Digital Wellbeing: Considering Self-transcendence

Alexandra Kitson, Bernhard E. Riecke
akitson, ber1@sfu.ca
Simon Fraser University
Surrey, BC, Canada

Andrea Gaggioli
andrea.gaggioli@unicatt.it
Università Cattolica di Milano
Milano, Italy

KEYWORDS

Wellbeing, positive technology, self-transcendence, techno-spirituality

ABSTRACT

Technology for supporting wellbeing has long been an aim for many disciplines, including computer science, psychology, and human-computer interaction. However, the definition of wellbeing is not always clear and this has implications for how we design for and assess technologies that aim to foster it. Here, we discuss current definitions of wellbeing and how it correlates with and sometimes is an outcome of self-transcendence. We then focus on how technologies can support wellbeing through experiences of self-transcendence, ending with possible future directions.

DEFINING WELLBEING

Wellbeing or "being well" is not well defined, making it challenging to design for digital technology that supports wellbeing. Calvo and Peters [4] suggest that one draws on different theoretical lenses of wellbeing depending on the project. At the same time, any project on wellbeing should be grounded in existing research and theory or else risk harm. Subjective wellbeing, how one thinks they are doing in life, is generally comprised of life satisfaction, presence of positive mood, and absence of negative mood. Many researchers have used subjective wellbeing measures that have shown substantial validity through corroboration with neuroimaging, biological markers, and self-reports (review: [6]).

Models of Wellbeing

From a theoretical standpoint, researchers have developed several wellbeing models. **Positive psychology** was first introduced by Rogers [16] and Maslow [12], and then empirically developed by Seligman and Csikszentmihalyi [18]. Positive psychology operates on three levels: 1) subjective happiness, wellbeing, life satisfaction, love, hope, and optimization; 2) individual honesty, courage,

POSITIVE TECHNOLOGY FRAMEWORK

Gaggioli et al. [9] have posited that positive technology can achieve its goals in three ways, and suggest three variables that are important to positive technology's success:

Ways to achieve goals

(1) *structuring* personal experience through goals, rules, and feedback;
(2) *augmenting* personal experience through multimodal and multisensory experiences;
(3) *replacing* personal experience through alternate realities and synthetic worlds.

Important to success

(1) *emotional quality*, e.g., affect regulation;
(2) *connectedness*, e.g., collective intentions and networked flow;
(3) *engagement and actualization*, e.g., presence and flow.

future-mindedness, self-determination, forgiveness, originality, wisdom, interpersonal skills, and high talent; 3) group or societal creation and cultivation of meaningful positive relationships and positive institutions, and fostering those civic virtues for better citizenship, increased responsibility, altruism, tolerance of diversity, equality, opportunity, civility, reciprocity, and moderation. Other models of wellbeing include **self-determination theory** [17] and the **broaden-and-build hypothesis** [7].

Wellbeing and Self-transcendence

Self-transcendence relates to many similar concepts such as enlightenment, awakening, and mystical experiences. While there is some disagreement surrounding specific outcomes and definitions of self-transcendence, Yaden et al. [21] might best capture the essence of all these definitions as decreased self-salience and increased feelings of connectedness to other people and one's surroundings. Ample evidence exists for wellbeing as a correlate and outcome of self-transcendence—see review [21]. The wellbeing outcomes of self-transcendence include, but are not limited to, mental and physical wellbeing, pro-sociality, self-management, and life quality and satisfaction. In adults, there is a positive relationship between self-transcendence and mental health, and an inverse relationship with depression [13]. Self-transcendence is also correlated with altruism, group cooperation, coordination, and positive social interactions [20]. Self-transcendence interventions have improved self-regulation and self-care in elders, leading to improved pro-social outcomes. In terms of quality of life, researchers found self-transcendence was the only significant contributor to a multidimensional view of successful aging [13]. Overall, it seems like self-transcendence allows for a richer conceptualization of the meaning of life, and space for developing a sense of purpose that extends to the world and not only to the self.

POSITIVE TECHNOLOGIES

Several technology domains aim to foster wellbeing [11]. This diversified interest implies promise for future technological applications for improving experiences and health. **Positive Technology** seeks to promote technology use to foster personal growth and develop human virtues and strengths, thus contributing to social and cultural development [4, 9]. Gaggioli et al. [9]'s positive technology framework includes hedonic, eudaimonic, and social/interpersonal features of personal experience. Self-transcendence might fit more closely with eudaimonia because of its self-actualizing and diminished self qualities, but also social/interpersonal because of the increased sense of connectedness to other people and one's environment; self-transcendent positive emotions might include hedonia.

Positive Technologies for Self-transcendence

According to Yaden et al. [21], there exist six distinct constructs of self-transcendence: mindfulness, flow, self-transcendent emotions, awe, peak experiences, and mystical experiences. Many positive technologies have attempted to foster self-transcendence in relation to the these six constructs.

Mindfulness is perhaps the most prevalent construct supported with positive technology with its increasing popularity in Western society and apps such as *Headspace*, *Calm*, and *Waking Up*. However, only a few are empirically validated. Similarly, there are several interactive installations that support mindfulness, many of which use biofeedback to help teach users mindful practices—see review [11].

Flow has been prevalent in videogame design; technologically mediated communication, especially videogames, affects higher states of consciousness (e.g., mystical experiences) functioning [8]. Several videogame researchers found a positive relationship between videogame play and flow, which they believe is due to the ideal characteristics videogames possess where challenge meets skill to provide gratification and intrinsic motivation [10]. *Journey* is one game that captures the element of flow.

Self-transcendent Positive Emotions include elevation, compassion, admiration, gratitude, love, and awe [21]. Videogames are a potentially effective medium for supporting these emotions because of their use of narratives and ability to expose players to moral choices [19]. Virtual reality in particular has the ability to give people a perspective on others' lives. Some examples of this done well include communicating emotions non-verbally in *Emotional Beasts* [2], and an anonymous global virtual reality community called *Where Thoughts Go*.

Awe, a sub-component of self-transcendent positive emotions, is often described as a profound and meaningful experience that may result from the perception of and need to accommodate vastness. Researchers have proposed that technologies such as VR have the potential of evoking awe because of their immersive properties and ability to show people impossible or improbable worlds [5, 15].

Peak and Mystical Experiences supported in techno-spiritual applications are growing in number in website and mobile domains. And, with that comes a growing demand for HCI researchers to study the design, implementation, and evaluation of techno-spiritual applications; yet little research is being done [1]. Mossbridge [14] has reviewed techno-spiritual applications, and many are artworks without empirical studies to back their claims.

CONCLUSIONS AND FUTURE DIRECTIONS

Positive technology, particularly for self-transcendence, is an emerging field of research with numerous directions to explore. Based on our review of the literature on positive technologies that attempt to foster self-transcendence, the constructs of peak and mystical experiences are lacking in research compared to mindfulness, flow, and self-transcendent emotions. As outlined in Buie and Blythe [3], there are many reasons for this. However, we sense that the research community is shifting its values to being more inclusive of techno-spiritual/mystical ideas, perhaps given the shift in other related research areas on using psychedelics for treatment of psychological disorders. Thus, the time seems ripe for exploring peak and mystical experiences in the context of positive technology. We are curious to know what mystical experiences, like lucid dreaming, can teach us about how to design meaningful digital interactions for supporting self-transcendence, and thus wellbeing.

REFERENCES

[1] Nahdatul Akma Ahmad, F Hanis, and A Razak. 2013. On the emergence of techno-spiritual: The concept and current issues. In *Computer and Mathematical Sciences Graduates National Colloquium 2013 (SISKOM2013), 2013*. 1–8.

[2] Guillermo Bernal and Pattie Maes. 2017. Emotional Beasts: Visually Expressing Emotions Through Avatars in VR *(CHI EA '17)*. ACM, New York, NY, USA, 2395–2402. https://doi.org/10.1145/3027063.3053207

[3] Elizabeth Buie and Mark Blythe. 2013. Spirituality: There's an App for That! (but Not a Lot of Research). In *CHI '13*. ACM, New York, NY, USA, 2315–2324. https://doi.org/10.1145/2468356.2468754

[4] Rafael A. Calvo and Dorian Peters. 2014. *Positive Computing: Technology for Wellbeing and Human Potential*. MIT Press.

[5] Alice Chirico, Francesco Ferrise, Lorenzo Cordella, and Andrea Gaggioli. 2018. Designing awe in virtual reality: An experimental study. *Frontiers in psychology* 8 (2018), 2351.

[6] Ed Diener. 2000. Subjective well-being: The science of happiness and a proposal for a national index. *American psychologist* 55, 1 (2000), 34.

[7] Barbara L Fredrickson. 2001. The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist* 56, 3 (2001), 218–226. https://doi.org/10.1037/0003-066X.56.3.218

[8] Jayne Gackenbach. 2008. Video game play and consciousness development: A transpersonal perspective. *Journal of Transpersonal Psychology* 40, 1 (2008), 28.

[9] Andrea Gaggioli, Giuseppe Riva, Dorian Peters, and Rafael A. Calvo. 2017. Positive Technology, Computing, and Design: Shaping a Future in Which Technology Promotes Psychological Well-Being. In *Emotions and Affect in Human Factors and Human-Computer Interaction*. Elsevier, 477–502. https://doi.org/10.1016/B978-0-12-801851-4.00018-5

[10] Seung-A. Annie Jin. 2011. "I Feel Present. Therefore, I Experience Flow:" A Structural Equation Modeling Approach to Flow and Presence in Video Games. *Journal of Broadcasting & Electronic Media* 55, 1 (Feb. 2011), 114–136.

[11] Alexandra Kitson, Mirjana Prpa, and Bernhard E. Riecke. 2018. Immersive Interactive Technologies for Positive Change: A Scoping Review and Design Considerations. *Frontiers in Psychology* 9 (2018). https://doi.org/10.3389/fpsyg.2018.01354

[12] Abraham Harold Maslow. 1943. A theory of human motivation. *Psychological review* 50, 4 (1943), 370.

[13] Valerie Lander McCarthy, Lynne A. Hall, Timothy N. Crawford, and Jennifer Connelly. 2018. Facilitating Self-Transcendence: An Intervention to Enhance Well-Being in Late Life. *Western Journal of Nursing Research* 40, 6 (June 2018), 854–873.

[14] Julia Mossbridge. 2016. Designing Transcendence Technology. In *Psychology's New Design Science and the Reflective Practitioner*. 1–27.

[15] Denise Quesnel and Bernhard E Riecke. 2018. Are You Awed Yet? How Virtual Reality Gives Us Awe and Goose Bumps. *Frontiers in Psychology* 9 (2018), 2158.

[16] Carl R. (Carl Ransom) Rogers. 1961. *On becoming a person ; a therapist's view of psychotherapy*.

[17] Richard M. Ryan and Edward L. Deci. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist* 55, 1 (2000), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

[18] Martin EP Seligman and Mihaly Csikszentmihalyi. 2000. *Positive psychology: An introduction*. Vol. 55. American Psychological Association.

[19] Stefano Triberti, Daniela Villani, and Giuseppe Riva. 2015. Moral positioning in video games and its relation with dispositional traits: The emergence of a social dimension. *Computers in Human Behavior* 50 (Sept. 2015), 1–8.

[20] David R. Vago and David A. Silbersweig. 2012. Self-awareness, self-regulation, and self-transcendence (S-ART): a framework for understanding the neurobiological mechanisms of mindfulness. *Frontiers in Human Neuroscience* 6 (Oct. 2012).

[21] David Bryce Yaden, Jonathan Haidt, Ralph W. Hood, David R. Vago, and Andrew Newberg. 2017. The varieties of self-transcendent experience. *Review of General Psychology* 21, 2 (2017), 143–160. https://doi.org/10.1037/gpr0000102