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A Brief Review of Positive Technology in Europe and the USA

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Abstract. The aim of this paper is to demonstrate the potential of positive technology to productively and positively transform the mental health of European and American citizens in the modern era. This work will describe three aspects – hedonic, eudaimonic, and social/interpersonal – of these technologies. We approach them with guarded optimism, as all of them seek to improve our lives through various techniques. After exploring the relevant technologies, this piece will then examine the future for research within this domain.

Keywords. Positive technology, positive psychology, hedonic, eudaimonic, social networking, virtual reality

Introduction

Positive technology (PT) may be described as a technological extension of existing therapy. PT is sought after for improving the quality of our personal thoughts, feelings, and emotions. In this account, we will outline the three primary ways in which PT can be communicated to citizens in order to improve their psychological well-being.

Positive technology may also be perceived as an offshoot of positive psychology (PP). PP may have had its official birth in 1998 [1], but its roots date back at least to the concept of “healthy mindedness” at the beginning of the 20th century [2]. The aim of PP is to evoke pleasure in people’s experiences by taking their positive attributes and strengthening them, rather than focusing on the negative aspects of the individual and seeking to eliminate those negative attributes. By focusing on the positive attributes, not only does this improve and aid people’s self-esteem, it also helps them to become better in something or become an expert in something they enjoyed doing previously. PT simply uses this framework and adds technological programming or devices to the equation to more swiftly advance the progress of the individual.

This account will demonstrate the effectiveness of PT by describing its three main forms: hedonic, eudaimonic, and social/interpersonal. It will show how these methods have been effective in improving people’s mental health and well-being. Included is a set of precautions that we must take when embracing PT in the United States and Europe. Finally, this work will suggest a vision for the future of PT and its ability to improve the lives of citizens.

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1. Hedonic Technologies

The first dimension of PT concerns how to use technology to foster positive emotional states and pleasant experiences. The feeling of hedonism is associated with the mental states of excitement, relaxation, and happiness. Some European projects have already begun to capture this aspect of PT. The EMMA (Engaging Media for Mental Health Applications) Project called Emotional Parks, combines mood induction procedures (MIPs) with virtual reality (VR) to produce positive emotions [3]. Botella et al. developed a mood device called the Butler System, which is an online health system designed to improve the lives of elderly people – for example, one of its VR environments presents the image of a park and nature [4]. VR environments developed by the Wiederholds are being used in Iraq, Afghanistan, and U.S. military facilities to help service members practice combat breathing and reduce post-combat stress [5]. Most recently, Repetto et al. showed that use of a campfire, beach, or waterfall VR environment on a mobile phone could significantly reduce anxiety in individuals with generalized anxiety disorder [6].

Technology-assisted reminiscence uses media created from familiar voices, family photos, and detailed patient histories to create happy moments in the lives of people with dementia. “John had advanced dementia and was very withdrawn, which made it difficult to interact and connect with him. Researching his life, we discovered he played football for a Big Ten school in the 1940s. By showing him pictures of the school’s team and playing the school’s ‘fight song,’ John engaged in limited conversation and would sing part of the song. This made him happy, and it easier for others to relate to him.” [7] The evidence suggests that these Hedonic technologies have the ability to project a positive effect on people’s lives while simultaneously mitigating the negative effect.

As with all technological advances we must approach Hedonic approaches with an element of caution, as such approaches may not be suitable to every individual. Some individuals may need to focus on how they are to improve themselves. Our notions of self have a profound effect on the way in which we focus, both as individuals who are independent and as individuals who are interdependent and perceive themselves as functioning as part of a group.

2. Eudaimonic Technologies

The second dimension of PT is its eudaimonic aspect. Eudaimonic technologies concern the prospect of healing oneself in order to gain self-realization and self-actualization to reach a positive emotional state. In this section we will explore some of the technologies used to achieve this. Group therapy is a technique that has been practiced for a number of years; it can be empowering to some who are struggling to help themselves. Eudaimonic technologies fill the gap for those who are unable to reach positive estimations about themselves within a group environment. Some researchers believe that perhaps by constructing a system in which people can address their emotional turmoil or distress themselves, this can lead to a more individualized, progressive approach towards emotional recognition and stability.

Eudaimonic technologies are used to support individuals in reaching self-actualizing experiences. Eudaimonic technologies focus on self-well-being and the conclusions one can come to by oneself about one’s mental stability, progress, and mood. Our internal feelings have a profound effect upon the ways in which we perceive ourselves as

persons, and some thinkers have discovered that by using these introverted technologies our external feelings and thought processes may benefit from progressive persistent improvement. Recent evidence has demonstrated that positive emotions and the erosion of negative feelings can potentially lead to a positive emotional state. What eudemonic technologies teach us is that we are sometimes able to achieve that state by ourselves, creating a liberating approach to psychotherapy in which one is able to reach positive emotional conclusions by oneself. Recent examples include the application called EARTH (Emotional Activities Related to Health), which within the framework of the MARS500 research project is designed to help astronauts in a future mission to Mars. This project includes VR MIPs and an application called the Book of Life, which includes several chapters that focus on significant events of one's life experiences and also one's future plans. Each chapter is designed to focus on people's psychological strengths. A range of media is used such as images, videos, and even personalized elements. After the user's positive ambitions have been recorded, the user is able to play them back and enjoy them at any time [1]. Additionally, Wiederhold and Wiederhold have been working with elite athletes and medical and military personnel in order to enhance and solidify their strong skill set [8]. Although it is crucial that the individual is able to understand the self, the self also needs to be understood in the context of other, which leads us to ponder the social and interpersonal level of PT.

3. Social and Interpersonal Level

Finally, the social and interpersonal level is concerned with using technology to improve what can be called the connectedness between individuals, groups, and organizations. The social and interpersonal level of PT concerns itself with the notion that individual happiness and positive notions may also need to be understood in the context of others. It is in this context that the term positive computing (PC) arises, as PC is the notion that the study and development of technologies are designed to support well-being, wisdom, and human development [9]. The reality is that we are living in an age of Facebook, Twitter, Tuenti, and other social networking sites, which are now used on a daily basis. Previously, we used computers out of necessity; in today's world through social networking sites we integrate and invite people and emotions into our lives and our homes through a computer. Therefore it is imperative that we examine the positive effect that such sites can have on our emotions.

Facebook currently has 901 million users worldwide. Although this may appear as a number; it is in fact a measure of its great popularity and power in affecting the emotions of others. Positive characteristics (such as gratitude, flexibility, and positive emotions) can uniquely predict disorder beyond the predictive power of the presence of negative characteristics, and buffer the impact of negative life events, potentially preventing the development of disorder. While individual decisions for using these websites vary, it is clear that they offer some kind of positive emotional stimulation to integrate into individuals' lives – something that can be classified as a positive technological measure to improve people's well-being. A study of 391 college students suggests that the number of Facebook friends and positive self-presentation may enhance users' subjective well-being. Furthermore, honest self-presentation may enhance happiness rooted in social support provided by Facebook friends [10]. An earlier study showed that 1,715 Texas college students joined Facebook Groups to obtain information about on- and off-campus activities, socialize with friends, seek self-status, and find entertainment. An important social result was that active Facebook

Group users were more likely to participate in offline civic and political activities [11].

Although social media such as Facebook can create positive feelings and emotions, it is important to point out that, for example, being “unfriended” can have a devastating emotional impact on vulnerable people, while it may result in others repressing such emotions. Konrath and colleagues reported a 48 percent decrease in empathic concern and a 34 percent decrease in perspective taking amongst college students in the past 30 years, with implications that this is due in part to social media [12]. Facebook has a set of precautionary actions and guidelines to help prevent negative feelings while using the site. For example, Facebook states that:

1. You will not solicit login information or access an account belonging to someone else.
2. You will not bully, intimidate, or harass any user.
3. You will not post content that: is hate speech, threatening, or pornographic; incites violence; or contains nudity or graphic or gratuitous violence. [13]

To counteract some of the potentially negative effects of social media, researchers designed an anti-bullying virtual intervention called FEAR NOT to enhance the coping skills of victimized children or children at risk for victimization. In a randomized clinical trial of this intervention enrolling 1,029 nine-year-old children in the UK and Germany, the researchers found a dose-response between time spent in the virtual learning environment and ability to escape bullying. Subsample analysis found a significant effect for UK children [14].

4. The Future of Positive Technology (PT)

In sum, the future use of PT is essential to our understanding of the self, with the technological world we are involved in and the obvious role that the Internet plays in our daily lives – on our laptops, tablets, and phones. It is therefore very important that we continue our research in the field, as it is essential that we are constantly examining the obvious positive impacts that these technologies have on the lives of citizens in Europe. For example, a recent study showed that a large sample of adolescents and young adults who report higher positive affect or higher life satisfaction grow up to earn significantly higher levels of income [15]. This suggests a strong possibility for reverse causality between income and happiness, highlights the importance of an emotionally stable and positive upbringing for children, and suggests that policy makers’ investment in promoting well-being may yield positive economic effects.

5. Conclusion

This paper has explored the essential aspects of positive technology: hedonic positive technology, eudemonic positive technology, and social and interpersonal positive technology. All three elements improve the quality of the lives of individuals in Europe and America. We conclude that it is imperative for us to advance our research in positive technologies to further the well-being of our citizens.

References

- [1] Seligman MEP. The president's address. *American Psychologist* 1999; 54:559–562.
- [2] James W. *The Varieties of Religious Experience: A Study in Human Nature*. New York: Longman, Green, 1902.
- [3] Botella C, Riva G, Gaggioli A, Wiederhold BK, Alcañiz M, Baños RM. The present and future of positive technologies. *Cyberpsychology, Behavior, and Social Networking* 2012; 15(2):78–84.
- [4] Botella C, Etchemendy E, Castilla D, Baños RM, García-Palacios A, Quero S, Alcañiz M, Lozano JA. An e-Health system for the elderly (Butler Project): A pilot study on acceptance and satisfaction. *CyberPsychology and Behavior* 2009; 12(3):255–62.
- [5] Stetz M, Long C, Wiederhold BK, Turner D. Combat scenarios and relaxation training to harden medics against stress. *Journal of CyberTherapy and Rehabilitation* 2008; 1(3):239–46.
- [6] Repetto C, Gaggioli A, Pallavicini F, Cipresso P, Raspelli S, Riva G. Virtual reality and mobile phones in the treatment of generalized anxiety disorders: A phase-2 clinical trial. *Personal and Ubiquitous Computing*. (in press) doi: 10.1007/s00779-011-0467-0.
- [7] Kerssens C, Zamer JP. Improving quality of life, behavior and function in individuals with dementia through technology-assisted reminiscence. Paper presented at CHI 2011, May 7–12, 2011, Vancouver, BC, Canada.
- [8] Wiederhold BK, Wiederhold MD. Virtual reality for posttraumatic stress disorder and stress inoculation training. *Journal of CyberTherapy and Rehabilitation* 2009; 1(1):23–35.
- [9] Calvo RA, Peters D. Positive computing: Technology for a wiser world. *Interactions* 2012; 19(4):28–31.
- [10] Kim J, Lee J-ER. The Facebook paths to happiness: Effects of the number of Facebook friends and self-presentation on subjective well-being. *Cyberpsychology, Behavior, and Social Networking* 2011; 14(6):359–364.
- [11] Park N, Kee KF, Valenzuela S. Being immersed in social networking environment: Facebook Groups, uses and gratifications, and social outcomes. *Cyberpsychology, Behavior, and Social Networking* 2009; 12(6):729–733.
- [12] Konrath SH, O'Brien EH, Hsing C. Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review* 2011; 15(2):180–198.
- [13] Facebook. (2012). Statement of Rights and Responsibilities
Retrieved on July 27 2012 from <http://www.facebook.com/legal/terms>.
- [14] Sapouna M, Wolke D, Vannini N, Watson S, Woods S, Schneider W, Enz S, Hall L, Paiva A, Andre E, Dautenhahn K, Aylett R. Virtual learning intervention to reduce bullying victimization in primary school: A controlled trial. *Journal of Child Psychology and Psychiatry* 2010; 51(1):104–112.
- [15] De Neve JE, Oswald A. Happiness pays: measuring the effect of subjective well-being on later income using sibling fixed effects. Paper presented at the Royal Economic Society's annual conference at the University of Cambridge, March 27, 2012. Retrieved April 22, 2012 from http://personal.lse.ac.uk/deneve/slides_HappinessPays_RES_27march12.pdf