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RELAX, DON'T DO IT: UNDERSTANDING HOW TECHNOLOGY USE AND AWARENESS AFFECT YOUR LIFE ORIENTATION

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ABSTRACT

This study examines whether or not the social norm of using technology alongside with the awareness of one's environment impacts how optimistically people view the world. We conducted a Mechanical Turk survey designed to measure a person's technology use, mindful awareness, personality constructs, and life orientation. After analyzing our data in SPSS, we found that, though there is a negative relationship between technology use and mindful awareness, but a positive relationship between mindful awareness and life orientation. This suggests that the more a person uses technology the less mindfully aware they become, but their increased technology use and increased awareness also causes them to having a higher life orientation. This could mean that, as opposed to the popular opinion, technology could either be improving our perceptions of life orientation or biasing the self-reports of one's awareness. Rationale for the findings is provided and future recommendations are made.

Keywords

Life Orientation, Awareness, Extraversion, Agreeableness, Neuroticism

INTRODUCTION

With the proliferation of mobile technologies, we have seen dramatic changes to how we interact, travel, work, and feel. Individuals, who have technology by their side, rely on it to get through the day. It provides entertainment, news, updates, and rewards to help people in a variety of tasks, individual or otherwise. Technology usage has become second nature to most, especially now that the emerging workforce has been born into a world of internet hyperlinks, text messaging, and mobile applications.

More and more individuals are looking down at their phones instead of viewing the world around them. There have been many incidents surrounding smartphone distractions. For instance, one man fell to his death in San Diego because he was on his smartphone (Anonymous, 2017). In 2016, *USA Today* reported a 10% increase in pedestrian fatalities that was mostly due to technology use (Horn, 2016). Others report that over 1000 people are injured each day because of distracted driving, with the smartphone being the main cause (NHTSA, 2017). It is no doubt that the awareness capacity of individuals is being challenged everyday by having a smartphone.

Smartphones force us to multitask. When a person focuses on something, the brain will "seek, interpret, retain, and create information to support those preconceived notions", but typically have tunnel vision placing most attention only on one thing (Maclean et al., 2013). Technology is a main cause to having increased tunnel vision, placing a bubble around the phone and its user, allowing the individual to ignore everything else. So the question is: why do we continue to use our smartphone when we know it distracts us from our surroundings.

One argument is that smartphone usage makes us feel better, more connected, and faster at performing. Not including application to application, we sent about 18.7 billion text messages each day in 2016 (Burke, 2016). Application messaging services like WhatsApp or Facebook messenger add in another 60 billion messages sent per day (Goode, 2016). Taking a look at college aged students, one study found that, on average, students sent 96 text messages and received 104 text messages a day (Junco, 2011). There is no doubt that messaging has taken over as the primary form of communication (Newport, 2014) and it is important to consider how much time per day we dedicate to just sending and responding to messages.

We contend that, when having a person evaluate their happiness with their life, it is important to take into account technology usage alongside different personality traits the person possesses. Therefore, this study examines how ones situational awareness affects someone's life orientation when considering predisposed traits and technology use. We argue that all of these factors play a substantial role in how a person perceives their life. Therefore, we propose the following research question:

How does Mindful Awareness, Technology Use, Extraversion, Agreeableness, and Neuroticism affect Life Orientation?

In expanse, we hope to examine the impact of technology usage on a person’s awareness, and how those factors along with three selected personality traits impacted a person’s perception of their life.

The manuscript proceeds a follows. First, we develop a model of personality characteristics, mindful awareness, technology use, and life orientation. Second, we test this model using survey design. Then, we will provide results, our rationale, and future recommendations.

LITERATURE REVIEW

Life orientation refers to how a person feels about their life (Scheier et al., 1994). Life orientation has been used interchangeably with optimism (Smith et al., 1989), where optimism is a positive cognitive construct, focusing on the expectations for the future (Carver and Scheier, 2014). While there are some biases surrounding optimism, generally optimism is a good thing because it promotes motivation, coping, and improved physical and psychological health (Andersson, 1996; Carver and Scheier, 2014). Our study examines what characteristics promote a healthy life orientation, and thus optimism, about the future. Specifically, we are interested in how a model of life orientation is shaped by technology use. Table 1 provides the construct definitions and Figure 1 provides our research model.

Life Orientation	Measuring a person’s level of optimism vs pessimism; how a person feels about their own life (Scheier and Carver, 1985; Scheier et al., 1994).
Mindful Awareness	A receptive state of mind in which attention, informed by a sensitive awareness of what is occurring in the present, simply observes what is taking place (Brown and Ryan, 2003).
Technology Use	A self-aware claim to the amount of technology used throughout a given situation.
Extraversion	Gregariousness (sociable), Assertiveness (forceful), Activity (energetic), Excitement-seeking (adventurous), Positive Emotions (enthusiastic), Warmth (outgoing) (John and Srivastava, 1999).
Agreeableness	Trust (forgiving), Straightforwardness (not demanding), Altruism (warm), Compliance (not stubborn), Modesty (not show-off), Tender-mindedness (sympathetic) (John and Srivastava, 1999).
Neuroticism	Anxiety (tense), Angry hostility (irritable), Depression (not contented), Self-consciousness (shy), Impulsivity (moody), Vulnerability (not self-confident) (John and Srivastava, 1999).

Table 1. Construct Definitions

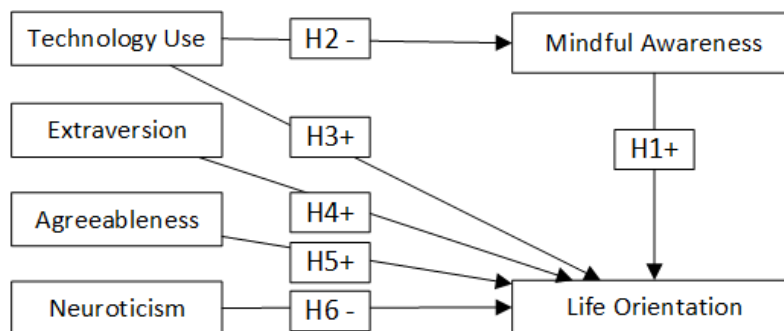


Figure 1. Research Model

Mindful awareness is a receptive state of mind in which attention, informed by a sensitive awareness of what is occurring in the present, simply observes what is taking place (Brown and Ryan, 2003). When completing any task, awareness happens when you perceive the elements of the environment, comprehend their meaning, and project the status of the future (Duffy, 2001). In this study, mindful awareness focuses on the environmental processing that happens when you move throughout daily activities.

Some researchers have looked into how mindfulness promotes well-being in regards to understanding illness (Brown and Ryan, 2003), or with youths (Brown et al., 2011). One group of researchers studied the correlation between perceived stress,

mindfulness, and well-being has been studied, and concluded that mindfulness helps to overcome how stressors affect well-being (Atanes et al., 2015). Because of the link both optimism and awareness has with well-being, we argue that being more aware of your surroundings can also promote optimism, giving you a positive view of your life orientation. Based on this, we propose the following hypothesis:

Hypothesis 1: Mindful awareness leads to a positive life orientation.

While we believe that mindful awareness does in fact increase life orientation, it should be noted that most studies have failed to account for how technology has changed how we think about awareness and that technology can affect both your awareness and your life orientation. Communication technologies are ubiquitous and readily part in daily activities. It is very common for people to use their cell phones to text, read messages, be on applications, play games, online shop, handle banking, etc. We posit that while using technology could make your happier, overuse can have unintentional consequences, one of which lacking mindful awareness.

Therefore, we argue that when people use more technology, in general they are less aware of their surrounding environment but are generally more optimistic about how they think their life is going. Formally, we propose the following two hypotheses:

Hypotheses 2: Technology use negatively affects mindful awareness.

Hypotheses 3: Technology use leads to a positive life orientation.

Life orientation has been shown to be affected by certain predispositions as part of the Big 5. This study focuses on 3 dispositions: extraversion, agreeableness, and neuroticism. First, extraversion has been shown to positively affect well-being and general happiness (Costa and McCrae, 1980). Extroverts are generally defined by being outgoing. People who are more extraverted are more socially apt at communicating. Since more and more people use technology to communicate, the introverts could be losing out on the social needs they have to maintain a positive life orientation. Second, others have studied how agreeableness affects life orientation. Agreeable people are generally characterized by friendliness and warmth. In a study on subjective well-being of adolescents, extraversion and agreeableness were both found to positively correlate to well-being and life satisfaction (Singh and Lal, 2012). Finally, some argue that life orientation is too closely related to negative affect, or more specifically neuroticism to be able to test for a linear affect (Andersson, 1996). However, others have confirmed that neuroticism is indeed distinct, but continually inversely related with life orientation (Scheier et al., 1994). We agree with the later. Neuroticism is defined by lacking emotional stability, while life orientation is optimism about the future, and therefore are separate constructs. As such, we propose the following three hypotheses:

Hypotheses 4: Extraversion positively affects life orientation.

Hypotheses 5: Agreeableness positively affects life orientation.

Hypotheses 6: Neuroticism negatively affects life orientation.

METHODS

Sample Characteristics

We collected full data from 222 professionals on Mechanical Turk (Mturk). In Mturk, workers needed to be in the united states, have a greater than 95% approval rating, have more than 500 HITs approved, and be employed as full time (> 35 hours). We also requested only masters level workers within the program.

Table 2 describes our sample characteristics. Our sample was highly diverse. The ages ranged from 20s to greater than 60s. Gender was evenly distributed with 50.8% of men participating. Approximately 86% of our participants were Caucasian/non-Hispanic. Most people who took the survey had at least a bachelor’s degree (54.5%). Almost 90% of our participants were either married or unmarried, not having been married before.

Gender	Male	113 50.90%		Female	109 49.10%	
Age	20-30	31-40	41-50	51-60	61 or older	
	62 27.93%	97 43.69%	39 17.57%	17 7.66%	7 3.15%	
Highest level of Schooling	High school diploma or less	Some College but no degree	Associate’s Degree (2 year)	Bachelor’s Degree (4 year)	Master’s Degree	Professional Degree (JD, MD)

	19	47	35	96	23	2
	8.56%	21.17%	15.77%	43.24%	10.36%	.90%
Ethnicity	White or Caucasian	Black or African American	American Indian or Alaskan Native	Asian	Native Hawaiian or Pacific Islander	Other
	191	15	9	0	0	6
	86.04%	6.76%	4.05%	0.00%	0.00%	2.70%
Marital Status	Married	Widowed	Divorced	Separated	Never Married	
	105	1	21	1	94	
	47.30%	.45%	9.46%	.45%	42.34%	
Household Income	Less than \$20,000	\$20,000 to \$39,999	\$40,000 to \$59,999	\$60,000 to \$79,999	\$80,000 to \$99,999	\$100,000 or more
	11	56	63	44	15	33
	4.96%	25.23%	28.38%	19.82%	6.76%	14.86%

Table 2. Sample Characteristics

Construct Measures

All constructs were measured using multi-item scales. Table 3 outlines the descriptive statistics for each construct. All of our constructs had Cronbach alpha scores above .63, which are considered *very good* (Comrey and Lee, 1992).

Construct	Mean	Standard Deviation	Cronbach's Alpha	Number of Items
Life Orientation	3.551	.820	.887	10
Mindful Awareness	4.021	.690	.919	15
Technology Use	3.290	.682	.876	10
Extraversion	2.902	.991	.899	8
Agreeableness	3.633	.607	.711	9
Neuroticism	2.451	.944	.910	8

Table 3. Construct Measures

Life Orientation was measured using 10 items from Scheier, Carter, and Bridges (1994). Participants stated how characteristic each statement is to them on a 5 point Likert scale (i.e. *It's easy for me to relax. Strongly Disagree(1) to Strongly Agree(5)*).

Mindful awareness was measured using 15 items from Brown (2003). Participants answered how frequently they found themselves participating in the activity stated using a Likert scale (i.e., *I snack without being aware that I'm eating. Almost Never(1) to Almost Always(5)*).

Technology use was measured using 10 items created by the authors. These questions asked about how much they use their mobile technology on a 5 point Likert Scale ranging from 1) never use to 5) use all the time.

Big 5 constructs were measured using items from John and Srivastava (1999) with a 5 point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Extraversion was measured using 8 items, Agreeableness 9 items, and Neuroticism 8 items.

RESULTS

We ran two linear regression models to test our hypotheses. Upon doing so, we found that the majority of our hypothesis were found to be true. Model 1 tested the affects situational awareness on life orientation. Hypotheses 1 stated that situational awareness causes one to have a positive life orientation. We found this hypothesis to be true ($\beta = 1.420$; std. error = .059; t-statistic = 2.409; p-value < .05) meaning the more aware a person is the better life orientation they have.

Model 2 tested the affect technology use had on situational awareness. Hypothesis 2 stated that technology use negatively affects situational awareness. We found this hypothesis to be true ($\beta = -0.155$; std. error = .067; t-statistic = 2.298; p-value <.05) which suggests that an increase in technology use decreases a person's situational awareness.

Model 3 tested the effects of technology use, extraversion, agreeableness, and neuroticism had on a person's life orientation. Hypothesis 3 stated that technology positively affects life orientation. We found this hypothesis to be true ($\beta = 1.33$; std. error = .054; t-statistic = 2.469; p-value <.05). This suggests that, contrary to popular opinion, technology usage may lead people to being more optimistic about their lives. Hypothesis 4 stated that extraversion positively affects life orientation. We found this hypothesis to be true ($\beta = 1.26$; std. error = .040; t-statistic = 3.148; p-value <.05). Hypothesis 5 stated that agreeableness positively affects life orientation. We found this hypothesis to be true ($\beta = .366$; std. error = .065; t-statistic = 5.605; p-value <.05). Hypothesis 6 stated that neuroticism negatively affects life orientation. We found this hypothesis to be true ($\beta = -.0416$; std. error = .048; t-statistic = -8.704; p-value <.05). These are no surprise as it has been studied before as mentioned within literature review.

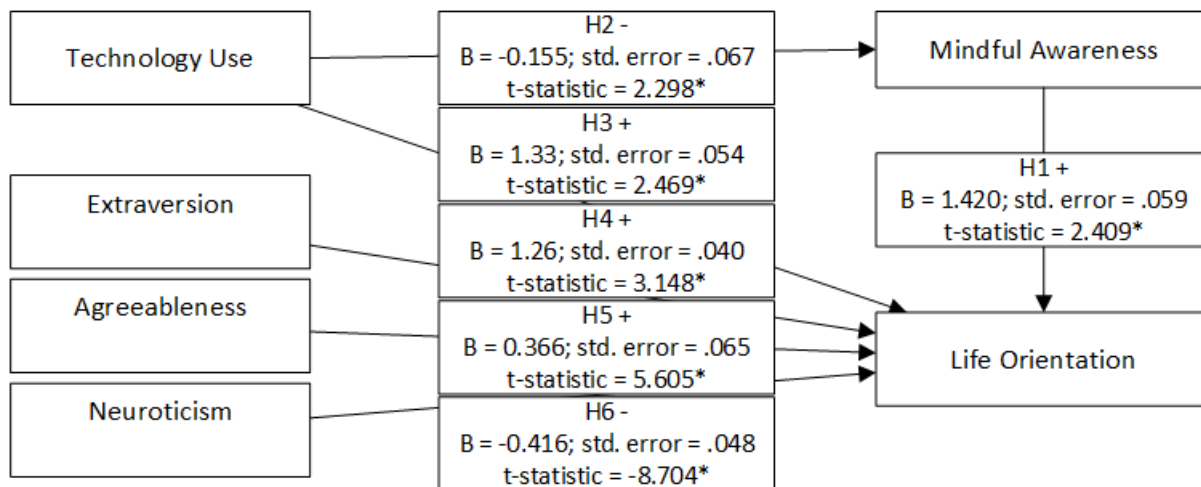


Figure 2: Results Model

CONCLUSION

Overall, we found that there is a mismatch between one's use of technology, their mindful awareness, and one's life orientation. People are more optimistic if they are aware, use more technology, and are extraverted, agreeable, and emotionally stable. However, people who use technology have less mindful awareness. This may suggest that technology could be a root cause of an unknown bias causing people to report awareness even though they may actually be lacking awareness to their surroundings. Mindful awareness focuses on how one perceives they are, and while many people feel that they have awareness, it may not be the case. For example, we requested an open-ended response from our survey participants, asking *Tell us a time when your phone distracted you from your surroundings*. Many people who said they were mindfully aware had told us a story of running into something – poles, tables, etc. Others who reported awareness said they missed something because of their phone – meetings, their place in line, the bus, a plot twist on TV, etc. These two findings suggest that there may be a social desirability bias at play in regards to reporting awareness and that evidence surrounding it should be interpreted with caution. Future researchers should explore this idea of technology use, mindful awareness, social desirability, and life orientation, to see how these interplay and indeed if people who are more aware are also more optimistic.

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