

# Positive Attitudes towards Technologies and facets of Well-being in Older Adults

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## Abstract

The current study investigates the relevance of positive attitudes toward Internet technologies for psychological well-being and social well-being in old age. A sample of 245 elderly people (*Mean age = 70; SD = 9.1*) filled in the Psychological Well-Being Questionnaire, the Social Well-Being Questionnaire, and Attitudes Toward Technologies Questionnaire (ATTQ). Favorable attitudes toward Internet technologies showed positive correlations with overall social well-being and all its components with the exception of social acceptance. Positive correlations with overall psychological well-being and two of its components, namely, personal growth and purpose in life, were also found. Two hierarchical multiple regression models underscored that positive attitudes toward Internet technologies constitute the most important predictor of social well-being, and it appears to be a significant predictor for psychological well-being as well. Results are discussed and integrated into the Positive Technology theoretical framework that sustains the value of technological resources for improving the quality of personal experience and well-being.

## Keywords

Internet technologies, old age, social well-being, psychological well-being

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## Introduction

The issue of successful aging received an increasing attention among gerontologists in the last few decades, due to the substantial change in the “age pyramid” occurring in developed countries (Eurostat, 2014). This substantial demographic change leads to devote more attention to aging processes, posing several challenges to contemporary society, the most crucial of which is referred to as the comprehension of mechanism, processes, and factors that lead old people to positive aging.

## Internet Technologies as Emergent Resources for Successful Aging

The majority of theories on positive aging identify the presence of a high level of overall functioning and the possession of physical, personal, and social resources as the key components to successful aging (Rowe & Kahn, 1987, 1997; Stevernik & Lindenberg, 2005, 2006). Despite the relevance of personal and social resources for positive aging, new media and Internet technologies are not often considered to be important resources for this desirable outcome. A notable exception is Kahanas’s theoretical framework (Kahana & Kahana, 2003; Kahana, Kahana, & Zjiang, 2005; Kahana, Kelley-Moore, & Kahana, 2012). Based on an agentic conception of the individual across his or her life span, Kahanas’s model highlights two relevant concepts, namely, preventive proactivity and corrective proactivity. Preventive proactivity refers to strategies and resources aimed at preventing the onset of undesirable outcomes (e.g., frailty, loneliness), while corrective proactivity refers to strategies and resources aimed at reducing the impact of critical situations or stressors yet to occur (e.g., chronic diseases, loss of a loved one). Older people’s internal resources for successful aging, such as self-esteem, hopefulness, and satisfaction in life, positively interact with traditional preventive (helping others, health promotion) and traditional corrective (social support, role substitution) activities.

Noteworthy in this context is that elderly resources are also related to the use of technology and self-improvement as a source of *emergent adaptation* (Kahana et al., 2012). The relevance of Internet and digital technologies is regarded as a new class of resources helping old people reach the three pillars of successful aging: positive affective states, meaning in life, and maintenance of valued activities and relationships. These important components of successful aging underlie the relevance of well-being in its different features and lead, on a conceptual level, to the new area of research of Positive Psychology.

## Positive Psychology: Fostering Well-Being of Individual—The Importance of Internet Technology for Enhancing Well-Being in Old Age

Positive Psychology shifts the focus of its inquiry from diseases and pathologies to the promotion of well-being of individuals, communities, and societies (Peterson & Seligman, 2004; Seligman & Csikszentmihalyi, 2000). Positive Psychology highlights the existence of several conceptions of well-being. Ryan and Deci (2001, 2008), referring to the robust area of research on quality of life (Bradburn, 1969; Campbell, Converse, & Rodgers, 1976; Michalos, 1985), have identified a conception of well-being as “hedonia” (or subjective well-being) in which three components, satisfaction with life, positive emotion, and negative emotion, concur together with the level of perceived hedonic well-being. Another important definition of well-being is conceptualized by Ryff (1989; Ryff & Singer, 2008) such as eudaimonic psychological well-being that is rooted into the ancient Greek philosophical tradition of Aristotle concept of “eudaimonia,” and Humanistic psychological perspective of Maslow (1968). Eudaimonic well-being is referred to the actualization of human potentials into society. Ryff (1989) defined it as consisting of six dimensions: Self-Acceptance, Autonomy, Environmental Mastery, Purpose in Life, Personal Growth, and Positive Relations With Others. *Self-Acceptance* corresponds to the possession of a positive attitude toward the self and the acceptance of good and bad qualities; *Autonomy* represents the capacity to evaluate oneself by personal standards and acquire a strong sense of independence; *Environmental Mastery* is the individual’s ability to choose or create environments suitable to her or his qualities; *Purpose in Life* corresponds to have a clear comprehension of life’s purpose, a sense of directedness, and intentionality; *Personal Growth* corresponds to the individual’s perception of being a growing and expanding person; *Positive Relations With Others* is the ability to construct warm, trusting interpersonal relationships.

In old age, dimensions such as Environmental Mastery and Positive Relations With Others are generally high, while Personal Growth and Purpose in Life show a robust decline (Karasawa et al., 2011). As research has demonstrated a linkage between these two eudaimonic component and health status, such as hemoglobin glycosylate and rapid eye movements (REM) sleep quality (Ryff, 2014; Ryff, Singer, & Love, 2004), this trend constitutes risk factor for health and well-being of the oldest. Maintaining a high level of openness to grow (Personal Growth) and planning for the future (Purpose in Life) represent two relevant and desirable outcome for aging well.

## *The Quality of the Relationships Between Individual and Society: Social Well-Being*

Keyes (1998) introduced the concept of social well-being, considered as the quality of the relationships between individual and society. The theoretical approach of Keyes defined social well-being as a five-dimension construct: Social Integration, Social Acceptance, Social Coherence, Social Contribution, and Social Actualization. Social Integration correspond to the evaluation of the quality of one's relationships to society and community. *Social Integration* is therefore the extent to which people feel they have something in common with others (e.g., neighborhood), as well as the degree to which they feel that they belong to their communities and society. *Social Acceptance* is the construal of society through the character and qualities of other people as a generalized category. Individuals who illustrate social acceptance trust others, think that others are capable of kindness, and believe that people can be industrious. *Social Acceptance* is the social analogue to personal acceptance: People who feel good about their personalities and accept both the good and the bad aspects of their lives encounter good mental health (Ryff, 1989).

Finally, *Social Contribution* is defined as evaluation of one's social value and *Social Actualization* is described as the evaluation of the potential of society, the belief that our world can evolve through its institutions and citizens. When people are able to integrate hedonic, eudaimonic as well as social aspects of well-being, they reach an ideal positive mental health condition (or "flourishing," cf. Keyes, 2002). That in turn constitutes a protective factor against not only depression but also several diseases in old age (Keyes & Simoes, 2012).

Are new digital technologies emergent resources for improving the well-being of individuals? Is their utilization a resource for improving life quality and positive functioning in old age?

Riva, Banos, Botella, Wiederhold, and Gaggioli (2012) have delineated a new conceptual framework, Positive Technology, which is "the scientific and applied approach to the use of technology for improving the quality of our personal experience" (p. 70). This new approach integrates the theoretical field of human-computer interaction with the theories and aims of Positive Psychology. Riva et al. (2012) and Botella et al. (2012) suggested that it is possible to use technologies to enhance three specific features of well-being: affective quality (hedonic perspective), engagement-actualization (eudaimonic perspective), and connectedness (social well-being).

These three core dimensions of positive functioning clearly correspond to the definition of flourishing (Keyes, 2002). Positive technologies are

classified according to their effects on these three components of positive functioning. For hedonic well-being, the technologies are used to induce positive and pleasant experiences, to enhance the “enjoying self.” For eudaimonic well-being, technologies are used to support individuals in obtaining engaging and self-actualizing experiences, to improve the “growing self.” For social-interpersonal well-being, technologies are used to support and improve social integration and/or connectedness between individuals, groups, and organizations, to promote the “shared self.” The use of Internet technologies by the elderly, according to this perspective, helps seniors to maintain a high level of overall well-being.

Several studies, approaching the theme of well-being using different constructs, have confirmed the role of Internet technologies for positive outcomes in old age. Being involved in various online behaviors and activities contributed to older people’s gains in personal control, and perceived self-efficacy and life satisfaction (Karavidas, Lim, & Katsikas, 2005; Mcmellon & Schiffman, 2002; Yagil, Cohen, & Beer, 2016). Those elderly who show a higher level of Internet use present lower level of loneliness, high satisfaction, and high psychological eudaimonic well-being (Heo, Sanghee, Sunwoo, Kyung, & Junhyoung, 2015). The improvement of Internet skills through training programs tailored on old people also contributed to their perceived control in life, to life satisfaction, and in reducing loneliness and depression (Shapira, Barak, & Gal, 2007).

The quality of social life of the elderly also improve through Internet use. Delello and McWhorter (2015) evidenced that the use of Internet technologies leads to overall greater connection to society, while Forsman and Nordmyr (2015), in their review on Internet use and mental health in later life, confirm the role of Internet surfing for enhancing personal interactions and social inclusion, and for increasing the access to resources within the community. The elderly who belong to an “online community” evidenced a high sense of local community and high well-being (life satisfaction and social ties). Their use of Internet help them to develop supportive relationships through online interaction and contacts with family and friends, which leads to better psychological well-being (Sum, Mathews, Pourghasem, & Hughes, 2009). Considering the importance of well-being in its individual and social components for successful aging, there is a pressing need to know more about its relationships with Internet technologies.

## The Present Study

In the current study, we attempted to examine whether possessing favorable attitudes to Internet technologies (email, Skype, Twitter, Facebook) correlated

with two facets of well-being, eudaimonic well-being and social well-being. Specifically, we hypothesized the following:

**Hypothesis 1:** Based on previous literature (Sum et al., 2009), positive attitudes toward technologies are expected to be positively correlated with overall social well-being and its sub-dimensions.

**Hypothesis 2:** Acquiring an ability for Internet technologies can help the elderly perceive themselves as open to growing and new personal projects (Fredrickson, 2003). Positive attitudes toward technologies are expected to be positively correlated with overall eudaimonic well-being and several of its sub-dimensions: Personal Growth, Purpose in Life, and Positive Relations With Others.

**Hypothesis 3:** Positive attitudes toward digital technologies are expected to contribute to the perception of high overall social well-being.

**Hypothesis 4:** Positive attitudes toward digital technologies are expected to give a contribution to the perception of high overall psychological eudaimonic well-being after controlling for age, gender, level of education, and people in household.

## Method

### Participants

A sample of 245 elderly people in Northern Italy ( $M$  age = 70,  $SD$  = 9.1; 142 females and 91 males, 13 of them omitted this data) took part in the study. They were recruited through Senior Centres, Trade Unions, the Popular University of the Third Age (an institution aimed at improving lifelong learning in adults and the elderly) sport and cultural centers. Regarding educational level, three did not possess any school diploma, 40 had graduated from elementary school, 49 from middle school, 86 from high school, and 56 had a university degree. The majority lived with a spouse/partner only (110), 66 lived alone, 30 lived with a spouse/partner and children, six lived with other kin, six lived with children only, and three lived with spouse/partner and other kin.

### Procedure

One of the two authors contacted the institutions that agreed to participate in the research and presented the research project to their heads. After its approval, the elderly were recruited by the heads of these institutions and briefly informed about the project and the guarantee of anonymity. After giving their consent, the participants filled in the measurements utilizing the paper and pencil mode.

## Measures

The present study included a set of demographic variables: age, gender, level of education, people in household, and the following self-report measurements.

*Psychological Well-Being Questionnaire (PWB).* A short form version with 42 items was used, containing six dimensions (Ruini, Ottolini, Rafanelli, Ryff, & Fava, 2003; Ryff, 1989): *Self-Acceptance* (e.g., of item “I like most aspects of my personality”), Cronbach’s  $\alpha = .74$ ; *Positive Relations With Others* (e.g., of item “People would describe me as a giving person, willing to share my time with others”), Cronbach’s  $\alpha = .62$ ; *Environmental Mastery* (e.g., of item “In general, I feel I am in charge of my situation in which I live”), Cronbach’s  $\alpha = .58$ ; *Personal Growth* (e.g., of item “I think it is important to have new experiences that challenge how you think about yourself and the world”), Cronbach’s  $\alpha = .60$ ; *Purpose in Life* (e.g., of item “Some people wonder aimlessly through life, but I am not one of them”), Cronbach’s  $\alpha = .46$ ; and *Autonomy* (e.g., of item “I have confidence in my opinions, even if they are contrary to the general consensus”), Cronbach’s  $\alpha = .61$ . The items were assessed with a 6-point Likert-type scale (1 = *it is not my case*, 6 = *it is completely my case*). Internal Cronbach’s alpha consistency of overall PWB in the current sample was .83.

*Social Well-Being Questionnaire (SWB).* This questionnaire contains five dimensions that evaluate the quality of individual functioning in social life (Cicognani, Albanesi, & Berti, 2001; Keyes, 1998): *Social Actualization* (e.g., of item “I think the world is becoming a better place for everyone”), Cronbach’s  $\alpha = .48$ ; *Social Contribution* (e.g., of item “I believe to have something valuable to give to the world”), Cronbach’s  $\alpha = .64$ ; *Social Acceptance* (e.g., of item “I believe that people are kind”), Cronbach’s  $\alpha = .58$ ; *Social Integration* (e.g., of item “I feel close to other people in my community”), Cronbach’s  $\alpha = .64$ ; *Social Coherence* (e.g., of item “the world is too complex for me” with reverse code), Cronbach’s  $\alpha = .70$ . The items were assessed with a 7-point Likert-type scale (1 = *strongly in disagreement*, 7 = *strongly in agreement*). In the current sample, the internal Cronbach’s alpha consistency of overall social well-being was .75.

*Attitudes Toward Technologies Questionnaire (ATTQ).* This is a *purpose-built* questionnaire (Zambianchi & Carelli, 2013) with six items aimed at examining the attitudes of the elderly toward new digital technologies (e.g., “Being able to utilize computer technologies is very useful, you can learn about

places, people, news”; “Computer technologies can improve the lives of older people”; “I am interested in knowing and trying out new computer technologies that will be used in the future”), with a 5-point Likert-type scale (1 = *not at all*, 5 = *very much*). Being a purpose-built questionnaire, we first ran an exploratory factor analysis (EFA) to explore its latent dimensions. The EFA highlighted a one-factor solution, with eigenvalue 4.11 and 68% of explained variance that gathered all six items, whose loadings ranged from 0.63 to 0.92. A subsequent confirmatory factor analysis (CFA) supported the excellent fit indexes: goodness of fit index (GFI; Joreskog) = 0.98; adjusted goodness of fit index (AGFI; Joreskog) = 0.93; root mean square error of approximation (RMSEA; Steiger-Lind) = 0.06; Root mean squares (RMS) = 0.01. The reliability was also excellent, with Cronbach alpha = .90.

**Perceived health status.** A single item assessed perceived health status (“Do you feel healthy?”), with a 6-point Likert-type scale (0 = *not at all*, 5 = *completely*).

### Statistical Analyses

First, we calculated the descriptive statistics of all variables, after which we ran a set of MANOVA to assess the relevance of the structural variables: gender, level of education, and people in household for ATTQ, PWB, and SWB. For the variable of people in household, only three groups were entered into the model: living with a spouse/partner only, living alone, living with a spouse/partner and children. A subsequent correlation matrix (Pearson product-moment) was calculated for all the study variables. Two distinct hierarchical multiple regression models was used to evaluate the predictive power of ATTQ and perceived health status, on overall SWB and PWB, after controlling for age, gender, level of education, and people in household. All statistical analyses were performed with STATISTICA Package 7.0.

## Results

### Descriptive Statistics

Table 1 summarizes descriptive statistics. The sample shows a medium score for attitudes toward technologies as a global index. For social well-being, they present the highest score on Social Integration, with a medium score reflecting its global index. For eudaimonic well-being, the highest score belongs to positive relations with others, while they show a medium level of overall well-being. Perceived health status received a medium score.



**Table 1.** Descriptive Statistics of Study Variables.

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Social integration	4.61	0.73	0.002	0.65
Social acceptance	4.00	0.74	0.06	0.28
Social contribution	4.38	0.85	0.25	-0.19
Social actualization	4.12	0.75	0.26	0.84
Social coherence	4.26	0.91	0.23	-0.18
Overall SWB	4.29	0.57	0.30	0.16
Self-acceptance	4.27	0.84	-0.15	-0.19
Environmental mastery	4.36	0.71	-0.36	0.34
Personal growth	4.42	0.85	-0.22	-0.58
Autonomy	4.45	0.73	0.01	-0.38
Positive relations	4.63	0.70	-0.44	0.05
Purpose in life	4.03	0.74	-0.23	-0.44
ATTQ	2.73	1.0	0.27	-0.82
Health status	2.25	0.78	0.32	0.61

Note. SWB = Social Well-Being Questionnaire; ATTQ = Attitudes Toward Technologies Questionnaire.

### *Level of Education, People in Household, and Attitudes Toward Internet Technologies*

A MANOVA model highlighted significant differences according to educational level for ATTQ as a global score,  $F(3, 211) = 9.14$ ;  $p < .001$ . Elderly people with a high level of education (high school diploma and university degree) show higher scores than those who possess a lower level of school education. Significant differences were also found according to people living in household,  $F(2, 195) = 5.02$ ,  $p < .01$ . Those who live with their spouse/partner only and those who live with partner and children present a higher score on ATTQ than those who live alone. Level of education influences perceived overall social well-being,  $F(3, 189) = 2.80$ ,  $p < .05$ . Having a high level of education corresponds to a higher level of perceived social well-being.

### *Correlations Among Study Variables*

Table 2 summarizes correlations among study variables. Positive attitudes toward technologies are positively correlated with overall social well-being and all its sub-dimensions, with the exception of Social Acceptance. It is also positively correlated with overall eudaimonic well-being and with two of its

**Table 2.** Correlations Among Study Variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Age	—																		
2. Gender	.06	—																	
3. Level of education	<b>-.18</b>	.005	—																
4. People in household	-.09	-.09	-.001	—															
5. Health	-.14	<b>.16</b>	-.01	.01	—														
6. Self-accept	-.03	.05	-.07	.05	<b>.35</b>	—													
7. Autonomy	-.07	.06	.09	.09	<b>.22</b>	<b>.51</b>	—												
8. Environmental mastery	.02	.04	.01	.11	<b>.28</b>	<b>.70</b>	<b>.49</b>	—											
9. Positive relations	-.001	-.15	-.05	.12	<b>.16</b>	<b>.49</b>	<b>.27</b>	<b>.45</b>	—										
10. Personal growth	<b>-.28</b>	<b>-.20</b>	.06	.13	<b>.22</b>	<b>.41</b>	<b>.33</b>	<b>.40</b>	<b>.43</b>	—									
11. Purpose in life	<b>-.17</b>	-.03	.11	.15	<b>.18</b>	<b>.34</b>	<b>.30</b>	<b>.44</b>	<b>.29</b>	<b>.55</b>	—								
12. Social integration	.03	.09	.06	.08	<b>.22</b>	<b>.35</b>	<b>.17</b>	<b>.31</b>	<b>.41</b>	<b>.30</b>	<b>.26</b>	—							
13. Social acceptance	-.01	-.09	<b>.16</b>	.04	.06	.14	.06	.13	.15	<b>.18</b>	.07	.21	—						
14. Social contribution	-.13	.05	.10	.10	.15	<b>.29</b>	<b>.18</b>	<b>.25</b>	<b>.24</b>	<b>.34</b>	<b>.35</b>	<b>.59</b>	<b>.28</b>	—					
15. Social coherence	<b>-.31</b>	.02	<b>.27</b>	.03	.07	<b>.26</b>	<b>.25</b>	<b>.33</b>	<b>.23</b>	<b>.35</b>	<b>.36</b>	<b>.30</b>	<b>.42</b>	<b>.39</b>	—				
16. Social actualization	-.02	.05	.07	-.01	.03	<b>.19</b>	.09	.14	.13	<b>.23</b>	.10	<b>.33</b>	<b>.42</b>	<b>.26</b>	<b>.34</b>	—			
17. ATTQ	<b>-.37</b>	.05	<b>-.24</b>	.09	.12	.05	.05	.03	.11	<b>.25</b>	<b>.23</b>	<b>.20</b>	<b>.02</b>	<b>.26</b>	<b>.29</b>	<b>.19</b>	—		
18. Overall PWB	.10	-.06	.01	.15	<b>.32</b>	<b>.76</b>	<b>.63</b>	<b>.76</b>	<b>.63</b>	<b>.67</b>	<b>.59</b>	<b>.37</b>	.14	<b>.32</b>	<b>.39</b>	<b>.16</b>	.15	—	
19. Overall SWB	-.11	.01	<b>.19</b>	.07	.14	<b>.35</b>	<b>.19</b>	<b>.33</b>	<b>.34</b>	<b>.40</b>	<b>.33</b>	<b>.65</b>	<b>.66</b>	<b>.69</b>	<b>.71</b>	<b>.63</b>	<b>.27</b>	<b>.41</b>	—

Note. All values > .16 (evidenced in bold) are significant at  $p < .01$  or  $p < .001$ . ATTQ = Attitudes Toward Technologies Questionnaire; PWB = Psychological Well-Being Questionnaire; SWB = Social Well-Being Questionnaire.

sub-dimensions, personal growth and purpose in life. Overall social well-being and overall eudaimonic well-being are positively correlated ( $p < .001$ ).

### *Predictors of Social and Eudaimonic Well-being*

The first hierarchical multiple regression model, with psychological eudaimonic well-being as dependent variable, was run in three steps. In the first step, structural variables age, gender, educational level, and people in household entered into the equation.

As can be seen in Table 3, the household condition of the elderly significantly contributed to the explained variance. In the second step, the perceived health status was added into the equation. This variable gave a substantial contribution to the goodness of indexes, improving  $R^2$  and  $F$  value; the structural variable of people in household maintained the significance. In the third step, attitudes toward technologies as global index was added to the equation, improving, although modestly, the fit of the indexes  $R^2$  and  $F$  value.

The final model highlighted that positive attitudes toward technologies give a unique and significant contribution to the explained variance for psychological eudaimonic well-being. The second hierarchical multiple regression model with social well-being as dependent variable was run in three steps. Level of education gave a significant contribution to the explained variance of the model. In the second step, perceived health status was added to the equation, highlighting a slight improvement of the explained variance and of the goodness of indexes  $R^2$  and  $F$  value. In the third step, the attitudes toward technologies as global index was added to the equation. Level of education and perceived health status maintained their significance (level of education shows a slight reduction), while positive attitudes towards technologies contributes substantially and independently to the explained variance with an increase of 4% of explained variance.. It possesses the higher  $\beta$  weight among the significant predictors of social well-being (see Table 4).

## **Discussion and Conclusion**

The aim of the study was to examine the relationships between a positive attitudes toward Internet technologies and two facets of well-being, psychological eudaimonic well-being and social well-being in the elderly. The results showed that our predictions were substantially confirmed. As expected, level of education significantly influenced openness to digital Internet technologies and the curiosity toward future technological novelties. Having a solid cultural capital, which derives from a high level of school education, contributes to the development of high self-efficacy (Clark, 1996).

**Table 3.** Hierarchical Regression Model: Overall Psychological Well-Being as Dependent Variable.

Predictors	$\beta$	B	$R^2$	Adjusted $R^2$	F change
<b>Step 1</b>					
Age	-0.08	-0.004			
Gender	-0.04	-0.04			
Level of school education	0.002	0.001			
People in household	0.138*	0.006	.03	.01	(4, 246) = 2.09, $p < .01$
<b>Step 2</b>					
Age	0.03	-0.001			
Gender	-0.105 <sup>†</sup>	-0.11			
Level of school ed.	0.019	0.009			
People in household	0.134*	0.006			
Perceived health status	0.332***	0.21	.13	.12	(5, 254) = 7.82, $p < .001$
<b>Step 3</b>					
Age	0.006	0.000			
Gender	-0.114*	-0.12			
Level of school education	-0.002	-0.001			
People in household	0.126*	0.005			
Perceived health status	0.324***	0.21			
ATTQ global score	0.117*	0.005	.14	.12	(4, 244) = 7.11, $p < .001$

Note. ATTQ = Attitudes Toward Technologies Questionnaire.

<sup>†</sup> $p < .07$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 4.** Hierarchical Regression Model: Overall Social Well-Being as Dependent Variable.

Predictors	$\beta$	B	$R^2$	Adjusted $R^2$	F change
Step 1					
Age	-0.78	-0.004			
Gender	0.26	0.02			
Level of school education	0.175**	0.08			
People in household	0.06	0.003	.04	.03	(4, 246) = 2.09, $p < .01$
Step 2					
Age	-0.05	-0.003			
Gender	0.002	0.003			
Level of school education	0.182**	0.09			
People in household	0.06	0.003			
Perceived health status	0.136*	0.09	.06	.04	(5, 245) = 3.43, $p < .01$
Step 3					
Age	0.01	0.001			
Gender	-0.14	-0.001			
Level of school education	-0.139*	0.07			
People in household	0.05	0.002			
Perceived health status	0.121*	0.08			
ATTQ global score	0.229***	0.11	.10	.08	(6, 244) = 4.93, $p < .0001$

Note. ATTQ = Attitudes Toward Technologies Questionnaire.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

This, in turn, could help older people to approach Internet technologies with greater sense of competence and to be open toward these new types of communication. At the same time, surfing through Internet can contribute to the improvement of self-efficacy; the acquired computer skills can indeed increase their self-image and self-esteem.

Another interesting result from our study was the relevance of the factor “people in the household” among the elderly. Having a spouse/partner, and/or living with children, could predispose the elderly to the use of Internet technologies: Cohabiting with a younger person indeed could encourage the elderly to acquire new computer skills. In the same way, living with a spouse/partner could promote sharing with friends and groups and general social participation through virtual communication.

As expected by the theoretical framework of Positive Technologies, our findings seem to confirm that possessing a positive attitude to digital technologies may help the elderly improve fundamental facets of well-being. This new conceptual framework effectively integrates the use of emergent technologies and the possibility to improve the quality of personal experience by means of increasing wellness and generating strengths and resilience (see also Riva et al., 2012). Regarding social well-being components, it is noteworthy that all dimensions, with the exception of Social Acceptance, are positively correlated with positive attitudes and active use of digital Internet technologies.

The positive correlation found between ATTQ and Social Integration is in line with the data of Sum et al. (2009), confirming that older people who are Internet users perceive higher sense of community than those who are not. Participating in blog discussions and creating an online-sense of community do not exclude the face-to-face contact, but allows the opportunity to improve social well-being through the perception of belonging. This helps the elderly to reduce the feeling of loneliness.

The ATTQ showed a positive correlation with Social Actualization: The elderly who utilize digital technologies are open to new experiences and perceive society as in constant positive, cultural, and political evolution. Technologies are perceived as important resources and opportunities and are considered the most relevant change occurring in our contemporary society.

The relationship between Social Contribution and positive attitudes toward Internet technologies rises an important consideration: Through Internet, there are possibilities for the elderly to participate in public debates and social activities, such as taking part in group volunteering with different organizations. As stated by Shapira et al. (2007), involvement in various types of online social or political activism can contribute to feelings of self-worth. All of these important aspects might improve the perception of social efficacy (Bandura, 1997). That is, the belief of being able to provide a valued contribution to society can be facilitated by a social presence on the *cyberplace*.

A positive attitude toward Internet technologies is positively correlated with Social Coherence, that is, the desire to know the world, norms, and structures of different cultures.

This highlights how Internet surfing may make it possible to acquire new knowledge and perhaps “travel virtually” around the world, relevant aspects for elderly who may have difficulty traveling for health problems.

Another interesting result of our study was that two components of psychological eudaimonic well-being, namely, *personal growth* and *purpose in life*, were associated with positive attitudes toward technologies. This is, in our opinion, a relevant result, as both aspects are considered the core dimensions of eudaimonic well-being, which posits the realization of the authentic self and the actualization of human potentials as its central components (see Ryff, 1989; Ryff & Singer, 2008).

Moreover, recent studies (Ryff, 2014) evidenced that eudaimonic well-being constitutes a preventive factor against the onset of Alzheimer’s syndrome, supporting the relevance of this type of well-being in old age. Those elderly who possess a favorable attitude toward new technologies tend to perceive themselves as open to new experiences and to the ability to grow as a person. Therefore, this openness may increase knowledge and exchange of ideas through Internet surfing, which in turn might improve their motivation for future planning (e.g., travel, sharing opinions, cf. Chen & Persson, 2002).

The value of favorable attitudes toward Internet technologies for the well-being of the elderly is strengthened by the results of the regression models.

The first hierarchical multiple regression model highlighted that ATTQ global score is the most important predictor of social well-being. It provides a unique positive contribution to overall social well-being, a central component of positive aging (Kahana & Kahana, 2003; Stevernik & Lindenberg, 2006) and flourishing condition, independently by the structural variables and the perceived health status (Keyes, 2007).

The second hierarchical multiple regression suggested that ATTQ also constitutes a positive predictor of psychological eudaimonic well-being, giving a significant contribution to the improvement of it independently by the structural variable people in household condition and the perceived health status.

In sum, our results endorse what Positive Technologies approach sustains: The new digital technologies enhance both psychological and social well-being, critical dimensions for successful aging (Kahana et al., 2012; Rowe & Kahn, 1997). Moreover, to date, there are no studies investigating the role of positive attitudes toward digital technologies for social well-being in old age. Our results could, then, encourage future studies to discover other psychosocial factors that might facilitate the approach and active involvement in modern technologies in old population.

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