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TechnoWellness and Its Relationship with Happiness and Optimism Among University of Jordan Students

Baha' Shawaqfeh[1] & Abdallah Almahaireh[2]

Abstract

The purpose of this study is to investigate the levels of TechnoWellness, happiness and optimism among bachelor's degree students at the University of Jordan, possible relationships between these factors, and possible differences according to gender and university faculty. Using a quantitative approach, 450 participants were selected by stratified random sampling from undergraduate students registered in the 2017/2018 academic year at the University of Jordan and measured on scales of TechnoWellness, happiness and optimism. Their levels of TechnoWellness and happiness were found to be average and their level of optimism high, with a statistically significant positive correlation between the variables. The results also revealed a statistically significant difference according to gender in TechnoWellness levels but not in happiness or optimism levels. Finally, there were no statistically significant differences according to faculty for any of the three variables.

Key words: *TechnoWellness, Technology, Wellness, Happiness, Optimism.*

Introduction

Technology is essential to modern life. There were 8.4 billion devices connected to the internet in 2017 in a world containing 7 billion people (Köhn, 2018), revealing large and rapid technological developments with an enormous impact on human life. Studies have found that using this new technology can improve wellness by increasing social communication (Valkenburg & Peter, 2007), positive emotions such as happiness and optimism (Botella et al., 2012) and physical health (Duncan et al., 2013). Other studies have revealed more negative effects of technology use, such as technostress (Brosnan et al., 2012).

Such findings suggest that when technology is used in a positive way, it develops positive emotions, such as happiness and optimism, among students, improving their academic achievement and giving them healthier perceptions, beliefs, and communication strategies (Bottela

[1] *Doctorate Candidate, Jordan Ministry of Education, shawaqfehbahaa@gmail.com. ORCID: https://orcid.org/0000-0003-1254-7671*
[2] *Assistant Professor, School of Education Science, University of Jordan, a.mahaere@ju.edu.jo.*

et al., 2012). These effects may contribute to their overall wellness and ultimately help them to live healthier and more enjoyable lives, particularly from the perspective of enjoyment of life as a set of social processes (Reade, 2005).

Happiness is typically associated with positive mood. Positive thoughts improve an individual's ability to remember happy events and develop creative ideas. Technology can help the individual to apply these ideas in a more organized way, leading to increased satisfaction with life and optimism about the continuation of happiness in the future (Bahaas, 2009). Joudah and Abu Grad (2017) found a positive relationship between happiness and optimism, with optimism linked to positivity and hopefulness about the future and influenced by levels of optimism in the community culture (Johnson & Hinton, 2019).

The impact of technology on human beings is very complex. In order to gain a clearer understanding of it, its effects on well-being, happiness, and optimism must be studied in all their many aspects, both positive and negative. There is a particular need for the study of new psychology topics such as TechnoWellness in the context of the Arab world.

Research problem

This study focuses on the TechnoWellness of students at the University of Jordan and its relationship to happiness and optimism, two key factors in human wellness. Study of TechnoWellness can help shed light on how the spread of technology in all aspects of modern life has affected mental wellbeing in a population in this case, a higher education student population. Universities are one type of environments greatly impacted by modern technology, and students require academic and social adjustment to successfully engage in their education and relationships, which in turn leads to increased happiness and optimism (Friedlander et al., 2007). This study will help shed light on whether technology helps or hinders these positive psychological states by investigating the following questions:

1. What is the level of TechnoWellness among University of Jordan students?
2. What is the level of happiness among University of Jordan students?
3. What is the level of optimism among University of Jordan students?
4. Is there a statistically significant relationship at the level of significance ($\alpha = 0.05$) between TechnoWellness, happiness and optimism among University of Jordan students?
5. Are there differences in the levels of TechnoWellness, happiness and optimism according to gender and university faculty?

Literature Review

Negative effects of technology

Previous research has found that modern technology negatively affects humans in many ways, including increases in anxiety, tension, stress, and frustration. In one study on techno anxiety, Brosnan et al. (2012) found 5.6% of university student participants who used technology regularly experienced high levels of anxiety. Another study found that rumours and gossip, such as those spread in an instant with modern technology, lead to distracting thoughts that trigger negative behaviours (DiFonzo & Bordia, 2007). Technology can also create ethical issues, spreading inaccurate information, encouraging pornography addiction, and exposing users to images they did not wish to view (Solas & Sutton, 2018). A quarter of internet users report having seen pornographic images online, with 8% viewing such images intentionally (Hijazi, 2005). Some users become addicted to the internet itself; according to Young (2004), such people use the internet for more than eight hours per day.

Positive effects of technology

Some research, however, suggests more positive effects of technology. According to these studies, modern technology enhances entertainment, control, life satisfaction, wellness and social connection. Pomputius (2018) identified three main technologies that may advance wellness: smart apps, health tracking apps, and virtual reality (VR) apps. Smart apps help users relax their bodies and minds and eliminate negative thoughts, which can potentially improve overall wellness and decrease stress (Culbert, 2017). Technology can also be used to track physical activity, heart rate, sleep time and other body data through wearable devices connected to smartphone apps (Sivan, 2016).

Previously limited to use in training facilities for simulations of situations too dangerous to undertake in real life, VR devices and programmes are increasingly being used to decrease anxiety (Rizzo et al., 2008), and tension and increase awareness (Navarro-Hero et al., 2017).

Positive psychology

Positive psychology research investigates ways to improve the quality of human life by identifying the emotions, personality traits and other factors that encourage wellness (Seligman & Csikszentmihalyi, 2000). Wellness is the healthy balancing of an individual's life by combining the mind, soul and body and unlocking the individual's full potential to make positive decisions (Myers & Sweeney, 2008). It is more than physical health alone; in fact, the World Health

Organization (WHO) defines 'health' as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (1948).

Positive psychology has an important role in the educational process. It aims to develop motivation and self-confidence among students, as well as help them to be optimistic and flexible in their studies and demonstrate their creativity in various fields. It also helps teachers to develop strong relationships with their students, which positively affects both parties, increasing their psychological wellness (Jenson et al., 2004).

Wellness

Sweeney & Witmer (2008) were the first to develop a wellness model, which they named the 'Wheel of Wellness' (WOW) and based on the Adler theory to reflect the Indivisible Self Model. It distinguishes between a range of aspects of the self, such as the adaptive self, creative self, spiritual self, physical self, social self.

TechnoWellness

Use of modern technology affects every aspect of the indivisible self. Kennedy & Baker (2016) investigated the impact of technology on human wellness based on Kennedy's (2014) idea of 'TechnoWellness'. He defines TechnoWellness as 'a mode of interacting with technology that maximises its potential to enhance health and wellbeing' (2004). It contains five factors: using technology for leisure, using technology for vocational purposes, technostress, using technology for physical health and excess use of technology. Kennedy (2014) used these factors to create the TechnoWellness Inventory (TWI) found a positive relationship between TechnoWellness Inventory and the five factors Wellness Inventory.

Human behaviours and beliefs are the product of the individual's interaction with the environment. This includes sending messages on WhatsApp, listening to songs through YouTube, using Google Maps to go to unknown places and the many other ways in which humans use modern technology to achieve their goals as easily and quickly as possible; all have an effect on human behaviour and beliefs (Amichai-Hamburger & Barak, 2009).

Studies such as those of Hughes and Burke (2018) and Rozgonjuk et al. (2018) suggest that technology has a role in increasing wellness, happiness and quality of life and that there is an inverse relationship between technology use with depression and anxiety. Botella et al. (2012) noted that technology use has the potential to impact the psyche either positively or negatively. When used in a positive way, it increases emotions such as happiness and optimism, which, if

channelled appropriately, can help university students improve their academic performance and form healthy beliefs and communication habits. However, if used in a negative way, it may cause students to underachieve, damage relationships, and abandon their society traditions responsibilities.

Using technology to increase wellness requires increases in happiness and optimism, both of which ultimately contribute to enjoyment of, and therefore satisfaction with, life. Enjoyment of life also requires awareness, acceptance, and a lack of past regrets, which lead to a life of satisfaction and resilience (Reade, 2005).

Happiness

Happiness is one of the most important aspects of positive psychology. Seligman (2002), a leading positive psychologist, defines happiness as a psychological state or feeling that includes satisfaction, love, benefit and pleasure toward the self, others and life. Happiness is related to positive mood, which leads to positive thoughts that improve the ability to recall happy events. Happiness consists of three aspects: a pleasant life, a good life, and a meaningful life. 'Happiness' as an indicator of wellness may denote positive emotions, positive qualities and characteristics, positive relationships and social institutions. To be happy, university students must engage in work, create positive memories and form good social relationships (Singh, 2009). Gorsy and Panwar (2016) found a positive relationship between happiness and optimism, as looking to the future with feelings of satisfaction and hope contributes to happiness in the present.

Optimism

Optimism is influenced by culture, personality, and attitudes toward failure (an optimist believes that failure is temporary) and success (an optimist believes that success can be maintained despite changing circumstances) (Seligman, 2006). WHO (2004) defines optimism as 'a psychological process that generates thoughts and feelings of satisfaction and endurance, hope and confidence, and distances thoughts and feelings of despair and defeatism and impotence'. There are many social factors that influence in optimism, such as family, school, society and media (Karawi, 2012).

Optimistic individuals exhibit distinguishing characteristics, such as self-confidence, risk taking, and flexibility in their goals. They do not succumb failure by giving up and adapt to stressful life situations using problem solving techniques (Seligman, 2006).

Method

Research Design

This study uses a quantitative approach to investigate the levels of TechnoWellness, happiness and optimism in University of Jordan students and possible relationships among these three variables.

Participants

The participants in this study are a stratified random sample of 450 undergraduate students at the University of Jordan in the 2017/2018 academic year, they included 206 humanities students, 147 science students, and 97 health students, with 301 females and 149 males.

Data Collection Tools

TechnoWellness scale

The researchers conducting this study adapted the TechnoWellness scale from Kennedy (2014) and Oweida and Tannos (2017). The inventory is comprised of 30 items, each of which participants rated on a four-point scale, from 1 ('strongly disagree') to 4 ('strongly agree'). Higher scores reflect a higher level of TechnoWellness. The researchers extracted the validity and reliability and found that the discriminate evidences ranged between 0.30 and 0.73. Cronbach's alpha was 0.84, then 0.87 at the retest three weeks later.

Happiness scale

The researchers developed an inventory of 20 items from Al Matarneh, (2015) and Alminshawy, 2009). Participants rated each item on a four-point scale, from 1 ('strongly disagree') to 4 ('strongly agree'). Higher scores reflect a higher level of happiness. The researchers extracted the validity and reliability and found that the discriminate evidences ranged between 0.33 and 0.76. Cronbach's alpha was 0.90, then 0.73 at the retest three weeks later.

Optimism scale

The researchers developed the inventory from Darawshe (2014) and Al-Qubaisi (2010). Participants rated each of the 18 items on a four-point scale, from 1 ('strongly disagree') to 4 ('strongly agree'). Higher scores reflect a higher level of optimism. The researchers extracted the validity and reliability and found that the discriminate evidences ranged between 0.44 and 0.78. Cronbach's alpha was 0.89, then 0.79 at the retest three weeks later.

Data Collection

The researchers obtained approval for this study from the Institutional Review Board. Data was collected in the form of online questionnaires on three measures: TechnoWellness, happiness and optimism.

Data Analysis

The researchers used SPSS to analyse the data. For the first three questions that is, the level questions average and standard deviations were calculated, while for the correlation questions, the Pearson correlation coefficient was used to find relationships between the variables. Finally, for the last question, a two-way ANOVA test was used.

Findings

Level of TechnoWellness Among University of Jordan students

The arithmetical averages and standard deviations of the data were calculated on the TechnoWellness measure and the total score of the scale. Table 1 displays the results.

Table 1
Averages and standard deviations of the TechnoWellness measures

Items	Mean	Std. Dev.	Value
My internet use can improve and develop my academic and cultural knowledge.	3.28	.637	High
I search the internet for ways to stimulate my thinking and improve my education	3.12	.737	High
Using technology and computers helps me to be more productivity in my studies.	3.03	.853	High
I love taking online university courses.	3.01	.864	High
I feel self-satisfaction when I keep abreast of new technological developments.	2.99	.677	Moderate
I use technology to improve my relationships.	2.98	.729	Moderate
I use technology to share my happy experiences with university friends.	2.95	.708	Moderate
My technology use helps me find innovative solutions to my problems.	2.95	.714	Moderate
I can deal with abuse I face on social media.	2.94	.696	Moderate
I can find innovative solutions to complex problems through the internet.	2.94	.738	Moderate
I share information about my cultural identity through the internet.	2.88	.695	Moderate
My activities on internet don't distract me from my classwork.	2.82	.825	Moderate
I use the internet to collect information about my religion.	2.77	.806	Moderate
I feel satisfied even if I can't check my social media.	2.72	.807	Moderate
Using technology makes me more confident in my abilities.	2.69	.744	Moderate

I feel satisfied when engaging in entertaining activities with university friends on the internet.	2.68	.760	Moderate
I believe that communicating with university friends through internet is easier than communicating face to face.	2.60	.839	Moderate
I use websites about finding innovative solutions to environmental problems.	2.60	.776	Moderate
Technology use helps me to manage stress.	2.54	.784	Moderate
Using technology helps me to relax and reduce stress.	2.53	.828	Moderate
I can balance internet use and a sufficient and healthy diet.	2.51	.850	Moderate
I express my positive and negative feelings with friends through social media.	2.48	.807	Moderate
I feel valued when I deal with university friends on social media.	2.43	.765	Moderate
I feel proud when I get involved in groups on social media.	2.41	.774	Moderate
Using smart apps helps me maintain a healthy diet.	2.37	.829	Moderate
I use technology to connect with others in my university to improve my physical health.	2.36	.798	Moderate
I feel less lonely because of my friends on internet.	2.36	.844	Moderate
I use smart apps to encourage me to practice sports.	2.31	.833	Moderate
I don't feel guilty about the time I spend using internet.	2.28	.921	Moderate
My internet use doesn't affect my sleep.	2.24	.962	Moderate
TechnoWellness	2.692	.34301	Moderate

Participants' responses to the TechnoWellness measure items averaged between 2.24 and 3.28. Responses to the highest-scoring item ('My use of the Internet helps me develop academic and cultural knowledge.') averaged 3.28, a high-level score, while the responses to the lowest-scoring item ('My internet use doesn't affect my sleep.') averaged 2.24, a moderate level. The arithmetic average of the TechnoWellness standard score was a moderate 2.69, with a standard deviation of 0.34.

While there have been no studies specifically investigating TechnoWellness, there have been studies of some TechnoWellness factors, including internet use for convenience, technology anxiety, use of the Internet to promote physical health, how to use technology, use of technology for professional goals. While some of these studies indicated that internet use has a positive relationship with wellness and happiness, which are aspects of individual comfort (Hughes & Burke, 2018; Mitchell et al., 2011), others found that using the internet inappropriately is related

to techno-anxiety (Rozgonjuk et al., 2018). Still others revealed that heavy technology can be connected to problems with sleep and social and psychological effects (Nasaescu et al., 2018; Mitchell et al., 2011).

The results of the inventory may have indicated a moderate level of TechnoWellness due to the participants' use of social media to build and strengthen relationships by communicating with one another and sharing their enjoyable experiences of university life. In addition, they likely use technology for many of their university assignments, which means that technology helps them to increase their cultural and academic knowledge, remain abreast of current events and complete their projects creativity using various software programmes.

The lowest-scoring item reveals that students' technology use sometimes affects their sleep. They appear to experience some guilt about their technology use, but this guilt may be useful in helping them to avoid misuse. It is also clear that some students do not use technology to help them increase their physical health and fitness through diet or exercise.

Level of happiness among University of Jordan students of the University of Jordan

The averages and standard deviations of the sample responses were calculated for the happiness scale and total scores. Table 2 displays the results.

Table 2

Averages and standard deviations of the happiness scale

Items	Mean	Std. Dev.	Value
I'm beautiful.	3.18	.718	High
I make myself and others happy with the little things.	3.16	.715	High
I respect myself despite my flaws.	3.16	.673	High
I have a lot of good relationships.	3.15	.697	High
My health is good.	3.12	.721	High
I feel that I'm lovable to others.	3.11	.672	High
I'm a positive person.	3.08	.812	High
I think positively about the present.	3.01	.757	High
I can cope with the demands of university life.	2.99	.684	Moderate
I believe that my life is beautiful.	2.92	.832	Moderate
I feel satisfied with my material standard of living.	2.91	.810	Moderate
I believe that life is generous to me.	2.91	.804	Moderate
I'm happy.	2.89	.770	Moderate
I feel exciting about most things I do.	2.89	.760	Moderate
I am motivated to face my studies.	2.88	.809	Moderate

My life is happy.	2.82	.800	Moderate
My mood is moderate.	2.75	.802	Moderate
I feel satisfied about my achievement in my university studies.	2.63	.866	Moderate
I feel strong and healthy when I wake up in the morning to go to university.	2.54	.922	Moderate
I'm happy with my university average.	2.44	.962	Moderate
Happiness	2.9277	.47033	Moderate

Table 2 shows that the mathematical averages of the responses to the happiness scale ranged between 3.18 and 2.44. The highest-scoring item ('I see myself beautiful.') averaged 3.18, a high level, while the lowest-scoring item ('I am happy with my university.') averaged 2.44, a moderate level. The mean total happiness score was a moderate 2.93, with a standard deviation 0.47.

Previous research has indicated an average to high level of happiness among university students in Jordan (Al Mattarneh, 2015; Zu'bi, 2014; Abu Thweb, 2010; Qadoumi, 2018), in line with the findings of this study.

The result of this inventory can be attributed to the students' position in an environment that offers many opportunities and their desirable place in Jordanian society. In addition, they are nearing completion one of their life's great tasks. Argyle (2002) indicates that levels of happiness are high during university education and interpreted this period of students' lives as a stage when they feel positively about their achievements and ambitions.

The University of Jordan offers a community of diverse civilisations and cultures, with many opportunities for students to establish good relationships with like-minded peers. There are also many places on and around the campus that provide enjoyable and affordable experiences.

Though the student participants in this study reported only moderate levels of happiness on average, it is worth noting that the score was very close to the threshold of the high level. There are several factors that may have prevented the sample population as a whole from reaching that threshold. University students often aspire to achievements higher than their past successes and, while optimistic about the future, can be frustrated with their present situation. Many also sleep too little, which leads to difficulty waking up in the morning and to low mood and energy levels throughout the day.

Level of optimism among University of Jordan students

The averages and standard deviations of the sample responses were calculated for the measure of optimism. Table 3 shows the results.

Table 3
Averages and standard deviations of the optimism scale

Items	Mean	Std. Deviation	Value
I believe that there will always be relief after hardship.	3.40	.674	high
I believe that if you hope for good things, they will come.	3.38	.738	High
I believe in my ability to succeed at university.	3.28	.655	High
I believe that I can achieve my goals and ambitions.	3.27	.630	High
I believe that my future brings good things and delights.	3.24	.725	high
I believe I can persevere through difficult life situations.	3.23	.661	High
I feel that my life has purpose and meaning.	3.20	.803	High
I have a feeling that I will live to achieve my goals.	3.18	.703	High
I expect a happy ending to my problems.	3.15	.738	High
I believe that tomorrow will be more beautiful.	3.13	.817	High
I think of the future in an optimistic way.	3.12	.744	High
The future will be a pleasant surprise.	3.10	.757	High
Failure challenges me and makes me more determined to succeed.	3.08	.764	High
I stay optimistic despite the pessimists around me.	3.07	.799	High
I expect to find work after graduation.	3.05	.809	High
I feel that I will graduate with a high average.	2.96	.838	Moderate
My worries make me stronger.	2.85	.839	Moderate
I feel that I'm lucky.	2.75	.825	Moderate
Optimism	3.1359	.49433	High

The averages of the responses for the optimism measure ranged from 3.40 to 2.75. The highest-averaging item ('I believe in near post-hardship relief') averaged 3.40, and the lowest-scoring item ('I feel that I'm lucky') averaged 2.75. The mean for optimism was a high 3.14, with a standard deviation of 0.49.

Previous studies have suggested that the level of optimism among university students is high or between intermediate and high levels (Hammodeh, 2015; Khalil, 2009; Darawshe, 2014; Qaddoumi, 2018)

The high level of student optimism can be attributed to the fact that the students of the University of Jordan are more likely to secure work in the private sector compared to those of other universities in order to that they have a better chance to work. The influence of their family and community may also play a role. As students of a highly desirable university in their country, they are likely to be confident about their future prospects.

These students may also have a high degree of confidence in their ability to achieve high marks in their academic courses and feel that they are close to achieving a major life goal in graduating university. Intellectual maturity and independence in decision-making and responsibility may also play a role, as well as peers who encourage them to move forward. Their teachers may also motivate them in both direct and indirect ways.

Relationships between TechnoWellness, happiness and optimism among University of Jordan students

The Pearson correlation coefficient was used to detect relationships between the variables. Table 4 displays the results of this analysis.

Table 4

Pearson correlation coefficient values between TechnoWellness, happiness and optimism

		Happiness	Optimism
Technowellnes	Pearson Correlation	.534**	.440**
	Sig. (2-tailed)	.000	.000
Happiness	Pearson Correlation	1	.734**
	Sig. (2-tailed)		.000

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows a statistically significant correlation between TechnoWellness and happiness and optimism in this study. This correlation indicates that the higher the level of TechnoWellness, the higher the levels of happiness and optimism in the individual. The highest coefficient of correlation was found between happiness and optimism (0.734, 54%), and the lowest was between TechnoWellness and optimism (0.44, 19%). Between happiness and TechnoWellness was the coefficient of correlation 0.534 (29%), and all values are statistically significant at an indication level $\alpha = 0.05$.

In previous studies, researchers have pointed to a strong positive correlation between happiness and optimism among university students (Ben-Zur, 2003; Abdel-Khalek, 2005).

The reason is the interdependence of the two concepts. Happiness requires a sense of optimism, and a sense of optimism requires a certain level of happiness. Both are positive emotions. Schueller and Seligman (2008) demonstrated that optimists have a higher rate of happiness, while pessimistic individuals are generally less happy.

Researchers have also noted a positive correlation between technology use and high happiness (Hughes & Burke, 2018; Graham & Nikolova, 2013; Conner & Reid, 2012).

TechnoWellness can be attributed to the use of technology in ways that satisfy their needs and preferences. Modern technology provides almost everything that an individual might desire: communication, health information, entertainment and even opportunities to work or find work. Some indicate that students' optimism can be increased by using technology (Enrique et al., 2018; Chen et al., 2017; Brissette et al., 2002). This finding can be attributed to the fact that websites such as Akhtaboot make it easier for university students to find work after graduation and others, such as Freelancer provide online work in various disciplines, thus making young people more hopeful about their future prospects.

Technology can also help young people to develop in their professional skills through video and online courses, thus increasing their self-confidence and the quality of their work and giving them high expectations of themselves and their abilities.

Differences in the levels of TechnoWellness, happiness and optimism according to gender and university faculty

The averages and standard deviations were calculated for the TechnoWellness, happiness and optimism scores according to gender and university faculty. Table 5 displayed the results.

Table 5

Averages and standard deviations according to the study variables

	Gender\faculty		Humanity	Scientific	Health	Total
Technowellness	Male	Mean	2.82	2.73	2.69	2.75
		Std.	0.37	0.37	0.29	0.35
	Female	Mean	2.68	2.66	2.63	2.66
		Std.	0.33	0.37	0.30	0.33
	Total	Mean	2.71	2.69	2.65	2.69
		Std.	0.35	0.37	0.30	0.34
Happiness	Male	Mean	3.02	2.94	3.00	2.98
		Std.	0.43	0.54	0.38	0.47
	Female	Mean	2.93	2.93	2.80	2.90
		Std.	0.46	0.52	0.40	0.47
	Total	Mean	2.95	2.94	2.86	2.93
		Std.	0.45	0.53	0.40	0.47
Optimism	Male	Mean	3.15	3.16	3.28	3.18
		Std.	0.47	0.50	0.44	0.48
	Female	Mean	3.16	3.17	2.94	3.11
		Std.	0.50	0.54	0.41	0.50
	Total	Mean	3.16	3.17	3.04	3.14
		Std.	0.49	0.52	0.45	0.49

Table 5 shows that responses on the TechnoWellness measure were lowest among females in studying in the health faculty, with a average of 2.63. The highest average was 3.28, the score for optimism among the males in health faculty. To find out if these differences were statistically significant, the two-way ANOVA test was used, and the results are shown in Table 6.

Table (6)

Results of two-way ANOVA analysis according to the study variables

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	Technowellness	.678	1	.678	5.835	.016
	Happiness	.884	1	.884	4.018	.046
	Optimism	.991	1	.991	4.138	.043
Faculty	Technowellness	.433	2	.217	1.866	.156
	Happiness	.286	2	.143	.650	.522
	Optimism	.179	2	.090	.374	.688
	Technowellness	.143	2	.072	.617	.540
Gender* Faculty	Happiness	.473	2	.237	1.076	.342
	Optimism	1.950	2	.975	4.073	.018
	Technowellness	51.564	444	.116		
Error	Happiness	97.639	444	.220		
	Optimism	106.287	444	.239		
	Technowellness	52.827	449			
Total	Happiness	99.323	449			
	Optimism	109.721	449			

a. R Squared = .024; b. R Squared = .017; c. R Squared = .031

Table 6 indicates that there are statistically significant differences at the level of ($\alpha = 0.05$) in the levels of TechnoWellness, happiness and optimism according to the gender variable, with the male participants scoring higher on average, but no statistically significant differences at the level of ($\alpha = 0.05$) in any level according to university faculty. However, there are statistically significant differences at the level of ($\alpha = 0.05$) in the level of optimism due to interactions between the gender and faculty variables.

Since women tend to be more emotional than men, they may be more likely to use technology to communicate with friends and family or search for a romantic relationship. Men, on the other hand, tend to be more reserved, only using technology to communicate when necessary and have more responsibilities. Men are also likely to seek novelty, which reduces their fear of using new technology. Women are more organised than men, which can increase their concern about their technology use (Boniel-Nissim & Sasson, 2018; Nasascu et al., 2018; Wong & McBride, 2018).

As for the measure of happiness, the studies of Al-Nour (2013) and Zu'bi (2014) indicated significantly higher levels for men, though this result may be related to the recent emancipation of women from the social constraints imposed on them in the past. Men have more access to opportunities for education and employment.

The high levels of optimism can be attributed to the economic, political and social conditions of university students, which leads them to similar aspirations in life. A university degree offers greater access to work opportunities, particularly for women: While the males can engage in work that does not require a university degree, such as taxi driving or gas station jobs, women often do not have this option (Al-Yahfoufi, 2002; Maqaldeh, 2014; Darawshe, 2014).

Furthermore, it should be noted that all faculties at the University of Jordan have increased the use of technology in their courses, including the integration of e-learning tools that allow student to send and receive their work through an online university portal. Thus, regardless of gender or university faculty, the students experience positive technology use during this positive period in their lives in which they are studying subjects that interest them and are optimistic about their future employment prospects. It is also likely that all students are subject to similar academic attention from faculty and administration regardless of area of study (Al-Jamal, 2013; Duffy et.al. 2018; Maqaldah, 2014; Katalo, 2015).

Conclusion

This study found a moderate level of TechnoWellness in undergraduate students at the University of Jordan. They may require specialised training in order to use technology in ways that increase their level of TechnoWellness, as well as of happiness, which was also found to be moderate, while maintaining their high levels of optimism.

The search for relationships among these three measures revealed a positive relationship between them, indicating that TechnoWellness helps them to use technology in ways that promote wellness factors such as happiness and optimism. Future research may reveal how scores on all three measures can be improved.

Furthermore, regarding the gender variable, the results of this study revealed differences among men and women on the measures of TechnoWellness, happiness, and optimism. Thus, future research on these topics should consider gender as a potentially important variable.

Limitations and future directions

This study was conducted with a sample of undergraduate students enrolled in the summer semester of the 2017/2018 academic year at the University of Jordan. The results of the study were interpreted from the participants' responses to the TechnoWellness inventory, the happiness scale and the optimism scale. There was a reluctance to apply the scales among the male students, particularly in the humanities faculty, and some of the responses to the items were ambiguous. The researchers recommend further research on the TechnoWellness variable, as it will only increase in importance as modern becomes ever more pervasive and diverse. Future research might also relate TechnoWellness to variables such as age, time of technology use, personality types, vocational development, marital compatibility and self-efficacy. The creation of counselling and guidance programs to improve and maintain students' TechnoWellness, particularly that of female students, might also be considered.

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