

Beyond L\$: Values across the Virtual and the Real

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Abstract- Virtual societies and virtual worlds are now patriotically a part of lives of many people, especially the younger generations who have been growing up with the internet and mobile networks. Negative influences such as internet addiction and aggressive behavior have drawn attentions from researchers. As a result the focus has been on how to prevent them from spending too much of time in virtual societies and virtual worlds. A more interesting approach would be, by positively transferring or exchanging the values between the virtual and the real, to reach a more balanced experience in both worlds.

I. INTRODUCTION

Virtual worlds such as Second life [1] (Fig. 1a), World of Warcraft [2], Habbo Hotel[3], Club Penguin and Webkinz have entered our lives, our communication patterns, our culture, and our entertainment. "It's not only the teenager active in. The average age of a gamer is 35 years by now, and it increases every year. This does not even include role-play in the professional context, also known as serious gaming, inevitable when learning practical skills. Virtual worlds are in use for entertainment, education, training, getting information, social interaction, work, virtual tourism, reliving the past and forms of art. They augment and interact with our real world and form an important part of people's lives. Many virtual worlds already exist as games, training systems, social networks and virtual cities and world models" [4]. Most of these virtual worlds are accessed on a personal computer - either through a dedicated application like Second Life, or through a Web browser. A number of companies are also looking at mobile devices as the next platform for virtual worlds, thanks to the ubiquity of mobile phones, and the way handsets are getting faster and more powerful, and so able to cope with this kind of content. For example, i-Citizen 3D (Fig. 1b) is one of these mobile virtual worlds, letting people wander around a series of locations based on real-world cities, such as London, Barcelona and New York.



(a) Second Life



(b) i-Citizen 3D

Fig. 1. Scenes from virtual worlds

People are nowadays connected into several communities, both in the real world as well as in virtual societies or virtual worlds. Many live with these virtual worlds. Some even "live a virtual life" in these virtual worlds [5]. In these worlds, the same phenomena emerge as can be seen in our common reality; social structures, economies, relations, etc [6-9]. Currently, there are a few concepts that are directly exchangeable between these realities. One of them is currency. People can exchange virtual currencies for real money, for example using Linden Dollars (L\$) in Second Life [1, 9]. Besides money, knowledge and sometimes social relations are exchanged between the realities [7, 10]. It would be highly interesting to see if the boundaries between these realities could further be blurred by creating concepts which are, like money, able to transfer or exchange values between these worlds and the real one.

By connecting the values between the virtual world and the reality, it is possible to integrate people's virtual lives with their daily routine in the real world, enriching their experiences in every aspect of playing, learning, working, exercising and travelling.

It would also contribute to the world economy. In 2007 the Virtual Economy in Second Life's alone was around 400M Euro, a factor nine growth from 2006. "Would it not be great if the real world economy could be boosted by the exponential growing economy of the virtual worlds by connecting the virtual - and real world" [4].

Next the concept and the structure of values in literature are presented, followed by their implication in virtual and real worlds, and by several interesting design cases.

II. VALUES

In literature, the concept of value is recognized as an important motivational construct and a base for evaluating our behavior and experience ([11-14]). All our values can be seen as means that in the end contribute to fundamental human needs [11, 12] that concern our health and safety, social life and development. The values that relate to these fundamental needs can be viewed from two perspectives: value as belief and value as experience.

Value as belief

The concept of human value is often used in social psychology as a way to describe ethical beliefs of people [15]. Human values are what we think is good; the moral values that one has. Schwartz has written extensively about this topic and states that values influence behavior and experience. He considers values to be abstract goals that can

be ordered by importance for an individual. Achieving these abstract goals contributes to the achievement of the universal requirements of human existence [14]. As a result of cross-cultural study in 20 countries, Schwartz presents a universal value framework (Fig. 2). Schwartz identifies a set of 10 human value types. A set of 57 more specific values is placed within these 10 value types. The values are spatially mapped such that their distances represent the mutual compatibilities and conflicts. For example, Authority is more compatible with Wealth (both in the Power section) than with Equality (in the Universalism section). The lines indicate to which of the 10 value types the 57 values belong. These human values influence both our actions (which lead to experiences) as well as the evaluation of the experiences.

Value as experience

There are various approaches to the value as we experience it. These approaches address different aspects of the value. Boztepe identifies use, exchange, sign and experience as different approaches [16]:

Value of use concerns how beneficial a certain object can be to its user. It concerns the effort that one has to put into using it and the gain that one will get from using it.

Value of exchange is concerned with what one would be able to get in return if he/she would exchange the object.

Value of sign is about what the object signals. This is highly important from a social perspective.

Value of experience is a fairly all-encompassing and concerns the complete experience.

These approaches can be used to split a value into manageable elements and allows for an understanding of why someone values something.

The value as experienced can also be characterized in a 3-dimensional continuum [17]. The polarities are intrinsic-extrinsic / self-other / active-reactive:

Intrinsic-extrinsic: intrinsic is the value that is a destination in itself; extrinsic value (or instrumental value) allows one to achieve an intrinsic value.

Self-other describes whether the value benefits oneself or someone else.

Active-reactive describes whether the relation with the object is primarily active or reactive/reflective.

The types of value emerging from experience and placed within this 3D space can be [16]: Utilitarian (convenience, economy, quality), Social (belonging, helpful), Emotional (aesthetic, meaning, emotion), Altruistic (spiritual, luck, sacredness). As one may see, most of these values emerging from experience are related to the human values in Schwartz's framework, many of which are actually identical.

One may also observe from the above literature, the experienced values are treated as a concept generated from

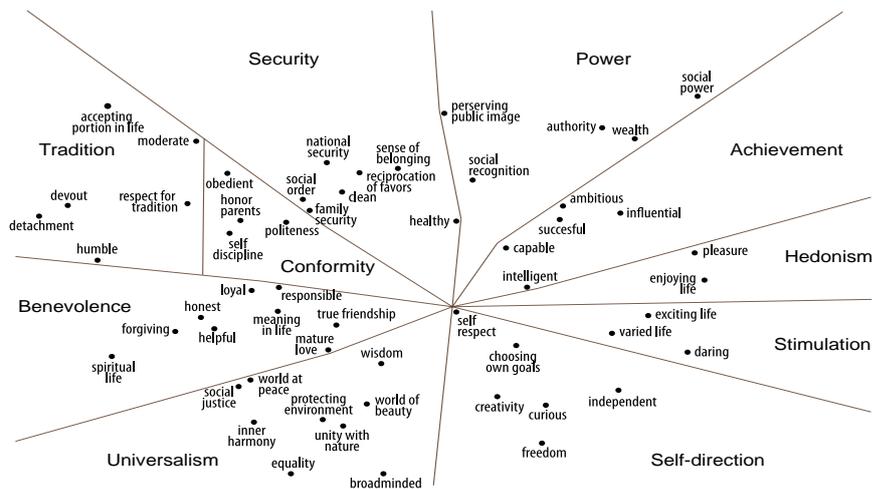


Fig. 2. The empirical structure of human values (Schwartz 1992).

the interaction between subjects and objects. The subject here is the perceiving person; the object is what is experienced. This can range from a physical object to a person, but can also be an imaginary concept.

III. VALUES AND IDENTITIES IN VIRTUAL AND REAL

From a fundamental perspective, strictly connected with the concept of society or community is that of identity and value [18]. Value can be seen as, rather than a property of an object, a concept created between object and subject [19]. Each action or event that we experience thus creates value. The accumulation of these values determines who we are; our identities. Our ability to accumulate these values thus makes us 'richer' people with each experience.

When we live part of our lives in a different world; let's say the virtual world, the values that are created by our behavior are not naturally a part of our physical world. The rules are different. The objects are different in matter and meaning and the same goes for the subject. It may thus be that value created in the virtual world, cannot be easily transferred to or exchanged with the physical world, and thus does not contribute to our identity in the physical world. This means that we shape two separate identities. Partially this is the aim of being in a virtual world. However, in our view, transferring or exchanging the values between these realities could mean enrichment for both the identities. Not only the addition of a new value to an identity causes this enrichment, but also the combination of values, created in two different realities may result in a synergy which allows for even more enrichment of the identities.

However the experienced values are hard to capture and freeze. In order to capture these values, "transitional objects" are needed [20], where these objects are incorporated into the world of make-believe over which people have control, into the world which is not challenged by the question whether it is virtual or real. The questions are then, what these values are, how to capture them, what these "transitional objects" are and how to design them.

Besides the fundamental research interests in value and identity, there is also high social relevance. People who "live a virtual life" in a virtual world may consider this life to be a more desirable reality than the physical one, for the virtual world frees them from their real identities allows them to be whoever they are and to express their capabilities more and to be able to create value better [6]. For instance people with serious physical disabilities or people with social limitations may find that their identity in the virtual world is much more interesting [21]. This means that for some people it is highly attractive to spend time in the virtual world and less attractive to spend time in the real world. In essence there is not much wrong with it. However, all identities in virtual worlds have a physical person behind them, who inevitably also lives in the physical reality. As they spend less time in the physical world, the virtual identity creates less value in the real world, which makes the identity less 'rich' and less recognized by the physical society. It would be a contribution to these peoples' physical identities if they could use the value they created in the virtual world, also in the physical world. Vice-versa, the virtual identity may benefit from values which come from the physical world. As an enrichment of the identity allows for more valuable experiences, this could result in a positive circle.

Virtual societies and virtual realities are now patriotically a part of lives of many people, especially the younger generations who have been growing up with the internet. Negative influences such as internet addiction [22-24] and aggressive behavior [25, 26] have drawn a lot of attention from many researchers. As a result focus has been on how to prevent people from spending time in virtual societies and virtual worlds [27]. A more interesting approach would be, by accepting the fact that the virtual life has been actually part of their real lives and supporting them spending their time on living their virtual lives in a positive way. The assumption is then, transferring or exchanging the values between the virtual and the real to reach a more balanced experience in both worlds is one of these positive ways.

The virtual society, virtual reality and virtual words are mostly considered as the counter part of the real ones. Hence the researches so far are mostly focuses on the interface between these two parts as if they are separated from each other, for example the approach of tangible user interface to virtual games [28-30], and on how to facilitate people "coming and going" between them [18]. The recent developments try to integrate the digital data into physical world in people's environments (Ambient Intelligence, [31]) or even everywhere (Pervasive Computing, [32]). We propose a higher level view from the user's perspective, considering the virtual as part of the real, hence the focus is how to integrate the virtual into the real, for example, how to integrate people's virtual lives into their real ones. In particular, the integration is through the exchangeable values carried by the (re)presenting objects.

IV. DESIGN CASES

Analyzing the values is not to seize and solve a problem; rather it is to discover opportunities brought forward by the

virtual worlds. Next 3 design cases from the department of Industrial Design, Eindhoven University of Technology are briefly discussed, as examples where the perspective of values can serve as an important element in design.

Dynamic forms and values in lamps

In his research, Philip Ross experiments with two lamp designs, in attempting to elicit the targeted values such as creativity, helpful and social power in the design [33].



(a) AEI lamp by Philip Ross (b) Luxger lamp by Rutger Menges
Fig. 3. Values in lamps through dynamic form design

Both lamps can be set in different modes that reflect these values through the dynamic forms and movements, and the interaction between the user and the lamp (Fig. 5). For example, in the helpful mode, when the AEI lamp (Fig. 5a) detects the person sits down, the light spot starts 'jumping' up but because of gravity (modeled in software), it can't reach up to a required level for reading but keeps trying. The user may then help the lamp by placing the hand near the light and dragging it upwards. In the social power mode of the Luxger lamp (Fig. 5b), the lamp tries not to cooperate at the beginning by retreats from the user's touch but soon gives up. The victory gives the user the social power in this context.

This design case does not aim at transferring or exchanging values between the virtual and the real. But it shows the possibility in eliciting the intrinsic values in physical objects, or more accurately, in interaction with physical objects. We may speculate that the same can be done with virtual objects in virtual worlds. If links between the virtual objects and the real ones can be build, so do the values been elicited.

Contextual information exchange

Bram Knaapen designed an artistic lighting set using modular shapes that are lit up by LED's [34]. A remote visual context in a virtual or real environment is captured by a virtual or real camera. The pixels from the video frames are abstracted according to the installation of the modular shapes and the positions of the LED's. The result is a dynamic color lighting presentation of the remote visual context. One of the use scenarios is connecting this lighting set to the user's virtual environment in the virtual world, giving just enough awareness of the activities in the virtual but not leading to intrusive impact on the local physical environment. The values of having an active virtual environment and caring about both the virtual environment and the real environment are transferred into physical lighting effects in the real environment. Moreover what these values are exactly depends on the concrete application and the particular user.



Fig. 4. Shared values transformed into artistic lighting

Buddy compass

Buddy compass is a mobile application designed for backpackers [35]. Backpackers not only form virtual communities on the Internet before and after travelling to share their experience and information, but also like to get together to meet each other in hotels, restaurants and hot spots. The problem is to find each other. The virtual compass, using a GPS sensor, indicates the direction and the distance of other backpackers who have been virtual friends in virtual community, who are now close-by in the real world and who are willing to disclose his or her physical location to other backpackers in the virtual community. The value of friendship is transferring from the virtual community towards the real world through a virtual object – the buddy compass.



Fig. 5. Buddy compass for backpackers

IV. CONCLUDING REMARKS

We are seeing for values, other than the currencies, that can be transferred or exchanged between the virtual and the real, and we are still far from success. The literature research presented here gives some insights into the meaning and the structure of the values; several design cases are briefly discussed in the context of these values, as starting points for further discussions and deeper thoughts. We presented no more than an interesting perspective, yet interesting enough for further investigations and designs. Other objects that can potentially carry exchangeable values or transfer values are yet to be explored. Once these objects are discovered or designed, the current technologies supporting virtual worlds need to be examined and improved for the new requirements on business models, system architecture, effectiveness, efficiency and security.

REFERENCES

- [1] C. Ondrejka, "Collapsing Geography (Second Life, Innovation, and the Future of National Power)," *Innovations: Technology, Governance, Globalization*, vol. 2, no. 3, pp. 27-54, 2007.
- [2] B. Nardi, and J. Harris, "Strangers and friends: collaborative play in world of warcraft." pp. 149-158.
- [3] M. Johnson, and K. Toiskallio, "Fansites as Sources for User Research: Case Habbo Hotel." pp. 6-9.
- [4] MPEG, *Requirements for MPEG-V Version 3*, Busan, Korea, 2008.
- [5] C. Kolo, and T. Baur, "Living a Virtual Life: Social Dynamics of Online Gaming," *Game Studies*, vol. 4, no. 1, 2004.
- [6] A. S. Axelsson, "The Digital Divide: Status Differences in Virtual Environments," *The Social Life of Avatars: Presence and Interaction in Shared Virtual Environments*, pp. 188-204, 2002.
- [7] N. K. Baym, "Interpersonal Life Online," *Handbook of New Media: Social Shaping and Social Consequences of ICTs*, 2006.
- [8] C. M. Bradley, and A. M. Froomkin, "Virtual Worlds, Real Rules," *New York Law School Law Review*, vol. 49, 2004.
- [9] Y. Guo, and S. Barnes, "Why people buy virtual items in virtual worlds with real money," 2007.
- [10] B. Becker, and G. Mark, "Constructing social systems through computer-mediated communication," *Virtual Reality*, vol. 4, no. 1, pp. 60-73, 1999.
- [11] A. Maslow, "A dynamic theory of human motivation," *Psychological Review*, vol. 50, no. 4, pp. 370-396, 1943.
- [12] A. H. Maslow, "A Theory of Human Motivation," *Twentieth Century Psychology: Recent Developments in Psychology*, 1946.
- [13] M. Rokeach, *The nature of human values*, New York: Free Press, 1973.
- [14] S. Schwartz, "Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries," *Advances in experimental social psychology*, vol. 25, pp. 1-65, 1992.
- [15] M. Hebel, "Value Systems 辨 Way to Greater Understanding," *Systemic Practice and Action Research*, vol. 11, no. 4, pp. 381-402, 1998.
- [16] S. Boztepe, "User Value: Competing Theories and Models," *International Journal of Design*, vol. 1, no. 2, pp. 55-63, 2007.
- [17] M. Holbrook, *Consumer Value: A Framework for Analysis and Research*: Routledge, 1999.
- [18] S. Isabella, "Ethnography of Online Role-Playing Games: The Role of Virtual and Real Contest in the Construction of the Field."
- [19] R. M. Pirsig, and R. Maynard, *Zen and the art of motorcycle maintenance*: Bantam Books New York, 1984.
- [20] D. W. Winnicott, *Playing and Reality*: Routledge, 1982.
- [21] R. Cooper, and J. Dibbell, "Alter Ego: Digital Avatars and Their Creators," Chris Boot, 2007.
- [22] S. Byun, C. Ruffini, J. E. Mills *et al.*, "Internet Addiction: Metasynthesis of 1996-2006 Quantitative Research," *CyberPsychology & Behavior*, vol. 12, pp. 1-5, 2008.
- [23] O. Egger, and M. Rauterberg, "Internet Behaviour and Addiction," *Semester thesis (Swiss Federal Institute of Technology, Zurich, 1996)*, 1996.
- [24] K. S. Young, "Internet Addiction: The Emergence of a New Clinical Disorder," *CYBERPSYCHOLOGY AND BEHAVIOR*, vol. 1, pp. 237-244, 1998.
- [25] C. A. Anderson, and K. E. Dill, "Video Games and Aggressive Thoughts, Feelings, and Behavior in the Laboratory and in Life," *JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY*, vol. 78, no. 4, pp. 772-790, 2000.
- [26] B. Vastag, "Does Video Game Violence Sow Aggression? Studies Probe Effects of Virtual Violence on Children," 15. *Am Med Assoc*, 2004, pp. 1822-1824.
- [27] B. Eggen, L. Feijs, and P. Peters, "Linking physical and virtual interaction spaces." pp. 1-8.
- [28] L. Bonanni, "Living with Hyper-reality," *LECTURE NOTES IN COMPUTER SCIENCE*, vol. 3864, pp. 130, 2006.
- [29] H. Ishii, and B. Ullmer, "Tangible Bits: Towards Seamless Interfaces between People, Bits and Atoms."
- [30] B. Ullmer, H. Ishii, and D. Glas, "mediaBlocks: physical containers, transports, and controls for online media." pp. 379-386.
- [31] E. H. L. Aarts, J. M. Rabaey, and W. Weber, *Ambient intelligence*: Springer, 2005.
- [32] M. Satyanarayanan, "Pervasive computing: vision and challenges," *Personal Communications, IEEE [see also IEEE Wireless Communications]*, vol. 8, no. 4, pp. 10-17, 2001.
- [33] P. Ross, "Ethics and aesthetics in intelligent product and system design," PhD Thesis, Eindhoven University of Technology, 2008.
- [34] B. Knaapen, *Semester Report M11*, Department of Industrial Design, Eindhoven University of Technology, 2008.
- [35] J. van Dun, *Virtual Trace of the Real World*, B22 Project Report, Department of Industrial Design, Eindhoven University of Technology, 2008.