

Peach Summer School 2007 Extended Abstract:

Being Present – Being Mindful

Conceptual delimitations and comparative analysis

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Abstract

This work offers a comparative analysis between the constructs of sense of presence and mindfulness performed along dimensions such as awareness, attention and non-judgemental acceptance. Related constructs such as flow and absorption are also included in the analysis.

Keywords – Sense of presence, physical presence, mindfulness, flow, absorption, awareness, attention.

I. MOTIVATION

This work explores the construct of sense of presence through a comparative analysis with several related constructs. While the relationships between presence on the one hand, and flow (Fontaine, 1992) and absorption (Sas and O'Hare, 2003) on the other hand have been previously investigated in presence literature, the relationship that presence holds with mindfulness has been merely suggested (Heeter, 2003) lacking so far an in depth theoretical exploration. The association between mindfulness and presence, particularly in the case of physical presence, originates in the fact that both constructs require moment by moment awareness (Fontaine, 1992, Green and Burlison, 2003).

The proposed comparative analysis is performed along several dimensions including awareness, attention, and non-judgemental acceptance. This work lays the foundation for further experimental studies where the hypothesised relationships between the constructs outlined in this paper will be empirically tested. In this way, the degree of overlapping among the considered constructs will gain clarity.

The paper starts by introducing the constructs of sense of presence, mindfulness, as well as flow and absorption. Each construct is introduced by highlighting its main dimensions and the

expected impact on user experience. The subsequent section introduces the comparative analysis while some final remarks conclude the paper.

II. PRESENCE CONSTRUCT

Presence is a psychological phenomenon, through which one's cognitive processes are oriented towards another world, either technologically-mediated or imaginary, to such an extent that one experiences mentally the state of being (there), similar to one in the physical reality, together with an imperceptible sliding of focus of consciousness to the proximal stimulus located in that other world (Sas and O'Hare, 2003).

Because of the complexity of presence construct, presence literature has identified various facets:

- *telepresence* is the sense of being physically present at a remote location during the telemanipulation of real objects (Minsky, 1980).
- *virtual presence* is the sense of presence within a solely virtual environment (Marshall, 2002).
- *physical presence* is the state of consciousness in which one is psychologically present in the immediate task situation and is broadly aware of a range of ecological characteristics in it, rather than attending narrowly to a few selected characteristics or to events occurring in other times or places (Fontaine, 1992).

For the purpose of this paper, physical presence will be further detailed. Fontaine (1992) identified the following *dimensions* of this construct:

- attending to the immediate situation

- involvement, participation
- broad awareness
- realness and vividness
- perceiving and acting in innovative ways, with spontaneity or naturalness

The most relevant consequences of sense of presence are increased user's enjoyment and task performance.

III. MINDFULNESS CONSTRUCT

Mindfulness is a construct which has been conceptualized differently by various researchers. We employ Cardaciotto's (2005) distinction between the construct of mindfulness defined in the field of Social Psychology through the outstanding work of Langer (1989), and the one operationalised in the field of Clinical Psychology through the remarkable work of Kabat-Zinn (1990).

From Social Psychology perspective, mindfulness is a flexible state of mind of active engagement in the present moment, through which one notices new things and becomes sensitive to the context (Langer & Moldoveanu, 2000). Its main dimensions consist of:

- focus on the cognitive process of only what is occurring in the external environment (Cardaciotto, 2005).
- absence of non-judgemental component
- enhanced awareness of multiple perspectives
- active construction of new categories by drawing novel distinctions from the external stimuli
- engagement, flexibility, novelty-seeking, and novelty-producing (Langer & Moldoveanu, 2000).

This type of mindfulness impacts on user experience through:

- increased learning and creativity
- greater sensitivity to one's environment
- openness to new information
- subjective feeling: heightened state of involvement and wakefulness or being in the present (Langer & Moldoveanu, 2000).

From Clinical Psychology perspective, mindfulness is an intentional process of observing, describing, and participating in reality non-judgmentally, in the present moment, and with effectiveness (Dimidjian & Linehan, 2003). Its main dimensions consist of:

- involvement of both internal and external stimuli (Cardaciotto, 2005)

- present-moment awareness, i.e., sustaining flexible awareness in the present (Cardaciotto, 2005)
- non-judgmental acceptance towards one's experience, e.g. experiencing events fully and without defence, as they are (Hayes, 1994).

This type of mindfulness impacts on user experience through:

- increased coping with unpleasant and distressing events
- openness to negative experience
- interrupting cycles of negative internal experiences
- health and well-being

IV. OTHER CONSTRUCTS: FLOW & ABSORPTION

Two other concepts closely related to presence and mindfulness is flow and absorption.

Flow represents a subjective state of complete involvement in something to the point of forgetting time, fatigue, and everything else but the activity itself (Csikszentmihalyi & Rathunde, 1993). The main dimensions of flow construct are:

- low present-moment awareness
- deep narrow concentration
- clear goals, stable structure, and immediate feedback
- loss of self-consciousness and self-awareness (Csikszentmihalyi, 1990).

Relationship between flow and presence has been previously explored and findings suggest that flow has a narrower attentional focus than presence (Fontaine, 1992), while presence is a prerequisite for flow (Novak, 2000; Takatalo, 2002).

Mindfulness from both social psychology and clinical psychology perspective can lead to flow through engaging in creative endeavours if one is prepared to err and learn (Langer & Moldoveanu, 2000), and through mindfulness practice, respectively. Indeed, complete engagement or flow results in the absence of a detached sense of self-awareness, as well as the absence of conscious feeling states (Fulton et al., 2005). While flow is characterised by prior relaxation, orientation towards a goal and quick passage of time, mindfulness requires neither prior relaxation nor specific goals, while time appears to slow down or be irrelevant (Wright et al., 2006).

Absorption has been defined as full commitment of available perceptual, motoric, imaginative and ideational resources to a unified representation of the attentional object (Tellegen & Atkinson, 1974). The state of “total attention” and “out of touch” with reality characterizing absorption is related to a heightened sense of reality to a focal object, decreased distraction by external events, and an altered sense of reality and sense of self. The main dimensions of this construct are (Cardaciotto, 2005):

- total attention
- deep involvement
- heightened sense of reality to a focal object
- decreased distraction by external events
- altered sense of reality and sense of self

Relationship between absorption and presence has been supported by empirical findings which suggest positive correlation between presence and absorption (Sas and O’Hare, 2003).

Mindfulness, both from social psychology and clinical psychology perspective does not involve absorption which is a complete immersion in experience. Indeed, findings suggest that mindfulness, which entails broader awareness (Roberts et al., 2007) and detached observation of experience (Cardaciotto, 2005), correlates negatively with the trait of absorption (Brown and Ryan, 2003).

V. COMPARATIVE ANALYSIS

This section introduces the comparative analysis between presence and mindfulness, along several dimensions which are relevant for both constructs: awareness, attention, and non-judgmental acceptance. The analysis is also extended to the presence-related concepts of flow and absorption. These dimensions are briefly introduced below:

- *Awareness* is the background “radar” of consciousness continually monitoring the inner events and the outer environment (Brown & Ryan, 2003). There can be awareness of stimuli without them being at the centre of attention. Particularly relevant for mindfulness construct is the awareness of present experience (Fulton et al., 2005).
- *Attention* is the process of focusing conscious awareness and providing heightened sensitivity to a limited range of experience (Kosslyn & Rosenberg, 2001). Attention is particularly relevant since through regulating its focus, attention brings

awareness to current inner experience (Westen, 1999). Related to presence and mindfulness are the following specific forms of attention (Bishop et al., 2004, Schmertz, 2006).

- *focused attention* which is the ability to respond discretely to specific stimuli
- *selective attention* which is the ability to select specific stimuli from distracting or competing ones.
- *sustained attention* which is the ability to maintain a state of vigilance over time
- *switching* which is the ability to change the focus of attention among various stimuli.
- *Nonjudgmental acceptance* of one’s experience consists of experiencing events fully, without avoidance or defence (Hayes, 1994). During an acceptance state, one inhibits judgment, interpretation, and/or elaboration of internal events, and makes no attempt to change, avoid, or escape from the internal experience (Bishop, 2002 cited by Cardaciotto, 2005).

The seven constructs introduced in this paper such as telepresence, virtual presence, physical presence, mindfulness from social psychology perspective, mindfulness from clinical psychology perspective, flow and absorption will be furthermore conceptualized along the above dimensions, i.e. awareness, attention and nonjudgmental acceptance.

As presented in Table 1, we hypothesise that *telepresence* is characterized by limited present-moment awareness which is restricted to the external, remote stimuli that lie in the focus of attention. This limited present-moment awareness is endorsed by the suspension of disbelief defined as person’s willingness to overlook the limitation of a medium in exchange for a transcending experience (Biocca, 1997). This limited awareness is accompanied by a high focused attention on the stimuli from the remote environment, and a high selective attention which disregards competing stimuli from the physical environment. In telepresence we hypothesise limited attentional switch between various stimuli from different environments (proximal and remote). Accordingly, there is a low nonjudgmental acceptance since the only events which can be experienced fully are restricted to those taking place in the remote environment, and even then there is no indication that people inhibit their judgments and interpretation of their experience, i.e. liking/disliking.

Construct	Awareness	Attention				Nonjudgmental acceptance
		Focused	Selective	Sustained	Switch	
Telepresence	Limited present-moment awareness restricted to external stimuli in the focus of attention.	High focused attention on stimuli from the remote environment.	High selective attention, disregarding competing stimuli from the physical environment.	High sustained attention.	Low switch.	Low nonjudgmental acceptance. Suspension of disbelief.
Virtual Presence	Limited present-moment awareness restricted to external stimuli in the focus of attention.	High focused attention on stimuli from the virtual stimuli.	High selective attention, disregarding competing stimuli from the physical environment.	High sustained attention.	Low switch.	Low nonjudgmental acceptance. Suspension of disbelief.
Physical Presence	Broad present-moment awareness of external stimuli.	High focused attention on stimuli from the physical environment.	High selective attention, disregarding competing stimuli from the physical environment	High sustained attention.	Low switch.	Low - High nonjudgmental acceptance.
Mindfulness Social Psychology	Broad present-moment awareness of external stimuli.	High focused attention on stimuli from the physical environment.	High selective attention, disregarding competing stimuli from external environment but not restricting one's awareness of them.	High sustained attention.	High switch.	Low nonjudgmental acceptance.
Mindfulness Clinical Psychology	Broad present-moment awareness of both external and internal stimuli.	High focused attention on stimuli from both internal and external environment.	High selective attention, disregarding competing stimuli from both internal and external environment but not restricting one's awareness of them.	High sustained attention.	High switch.	High nonjudgmental acceptance.
Flow	Limited present-moment awareness restricted to the external stimuli in the focus of attention, i.e. current activity.	High focused attention on stimuli from the physical environment relevant to the current activity. One-pointedness	High selective attention, disregarding competing stimuli irrelevant to the current activity with limited awareness of something else.	High sustained attention.	Low switch.	High nonjudgmental acceptance.
Absorption	Limited present-moment awareness restricted to the external stimuli in the focus of attention.	High focused attention on stimuli from the physical environment relevant to the current activity. One-pointedness	High selective attention, disregarding competing stimuli irrelevant to the current activity with no awareness of something else.	High sustained attention.	Low switch.	High nonjudgmental acceptance.

Table 1: Comparative analysis of sense of presence- and mindfulness-related constructs along dimensions of awareness, attention and nonjudgmental acceptance

We hypothesise that *virtual presence* is characterized by limited present-moment awareness which is restricted to the external, virtual stimuli that lie in the focus of attention. Similarly to telepresence, this limited present moment awareness is endorsed by the suspension of disbelief (Biocca, 1997), and is accompanied by a high focused attention on the stimuli from the virtual environment, and a high selective attention which disregards competing stimuli from the physical environment. In virtual presence we hypothesise limited attentional switch between various stimuli from different environments (proximal and virtual) and accordingly, low nonjudgmental acceptance since the only events which can be experienced fully are restricted to those taking place in the virtual environment, and even then there is no indication that people inhibit their judgments and interpretation of their experience, i.e. liking/disliking.

Both for telepresence and virtual presence, strongly related to the suspension of disbelief is the concept of *judgment of realness* defined as the extent to which the users consider the remote/virtual space as similar to the real environment (Schubert et al, 2001).

Unlike the previous two types of presence, *physical presence* appeared to be characterized by broad present-moment awareness of external stimuli. It is also characterised by a high focused attention on discrete stimuli from the physical environment, and a high selective attention disregarding competing stimuli from the physical environment. We hypothesise that physical presence can be accompanied by either low or high nonjudgmental acceptance.

Mindfulness from social psychology perspective involves broad present-moment awareness of external stimuli and high focused attention on the stimuli from the physical environment. In addition, a high selective attention disregards competing stimuli from external environment but does not restrict one's awareness of them. Since this type of mindfulness requires noticing new things and drawing distinctions, we hypothesise that it is characterized by high attentional switch towards everything that is new, and limited nonjudgmental acceptance since each item/stimulus needs to be carefully assessed and compared within similar categories.

Mindfulness from clinical psychology perspective involves broad present-moment awareness of both external and internal stimuli, and high focused attention on stimuli from both internal and external environment that come up in the present moment. However, in this case, the focused attention is not sustained on any given stimuli through thinking or rationalization but is required to enable moment by moment observation without judging and through accepting whatever is here and now. This type of mindfulness involves selective attention in terms of disregarding competing stimuli from both internal and external environment but not restricting one's awareness of them. In addition, what lies in the focus of attention is dictated by what arises naturally in the present moment

rather than one's choice which is usually triggered by judgment and non acceptance. Since the tendency to think, rationalise, judge and push away thoughts and feelings is usually high, this type of mindfulness requires high attentional switch from whenever the mind is wandering back to the present moment.

Both *flow* and *absorption* can be characterised by limited present-moment awareness restricted to the external stimuli in the focus of attention, i.e. current activity, and high focused attention on stimuli from the physical environment relevant to the current activity.

Unlike the previous constructs, the focused attention in the case of flow and absorption is particularly high. Such a high level of concentration also known as one-pointedness (Fulton et al., 2005) requires low attentional switch since anything else which can distract attention is not even noticed lying outside one's awareness. We also hypothesise that both constructs of flow and absorption involve high nonjudgmental acceptance since people experiencing these states forget time, fatigue and everything else unrelated to the activity (Cardaciotto, 2005).

The differences between flow and absorption identified through this comparative analysis consist in the level of selective attention. While in both cases selective attention appears to be high so that it disregards competing stimuli irrelevant to the current activity, in the case of absorption it is even higher so that there is no awareness of something else.

VI. CONCLUSIONS

This paper presents some exploratory work aiming to shed light into the construct of presence and three of its incarnations, i.e. telepresence, virtual presence and physical presence. It proposes a comparative analysis between presence and constructs of mindfulness, flow and absorption performed along several dimensions. As highlighted in the comparative analysis, the constructs of physical presence and flow appear to be closely related to the mindfulness construct defined from clinical psychology perspective. This outcome suggests the need to diverge the theoretical and empirical work on presence construct towards including the concept of mindfulness. The reflection on the similarities and dissimilarities between these concepts will ultimately clarify the presence and its multi-facets complexity. The considered dimensions of awareness, attention, and non-judgmental acceptance enabled the development of a useful framework of analysis which led to several findings. For this, the paper reviews existing outcomes in the field, and puts forward several hypotheses regarding the relationship between the identified constructs.

Future work will focus on experimental studies employed to test these hypotheses, and on extending the framework of analysis with additional dimensions in order to capture the existing distinctions between flow and absorption.

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