

Witnessed Presence and the YUTPA Framework

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ABSTRACT

This paper introduces the notion of witnessed presence arguing that the performative act of witnessing presence is fundamental to dynamics of negotiating trust and truth. As the agency of witnessed presence in mediated presence differs from natural presence orchestration between natural and mediated presences is needed. The YUTPA framework, introduced in this paper, depicts 4 dimensions to define witnessed presence: time, place, action and relation. This framework also provides a context for design of trust in products and services, as illustrated for a number of illustrative scenarios.

Keywords: *witnessed presence, time, place, action, relation, YUTPA, responsibility, social structures, performativity, ethics, emotions, design*

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1. Introduction

The simple fact of 'being alive' generates a person's natural presence. During the past century information- and communication technology has made it possible to facilitate mediation of human presence beyond the imagination of ever before. People transcend time and place many times in the course of a day, in different roles and different stances. In many situations physical presence is replaced or complemented by one or more types of mediated presence. As millions of people now use such technology every day, social systems for negotiating trust and truth are faced with new dynamics. The ethical implications of these new dynamics demand rigorous analysis of the unprecedented impact on the social structures currently valued. This paper argues that witnessed presence is key to determining trust and truth in natural and mediated environments. Chapter 2 positions the notion of witnessed presence in the context of

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relevant literature. Chapter 3 introduces witnessed presence as key to the negotiation of trust and truth. Chapter 4 presents the YUTPA framework, being with You in Unity of Time Place and Action, and the four dimensions of witnessed presence with which trust is associated. Chapter 5 illustrates the YUTPA framework as a method for design and Chapter 6 discusses future directions for research.

2. Witnessed Presence: the context

This section discusses three aspects of presence encountered in the literature that are strongly related to the concept of witnessed presence.

2.1 Being here: spaces of observation, agency and performativity

Presence research over the last 30 years has been mostly concerned with the understanding and creation of human experiences in virtual environments. Tele-presence, and the potential occurrence of social presence and co-presence within virtual environments, focus on the creation and monitoring of the sense of 'being there'. Many detailed contributions to the field (refs) have been made but no agreement on definitions and distinctions has been reached (Lombard & Jones, 2007). From a philosophical perspective Luciano Floridi critiques the current conceptual foundation of tele-presence theory and proposes a new model of presence as 'successful observation' (Floridi, 2005). Floridi argues that tele-presence is used as 'a definition of epistemic failure', which is primarily founded in perception. Even interaction is analyzed as the perception of interaction and not as the interaction itself. Floridi argues that the current tele-presence models do not pay tribute to the complex dynamics between presence and absence, nor does it take the different levels of abstraction and spaces of observation into account: "For surely the doctor tele-operating on a patient is still present, independently of the doctor's perception (or lack thereof) of the technological mediation." (Floridi 2005, p. 660). Floridi argues that local and remote spaces of observation and different levels of analysis define presence.

Multiple experiences of different kinds of presence only become more complex, more hybrid, less linear and more fragmented. In every product or process the dichotomy between human nature and non-human nature can be distinguished and at the same time hybrids are almost immediately accepted in their own right (Latour, 1993). Physical, natural presence, the traditional basis for determining trust and truth in the

context of social activities (Giddens, 1984), is no longer the only determinant. When being in a place, in an on- or offline or mixed environment, 'action' generates a connection between "the material and symbolic resources that constitute a place and setting the terms of the agent's presence" (Spagnolli & Gamberini, 2005, p. 6). However, in these new environments key-concepts of, for example, distance, connection, impact or locality, have been deeply affected by the use of technologies (Virilio & Lotringer, 2008). Tracking and tracing, collecting and distributing, presence and absence have changed the scale and patterns of communication. They have changed how people act and how they relate to each other. Because the time-space configurations of social structures have changed, also the agency of the actor has changed (Giddens, 1984). As a consequence the negotiation of trust and truth has acquired new dynamics, because not only the spaces of observation are more complex, also the agency of the witness is transformed.

Judicial systems in Europe have developed over the last 2000 years and as such they reflect knowledge of social structures that human kind has known so far in this part of the world. In judicial contexts a witness is a crucial figure and courts demand a witness to be sworn in. Having been an observer is not enough; a witness has to take the stand and take responsibility for the report on what has been observed and experienced. The fact that an action that is witnessed becomes a deed upon which can be testified emphasizes the possible impact of the act of witnessing. While witnessing a witness can decide to intervene in the witnessed situation as well. When witnessed, the executing power of the same action has changed for both the one who witnesses as well as of for the one who is being witnessed.

The notion of witnessed presence proposed in this paper emphasizes how presence is performed, can be performed or cannot be performed in the context of a communication process in which multiple types of presence play a role. In addition to understanding the witness as a chosen position in a specific situation, 'having presence in the world' can also be understood from the perspective of performativity (Butler, 1993). In performative acts biological conditions and social identities merge into, for example, the performance of gender or sexuality. When studying presence in on- and offline environments the notion of presence as 'enacting being' is informative. Also language can be performative, when words become deeds (Austin, 1962). As most mediated environments are dependent on written code and commands to enable presence in mediated environments, the performative perspective on presence contributes to the understanding of presence as a chosen 'enactment' facilitating

certain actions and excluding others.

Luc Steels argues that processes of attribution, synchronization and adaptation define the performance of presence in natural and mediated presences (Steels, 2006). 'Tuning' presence happens in both (Nevejan, 2007). In social structures the understanding of different types of mediated presence is deeply influenced by the development of media schemata. Media schemata, define how mediated presence will be accepted and how they execute power in the social structures in which they function (Ijsselsteijn, 2004). Media schemata, change over time and are different in the variety of (sub) cultures around the globe. The way, for example, television, email or an SMS is understood and accepted, is defined by such media schemata.

The notion of witnessed presence as performance resonates with Floridi's critique on current tele-presence theory. Floridi emphasizes the dynamics between local and remote spaces of observation in which the local space of observation is defined by physical presence that is bound to space and time. The notion of witnessed presence shifts the tele-presence focus from 'being there' to a focus on presence as 'being-here' in relation to many other here's and there's available. It is in the being-here that the perspective on agency and performativity of presence is to be found as argued in the following paragraph.

2.2 Conatus: depth in relation, data-identities and moral distance

Riva, Waterworth & Waterworth argue from a bio-cultural approach, that presence manifests in the strive for well-being and survival (Riva, Waterworth & Waterworth, 2004). From this perspective the notion of witnessed presence can be considered to have agency and performativity as well. The witness chooses to take the stand, the sense of presence makes her or him be aware and act. The perception and awareness of 'something is happening' has impact in natural presence because the conatus, first introduced by Spinoza as the quest for well-being and survival, operates on all levels of the organism of the human being, who is trying to regulate constantly towards homeostasis (Damasio, 2004). From a neurological perspective Antonio Damasio states that the brain constantly distinguishes between what is beneficial for life and what is detrimental to life. Damasio argues that in the perception of something happening emotions and feelings are crucial indicators of where well-being and survival are to be found (Damasio, 2000). People steer away from pain, trying to restore the homeostasis. People steer away from unhappiness, trying to make things better. The 'conatus' triggers a human being to take care of him or herself, and it also

triggers the human being to take care of 'other selves' to keep the environment healthy and safe. Social conventions and ethical rules may be seen as extensions of the basic homeostatic arrangements at the level of society and culture. An individual's drive for survival can also be considered to be the fundament for ethical behaviour towards others (Damasio, 2004).

Mediated presences contribute to daily lives, knowledge and experience significantly. However, the natural presence of the actors involved remains to be distinct because natural presence has to physically survive with or without the use of technology. From this perspective it seems reasonable to argue that mediated presences should only have impact as far as that they do not harm nor confuse the sense of natural presence that helps human beings to steer away from pain towards well-being and survival.

When 'enacting being' the depth in relation between human beings sets the context for how communication is understood (Nevejan, 2007). Strangers, people with whom a human being has no relation, are merely perceived as information (Buber, 1937). This resonates with the experience that in the midst of all the data streams that human kind produces today, it seems that to be able to hear the voices of suffering has become more problematic than ever (Baxi, 1999). To be able to hear a voice of suffering requires the capacity to have complex feelings like compassion and solidarity which do not evolve from the perception of information only. To develop these feelings human beings have to be part of social structures and engaged in human relationships over time (Damasio, 2004).

Because mediated presences offer limited sensorial input, limited mediation of context, and limited possibilities to act, a moral distance is easily adopted towards people a human being does not know (Hamelink, 2000). Current technology facilitates not only a mediation of presence, they also collect, match, duplicate, distribute and produce 'data-identities' (Nevejan, 2007). Human beings have little control over their 'data-identity' in current technological systems while the data-identity of a human being has acquired great agency in the social structures in which human beings live. There is little control on how data are created, there is hardly any control on how data are matched, travel or even on how long they exist. One can argue that the systems themselves have become participants in communities and are executing their own specific ways of witnessed presence (Brazier & van der Veer, 2009). The confrontation between a human being and his/her data-identity and the effect of being witnessed by technological systems, which imperceptibly invade the personal sphere all the time, has hardly been studied. However, having agency is a requirement for being a witness

and to participate in the negotiation of trust and truth. Because human beings have so little influence over their data-identities in the social structures upon which they depend, they adopt a moral distance towards the own self as well (Nevejan, 2007). One of the possible implications of adopting a moral distance towards one's self is that feelings and emotions will not evolve as they should, which leads to the ultimate consequence that a human being is less capable of steering towards one's own well-being and survival. Also the sense for a safe social environment diminishes because as a result of the moral distance to the self, also the moral distance to other human beings increases.

Although related to mediated presence, concepts like homeostasis and conatus are different: there is a different sense of causality, limited sensorial input, local and implicit knowledge can hardly be mediated and the connection most often provides context. Context as reference, that a place with an embedded culture offers, has disappeared (Nevejan, 2007). Also, consistency in identity, through actions and feedback to these actions, requires special attention when being involved in mediated presence. The way emotions and feelings are triggered in mediated presence, and the process of attribution, synchronization and adaptation happen, can be significantly different from a natural presence context. When being a witness in mediated environments the steering capacity of emotions and feelings towards well-being and survival has to be understood and analyzed in different ways. The agency of witnessed presence is different in natural presence from the agency a witness has in mediated environments.

2.3 Collaboration: spatiotemporal movements, incommensurability and collective authored outcomes

Higher trust makes collaborations more smooth and effective and therefore also more cost-effective as Karen Armstrong claims (Kleiner, 2002). To create a 'trusted' sense of place in only mediated environments is a challenge, which is why 'being a witness' and creating a 'to be witnessed presence' in mediated environments requires attention.

In social networking sites, like Facebook and LinkedIn, the purpose is to connect people to other human beings and therefore these sites facilitate a witnessing and being witnessed around the clock and from all over the globe. The popularity of these sites proves that new configurations are being invented to connect natural and mediated presence to create a trusted sense of place in which people can witness each other, possibly testify and possibly act upon what they witness. The context these mediated environments offer (in addition to the platform they provide), appears to be

the 'being in relation with other human beings' it self. It appears that people trust what they perceive on these sites for 100% (ten Kate, 2009). The 'neutrality' of technology generates a great sense of trustworthiness even though most users are not even aware of license agreements to which they have agreed. People argue that the information about others is also to be trusted because all information links to real life situations, networks, cultures and people. Any untruth would surface easily because of this (ten Kate, 2009).

In professional realms, be it in geographically distributed teams of collaboration or not, technologies play a crucial role in the work processes and new configurations between on- and offline work are being invented (Vasileiadou, 2009). As a result, how and when to meet in real life, in natural presence, has become a choice. In collaborations a significant hurdle to overcome between the participants involved is incommensurability, the fundamental not sharing of an understanding. Thomas Kuhn has been studying this phenomenon extensively. To be able to interact, Kuhn argues, members of the community have to share certain concepts or no interaction is possible (Kuhn, 2000). Collaborating actors share terrains of commensurability and also terrains of incommensurability, otherwise they can not collaborate. Witnessing the presence of others informs about the identity of others and these identities are, among other things, formed by conceptual schemes as well as by the spatiotemporal trajectories that are identified (Kuhn, 2000). To be able to recognize spatiotemporal trajectories of other participants is a requirement 'tuning' participant's presence's, which is necessary for tackling incommensurability and being able to interact. However, identifying spatiotemporal trajectories in mediated presence is very different from identifying spatiotemporal trajectories in natural presence. To mediate nuances of spatiotemporal trajectories of enacted beings is difficult and may even be impossible. Just as the sense for well-being and survival is difficult to mediate since it is highly context dependent and context can hardly be mediated at all (Nevejan, 2007). Therefore the conclusion can be drawn that when issues of ethical nature are at stake, when questions are asked about what is good to do and what is beneficial for life, people have to meet in natural presence. Only in natural presence the shared sense of what is good for well-being and survival can be 'collectively authored' in such a way that all stakeholders will base their future acts on the 'collectively authored outcomes' that have been agreed upon (Humphries & Jones, 2006).

3. Witnessed presence is key in negotiating trust and truth

Both trust and truth are not given entities but processes of negotiation. Trust builds and breaks down, truth changes according to perspective. Also both processes are dependent on human perception and interaction for which reason they are subjected to complex dynamics in which psychological, sociological, theological, biological, political and economic realities play a role. Nevertheless according to the literature discussed in chapter 2, when discussing presence technologies key dimensions underlying these dynamics can be identified.

Being a witness traditionally meant that a human being was present at a specific time and a specific place. From a judicial perspective being an observer is not enough; to be a witness a human being consciously decides to take responsibility for the report on situation that is witnessed. As a result the report on this act of witnessing is supposed to contribute to the truth. This dynamic of being a witness and taking responsibility for being a witness, can be identified in many realms of society to create trusted and truthful interactions. In commercial contracts, when the stakes are high as in buying shares or a house for example, stakeholders have to be present in front of a notary to sign a contract specifying the date and precise time. In organizational agreements and civic procedures like marriage, the witness is a returning figure. Witnessing is formally orchestrated in these processes to guarantee truthful and trusted interactions and transactions. In informal social environments witnessing, or lying about having witnessed something as in gossip and rumours may happen, is a well known dynamic to create certain (mis)conceptions of other people or events. When discussing ethics of presence technologies, witnessed presence as a notion that plays a role in the negotiation of trust and truth, is useful.

The following three sections discuss four variables related to the concept of witnessed presence: space, time, relation and action.

3.1 Space and Time

The structure of communication between people is not only defined by the sharing of place and time, but also by the capacity to recognize other beings spatiotemporal trajectories. Being a witness to other people's presence starts before the moment of interaction. It is pre-linguistic in that sense. The perception of other human beings movements influences how a witness performs his or her own presence as a consequence. The configuration of space and time defines the space of observation,

and defines how the witness' presence is performed as well. In natural presence this process of 'staging' presence in relation to the witnesses around, is very different from staging presence in mediated environments.

The perception and experience of space and time have been part of human existence. In arts as well as in the sciences human kind has been struggling to understand and express these fundamental dimensions of life. The current presence technologies challenge this understanding and experience in unprecedented ways. When focusing on witnessed presence in the context of presence technologies all of the questions about space and time that have ever been asked seem relevant. When trying to understand what happens in a specific situation, when being a witness, those questions have to be asked again because an apparent simple transcending of time and or place actually deeply transforms the concepts that human beings recognize and therefore the way presence is performed as well.

3.2 The possibility to act

In addition to space and time, also the possibility to act influences how presence is performed. In mixed on- and offline environments the possibility to act helps to bridge the different worlds. If there is no possibility to act and a human being is nevertheless witness to enrolling events, people easily adopt a moral distance and doing so detach themselves from the sense for well-being and survival. Especially in mediated environments where data-identities interact, such a moral distance can even be taken to the own self. Witnessing is an act in which a human being takes responsibility for the act of being witness. If this responsibility is denied because of a lack of possibilities to act, often there seems to be no other option than to detach. Vice versa, a witness who decides to act, and words can be a deed in this sense, breaks the moral distance and becomes an actor in his or her own right.

To be able to act as a witness, having the potential to become an actor, a person needs a sense of what will be good and what will be bad, in order to anticipate an intended effect of one's action. In on- and offline places where culture is shared, the witness can be aware of the morality around him/her and will know what is good and what is bad for well-being and survival. When a witness does not know the morality of the context in which one witnesses, the witness will be hesitant to use the capacity to act upon what is witnessed because there is no sense of social safety around.

To be a witness and to be part of the negotiation of trust and truth, human beings need the possibility to act as well as an understanding of the possible impact of the act

they may or may not do.

3.3 Depth of Relation

The depth of relation between human beings is the fourth variable that defines how witnessing takes place. Witnessing a loved person in on- or offline environments is very different from witnessing a stranger. This relation provides a very strong context in natural as well as in mediated presence. In social relations human beings develop a whole range of psychological states, from simple emotions of like and dislike, to love and hate and more complex feelings like compassion or solidarity. To be a witness to suffering or being witnessed when suffering demands performance of presence and social structures that support. Also passion, joy and success need performance of presence and social structures that support. When focusing on ethics in presence technologies the question that rises is how complex feelings and emotions like compassion, empathy, shame, guilt and others, evolve in mediated presence over time and affect the social structures in which human beings live and survive. Because of the large-scale use of presence technologies, the range and depth of human relationships are undergoing significant change. People can be 'in touch' with loved ones thousands of miles away and strangers can become intimate friends even though one has never met in real life before or even intends to do so.

Processes of attribution, synchronization and adaptation have more impact than ever because current presence technologies can only facilitate partial channels of communication and transactions. Because mediated presence is dependent on these processes of attribution, solitary human beings are easily confused about what they perceive. The social structures, in which the mediated presences of other people are perceived, are crucial in the understanding of the trustworthiness and truthfulness of the presences that are witnessed. Even in large social networks the connection to the natural presence of human beings involved, is necessary to create trusted and truthful environments. Also in collaborations it appears to be necessary to meet in natural presence when issues of ethical nature are at stake. In natural presence the ultimate sense of what is good for survival and well-being is strongest and the identification of other human beings and the concepts that are shared, is clearest.

Therefore ethics of presence technologies have to be founded in the natural presence of human beings involved. To better understand the social structures in which witnessed presence operates, the YUTPA framework was developed (Nevejan, 2007).

4. YUTPA framework

The specific configuration of time, space, action and relation in a certain product or process, in which natural presence, mediated presence and witnessed presence all play a role, enables certain forms of trust and truth to be established while excluding others. Because of the development of mechanical, electrical, electronic and digital technologies, people can act with other people over time and distances in other ways than those that are dictated by physical presence. It is in the specific ‘time and space configuration in which one meets with others in action’ that one set of possibilities and liabilities can be distinguished from another. Such a configuration is called a YUTPA configuration.

YUTPA is an acronym for “being with You in Unity of Time, Place and Action”. Time, place, action and relation are dimensions that can have different values between You and not-You, Now and not-Now, Here and not-Here, Do and not-Do as depicted in Figure 1.

The You/not-You dimension refers to the relationship with the other human being(s) with whom one interacts.

The Now/not-Now dimension refers to the sharing of the experience of time, synchronous or asynchronous in past or future.

The Here/not-Here dimension encompasses the sharing of place or not. Depending on how place is defined or experienced this can be geographically small or large, it can also refer to the sense of distance in virtual and online worlds.

The Do/not-Do dimension refers to the possibility to act as part of or as a result of a social interaction.

The word Unity refers to the specific configuration between these four dimensions that is designed in a certain product or process, which makes certain interactions possible while it excludes others. It is a formulation from the perspective of the actor, from the perspective of the person involved. In specific configurations human beings enact their being, witness each other, tune and perform their presences.

In every specific YUTPA configuration different possibilities to delegate trust and to produce and verify particular facts is given. Internet, mobile communication, GIS, and databases have created new YUTPA configurations of communication.

The position this paper takes is that values for ‘presence-ethics’ need to be developed in the relation to the natural presence of the people involved. All contributions, possible destruction, confusion and transformations of other YUTPA

configurations have to be valued and judged from the perspective of the natural presence of human beings, and the environment they need, to be well and survive (Nevejan, 2007). In this respect it is interesting to notice that most current information and communication technology agenda's for innovation of truthful and trustworthy environments can be located in the black space of figure 1 in which there is no possibility to act for human beings to be involved. While most human beings love, have children, enjoy life and find trust and truth in the white 'action' space of the same figure 1.

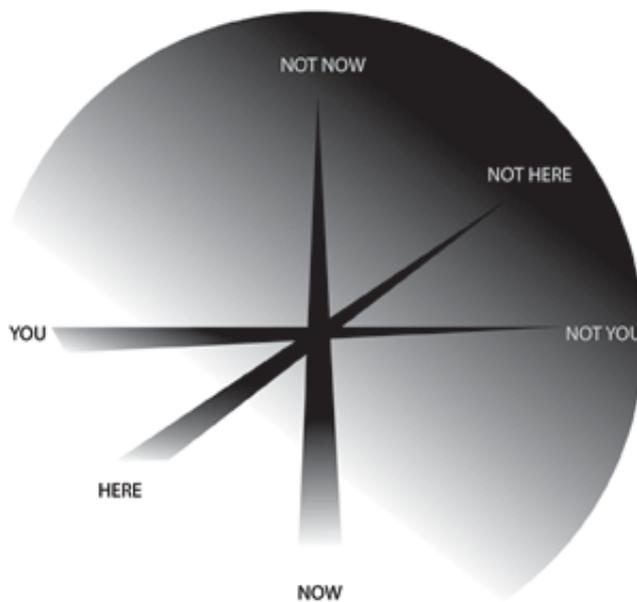


Figure 1. The 4 dimensions of time, place, relation and action define how the relation between witnessed presence and the negotiation of trust and truth can be understood. Next to the three axes, the dimension of Action is represented by the black and white parts of the sphere illustrating the possibility to act in the white of 'clear air' or the lack of possibilities to act in the black of 'no oxygen space'. (Graph: Max Bruinsma)

The four action spaces defined by You create a solid ground for social interaction because these interactions are understood in the context of the relation with the other human being. Establishing distrust is as trustworthy in this respect as establishing trust. Feedback from synchronous and asynchronous mediated presences (You/not-Now/not-Here, You/Now/not-Here) may contribute to the building or diminishing of trust provided the context of a relationship supports this process. With strangers

especially synchronous communication, as is facilitated by the telephone for example, is perceived as truthful and generates trust.

The four action spaces defined by not–You are more complex and highly dependent upon the delegation of trust. Trust in social structures and trust in technology are required to be able to operate in those spaces, trust between individuals is not the issue here. When sharing time and place, while not knowing other people who are present as in a busy street for example, people treat each other as information. But in such a busy street one can still be a witness and decide to act. In all other three not–You spaces technology is needed for human beings to be present; a presence that manifests itself mostly as data-identity, formatted by technology, which is often outside of the ‘original’ human beings control. In the not–You communication spaces basic trust is delegated to governments and companies to create and maintain systems in trustworthy and truthful manners yet these are not always capable or willing to do so.

The blurring between You and not–You creates confusion as well as solutions. In not–You spaces trust is delegated, moral distance is easily taken, responsibility is harder to sense but the ‘neutrality’ of technology generates a great sense of truth and trustworthiness. Therefore in communication processes, which consist of series of interactions and transactions as well, the orchestration of links between on- and offline moments is crucial for success. Part of the trustworthiness of online banking for example is the fact that there is also a bank in a building, with people with whom one can communicate. Part of the trustworthiness of online banking is also the fact that the ‘real’ bank is subjected to the rule of law.

Between the experience of a human being and the social structures to which trust and truth finding are delegated, specific products or services are accepted or not. By interchanging between mediated and natural, between witnessed and not, between synchronous and asynchronous, between not–You and You spaces, between Here and not–Here, and by offering the possibility to act, communication processes take shape and trust and truth are build up or broken down.

5. Applying the YUTPA framework as a method for Design

Over the last two years the YUTPA framework has been used as a method for design in a variety of situations with a variety of people: marketing managers, business people, representatives of larger organizations, government bodies and students of

media and design. Trust and truth are context dependent and so is any intervention by design. In this sense the YUTPA method can only function in processes of situational design (Schwarz, 2006). In this section a short impression is given of how the YUTPA framework is used as a method for design.

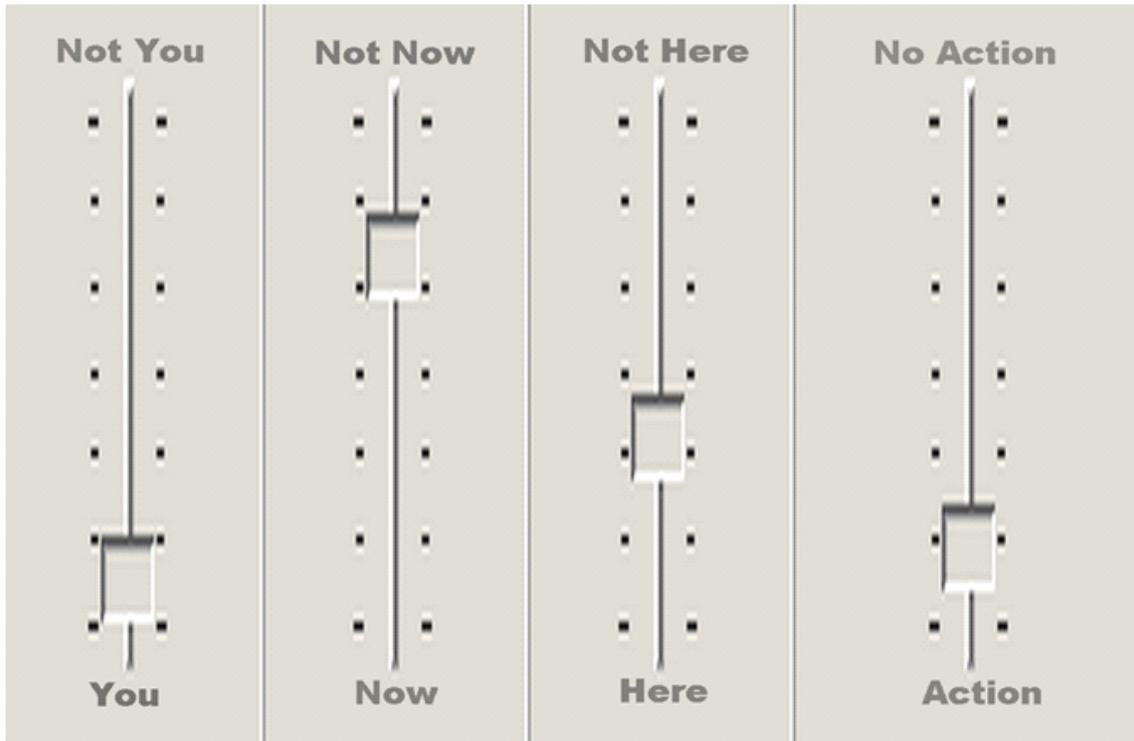


Figure 2. Using the image of a sound mixer to tune 4 dimensions of witnessed presence into one configuration to enhance trust. (Graph: Mike de Kreek)

Design of a process with the YUTPA framework involves (1) Analysis of the 4 dimensions with respect to the requirements. (2) Having analyzed the design problem the four dimensions are tuned to different values to explore the impact on the negotiation of trust and truth. (3) When the preferred configuration has been found, the new products or services can be further configured and designed.

Especially in business environments, communication processes are costly. The configuration of not-You, not-Here, not-Now and not-Do (when all the slides are up in figure 2) would to be very cost effective using technological systems, which can run by themselves and incur no personnel costs. However, if clients loose trust in the service because it is too impersonal and hard to control, people will refrain from using it. So a balance between communication costs and 'trust-investment' needs to be found.

6. Discussion

This paper proposes a conceptual framework that facilitates a better understanding of the ethical implications of presence design. Where Floridi proposes to focus on the spaces of observation and levels of abstraction instead of focusing on the perception and experience of the subject as most tele-presence research does, the notion of witnessed presence proposed in this paper takes the sociological perspective of 'witnessed presence as agency' in mediated and non-mediated environments to sustain well-being and survival for the individual human being and between human beings as well. It takes the perspective of the individual human being, who, while being present 'here' is also present in several 'there's' while interacting and observing others. Having witnessed presence, enacting being in natural and mediated environments, is considered to be an act of performativity in which biological and social realities merge. To be a witness is an act with distinct consequences, especially with respect to the ethical implications of presence design.

Further research will explore each of the four dimensions in relation to each other. Earlier tele-presence research will be revisited, as will the perspective of the Universal Declaration of Human Rights to use the capability approach to translate these values in practical and measurable terms for presence design (Nussbaum, 1999). The challenge is how to understand, create and integrate witnessed presence in social structures of system and service designs, so human beings can take full responsibility for their actions and safeguard human dignity for generations to come.

Current research focuses on the implications of witnessed presence for the design of autonomous systems, systems that participate in communities in their own right (Nevejan, 2009). With social scientists, artists and designers the concept of witnessed presence is further explored.

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