1990), or an active and positive attitude towards the stressor.

Vallerand et al. (2003) define passion as a strong inclination toward an activity that individuals like, that they value, and in which they invest time and energy. Dutton et al. (2006) define compassion as noticing, feeling, and responding to another's suffering. They also consider that compassion must involve some sort of response. On the other hand, dispassion implies detachment or not being dictated by passion; not proceeding from temper or bias; impartial, not warped, prejudiced, swerved, or carried away by passion; judicial; calm; composed. Both compassion and dispassion are associated with transpersonal development (Daniels, 2009), and can also be connected to emotional intelligence (Davies et al., 1998; Salovey and Mayer, 1990). Emotional intelligence involves appraisal and expression of emotion in oneself and regulation of emotions in oneself (dispassion), and appraisal and expression of emotion in others, and use of emotion toward constructive and positive activities (compassion).

Passion, compassion and dispassion are positive emotions with which to face stressors: either to concentrate on them, to detach from them, or to take into account others in order to present a new view. In any case, they are accompanied by eustress or positive stress. Distress and eustress represent the two options individuals and groups have when facing stressors. The appearance of one or the other will depend on whether negative or positive emotions are present.

In similar terms, complexity theory considers that complex systems, like organizations, can develop three types of behaviors: stability, instability and edge of chaos (Stacey, 1996). The edge of chaos is regarded as a phase change, representing the "highest effective complexity" (Gell-Mann, 1994). A complex system can learn only when effective complexity is sizeable, that is, in conditions that are intermediate between instability or chaos and stability (Gell-Mann, 1994). This is what Stacey (1993) calls "creative tension".

Nevertheless, effective complexity is low when there is a high level of chaos and the environment is random, and is also low when a system operates in an environment that is highly stable, in the sense that its component systems behave in a perfectly regular manner (Stacey, 1996: 96). In this situation very little happens and little learning or change is needed (Stacey, 1996: 96). Therefore, I consider that there are two types of behaviors. First are the complex ones—between order and chaos, at the edge of chaos— that promote learning and exploration (March, 1991). Weick and Westley (1996: 450) argue that a juxtaposition of order and chaos precedes organizational learning. And second, the non-complex ones, fully unstable or stable, which hinder learning (Stacey, 1996). Stability involves only exploitation, using what has been learned, or continuing the same or past paradigms and models. In a similar vein, Miller (1993) uses the term simplicity to refer to organizational attitudes that highlight successful past approaches, which might eventually bring organizational decline. On the other hand, instability entails chaos, conflict and disorder, which impedes or blocks any learning, but might bring about dysfunctions that cause ineffectiveness and even the decline of the complex system (Stacey, 1996).

Consciousness levels

When individuals or groups are at the edge of chaos, with eustress, attention is implicit. According to Dane (2011), previous research shows that the way in which organizational members approach attention affects several organizational or managerial actions. This author considers that there are several types of attention, based on two dimensions: present moment orientation and attentional breadth. Concerning the first dimension, attention can be oriented to the present moment (mindfulness and flow), or to the past or even the future (mind wandering, prospection or fantasizing). Dane (2011) considers that there are two types of attentional breadth in the present moment: flow, with narrow or focused attentional breadth, and mindfulness, with wide attentional breadth. Furthermore, these types of attention determine the degree of consciousness. Hence, mindfulness is a state of consciousness in which attention is focused on present-moment phenomena occurring both externally and internally and maintaining a wide attentional breadth (Dane, 2011). On the other hand, flow (Csikszentmihalyi, 1992; Jackson, 1992) directs attention to present-moment phenomena and involves a narrower attentional breadth (Dane, 2011). Flow is a high level of engagement in an optimally challenging activity that produces intense concentration and a strong feeling of control (Csikszentmihalyi, 1990; Nakamura and Csikszentmihalyi, 2009; Dane, 2011).

In contrast, distress causes no attention, or causes attention to the past or future; in other words, no attention to the present. This is a state of consciousness known as mindlessness, which involves reliance on previously established categorizations of information, a reduced level of attention and vigilance, and the adherence to a rigid rule system governing behavior (Langer, 1989; Ray et al., 2011). Brown and Ryan (2003) consider mindlessness as the relative absence of mindfulness, which takes place when

individuals behave compulsively or automatically, without awareness of or attention to their behavior (Deci and Ryan, 1980).

Attention connects stress with consciousness. Furthermore, consciousness levels seem to have an essential role in determining individuals' approaches to learning. In recent years, an increasing number of works in the organizational literature have underlined the importance of consciousness for individuals in organizations (Schmidt-Wilk, Alexander and Swanson, 1996; Senge et al., 2005; Aburdene, 2005; Schwerin, 2005; Kofman, 2006; Pandey and Gupta, 2008). This stream of literature argues that a high degree of consciousness is essential for individuals in organizations operating in a new era where learning is a critical element. In a similar vein, an increasing number of papers in the organizational literature are underlining the importance of mindfulness for organizations (e.g. Langer & Moldoveanu, 2000; Fiol & O'Connor, 2003; Dane, 2011), and specifically for organizational learning (Langer, 1997; Levithal & Rerup, 2006; Jordan et al., 2009). Although there are many definitions and perspectives of mindfulness (for a review, see Dane, 2011), most of them consider it as a very high state of consciousness.

Wilber (2000) presents a hierarchy of stages of human development toward increasing consciousness, which is understood as having an awareness of one's inner and outer worlds, being mentally perceptive, and feeling the undivided wholeness of existence. Wilber (2000) draws on several authors, particularly Graves (1970), Maslow (1954, 1971) and Beck and Cowan (1996), to describe the growth and development of the human being as a series of unfolding stages. The literature (Maslow, 1971; Graves, 1970; Wilber, 2000, 2006) has traditionally considered this development to consist of three main stages. The first stage, characterized by egocentrism and low consciousness, is related to Maslow's four lower levels of needs or deficiency needs. A shift in consciousness then occurs, the sociocentric stage (Wilber, 2000), which is related to Maslow's (1954) self-actualization or being needs. Beyond this stage, a higher degree of consciousness can be reached. In his later years Maslow (1971) added a sixth level to his needs hierarchy, the transcendence or transpersonal level, in recognition of realities that are "trans" or beyond the first five levels, including even the fifth stage of self-actualization. In all likelihood, he was drawing from Gebser (1949), who suggested that several structures of consciousness existed, the highest of which is integral consciousness. Similarly, Wilber (2000) considers a higher stage of consciousness, the holistic or worldcentric stage, in contrast to the previous egocentric and sociocentric stages. In the same way, Pandey and Gupta (2008) consider the existence of three levels of organizational consciousness: market, social and spiritual consciousness. This high stage of consciousness underlines the transcendence of the ego and the importance of factors such as altruism and compassion.

Boucouvalas (1993) argues that shifts in states of consciousness are essentially a major alteration in the way the mind functions, as each state of consciousness has its unique configuration and pattern, and involves progressive transformations of the contextual foundation of the conscious. According to Boucouvalas, these transformations entail movement toward more complexity, greater awareness, and less egocentrism. When individuals are or become more conscious they are more aware of their internal and external worlds, which makes them less egocentric and more altruistic (Boucouvalas, 1993; Wilber, 2000). Boucouvalas (1993) considers that when conscious individuals perceive their commonality with all living creatures and thus protect the environment and the system, they are motivated from within, not just from a feeling of moral

obligation emanating from externally given 'shoulds' and 'oughts'. In fact, she relates high consciousness with Bohm's (1980) implicate order of the universe, which is a world of interconnectedness, where one's identity transcends the individual self.

In sum, based on this literature, I consider three levels of consciousness (Table 1). A high level of consciousness or mindfulness implies a certain transcendence of the ego, one's own concepts and knowledge, and a greater importance of others, not only one's own group or team, but the rest of the world. In a certain way, mindfulness might connect individuals to another order, where everything is connected, which is Bohm's (1980) implicate order.

Most of the literature on mindfulness understands that there are two main approaches to it: Eastern and Western (Weick and Sutcliffe, 2006; Weick and Putnam, 2006). The Western approach of mindfulness pays more attention to external events and involves reconceptualizing the elements within their environment in a new way, drawing novel distinctions and focusing on learning to switch modes of thinking (Langer and Moldoveanu, 2000; Langer, 2009). On the other hand, the Eastern approach, which pays more attention to internal events, requires meditation (Brown and Ryan, 2003; Weick and Putman, 2006; Dane, 2011). Both approaches to mindfulness create a void (Langer, 1989; Weick and Putnam, 2006), which is a non-conceptual phase: one sees things deeply, down below the level of concepts and opinions, one lets concepts go, unlearns (Hedberg, 1981); there is a non-judgmental awareness, a greater sensitivity to one's environment, more openness to new information, the creation of new categories for structuring perception, and enhanced awareness of multiple perspectives and intuition appear (Weick and Putnam, 2006; Dane and Pratt, 2009). All of this implies approaching the implicate order, which is a holistic perception of the world.

Compassion and dispassion are connected to a high level of consciousness—mindfulness (Langer, 1989), transcendence (Maslow, 1971) or worldcentrism (Wilber, 2000)—as they imply a certain detachment from ideas and concepts and inquiry into them, and a search for a connection to everything, environment, others etc. (implicate order).

Table 1: Consciousness levels

	High level of consciousness	Medium level of consciousness	Low level of consciousness
Langer, (1989, 1997); Levinthal and Rerup (2006); Weick and Sutcliffe (2006); Dane (2010)	Mindfulness	Flow	Mindlessness
Gebser (1949); Graves, (1970); Kohlberg (1981); Wilber (2000, 2006)	Worldcentrism/holism (all of us)	Sociocentrism (us)	Egocentrism (me)
Maslow (1954, 1971)	Self transcendence	Self actualization	Deficiency needs (four lower needs)

The medium level of consciousness, flow, implies self-actualization (Maslow, 1954), engagement in activities and groups. The term flow was first coined by Csikszentmihalyi (1975: 4), who defined it as the holistic sensation that people feel when they act with total involvement. Flow has been defined as the experience of working at full capacity, with intense engagement and effortless action, where personal skills match required challenges (Nakamura and Csikszentmihalyi, 2002).

Amiot et al. (2006) affirm that the concept of passion has some ties with other concepts, such as those of flow (Csikszentmihalyi, 1990, 2000) and intrinsic motivation (Deci and Ryan, 1985). Flow can be related to passion (see Vallerand et al., 2003). Thus, passionate people should experience more flow than less passionate individuals (Amiot et al., 2006). Furthermore, flow should result mainly from one specific type of passion, namely, harmonious passion (see Vallerand et al., 2003).

The lowest level of consciousness, mindlessness, is the polar opposite of mindfulness. This level of consciousness is considered to focus on the ego, on its deficiency needs (Maslow, 1954; Wilber, 2000). Brown and Ryan (2003) consider that mindlessness takes place when individuals behave compulsively or automatically, without awareness of or attention to their behavior (Deci and Ryan, 1980). Fiol and Connor (2003) suggest that mindlessness is characterized by relying on past categories, acting on automatic pilot, precluding attention to new information, and fixating on a single perspective (Langer, 1997; Weick et al., 1999). Mindlessness might bring repetition, boredom, exploitation of past success, etc., which is closely related to emotions like apathy or anxiety.

However, Bargh and Chartrand (1999: 464) note that automatic processes free us from tasks that do not require our vigilance and intervention so that our time and energy can be directed toward those tasks that do. Valorinta (2009) believes that despite the apparent benefits of highly attentive and conscious behavior, most of the time human behavior is driven by automatic, nonconscious mental processes that we are not aware of, that we do not intend, and that do not require effort (Bargh and Chartrand, 1999).

The types of organizational learning

Based mainly on Bateson's (1972) categories, organizational learning has generally distinguished between two levels of learning (Chiva et al., 2010): adaptive or single loop learning (e.g. Argyris and Schön, 1974, 1978; Senge, 1990), related to Bateson's level I, and generative or double loop learning (e.g. Argyris and Schön, 1978; Senge, 1990), related to Bateson's level II and beyond.

However, altogether Bateson (1972) posited five levels of learning, from zero learning to learning IV. Bateson (1972) scarcely discussed learning IV, commenting that "it probably does not occur in any adult living organism on this earth" (1972), as it involves evolutionary change in a species. I therefore confine my discussion to zero learning through to learning III. Each higher learning type includes the lower ones, and involves a change in the lower learning process. Therefore, the higher the level, the more transcendent the change involved in the learning, because the learner is more conscious of him or herself, the learning object and the situation (Bateson, 1972). Therefore there is a relationship between learning and levels of consciousness.

Zero Learning

Zero learning is a conditioned response; it entails responding to stimuli but making no changes based on experience or information (Bateson, 1972), which implies no changes in the individual, group or organizational explicate order. Zero learning is a response to impulses, which can be related to associative learning, the process by which an association between two stimuli or a behavior and a stimulus is learned (Tsakanikos, 2006). The two forms of associative learning are classical and operant conditioning (Bitterman et al. 1983). In classical conditioning (Pavlov, 1904, 1926) two stimuli are

repeatedly presented in close succession, until the response given to one becomes associated with the other. In the most famous example Pavlov repeatedly paired the neutral stimulus of a ringing bell with the positive unconditional stimulus of food, until the ringing bell caused the dog to salivate. This learned consistency is called the conditional response.

Classical conditioning learning refers to synchronic association between a neutral stimulus and an unconditioned stimulus, whereas operant or instrumental conditioning implies a diachronic association (contingency) between a behavior and an ulterior reinforcement (Skinner, 1938). In operant conditioning a certain behavior is either reinforced or punished, which results in an altered probability that the behavior will happen again. Operant conditioning could be the consequence of a simple reward or punishment depending on a wide range of reinforcement types. We all unconsciously (mindlessness) learn everyday in both ways by accustoming, performing typical routines or programming our acts by scheduling our time and complying with rules and existing norms. Consequently, this type of learning is very much related to mindlessness.

However, zero learning might also include imitative, social, observational or vicarious learning (Bandura and Walters, 1963; Bandura, 1986). In fact, the most characteristic learning process in humans is imitation, one's personal repetition of an observed behavior. Observational learning is a type of learning that occurs as a function of observing, retaining and replicating novel behavior executed by others. Therefore, it could also be associated to mindlessness, as it involves adhering to a rigid rule system governing behavior (Langer, 1989).

Adaptive learning

Learning I, which corresponds to single loop or adaptive learning (Argyris and Schön, 1974, 1978; Fiol and Lyles, 1985; Senge, 1990; Arthur and Aiman-Smith, 2001; Chiva et al., 2010), involves selecting from a given set of alternatives when responding to an event in a particular way. It refers to changes in zero learning, by correcting errors of choices within a set of alternatives (Bateson, 1972). Cochrane (2004) defines this type of learning as obtaining information to correct or improve procedures. In that sense, it will imply an alteration or improvement in the explicate order: models, paradigms, processes etc.

Adaptive learning can be considered as the ability to detect and correct errors in certain operating procedures (Argyris, 1978; Senge, 1990). According to Argyris and Schön (1974, 1978), single loop learning allows an organization to maintain its present policies or achieve its present objectives by adjusting or adapting its behaviors. Single loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off (Smith, 2001). Single loop learning seems to be present when goals, values, frameworks or strategies are taken for granted. Cochrane (2004) understands this type of learning as highly instrumentalist as it seeks to obtain information or objective knowledge in order to correct or improve procedures.

In the organizational learning literature adaptive learning is considered as the refinement and improvement of existing competences, technologies and paradigms without necessarily examining or challenging our underlying beliefs and assumptions (Chiva et al., 2010). Chiva et al. (2010) relate adaptive learning to complex adaptive systems. Complexity literature understands that complex 'adaptive' systems have the

capacity to adjust to changes in the environment without endangering their essential organization. These authors define adaptive learning as any improvement or development of the explicate order (Bohm, 1980). According to Chiva et al., (2010), adaptive learning takes place when individuals and groups within organizations mainly exercise logic or deductive reasoning, concentrate, discuss, and focus on improving any mental model, knowledge, process etc. Concentration is essential for adaptive learning, as it is for flow. Therefore, flow and adaptive learning can be related to each other. When individuals and groups are passionately focused on an activity, situation etc., they can improve it, modify it, but it is difficult to question it when there is such concentration or focused attention. Once the explicate order is improved by individuals and groups, a process of institutionalization (Crossan et al., 1999) takes place to become organizational explicate order.

Generative learning

Learning II, which corresponds to double loop, reflective or generative learning (Argyris and Schön, 1974, 1978; Fiol and Lyles, 1985; Senge, 1990; Arthur and Aiman-Smith, 2001; Elkjaer, 2001, 2004; Chiva et al., 2010), is described by Bateson (1972) as a change in the process of learning I, which means a corrective change in the set of alternatives from which choice is made (Tosey and Mathison 2008). While learning I is concerned with improving a procedure or behavior, learning II involves questioning this procedure, behavior or assumption, and therefore implies that it is understood. According to Cochrane (2004), learning II means challenging one's beliefs and assumptions by becoming aware of what Argyris and Schön (1978) call defensive routines.

Double loop or generative learning involves the modification of an organization's underlying norms, policies and objectives (Argyris and Schön, 1974, 1978; Fiol and Lyles, 1985; Senge, 1990). Double loop learning involves the modification of an organization's underlying norms, policies and objectives, and entails being able to see beyond the situation and questioning operating norms (Argyris and Schon, 1974, 1978). Double loop learning occurs when error is detected and corrected in ways that involve the modification of an organization's underlying norms, policies and objectives (Smith, 2001).

Senge (1990) affirms that generative learning, unlike adaptive learning, requires new ways of looking at the world, whether in understanding customers or understanding how to better manage a business. In order to look more deeply into generative learning, he introduces the concept of *metanoia*, a Greek word meaning a profound shift of mind, which he considers to be synonymous with generative learning. He explains that for the Greeks it meant a fundamental change, transcendence (*meta*) mind (*noia*). Senge (1990) affirms that to grasp the meaning of *metanoia* is to grasp the deeper meaning of learning, as learning also implies a fundamental shift of mind. Furthermore, Senge (1990) considers systems thinking as an essential discipline for organizational learning, and defines it as the ability to comprehend and address the whole, and to examine the interrelationship between parts. Mindfulness and its approach to the implicate order seem to be essential in his perspective.

Chiva et al. (2010) consider generative learning as a process that involves searching for implicate order (Bohm, 1980), which is a holistic understanding of anything or anyone we interact with. Within the implicate order everything is connected and enfolded into everything else. According to Chiva et al. (2010), generative learning might take place

when individuals and groups within organizations mainly use intuition, attention, dialogue, and aim to question any explicate order. Bohm (1980) describes the implicate order as a kind of generative order, which is primarily concerned with a deep and inward order out of which the manifest form of things can emerge creatively. According to Bohm (1980) and Bohm and Peat (2000), to approach the implicate or generative order requires (creative) intelligence, which is an unconditioned act of perception (intuition) that must lie beyond any factors that can be included in any knowable law. This kind of intuition is similar to Crossan et al.'s (1999) entrepreneurial intuition; and is the opposite of their expert intuition, which would be closely related to mindlessness and zero learning.

While learning II is concerned with the emergence of new understandings about contexts, learning III implies a deeper shift, a change in the set of contexts (Tosey and Mathison 2008). Learning III involves a change in the process of learning II (Bateson, 1972), leading to a transformation of who we are. It is a corrective change in the system of sets of alternatives from which choice is made; it implies choosing between those sets of factors that influence the paradigm we are working from in learning II (Cochrane, 2004). According to this author, an important aspect of learning III is the extent to which the self is no longer significant. Bateson (1972) affirms that once someone achieves learning III, and learns to perceive in terms of the context of contexts, he or she goes beyond the context of personality, starts to look at the context that influences the shaping of personality traits, and his or her self becomes irrelevant. In doing so, the world is seen from a holistic point of view (Cochrane, 2004).

In the organizational literature, several concepts have been proposed to go beyond double loop learning, such as triple loop learning, which is regarded as a profound or transformational change (Romme and van Witteloostuijn, 1999; Swieringa and Wierdsma, 1992; Wang and Ahmed, 2003). However, and generally speaking, the organizational literature has considered generative learning as the 'transformative' type of learning (Argyris and Schön, 1978; Senge, 1990) which would imply Bateson's learning II and beyond.

Therefore, generative learning is developed through mindfulness to approach the implicate order. When this is done, a process of unfoldment (Bohm; 1980) or interpretation (Crossan et al., 1999) occurs. Once it is unfolded or interpreted, a new explicate order appears that might be integrated and institutionalized (Crossan et al., 1999) to become an organizational explicate order.

Over time organizations or teams become increasingly less mindful unless problems or interruptions arrive (stressors). A sort of edge of chaos (Chiva et al., 2010) activates mindfulness. Levinthal and Rerup (2006) believe that interruptions or problems may trigger a sequential switch from less-mindful to mindful processes. This dichotomy portrays mindful and less-mindful learning as distinct categories between which organizations and their members sequentially alternate or simultaneously manage.

IMPLICATIONS FOR RESEARCH AND MANAGEMENT

In their reflections on the 4I framework, Crossan et al. (2011) remind us that there are different types of learning, which I consider should be taken into account for an organizational learning framework. The central contribution of this paper is the incorporation of different types of learning into an organizational learning framework: zero, adaptive and generative learning. In order to do so, I include several facets in the

framework, namely emotions, stress, complex system behaviors, consciousness and Bohm's orders. I hold that these facets contribute to a broader understanding of systemic learning.

Although the literature has previously underlined the importance of emotions for organizational learning (Vince, 2001; 2002), it has not been incorporated into any theory or framework. In fact, Crossan et al. (2011: 452) also affirm that emotions should be taken into account for any eventual organizational learning theory.

I consider that the higher the degree of consciousness, the more positive the emotions; and the lower the degree of consciousness, the more negative the emotions. I also propose that negative emotions like anxiety and apathy lead to distress and zero learning. In contrast, positive emotions, like passion, compassion and dispassion, cause eustress and promote adaptive and generative learning. However, Vince (2002) reports how several authors have noted that learning and change are unlikely to occur without anxiety (Kofman and Senge, 1993; Schein, 1993). Vince (2002) describes two directions to travel in from the starting point of anxiety. When anxiety is held in, individuals struggle, take risks, and learning is promoted. When anxiety is not held in or controlled, emotions are denied, resistance comes out and learning is blocked. I understand that my approach could be considered as relatively similar; positive emotions displace negative emotions like anxiety, thereby developing eustress. In a similar vein, Quick et al. (2000) affirm that organizations experiencing anxiety can hinder organizational learning.

The framework presented in this paper considers that organizational learning is initiated by stressors and stress. Similarly, Cangelosi and Dill (1965) consider organizational learning to be a product of interactions of three types of stress: discomfort, performance and disjunctive stress. Discomfort stress is generated because the task demands more time and energy than is available; performance stress is generated because actual performance might fall short of aspirations; and disjunctive stress is generated by divergence and conflict. In spite of the seminal work by Cangelosi and Dill (1965), organizational learning has rarely been associated with stress (e.g. Mikkelsen et al., 1998).

According to March (1991), organizational learning reveals a balance between exploitation and exploration. However, Crossan et al. (1999) affirm that instead of a balance there is a tension between the two due to the implicit competition for resources: organizations either follow a feed-forward or a feedback process. Similarly, the literature on ambidexterity, or the organization's capability to explore and exploit, presents two models. The first one, structural ambidexterity, considers that organizations should promote two separate approaches, one for exploration and one for exploitation (Adler, Goldoftas, and Levine, 1999); therefore organizations solve the paradox by temporarily cycling through periods of exploitation and periods of exploration (Brown & Eisenhardt, 1998; Crossan et al., 1999; Venkatraman, Lee, & Iyer, 2007). In contrast, contextual ambidexterity understands that the two can be integrated (Gibson and Birkinshaw, 2004), and a certain simultaneity and synchronization might happen between them. From the structural ambidexterity view, organizations can solve the paradox by temporarily cycling through periods of exploitation and periods of exploration.

In the same line, but on the relationship between mindfulness and mindlessness, Weick and Sutcliffe (2006) question whether mindful and less mindful processes are best

conceived as dual processes or as a continuum. This question is significant because the answer affects whether it is conceivable that the two processes can operate simultaneously, or whether they are mutually exclusive and can operate only sequentially. Levinthal and Rerup (2006) consider that they are mutually exclusive and have to be conceived of as a continuum because they believe that there are important points of conflict between mindfulness and mindlessness. One stresses the importance of novelty to respond to changing, and possibly unique circumstances, while the other emphasizes the role of continuity as a mechanism to preserve accumulated experience. Levinthal and Rerup (2006) also affirm that mindfulness and mindlessness are distinct categories but there is a strong complementarity and interdependence between the two perspectives or processes. Langer and Piper (1987) see mindlessness as a consequence of mindfulness. One mindfully creates categories and then is able to mindlessly use them. Valorinta (2009) argues that continuity of mindfulness is rare. Without unexpected stimuli, mindfulness can easily transform into mindlessness (Germer, 2005). This author suggests that mindfulness and mindlessness are not exclusive processes; most organizations are characterized by some level of both mindfulness and mindlessness. The question is rather their proportion and simultaneity in a particular organization (Weick, 1998). In any event, Levinthal and Rerup (2006) call for research on their relationship.

The organizational learning framework presented in this paper does not consider that individuals and groups should opt for either exploitation or exploration. I understand that individuals and groups can face both exploration and exploitation simultaneously, following a contextual ambidexterity (Gibson and Birkinshaw, 2004). However, I do not ignore that organizations can only opt for exploitation or exploration. When individuals and groups possess positive emotions they can reach the edge of chaos, and flow or mindfulness happens, although it does not prevent them—simultaneously and related to other situations—from simply exploiting what they generatively or adaptively learned before. Nevertheless, I suggest that only simplicity, distress, exploitation and zero learning arise when negative emotions are present. Therefore, I consider that when individuals and groups explore, are at the edge of chaos, with eustress, they can experience mindfulness or flow and promote generative or adaptive learning, respectively, but they can also and simultaneously exploit or use past explicate orders. In this framework I consider stability when only exploitation, mindlessness and simplicity are present. However, this question requires further research.

Exploitation and exploration depend strongly on emotions, on how individuals face stressors. This framework does not consider it to be a direct strategic option, but an emotional consequence. Organizations tend toward exploitation when apathy or anxiety is generalized within the organization, mainly due to the way organizations are managed. Hence, human resource practices, organizational structures or general strategies might affect emotions, which in turn influence organizational learning. Organizations tend toward exploration, and perhaps simultaneously exploitation, when passion, compassion and dispassion are everywhere, which might also be a consequence of the way organizations are managed. Future research should examine these organizational and managerial characteristics.

Emotions take individuals and/or organizations either to the edge of chaos, a highly complex situation, which implies exploration (and also probably exploitation: ambidexterity); or to stability, a situation with low complexity, which implies only exploitation. According to the complex system literature (Stacey, 1996; Gell-Mann,

1994), another situation can appear that is related to low complexity: instability or chaos. I understand that full instability is also related to mindlessness and no learning is developed; however, political situations can lead to important changes in the organization. As well as organizational and managerial characteristics affecting emotions and organizational learning, future research might focus on how politics and power influence the whole framework and relationships.

Complexity literature has traditionally influenced organizational learning research (e.g. Stacey, 1996; Eijnatten and Putnik, 2004; Antonacopoulou and Chiva, 2007). Following Chiva et al.'s (2010) analysis of adaptive and generative learning based on complexity science, I consider the concepts of complex system behaviors (Stacey, 1996; Gell-Mann, 1994) and Bohm's (1980) concepts of order. The concept of Bohm's (1980) implicate order is essential to understand mindfulness and generative learning. Organizational explicate order has been considered as the underlying phenomenon of interest, similar to Crossan et al.'s (1999) strategic renewal. In fact, I consider that explicate order might be a broader concept; that it not only relates to strategic changes but to any change in organizational mental model, process or paradigm.

In spite of the recent importance of concepts like mindfulness, flow or mindlessness in the organizational learning literature (e.g. Weick and Sutcliffe, 2006; Weick and Putnam, 2006 Brown and Ryan, 2003), they had not previously been introduced in the process of organizational learning. In this framework I link them to emotions and learning types. Furthermore, mindfulness and its connection to Bohm's (1980) implicate order improve our understanding of the process of generative learning.

In summary, in this paper I have proposed an organizational learning framework for learning types, which incorporate several essential concepts like emotions or consciousness. Moreover, this framework attempts to converge (Pfeffer, 1993) with other proposals or frameworks, particularly that of Crossan et al. (1999).

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