

Digital Resilience, Digital Stress, and Social Support as Predictors of Academic Well-Being among University Students

Amal Mohamed Zayed

Correspondence: Amal Mohamed Zayed, Department of Educational Psychology, College of Education, Kafrelsheikh, University, Egypt. <https://orcid.org/0000-0002-8355-3297>

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Abstract

This study aimed to explore the relationship between academic well-being, digital resilience, digital stress, and social support among university students. Also, identify the students' levels of these variables. As well as detecting differences due to gender, study level, academic specialization, and achievement level. A sample of 600 undergraduate students studying at Kafrelsheikh University, Egypt, participated in the study. Scales of digital resilience, digital stress, social support, and academic well-being were used to collect the required data. The comparative-descriptive approach was used in this study. The study revealed a positive correlation between academic well-being, digital resilience, and social support, while a negative correlation was found with digital stress. The results also showed an average level in all the study variables, with no significant differences based on gender. Fourth-year students showed higher digital resilience and less digital stress compared to first-year students. High academic achievers had higher scores in digital resilience, social support, and academic well-being and lower scores in digital stress. Furthermore, the results indicated that digital resilience, digital stress, and social support significantly predict academic well-being. Some suggestions and educational recommendations were addressed, considering the results.

Keywords: digital resilience, digital stress, social support, academic well-being

1. Introduction and Literature Review

Digital transformation is a crucial aspect of contemporary technology, enhancing service quality and promoting sustainable development. It saves time, effort, and money by transforming traditional services into electronic ones, ensuring longer, more efficient, and more accessible services for a wider audience. This study is concerned with four important variables for the university student that affect his academic performance. The theoretical framework of these variables can be presented as follows:

1.1 Digital Resilience

The world's cognitive and technological developments require education specialists to address university students' mental, psychological, social, and physical aspects. By understanding their problems, helping them interact, relying on themselves, and taking responsibility, a conscious generation can be produced. Resilience is the process of positive lifelong learning and overcoming adversities and stressful situations, contextualized in various settings and disciplines, and recently, resilience has been introduced into the digital field. Numerous contexts have been examined in relation to digital resilience, such as higher education, human psychological and behavioral characteristics, and socio-technical features during life events. Because of open-access publications and open-online courses, the idea of digital resilience has become popular in educational settings. Digital resilience is crucial in the new normal of education and information technology. High digital resilience enables students to overcome online learning challenges through perseverance and collaboration (Eri et al., 2021; Lin, 2008). Kurniadi et al. (2022) indicated a positive relationship between digital resilience and students' academic skills. Given that spending more time online can raise the likelihood of running into problems, this has given rise to the idea of how students are aware of their digital resilience (Garista & Pocetta, 2014; Weller & Anderson, 2013). Digital technologies can enhance human health but also present risks like anxiety, burnout, and online seminar fatigue. Overreliance can lead to negative emotions. Despite these, many individuals exhibit resilience in the digital environment (Rabbane et al., 2019; Sharma et al., 2020). Casalino et al. (2019) described digital resilience as a collection of tactics, procedures, laws, and initiatives that protect a community's capacity to preserve, adapt, and restore its digital capabilities, as well as endure shocks and crises in the digital sphere at the

organizational level. In academics, digital resilience is typically discussed in the context of cybersecurity. Certain definitions employ a behavioral perspective, characterizing digital resilience as the process of adopting technology to fend off threats (Al-Abdulghani, 2021).

In addition, Digital resilience is important both personally and institutionally, given the growing dangers associated with the digital environment (Carayannis et al., 2022). It aids in coping with potential negative internet usage consequences, promoting emotional regulation, and enabling individuals to manage adversity and trauma (Sharma et al., 2022). The studies by Eri et al. (2021), Ragni et al. (2022), and Sharma et al. (2020) indicate that digital resilience protects students' emotional health, well-being, academic performance, and social participation. Digital resilience is defined as the infrastructure's and systems' ability to continue operating even after an assault has occurred. The term "digital resilience" describes the ability to withstand significant shocks, adjust to disturbances, and change into a new, stable state using digital technologies (Boh et al., 2023). It refers to a student's psychological ability to continue functioning by taking on, overcoming, adjusting to, and learning from challenges resulting from the use of digital technology in higher education (Rabbanee et al., 2019). Additionally, digital resilience is identified as a readiness to adapt to various digital environments in their higher education pursuits. (Smith et al., 2008).

Digital resilience can be developed through a healthy support network, engaging in breaks, and incorporating self-care techniques like physical exercise and lifestyle changes, as well as utilizing organizations for support and assistance (Sharma et al., 2022). There are some elements that affect digital resilience that fall into three main categories: (i) individual factors (like self-motivation to study), (ii) social factors (like peer influence), and (iii) institutional factors (like university support systems). Digital resilience has also been demonstrated to assist pupils in achieving successful learning outcomes (Rabbanee et al., 2019).

1.2 Digital Stress

Digital technology is now a necessity in the academic, educational, and vocational training sectors. However, research suggests that technology and social media use may be linked to reduced psychological functioning in young adults (Steele et al., 2020). The findings of Qi and Yang (2024) revealed that students experience digital stress in various settings, including school, family, and leisure. According to the study by Awang Kader et al. (2022), there is a negative relationship between students' objectives for online learning and their level of digital stress. Also, the study of Nick et al. (2022) indicated that half of participants experienced digital stress occasionally, linked to increased social media use, peer importance, popularity, mental health variables, and increased depressive symptoms. Some individuals experience "digital stress" due to social media demands, such as peer pressure and concerns about peer approval (Nick et al., 2022). Dewa et al. (2019) indicated that digital stress is linked to worsening mental health. Digital stress significantly influences the relationship between digital media use and psychosocial outcomes, particularly in young adults, and may explain its impact on physiological, affective, and behavioral responses (Hall 2017; Hefner & Vorderer. 2016; Reinecke et al. 2017). Digital stress is a widespread phenomenon affecting individuals (Ragu-Nathan et al., 2008; Riedl, 2013). As well, it is the cognitive, affective, and physiological arousal that accompanies alerts from or real use of social media (Reinecke et al. 2017). It also refers to "stress resulting from permanent access to an unfathomable volume and diversity of (social) content, which is triggered by a strong and possibly almost perpetual use of information and communication technology" (Hefner & Vorderer, 2016). Weinstein et al. (2015) presented five recommendations to reduce digital stress, as follows: seek assistance from others, speak with the other person directly, break off contact, choose to ignore the issue, and make use of digital solutions.

1.3 Social Support

Social support significantly predicts life satisfaction, particularly in mental health. Emotional support is crucial for mental health, and studies show a relationship between depression and social support (Shensa et al., 2020; Siedlecki et al., 2014). Also, social support can improve psychological well-being by maintaining positive emotions and mitigating stress. It mediates the relationship between stress and well-being (Poots & Cassidy, 2020; Siedlecki et al., 2014). Social support can be viewed as an important defense mechanism that enhances well-being (Chu et al., 2010), aiding in personal development, autonomy, and cognitive resilience, all of which enhance the ability to adapt to the demands of college life (Waterman, 2008). In addition, people's perceptions of themselves and the environment around them are influenced by their social support, in addition, higher levels of well-being and psychological thriving are typically related to those with deep social support (Diener et al., 2018). Achdiyah et al. (2023) showed that social support is crucial for students' cognitive engagement and academic performance, as it increases engagement and enhances their overall performance. According to Taylor (2011), social support is the feeling that one is supported by others and has a solid support system to fall back on in both routine and emergency situations. As well, it is the regularity of other people's acts of assistance (Santini et al., 2015). The results of Cobo-Rendón et al. (2020) show that students' perceptions of social support are important indicators of their psychological well-being and that a higher sense of social

support is positively correlated with their well-being. In addition, the results of Li et al. (2018) indicated a positive relationship between social support and students' academic performance and quality of life. Most studies that dealt with the level of academic well-being were limited to the stages of pre-university education (Widlund, 2021; Zhang & Liu, 2007).

1.4 Academic Well-Being

Academic well-being is an employment of the concept of well-being in the academic field, that is, the student's well-being in relation to the various factors related to academic and university life. Academic well-being is an aspect that comes before students' degree perseverance, which includes behaviors and attitudes that support doing well in school, such as achievement and academic satisfaction and positive student development has been linked to high academic well-being in numerous studies (Shek & Chai, 2020), optimism, hope, and self-efficacy (Robinson & Snipes, 2009), as well as lower dropout rates (Korhonen et al., 2014). Students' academic progress has been found to be significantly influenced by their academic well-being (Seligman et al., 2009). The study by Widlund et al. (2018) noted that students' performance and motivating beliefs are meaningfully correlated with their academic well-being, which also appears to have some bearing on their desired future educational paths and career choices. The results of Tuominen et al. (2020) showed a high level of academic well-being among outstanding students. The study by Narvaez et al. (2019) found that the campus plays a significant role and affects inclusion and belonging. Carter and Yeo (2018) demonstrated that student satisfaction and campus life have a favourable association. Moreover, academic well-being is inculcated in students through parents and teachers by developing a sense of life satisfaction and positive feelings towards the present and future (Wu et al., 2020). Academic well-being is viewed as a multi-dimensional construct, as there is no specific definition for it. Some studies have dealt with a perception of academic well-being that is represented in: academic self-concept, sense of learning problems, and school burnout (Korhonen et al., 2014), or school burnout and school engagement, and educational choice satisfaction (Tuomine-Soini et al., 2012; Widlund et al., 2018), or satisfaction with the curriculum, positive relationships with others, and academic ambition. emotional balance, passion for school, and academic competence (Hajiyakhchali, 2013).

Benjamin et al. (2000) defined academic well-being as the overall satisfaction students experience at university, encompassing their expectations, needs, and wants and focusing on their overall campus experiences. Also, Yu and Kim (2008) define it as a balance between global satisfaction and university life. Widlund (2021) recommended that schools monitor students' academic well-being more closely to detect any unfavorable shifts in their academic well-being and to think of alternate strategies for effectively meeting their diverse requirements. Academic well-being is high when there is a positive attitude toward school, school enjoyment, self-confidence, and the absence of school anxiety, physical deterioration, and social problems (Hoferichter et al., 2021). Students' academic well-being is affected by school environmental support and social relationships (Hoferichter et al., 2021; Rimpela et al., 2020; Sadeghi & Mahdavi, 2020). Thus, academic well-being may be summarized as a set of perceptions and behavioral indicators that are reflected in the student's evaluation of aspects of his academic life and, thus, his feeling of positivity towards his field of study.

Based on the previous literature and filling the research gap as most studies that dealt with these variables were limited to the stages of pre-university education, so attention is required to the academic well-being of university students because it is one of the most important variables for academic performance and resistance to the negative effects of stress that university students experience. Also, digital resilience and strong social support are very important variables that can reduce digital stress and improve academic well-being, promoting holistic development and happiness among students. The current study aims to explore the relationship between academic well-being, digital resilience, digital stress, and social support among university students. As well as identify the students' levels in these variables. In addition, the study seeks to detect differences due to gender, study level, academic specialization, and achievement level. Thus, the study questions can be addressed as follows:

1. Is there a relationship between academic well-being, digital resilience, digital stress, and social support among university students?
2. What are the students' levels of digital resilience, digital stress, social support, and academic well-being?
3. Are there gender differences in digital resilience, digital stress, social support, and academic well-being?
4. Are there differences according to study level in digital resilience, digital stress, social support, and academic well-being?
5. Are there differences according to academic specialization in digital resilience, digital stress, social support, and academic well-being?

6. Are there differences according to achievement level in digital resilience, digital stress, social support, or academic well-being?

7. Can academic well-being be predicted by digital resilience, digital stress, and social support among university students?

2. Methodology

2.1 Participants

A total of 600 students, whose average age is 20.87 years and whose standard deviation is $2.77\pm$, attended colleges of science, engineering, nursing, arts, and education at Kafrelsheikh University, Egypt, in the academic year 2022-2023. The sample includes 250 males and 350 females, 300 students in the humanitarian discipline and 300 in the scientific; 250 were in their first year and 350 were in their fourth year, and 200 students in the sample were low achievers (GPA: lower than good) and 400 high achievers (GPA: very good and excellent). The study used a random sample to ensure an equal chance of selection. The comparative-descriptive approach was used in this study, and SPSS v25 was utilized to analyze the data.

2.2 Measures

2.2.1 Digital Resilience Scale

The Digital Resilience Scale is a self-report instrument that was developed specially for this study to measure the digital resilience of students. It includes sixteen items; 2, 6, 8, and 12 are reverse-coding items. These items involve awareness and recognizing online risks, being aware of solutions, gaining information and skills, managing stress, and progressing via self-efficacy. The participant answers each item using 5 points. Likert scale 1 = strongly disagree; 5 = strongly agree; and the participant's total score ranged between 16 and 80. Higher scores on the scale indicate higher levels of participants' digital resilience. The digital resilience scale was assessed on a hundred students to assess its discriminant validity. Factor analysis of the academic digital resilience scale was verified using a principal component analysis, which resulted in the saturation of all items with a single latent factor with a latent root of 3.86 and explaining 75.76% of the total variance. The saturations were dimensioned by one factor, ranging from 0.75 to 0.904. Also, the scale showed a significant difference in academic determination scores, with a "T" value of 9.52. Also, the scale's validity was confirmed by calculating the correlation coefficient between individual scores and the total score, with all coefficients being statistically significant. The internal consistency of the scale was also confirmed, with correlation coefficients ranging between 0.798 and 0.852. Also, the reliability coefficients of half-split, test-retest, and Alpha-Cronbach were 0.842, 0.825, and 0.798, respectively. Overall, the scale demonstrated high validity, reliability, and internal consistency.

2.2.2 Digital Stress Scale

The digital stress scale is a self-report tool that was developed by Hall et al. (2021) to measure the digital stress of adolescents and young adults. It consists of 24 items distributed on five subscales: availability stress, which includes 4 items; approval anxiety (6 items); fear of missing out (4 items); connection overload (6 items); and online vigilance (4 items). The student response to each item on a 5-point Likert scale ranges from 1 = never to 5 = always. The participant's total score on the scale ranges between 24 and 120. A higher score on the scale indicates a higher level of digital stress. The scale was translated to Arabic as well as revised by bilingual experts to ensure translation validity. As well, students in the department of English responded to the Arabic and English versions to ensure the content validity and correlation coefficients were 0.89. In addition, test-retest and Cronbach's alpha were calculated to ensure reliability, where the correlation coefficients were 0.85 and 0.78, respectively. Also, the internal consistency was calculated, and correlation coefficients ranged between 0.81 and 0.86. Based on the previous, the scale has high psychometric properties.

2.2.3 Multidimensional Scale of Social Support (MSSS)

(MSSS) is a 12-item instrument measuring an individual's perception of support from family, friends, and significant others. It was developed by Zimet et al. (1988). The MSPSS consists of three dimensions: significant Other: items 1, 2, 5, and 10; family: items 3, 4, 8, and 11; friends: items 6, 7, 9, and 12. The participant answers each item using 7 points. Likert scale 1 = very strongly disagree; 7 = very strongly agree. The student's score ranged between 12 and 84. The low social support scores ranged between 12 and 35, and the high social support scores ranged between 61 and 84. The MSPSS was translated into Arabic and ensured back translation by experts in English language and educational psychology. Also, it was assessed for content validity and translation validity with 100 students in the English Language Department at the College of Education. The scale was found to have high discriminant validity, with a correlation coefficient of 0.88. The validity of the items was also assessed, with correlation coefficients ranging from 0.75 to 0.85.

Internal consistency was also assessed, with correlation coefficients of 0.75 to 0.88. The scale's reliability was verified through split-half, retest, and Cronbach's alpha, with correlation coefficients ranging from 0.79 to 0.86.

2.3 Academic Well-Being Scale

The author developed this scale specially for this study to measure undergraduate students' academic well-being. It is a self-report scale that includes 32 statements in a positive direction, distributed over four dimensions as follows: (a) Academic competence, which refers to the individual's belief in his ability to perform academic tasks as desired and includes statements from 1 to 8. (b) Academic satisfaction, which refers to the individual's love, acceptance, and satisfaction with his academic specialization, study environment, and feelings of the importance of what he is studying and includes statements from 9 to 16. (c) Academic engagement, which refers to the individual's feeling of uniqueness and enjoyment while studying because of having the energy that enables them to face difficulties, dedication, and academic engagement, and includes statements from 17 to 24. (d) Positive social relationships, which refer to an individual's ability to establish warm and satisfactory relationships characterized by mutual trust with others such as instructors and peers, include statements from 25 to 32. The student answers each item on a 5-point Likert scale ranging from 1 strongly disagree to 5 strongly agree. The student's total score ranges between 32 and 160. A high score on the scale indicates a high level of students' academic well-being. Factor analysis of the academic well-being scale was verified using a principal component analysis, which resulted in the saturation of all dimensions with a single latent factor with a latent root of 3.86 and explaining 72.86% of the total variance. The saturations were dimensioned by one factor, ranging from 0.78 to 0.943. The author also calculated the scale's reliability using split-half, retest, and Cronbach's alpha, as well as its internal consistency, and the correlation coefficients were significant and higher than 0.78.

3. Results and Discussion

Means, standard deviations, correlation coefficients, T-tests, and multiple regression coefficients were used as follows:

3.1 Q1: Is There a Relationship Between Academic Well-Being, Digital Resilience, Digital Stress, and Social Support?

Pearson's correlation coefficient was used to explore this question, and the results are as in Table 1.

Table 1. Correlation coefficients between academic well-being, digital resilience, digital stress, and social support among university students.

Variable	Digital resilience	Digital stress	Social Support
Academic Well-Being	0.830**	-0.877**	0.756**

**The correlation coefficients are significant at 0.01.

As shown in Table 1,

1. A positive correlation was found between academic well-being and digital resilience; the correlation is 0.830, and it is significant at the level of 0.01. This result is consistent with Vissenberg et al. (2022), which revealed that online resilience facilitates the well-being of young adults.
2. A negative correlation was found between academic well-being and digital stress; the correlation is -0.877, which is significant at the level of 0.01. This result is in line with Khetawat and Steele (2023), which indicated that the five components of digital stress are negatively associated with psychological well-being. Also, a study by Araoz et al. (2023) shows that low levels of digital stress are associated with high levels of well-being.
3. There is a positive correlation between academic well-being and social support; the correlation is 0.756, which is significant at the level of 0.01. This result is in accordance with findings by Seligman et al. (2009), which indicated that students who have high levels of social support are more likely to develop academic well-being and achieve academic success. Also, the study by Lui et al. (2014) found that social support plays a protective role for psychological well-being. According to Rosa-Rodríguez et al. (2015), the correlation between social support and well-being can be attributed to the significance of social network development for students in managing the challenges of university life.

The positive relationship between academic well-being, digital resilience, and social support, and negative correlation with digital stress, demonstrate the importance of providing a supportive and enabling environment for students in the academic context. Enhancing digital skills and providing social support can contribute to improving students' experiences and increasing their levels of academic well-being and success.

3.2 Q2: What Are the Student's Levels of Digital Resilience, Digital Stress, Social Support, and Academic Well-Being?

T-test was utilized to compare the mean of the sample's scores on the academic well-being scales and the hypothesized mean. The relative mean for each measure was calculated, and three segments (low, medium, high) were determined according to the relative mean*. as shown in Table 2.

Table 2. One-sample t-test for the significance of differences between the hypothesized mean and the sample mean scores on scales of digital resilience, digital stress, social support, academic well-being

Variables	Mean	Hypothesized Mean	Std	t	Sign.	Relative mean	The level
Digital Resilience	41.57	48	6.43	24.4	0.01	2.56	Average
Digital Stress	57.54	72	14.07	35.59	0.01	2.37	Average
Social Support	41.69	36	6.24	22.33	0.01	3.41	Average
Academic Well-Being	85.56	96	7.10	35.98	0.01	2.65	Average

*Relative mean = arithmetic mean / number of scale items. The range of scores on the item ($5 - 1 = 4$) was divided into equal segments, so that the low level extends from 1 to 2.32, the medium level from 2.33 to 3.66, and the high level from 3.67 to 5.

As shown in Table 2,

There are statistically significant differences between the mean scores of the sample members on scales of digital resilience, digital stress, social support, and academic well-being and the hypothesized mean at the significance level of 0.01 in the direction of the hypothesized mean. This means that the students have an average level of these variables. The study by Qi and Yang (2024) indicated that the sample scores are a little higher than average in digital resilience. Also, the study by Riedl et al. (2023) indicated a moderate level of digital stress among the sample individuals. As well as the study by Ye et al. (2012), which revealed a low level of students' well-being. This can be explained by the fact that students face various challenges in their academic and life paths, which affect the level of digital resilience, digital stress, social support, and academic well-being. In addition, the university environment, including available supportive measures and study climate, may affect the level of digital resilience, digital stress, social support, and academic well-being among students.

3.3 Q3: Are There Any Gender Differences in Digital Resilience, Digital Stress, Social Support, and Academic Well-Being?

T-tests were utilized to explore the differences, and the results are as shown in Table 3.

Table 3. Differences in digital resilience, digital stress, social support, and academic well-being according to gender

Variable	Males n= 250		Females n= 350		Sig.	t
	Mean	Std	Mean	Std		
Digital Resilience	41.46	6.466	41.66	6.426	.984	.367
Digital Stress	51.73	14.21	52.41	13.98	.419	.276
Social Support	41.59	6.26	43.88	7.33	.045	3.88
Academic Well-Being	85.46	7.15	84.62	6.08	.847	.279

As shown in Table 3,

1. There are no differences according to gender in digital resilience. This result differs from the study of Qi and Yang (2024), which indicated that boys have higher scores in digital resilience than girls. Study by Cabero-Almanara et al. (2021), which did not find any differences in digital resilience according to gender. The lack of differences between males and females in digital resilience demonstrates the importance of an evolving digital culture and educational orientation towards fully utilizing technology in learning and personal development, regardless of gender.

2. There are no differences according to gender in digital stress. This result differs from the study of Gempel et al. (2018), which indicated that women have higher levels compared to men, and the studies of La Torre et al. (2020) and McLean et al. (2023), which showed that digital stress is significantly linked to females. This also differs from the study of Tarafdar et al. (2011), which indicates that men report higher levels of digital stress perceptions than women. The

lack of differences between males and females in digital stress suggests that the challenges individuals face in the digital environment may be shared and that individual and environmental factors may play a greater role in the experience of digital stress rather than gender.

3. Gender differences in social support were found in favor of females. This finding is in accordance with the studies by McLean et al. (2023) and Tifferet (2020), which noted that females get more social support in the comparison with males. Also, the study by Rautanen et al. (2022), which indicated that girls tend to perceive more social support than boys. Gender-related social expectations influence social support provision and reception. Men may be less likely to seek help or express vulnerability, while women feel more comfortable. Social networks, such as broader, cohesive women's networks.

4. Gender differences in academic well-being were found. This result is in accordance with the studies by Løhre et al. (2014) and Chui and Wong (2016), which revealed no gender differences in academic well-being, whereas it differs from the study of Verzeletti et al. (2016), which found differences in the direction of males. This also differs from the findings of Malkoç and Kesen Mutlu (2019), which detected differences in favor of females. The lack of differences between males and females in academic well-being indicates that equal opportunities and equal experiences in education and personal development are offered between the sexes, which can lead to an equal level of academic well-being.

3.4 Q4: Are There Any Differences in Digital Resilience, Digital Stress, Social Support, and Academic Well-Being According to the Study Level?

T-tests were utilized to explore the differences. The results are displayed in Table 4.

Table 4. Differences in digital resilience, digital stress, social support, and academic well-being between first- and fourth- year

Variable	First n= 250		Fourth n= 350		Sig.	t
	Mean	Std	Mean	Std		
Digital Resilience	39.85	7.21	41.66	6.42	.048	3.15
Digital Stress	51.73	14.21	52.41	15.98	.419	.267
Social Support	41.59	6.26	42.63	6.58	.394	.189
Academic Well-Being	84.12	9.14	86.84	7.96	.052	3.79

As shown in Table 4,

1. Differences between first- and fourth-year university students in digital resilience were found in favor of fourth-year students. This result is in accordance with the study by Qi and Yang (2024), which showed that older students in secondary school had higher scores than younger students in middle school. Also, the results of Cabero-Almanara et al. (2021) found differences related to age. The presence of differences in digital resilience in favor of fourth-year students indicates the development and maturation of their digital skills and confidence in technology and digital media over time and as they progress in their academic path.

2. No differences between first- and fourth-year university students in digital stress were found. This result differs from the study of Ragu-Nathan et al. (2008), which indicated that digital stress decreases with level of education. Also, the study by Göldağ (2022), indicated differences according to the study level, as graduate students have lower scores than undergraduates. The lack of differences between first- and fourth-year university students in digital stress could be due to several factors related to exposure to technology, educational orientations, common university challenges, university culture, and technological developments.

3. No differences between first- and fourth-year university students in social support were found. This finding varies with the result of Leite and Freitas (2022), which found that older students tend to decrease their social network, but their relationships and participation quality are maintained through selection and improvement processes. The lack of differences between first- and fourth-year university students in social support shows the importance of the university's social environment and social guidelines that encourage support and cooperation among students regardless of their years of study. All students may have a common experience at university, and this experience includes social and academic challenges that may cause them to seek social support equally. These challenges can include study pressure, interpersonal pressures, and academic and personal life balance.

4. There are differences in academic well-being between first- and fourth-year university students in favor of fourth-year students. This finding is in accordance with the study of Shek et al. (2017), which indicated that student university engagement as a component of academic well-being significantly increased in the third and fourth years of university study. The presence of differences in academic achievement in favor of fourth-year students indicates the personal and academic development they undergo during their university career and their specialization and focus in specific areas of knowledge.

3.5 Q5: Are There Differences in Digital Resilience, Digital Stress, Social Support, and Academic Well-Being According to Academic Specialization?

T-tests were utilized to explore the differences, and the results are displayed in Table 5.

Table 5. Differences in digital resilience, digital stress, social support, and academic well-being according to academic specialization

Variable	Scientific n= 300		Humanities n= 300		Sig.	t
	Mean	Std	Mean	Std		
Digital Resilience	41.56	6.44	42.69	7.35	.974	.044
Digital Stress	51.60	14.01	51.42	14.66	.915	.090
Social Support	41.73	6.28	43.62	7.55	.459	1.69
Academic Well-Being	84.53	7.10	86.65	8.11	.920	.080

As shown in Table 5,

1. There are no differences according to academic specialization in digital resilience. The lack of major-based differences in digital resilience suggests that digital skills are becoming essential across a variety of majors and that students and learners can develop these skills regardless of their field of study.
2. There are no differences according to academic specialization in digital stress. The lack of differences attributable to academic majors in digital stress indicates that the challenges and stressors associated with technology may be common across various majors and that students face similar challenges in adapting to this digital environment, whether they study in the fields of humanities, natural sciences, or any other major.
3. There are no differences according to academic specialization in social support. The lack of major-based differences in social support shows that social support can be both available and influential among students in different majors and that the importance of social relationships transcends major differences.
4. There are no differences according to academic specialization in academic well-being. The lack of major-based differences in academic well-being suggests that there are common factors that influence the experience of students across majors. These factors may include personal factors, social support, university resources, and academic challenges, and they combine to determine the level of academic well-being of students regardless of their academic majors. This question requires more studies to support or refute the current results.

3.6 Q6: Are There Any Achievement-Level Differences in Digital Resilience, Digital Stress, Social Support, and Academic Well-Being?

T-tests were utilized to explore the differences, and the results are displayed in Table 6.

Table 6. Differences in digital resilience, digital stress, social support, and academic well-being according to achievement level

Variable	Low n= 200		High n= 400		Sig.	t
	Mean	Std	Mean	Std		
Digital Resilience	41.17	7.33	43.59	6.53	.045	.685
Digital Stress	73.48	15.57	51.89	13.95	.035	.312
Social Support	41.99	6.35	44.67	7.80	.032	4.50
Academic Well-Being	84.16	9.86	89.18	9.14	.029	6.02

As shown in Table 6,

1. There are differences according to achievement level in digital resilience in favor of high academic achievers. This result can be interpreted as meaning that students who excel academically may have a greater ability to self-analyze and motivate themselves to achieve success in learning and technology. This self-awareness and self-motivation can push them to continuously develop their digital skills.

2. There are differences according to achievement level in digital stress in the direction of low academic achievers. This result can be interpreted as low educational attainment that can lead to reduced confidence in technology use, stress in academic tasks, and difficulty adapting to new technologies or online tutorials.

3. There are differences according to achievement level in social support in favor of high academic achievers. This finding is in accordance with the study by Seligman et al. (2009), which indicated that academic success and academic well-being are more likely to develop in students with strong social support networks. Academic excellence is often linked to higher levels of social and psychological excellence, which fosters motivational social networks. Family support and dedication to academic activities also contribute to this success. The educational orientation of the family and the students' involvement in academic activities further enhance their support.

4. There are differences according to achievement level in academic well-being in favor of high academic achievers. This finding is in line with the study by Seligman et al. (2009), which indicated that academic success and academic well-being are more likely to develop in students with strong social support networks. Academic excellence is attributed to students' confidence in their abilities, clear educational and professional plans, and a high level of dedication. This confidence leads to comfort and well-being during their academic journey. Academically excellent students also have specific plans for their future, contributing to their sense of satisfaction. Achieving success and outstanding achievements brings pride, comfort, and satisfaction to students.

3.7 Q7: Can Academic Well-Being Be Predicted by Digital Resilience, Digital Stress, and Social Support Among University Students?

Multiple regressions were utilized to detect the effect of the independent variables (digital resilience, digital stress, and social support) on the dependent variable (academic well-being), and the results are as displayed in Table 7.

Table 7. Analysis of variance for academic well-being through digital resilience, digital stress, and Social Support among university students

variable	Source of difference	Sum of Squares	df	Mean Square	F	t	Sig.
Digital Resilience	Regression	20839.87	1	20839.21	1325.21	36.40	0.001
	Residual	9403.96	598	15.726			
	Total	30243.40	599				
Digital Stress	Regression	23772	1	23772.48	2196.75	-46.87	0.001
	Residual	6471.35	598	10.822			
	Total	30243.84	599				
Social Support	Regression	21410.70	1	21410.70	1449	38.07	0.001
	Residual	8833.13	598	14.77			
	Total	30243.84	599				

As shown in Table 7,

There is a regression relationship between digital resilience, digital stress, and social support as independent variables and the dependent variable (academic well-being), and the "F" values are significant at 0.001.

Table 8. Predicting academic well-being through digital resilience, digital stress, and social support.

Variable	R	R Square	Adjusted R Square	B	Std. Error	Beta	Contribution %	Sig.
Constant	-	-	-	47.45	3.06	.830		0.001
Digital Resilience	.830	.689	.689	.916	1.059	.830	68.9%	0.001
Digital Stress	.887	.786	.786	-.448	.510	-.887	78.6%	0.001
Social Support	.841	.708	.707	.957	1.06	.841	70.7%	0.001

As shown in Table 8,

The regression coefficients are significant at the (0.001) level. It is also clear that the T value is significant at 0.001. As is apparent from Table 7, the “Beta” values for the regression coefficients of digital resilience, digital stress, and social support are statistically significant, and this indicates reliance on research variables in predicting academic well-being. Also, the results show that digital resilience, digital stress, and social support contribute 68.9%, 78.6%, and 70.7%, respectively, to predicting academic well-being. Thus, the predictive equation can be addressed as follows: The predictive equation for academic well-being is $47.45 + .916 * (\text{digital resilience}) + (-.448) * (\text{digital stress}) + .957 * (\text{social support})$. The result of digital resilience’s ability to predict academic well-being is in accordance with the studies by Eri et al. (2021), Ragni et al. (2022), and Sharma et al. (2020), which indicated that digital resilience protects students' well-being. The result of digital stress's probability in predicting academic well-being is in accordance with the study of Purisio (2019), which found that digital stress negatively affects wellbeing by increasing emotional tiredness and decreasing work engagement. Also, a study by Araoz et al. (2023) shows that low levels of digital stress are associated with high levels of well-being. The result of Social Support’s ability of predicting academic well-being is in accordance with the study by Diener et al. (2018), which noted that people's perceptions of themselves and the environment around them are influenced by their Social Support, in addition, higher levels of well-being and thriving are typically related to those in deep social support. Also, the study by Cobo-Rendón et al. (2020) shows that students' perceptions of social support are important indicators of their well-being and that a higher sense of social support is positively correlated with their well-being. Thus, building digital resilience, fostering good social relationships, and reducing digital stressors help students navigate the challenges of the digital world, thrive in online environments, and manage their time for academic dominance. Predicting academic well-being using the variables digital resilience, digital stress, and social support can be an estimate of how digital and social factors impact a student's academic and personal experience. Recognizing these factors and providing appropriate support to students can contribute to enhancing their academic performance and overall well-being.

Recommendations

- (1) The university should provide counselling programs to manage students’ digital stress.
- (2) The university should provide training programs to improve students’ digital resilience.
- (3) Providing programs to raise awareness of the importance of social support for students, whether from the university, family, lecturers, parents, family members, or friends.
- (4) Measuring students’ level of academic well-being periodically to help them once needed.
- (5) It is necessary to implement interventions targeted at increasing the level of digital resilience, providing social support, and reducing the level of digital stress to preserve high academic well-being for all students.

4. Conclusion

Digital technology greatly affects the lives of individuals and societies, so university students must have an approach to understanding and managing technology instead of using it negatively. Therefore, students having a good level of digital resilience reduce their digital stress, and through social support, students have a better level of academic well-being. The study examined the relationship between academic well-being, digital resilience, digital stress, and social support among students at Kafrelsheikh University, Egypt. Results showed a positive correlation between academic well-being and both digital resilience and social support, whereas there was a negative correlation with digital stress. Fourth-year students had higher digital resilience and less digital stress, while high academic achievers had higher scores in these areas. The study suggests that digital resilience, digital stress, and social support significantly predict academic well-being.

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References

- Achdiyah, H. N., Latipun, L., & Yuniardi, M. S. (2023). The influence of social support on academic performance: The mediating role of cognitive engagement. *Jurnal Ilmiah Psikologi Terapan*, 11(2), 85-90. <https://doi.org/10.22219/jipt.v11i2.22651>
- Al-Abdulghani, Y. (2021). *Exploring digital resilience in Qatar: A socio-technical perspective*. Pennsylvania: Carnegie Mellon University.
- Araoz, E. G. E., Quispe-Aquise, J., Huamani-Mallgui, A. Y., Salas-Tincusi, E., Mamani-Calcina, B., & Jara-Rodríguez, F. (2023). Exploring the relationship between technostress and psychological well-being in basic education teachers: a cross-sectional study. *Journal of Law and Sustainable Development*, 11(2). <https://doi.org/10.55908/sdgs.v11i2.442>
- Awang Kader, M. A. R., Abd Aziz, N. N., Mohd Zaki, S., Ishak, M., & Hazudin, S. F. (2022). The effect of technostress on online learning behaviour among undergraduates. *Malaysian Journal of Learning and Instruction (MJLI)*, 19(1), 183-211. <https://doi.org/10.32890/mjli2022.19.1.7>
- Benjamin, D., Brandt, L., & Rozelle, S. (2000). Aging, wellbeing, and social security in rural northern China. *Population and Development Review*, 26, 89-116.
- Boh, W., Constantinides, P., Padmanabhan, B., & Viswanathan, S. (2023). Building digital resilience against major shocks. *Mis Quarterly*, 47(1), 343-360.
- Cabero-Almenara, J., Gutiérrez-Castillo, J. J., Palácios-Rodríguez, A., & Barroso-Osuna, J. (2020). Development of the teacher digital competence validation of digcompedu check-in questionnaire in the university context of Andalusia (Spain). *Sustainability*, 15, 6094. <https://doi.org/10.3390/su12156094>
- Carayannis, E. G., Christodoulou, K., Christodoulou, P., Chatzichristofis, S. A., & Zinonos, Z. (2021). Known unknowns in an era of technological and viral disruptions—implications for theory, policy, and practice. *Journal of the knowledge economy*, 1-24. <https://doi.org/10.1007/s13132-020-00719-0>
- Carter, S., & Yeo, A. C. M. (2018). Internet-enabled collective intelligence as a precursor and predictor of consumer behaviour. *Economics, Management and Financial Markets*, 13(4), 11. <https://doi.org/10.22381/EMFM13420181>
- Casalino, N., Żuchowski, I., Labrinos, N., Munoz Nieto, Á. L., & Martín, J. A. (2019). Digital strategies and organizational performances of SMEs in the age of Coronavirus: balancing digital transformation with an effective business resilience. *Queen Mary School of Law Legal Studies Research Paper Forthcoming*. <https://doi.org/10.2139/ssrn.3563426>
- Chui, W. H., & Wong, M. Y. (2016). Gender differences in happiness and life satisfaction among adolescents in Hong Kong: Relationships and self-concept. *Social Indicators Research*, 125, 1035-1051. <https://doi.org/10.1007/s11205-015-0867-z>

- Cobo-Rendón, R., López-Angulo, Y., Pérez-Villalobos, M. V., & Díaz-Mujica, A. (2020). Perceived social support and its effects on changes in the affective and eudaimonic well-being of Chilean university students. *Frontiers in Psychology, 11*, 590513. <https://doi.org/10.3389/fpsyg.2020.590513>
- Dewa, L. H., Lavelle, M., Pickles, K., Kalorkoti, C., Jaques, J., Pappa, S., & Aylin, P. (2019). Young adults' perceptions of using wearables, social media and other technologies to detect worsening mental health: A qualitative study. *PLoS One, 14*(9), e0222655. <https://doi.org/10.1371/journal.pone.0222655>
- Diener, E., Biswas-Diener, R., Lyubchik, L., Halpern, D., Vitterso, J., Reis, H., et al. (2018). "Social well-being: research and policy recommendations" in *Global happiness policy report: 2018*. eds. J. F. Helliwell, R. Layard, and J. Sachs (New York: Global Happiness Council), 129-159.
- Eri, R., Gudimetla, P., Star, S., Rowlands, J., Girgla, A., To, L., ... & Bindal, U. (2021). Digital Resilience in Higher Education in Response to COVID-19 Pandemic: Student Perceptions from Asia and Australia. *Journal of University Teaching and Learning Practice, 18*(5), 7. <https://doi.org/10.53761/1.18.5.7>
- Garista, P., & Pocetta, G. (2014). Digital Resilience: meanings, epistemologies, and methodologies for lifelong learning. In *Conference paper*.
- Göldağ, B. (2022). An investigation of the relationship between university students' digital burnout levels and perceived stress levels. *Journal of Learning and Teaching in Digital Age, 7*(1), 90-98. <https://doi.org/10.53850/joltida.958039>
- Hajiyakhchali, A. (2013). The effects of creative problem-solving process training on academic well-being of shahid chamran university students. *Procedia-Social and Behavioral Sciences, 84*, 549-552. <https://doi.org/10.1016/j.sbspro.2013.06.602>
- Hall, J. (2017). The experience of mobile entrapment in daily life. *Journal of Media Psychology*. <https://doi.org/10.1027/1864-1105/a000228>
- Hall, J. A., Steele, R. G., Christofferson, J. L., & Mihailova, T. (2021). Development and initial evaluation of a multidimensional digital stress scale. *Psychological Assessment, 33*(3), 230. <https://doi.org/10.1037/pas0000979>
- Hefner, D., & Vorderer, P. (2016). Digital stress: Permanent connectedness and multitasking. In *The Routledge handbook of media use and well-being* (pp. 237-249). Routledge.
- Hoferichter, F., Hirvonen, R., & Kiuru, N. (2021). The development of school well-being in secondary school: High academic buoyancy and supportive class-and school climate as buffers. *Learning and Instruction, 71*, 101377. <https://doi.org/10.1016/j.learninstruc.2020.101377>
- Khetawat, D., & Steele, R. G. (2023). Examining the Association Between Digital Stress Components and Psychological Wellbeing: A Meta-Analysis. *Clinical Child and Family Psychology Review, 26*(4), 957-974. <https://doi.org/10.1007/s10567-023-00440-9>
- Korhonen, J., Linnanmäki, K., & Aunio, P. (2014). Learning difficulties, academic well-being, and educational dropout: A person-centered approach. *Learning and Individual Differences, 31*, 1-10. <https://doi.org/10.1016/j.lindif.2013.12.011>
- Kurniadi K, Meiliyandrie L, Rahmah R. (2022). Digital Resilience and Academic Skills in College Students. *Research Square*, 1- 38. <https://doi.org/10.21203/rs.3.rs-2262404/v1>
- La Torre, G., De Leonardis, V., & Chiappetta, M. (2020). Technostress: how does it affect the productivity and life of an individual? Results of an observational study. *Public Health, 189*, 60-65. <https://doi.org/10.1016/j.puhe.2020.09.013>
- Leite, S. V., & Freitas, L. (2022). Social support perceived by the older college students compared to the younger ones. *Avaliação Psicológica: Interamerican Journal of Psychological Assessment, 21*(1), 1-12.
- Li, J., Han, X., Wang, W., Sun, G., & Cheng, Z. (2018). How social support influences university students' academic achievement and emotional exhaustion: The mediating role of self-esteem. *Learning and Individual Differences, 61*, 120-126. <https://doi.org/10.1016/j.lindif.2017.11.016>
- Liu, H., Li, S., Xiao, Q., & Feldman, M. W. (2014). Social support and psychological well-being under social change in urban and rural China. *Social indicators research, 119*, 979-996. <https://doi.org/10.1007/s11205-013-0534-1>
- Løhre, A., Moksnes, U. K., & Lillefjell, M. (2014). Gender differences in predictors of school wellbeing? *Health Education Journal, 73*(1), 90-100. <https://doi.org/10.1177/0017896912470822>

- Malkoç, A., & Kesen Mutlu, A. (2019). Mediating the effect of cognitive flexibility in the relationship between psychological well-being and self-confidence: A study on Turkish university students. *International Journal of Higher Education*, 8(6), 278- 287. <https://doi.org/10.5430/ijhe.v8n6p278>
- McLean, L., Gaul, D., & Penco, R. (2023). Perceived social support and stress: A study of 1st year students in Ireland. *International Journal of Mental Health and Addiction*, 21(4), 2101-2121. <https://doi.org/10.1007/s11469-021-00710-z>
- Narvaez, D., Wang, L., Cheng, A., Gleason, T. R., Woodbury, R., Kurth, A., & Lefever, J. B. (2019). The importance of early life touch for psychosocial and moral development. *Psicologia: Reflexão e Crítica*, 32, 16. <https://doi.org/10.1186/s41155-019-0129-0>
- Nick, E. A., Kilic, Z., Nesi, J., Telzer, E. H., Lindquist, K. A., & Prinstein, M. J. (2022). Adolescent digital stress: Frequencies, correlates, and longitudinal association with depressive symptoms. *Journal of Adolescent Health*, 70(2), 336-339. <https://doi.org/10.1016/j.jadohealth.2021.08.025>
- Poots, A., and Cassidy, T. (2020). Academic expectation, self-compassion, psychological capital, social support, and student wellbeing. *Int. J. Educ. Res.* 99, 1-9. <https://doi.org/10.1016/j.ijer.2019.101506>
- Purisiol, S. (2019). *The Effects of Technostress on Well-Being and Performance. The Role of Social Support*. Tllburg University.
- Qi, C., & Yang, N. (2024). Digital resilience and technological stress in adolescents: A mixed-methods study of factors and interventions. *Education and Information Technologies*, 1-47. <https://doi.org/10.1007/s10639-024-12595-1>
- Rabbane, F., Quaddus, M., Gururajan, R., Abawi, L., & Dickinson, S. (2019). Conceptualizing digital resilience of Australian tertiary-level students. In *WA Teaching and Learning Forum 2019*.
- Ragni, B., Guarini, P., Toto, G. A., & Limone, P. (2022). Digital resilience and psychological wellbeing of Italian higher education students: An exploratory study. *Humanities*, 9, 9-6. <https://doi.org/10.46793/TIE22.431R>
- Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008). The consequences of technostress for End users in organizations: Conceptual development and empirical validation. *Information Systems Research*, 19(4), 417-433. <https://doi.org/10.1287/isre.1070.0165>
- Rautanen, P., Soini, T., Pietarinen, J., & Pyhältö, K. (2022). Dynamics between perceived social support and study engagement among primary school students: A three-year longitudinal survey. *Social Psychology of Education*, 25(6), 1481-1505. <https://doi.org/10.1007/s11218-022-09734-2>
- Reinecke, L., Aufenanger, S., Beutel, M. E., Dreier, M., Quiring, O., Stark, B., ... & Müller, K. W. (2017). Digital stress over the life span: The effects of communication load and internet multitasking on perceived stress and psychological health impairments in a German probability sample. *Media Psychology*, 20(1), 90-115. <https://doi.org/10.1080/15213269.2015.1121832>
- Riedl, R. (2013). On the biology of technostress: literature review and research agenda. *Data Base Adv. Inform. Syst.*, 44, 18-55. <https://doi.org/10.1145/2436239.2436242>
- Riedl, R., Fischer, T., & Reuter, M. (2023). Measuring digital stress in the workplace context: Short version of the Digital Stressors Scale (DSS). *Informatik Spektrum*, 46(5), 235-239. <https://doi.org/10.1007/s00287-023-01553-9>
- Rimpelä, A., Kinnunen, J. M., Lindfors, P., Soto, V. E., Salmela-Aro, K., Perelman, J., ... & Lorant, V. (2020). Academic well-being and structural characteristics of peer networks in school. *International journal of environmental research and public health*, 17(8), 2848. <https://doi.org/10.3390/ijerph17082848>
- Robinson, C., & Snipes, K. (2009). Hope, optimism and self-efficacy: A system of competence and control enhancing African American college students' academic well-being. *Multiple Linear Regression Viewpoints*, 35(2), 16-26.
- Rosa-Rodriguez, Y., Cartagena, N. N., Pena, Y. M., Berrios, A. Q., & Osorio, N. T. (2015). Dimensions of psychological well-being and perceived social support in relation to sex and level of study in university students. *Av. Psicol. Latinoam*, 33(1), 31-44.
- Sadeghi, A., & Mahdavi, F. (2020). Social-cognitive predictors of Iranian college students' academic well-being. *Journal of Career Development*, 47(5), 579-591. <https://doi.org/10.1177/0894845319826275>
- Santini, Z. I., Koyanagi, A., Tyrovolas, S., Mason, C., & Haro, J. M. (2015). The association between social relationships and depression: a systematic review. *J. Affect. Disord.*, 175, 53-65. <https://doi.org/10.1016/j.jad.2014.12.049>

- Seligman, M. E., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education*, 35(3), 293-311. <https://doi.org/10.1080/03054980902934563>
- Sharma, M. K., Anand, N., Ahuja, S., Thakur, P. C., Mondal, I., Singh, P., ... & Venkateshan, S. (2020). Digital burnout: COVID-19 lockdown mediates excessive technology use stress. *World Social Psychiatry*, 2(2), 171-172. https://doi.org/10.4103/WSP.WSP_21_20
- Sharma, M. K., Anand, N., Roopesh, B. N., & Sunil, S. (2022). Digital resilience mediates healthy use of technology. *Medico-Legal Journal*, 90(4), 195-199. <https://doi.org/10.1177/00258172211018337>
- Shek, D. T., & Chai, W. (2020). The impact of positive youth development attributes and life satisfaction on academic well-being: A longitudinal mediation study. *Frontiers in Psychology*, 11, 537995. <https://doi.org/10.3389/fpsyg.2020.02126>
- Shek, D. T., Yu, L., Wu, F. K., Zhu, X., & Chan, K. H. (2017). A 4-year longitudinal study of well-being of Chinese university students in Hong Kong. *Applied Research in Quality of Life*, 12, 867-884. <https://doi.org/10.1007/s11482-016-9493-4>
- Shensa, A., Sidani, J. E., Escobar-Viera, C. G., Switzer, G. E., Primack, B. A., & Choukas-Bradley, S. (2020). Emotional support from social media and face-to-face relationships: associations with depression risk among young adults. *J. Affect. Disord.*, 260, 38-44. <https://doi.org/10.1016/j.jad.2019.08.092>
- Siedlecki, K. L., Salthouse, T. A., Oishi, S., and Jeswani, S. (2014). The relationship between social support and subjective well-being across age. *Soc. Indic. Res.* 117, 561-576. <https://doi.org/10.1007/s11205-013-0361-4>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15, 194-200. <https://doi.org/10.1080/10705500802222972>
- Steele, R. G., Hall, J. A., & Christofferson, J. L. (2020). Conceptualizing digital stress in adolescents and young adults: Toward the development of an empirically based model. *Clinical Child and Family Psychology Review*, 23(1), 15-26. <https://doi.org/10.1007/s10567-019-00300-5>
- Tarafdar, M., Tu, Q., Ragu-Nathan, T. S., & Ragu-Nathan, B. S. (2011). Crossing to the dark side: examining creators, outcomes, and inhibitors of technostress. *Communications of the ACM*, 54(9), 113-120. <https://doi.org/10.1145/1995376.1995403>
- Taylor, S. E. (2011). "Social support: a review, Oxford library of psychology" in The Oxford handbook of health psychology. ed. H. S. Friedman (New York: Oxford University Press), 189-214. <https://doi.org/10.1093/oxfordhb/9780195342819.013.0009>
- Tifferet, S. (2020). Gender differences in social support on social network sites: A meta-analysis. *Cyberpsychology, Behavior, and Social Networking*, 23(4), 199-209. <https://doi.org/10.1089/cyber.2019.0516>
- Tuominen, H., Niemivirta, M., Lonka, K., & Salmela-Aro, K. (2020). Motivation across a transition: Changes in achievement goal orientations and academic well-being from elementary to secondary school. *Learning and Individual Differences*, 79, 101854. <https://doi.org/10.1016/j.lindif.2020.101854>
- Verzeletti, C., Zammuner, V. L., Galli, C., & Agnoli, S. (2016). Emotion regulation strategies and psychosocial well-being in adolescence. *Cogent Psychology*, 3(1), 1199294. <https://doi.org/10.1080/23311908.2016.1199294>
- Vissenberg, J., d'Haenens, L., & Livingstone, S. (2022). Digital literacy and online resilience as facilitators of Young People's Well-Being. *European Psychologist*. <https://doi.org/10.1027/1016-9040/a000478>
- Waterman, A. S. (2008). Reconsidering happiness: an eudaimonist's perspective. *J. Posit. Psychol.*, 3, 234-252. <https://doi.org/10.1080/17439760802303002>
- Weinstein, E. C., Selman, R. L., Thomas, S., Kim, J. E., White, A. E., & Dinakar, K. (2016). How to cope with digital stress: The recommendations adolescents offer their peers online. *Journal of Adolescent Research*, 31(4), 415-441. <https://doi.org/10.1177/0743558415587326>
- Weller, M., & Anderson, T. (2013). Digital resilience in higher education. *European Journal of Open, Distance and E-Learning*, 16(1), 53-66.
- Widlund, A. (2021). Development of academic well-being during secondary education: Relations to performance, motivational beliefs, and aspirations.

- Widlund, A., Tuominen, H., & Korhonen, J. (2018). Academic well-being, mathematics performance, and educational aspirations in lower secondary education: Changes within a school year. *Frontiers in Psychology, 9*, 315579. <https://doi.org/10.3389/fpsyg.2018.00297>
- Wu, X., Gai, X., & Wang, W. (2020). Subjective well-being and academic performance among middle schoolers: A two-wave longitudinal study. *Journal of Adolescence, 84*, 11-22. <https://doi.org/10.1016/j.adolescence.2020.07.011>
- Ye, Y., Mei, W., Liu, Y., & Li, X. (2012). Effect of academic comparisons on the subjective well-being of Chinese secondary school students. *Social Behavior and Personality: an International Journal, 40*(8), 1233-1238. <https://doi.org/10.2224/sbp.2012.40.8.1233>
- Yu, G. B., & Kim, J. H. (2008). Testing the mediating effect of the quality of college life in the student satisfaction and student loyalty relationship. *Applied Research in Quality of Life, 3*, 1-21. <https://doi.org/10.1007/s11482-008-9044-8>
- Zhang, W., & Liu, G. (2007). Childlessness, psychological well-being, and life satisfaction among the elderly in China. *Journal of cross-cultural gerontology, 22*, 185-203. <https://doi.org/10.1007/s10823-007-9037-3>
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of personality assessment, 52*(1), 30-41. https://doi.org/10.1207/s15327752jpa5201_2