JOURNAL OF MODERN SCIENCE

2/62/2025

www.jomswsge.com

DOI: 10.13166/jms/207004

Barbara Gawda
Maria Curie-Skłodowska University, Poland
ORCID iD: 0000-0002-6783-1779

Kalina Kosacka
Maria Curie-Skłodowska University, Poland
ORCID iD: 0000-0002-5783-3332

STATE ANXIETY AND POSITIVE AFFECT AMONG MODERN DIGITAL NATIVE GENERATIONS COMPARED TO EARLIER POLISH GENERATIONS

Abstract

We aimed to compare state anxiety and positive affect in people from the Polish digital native generations and older generations as some researchers suggest that experiencing fear and positive emotions in digital generations is higher and associated with excessive use of social media. We conducted a cross-sectional study. We hypothesized that the generation Z could experience a higher level of fear and a lower level of positive affect than other generations. We used the State and Trait Anxiety Inventory to measure the state of anxiety and the Positive and Negative Affect Schedule to assess positive affect. A sample of 926 participants was examined – including individuals from generations Z, Y, X, and Baby Boomers. The results showed the generation effect of state anxiety. People from Generation Z experienced higher anxiety than people from Generation Y. There were no significant generation effects of experiencing positive affect. Higher anxiety among Gens Z can be associated with an impact of unprecedented social factors.

Keywords: *digital natives, generation differentiation, Z generation, Y generation, anxiety, positive affect*

Introduction

The term *digital natives* (DN) refers to the generation born in the age of digital technologies and immersed in the culture of computers and the Internet (Prensky, 2001a, 2001b, 2005a, 2005b). DN are born between 1980 and 2000 and they are described as different than born earlier *digital immigrants* (DI) (Prensky, 2001a). For DN, the Internet is part of their everyday life and activity (Bilgiç, 2016). They spend more time performing virtual activities. In addition, their interpersonal communication is performed by means of the latest technologies (Palfrey & Gasser, 2008; Prensky, 2001a, 2001b, 2005a, 2005b; Tapscott, 1997). Because DN live in an environment of digital technologies, it is thought that they differ in mental processing and information processing from the earlier generations (Venter, 2017) because they acquire information, learn, and think in a different way. Thus, they are perceived as possessing several specific patterns such as high flexibility, rapid attention shifting, parallel processing ability, technological proficiency, fluent use of the

latest technologies, and higher social awareness (Bennett et al., 2008; Epstein and Howes, 2008; Prensky 2005a, 2005b; Winograd and Hais, 2011).

On the contrary, digital immigrants (DI) are not born in the digital age but had to adapt to it. They are not as well-versed in modern technologies (Autry and Berge, 2011). DI spend much less time using digital technologies; in fact, a large number of DI do not have a computer or Internet access (Anderson and Perrin, 2017; Tsai et al., 2015). They are diverse in terms of the familiarity with the Information and Communication Technologies (ICT) (Tsai et al., 2015). It has been found that the use of modern technologies by DI can positively affect their well-being (Cotton et al., 2013; Khosravi et al., 2016) and help keep relationships with distant social ties (Ball et al., 2017). Since DI primarily get information from traditional sources, they tend to prefer traditional face-to-face communication (Prensky, 2001a). Given this, it is thought that DI process information differently than DN (Prensky, 2001b).

Modern digital generations according researchers include DN 1.0 and DN 2.0. DN 1.0 grew up in the 1990s, prior to the emergence of Web 2.0. As a result, they utilize the Internet differently than DN 2.0 and generally engage less with social media. Overall, DN 1.0 is less engaged in the virtual life and use technology in a more passive way (Joiner et al., 2013). DN 2.0, on the other hand, do not know a world without the Internet or modern technologies. The virtual world is an integral part of their daily life. Having used the latest devices since childhood, DN 2.0 are technologically proficient (Berkup, 2014). DN 2.0 maintain a constant 24/7 connection to the Internet and can perform various activities, such as looking up information, communicating, maintaining relationships with people worldwide, and accessing entertainment (Berkup, 2014; Joiner et al., 2013). Despite the differences in the functioning of DN 1.0 and DN 2.0, some characteristics are common to both generations, e.g. attention and alternating capacities (Gawda and Korniluk, 2022).

The majority of research on DNs focus on their educational functioning and their working attitudes. Some studies investigated the effect of growing up in modern technologies on young people's mental health and social relationships. However, there is only small number of research related to their emotional functioning. In area of emotionality of DNs, it has been shown that the use of the Internet and modern technologies may lead to increased

level of stress, depression, and feelings of isolation (Amstadter et al., 2009; Casale and Fioravanti, 2011; Selfhout et al., 2009). Researchers also argue that frequent use of the Internet/digital media decreases the well-being of children and adolescents (Bruggeman et al., 2019).

Furthermore, DNs are perceived as ambitious individuals focused on personal growth, professional development, and their natural environment. These tendencies may contribute to their dissatisfaction (Titko in., 2020). On the other hand, DNs are thought to be inventive and creative, which may increase their self-esteem, independence, individuality, and protect them from negative emotions (Roblek et al., 2019; Seemiller and Grace, 2016). The relationships between the use of the social media and the quality of life are not unilateral; they depend on other factors such as social isolation and sense of loneliness (Arampatzi, 2016). For some DNs, the experience of living far from family may also affect their social connections, as they may form closer ties with those who live and work in their immediate area (Berezan, 2019; Nowland et al., 2018). Previous research has shown that DNs differ from other generations in terms of experiencing emotions, the structure of emotional concepts and emotional lexicon. These differences mainly concern love, joy and anxiety (Gawda et al., 2020).

Hypotheses

Taking all of the data into consideration, we aimed to compare state anxiety and state positive affect in people from the digital native generation in Poland. To date there is no comprehensive studies related to the Polish digital generations' emotional experience. Majority findings refer to the USA generations. Due to the globalization process currently in the world, we aimed to check whether the characteristics of emotional functioning described in the literature also apply to Polish digital generations. The study was a cross-sectional study. Different generations, i.e. BB, X, Y, and Z have been compared in terms of anxiety and positive affect. Based on the assumptions formulated by Prensky (2005a, 2005b) and the above-presented data, we can hypothesize that DN 1.0 and DN 2.0 differ in state anxiety and positive affect. Regarding anxiety, we formulated our hypotheses based on the findings reporting a high level of FOMO in young people. This specific fear can be included in state anxiety

because it is a situationally caused fear (Spielberger and Sydeman, 1994). In addition, FOMO may constitute state anxiety and decrease state positive affect. Furthermore, our previous research on generations of Baby Boomers, Generation X, and DNs revealed the differences in how these generations experience certain emotions (Gawda et al., 2020). Thus, we hypothesize that there are differences in state anxiety and positive affect between Generation Y and Generation Z, which differ from those observed in the comparison groups, i.e. Generation X and Baby Boomers (BB).

Method

The Study was a cross-sectional study. The aim was to show the specificity of the emotional functioning of DNs compared to the functioning of other generations. The study involved a comparison of the intensity of negative and positive emotions by participants from different generations.

Participants born after 1995 were classified as Generation Z. Participants born between 1995-1980 were classified as Generation Y. Participants born before 1980 were included in the comparative group, which involved participants from Generation X and Baby Boomers (BB).

Participants

A total of 1,527 participants took part in the study. Among them, 926 participants were assessed for state anxiety, including 286 from Generation Z, 412 from Generation Y, and 228 from Generations X and Baby Boomers (BB). The anxiety assessment group consisted of 513 females and 413 males. Additionally, 601 participants took part in the study on positive affect, comprising 151 from Generation Z, 325 from Generation Y, and 125 from Generations X and BB. In total 290 females and 311 males participated. All participants gave their informed consent to participate in the study. All respondents were of Polish origin.

Measures

Participants completed the Polish adaptation (Sosnowski et al., 2006) of the State and Trait Anxiety Inventory STAI (Spielberger et al., 1983). Participants also completed the Polish adaptation (Brzozowski, 2010) of the Positive and Negative Affect Schedule PANAS (Watson et al., 1988). These tools were found to have high reliability and validity. The results of state anxiety and positive affect were included in the analysis.

The State Trait Anxiety Inventory (STAI)

STAI is a tool designed to study anxiety understood as a temporary and situationally conditioned state of an individual (State Anxiety), and anxiety understood as a relatively permanent personality trait (Trait Anxiety). In the analysis the State Anxiety scores were considered. The Polish adaptation of the STAI (state-related portion) consists of 20 statements describing emotional conditions. The respondents were asked to rate the extent to which each statement can be applied to themselves on a 4-point scale: 1 – rarely, 2 – sometimes, 3 – often, 4 – usually. The reliability and validity of the STAI are very good (Sosnowski et al., 2006).

The Positive and Negative Affect Schedule (PANAS)

The Polish version of PANAS is used to measure the intensity of negative and positive affect. It is designed to measure the current emotional states and constant affective features. The PANAS has four different versions – two (long and short) to measure emotional states, and two (long and short, analogically) to measure constant affective traits. This study used the longer version (30 items) to measure emotional states.

Respondents are asked to assess on a scale from 1 to 5 the degree to which of the provided adjectives define their current state. The results are calculated separately for two subscales – PF (positive feelings) and NF (negative feelings). The results of the subscale relating to positive affects/feelings were used in the study. The reliability and validity of the PANAS are very good (Brzozowski, 2010).

Statistical analyses

Two-way analysis of variance (ANOVA) for inter-group analysis was used. The independent variables were sex (x2) and generation (x3). *Post hoc* comparisons were performed with the use of Scheffe test to show in detail the between-generation differences. The dependent variables were state anxiety and positive affect state while the independent variables were sex (male *vs* female), generation (Z *vs* Y *vs* X *vs* BB). The effect size (partial eta squared) was calculated. The following interpretation of the effect size measure was used: small – $\eta^2 = 0.0099$, medium – $\eta^2 = 0.0588$, and large – $\eta^2 = 0.1379$ (Cohen, 1988). Analyzes were conducted using IBM SPSS 26.

Results

Descriptive statistics are presented in Table 1.

Table 1. *Descriptive statistics for state anxiety and positive affect (Study 1)*

Generation	State anxiety			Positive affect		
	N	*M*	*SD*	*N*	*M*	*SD*
Z	286	39.62	10.51	151	42.85	11.42
Y	412	36.47	10.53	325	46.14	9.67
X & BB	228	37.80	10.23	125	44.56	9.24
Total	926	37.77	10.53	601	44.99	10.13

The results of two-way ANOVA showed that state anxiety was dependent on generation $F(2, 920) = 5.366$, $p < .01$, $\eta^2 = 0.012$, 95% CI (0.001, 0.028), and sex, $F(1, 920) = 6.296$, $p < .05$, $\eta^2 = 0.007$, 95% CI (0.000, 0.021). The effect size was small. The interaction effect of sex and generation was not significant (Table 2). Experiencing positive affect was not dependent on a generation. The interaction effect of sex and generation was also not significant. The main effect of sex was significant, $F(1, 595) = 18.499$, $p < .001$, $\eta^2 = 0.030$, 95% CI (0.009, 0.062). The effect size was small.

Table 2. *State anxiety and positive affect by generation and sex (two-way ANOVA)*

Variables	Sex		Generation		Sex * Generation	
	F	η^2	*F*	η^2	*F*	η^2
State anxiety	6.296*	0.007	5.366**	0.012	1.892	0.004
Positive affect	18.499***	0.030	1.416	0.005	0.966	0.003

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

Pairwise comparisons in terms of state anxiety showed that people from Generation Z experienced higher anxiety than people from Generation Y, $p < .01$. These differences applied especially to females, $p < .01$ (Table 3).

Table 3. *State anxiety by generation and sex – pairwise comparisons*

Sex	Generation		*M*		*M*s Difference	*p*
	Group 1	Group 2	Group 1	Group 2		
Female	Z	Y	40.19	36.55	3.64*	.002
	Z	X & BB	40.19	39.33	0.86	1.000
	Y	X & BB	36.55	39.33	-2.78	.062
Male	Z	Y	38.30	36.40	1.90	.449
	Z	X & BB	38.30	35.87	2.43	.337
	Y	X & BB	36.40	35.87	0.53	1.000
Total	Z	Y	39.25	36.47	2.77**	.003
	Z	X & BB	39.25	37.60	1.65	.267
	Y	X & BB	36.47	37.60	-1.13	.578

*$p < .05$; **$p < .01$

The results also showed that women experienced higher levels of anxiety than men, $p < .05$. This was especially evident in X and BB generations, $p < .05$ (Table 4).

Table 4. *State anxiety by sex and generation – pairwise comparisons*

Generation	Sex		*M*		*M*s Difference	*p*
	Group 1	Group 2	Group 1	Group 2		
Z	Female	Male	40.19	38.30	1.89	.160
Y	Female	Male	36.55	36.40	0.15	.884
X & BB	Female	Male	39.33	35.87	3.46*	.013
Total	Female	Male	38.69	36.86	1.83*	.012

*$p < .05$

Pairwise comparisons in terms of positive affect showed that there were no differences in experiencing positive affects between generations (Table 5).

Table 5. *Positive affect by generation and sex – pairwise comparisons*

Sex	Generation		*M*		*M*s Difference	*p*
	Group 1	Group 2	Group 1	Group 2		
Female	Z	Y	41.29	43.41	-2.12	.315
	Z	X i BB	41.29	43.50	-2.21	.495
	Y	X i BB	43.41	43.50	-0.09	1.000
Male	Z	Y	46.64	47.81	-1.17	1.000
	Z	X i BB	46.64	45.54	1.10	1.000
	Y	X i BB	47.81	45.54	-2.27	.322
Total	Z	Y	43.96	46.61	-1.64	.352
	Z	X i BB	43.96	44.52	-0.56	1.000
	Y	X i BB	46.61	44.52	1.09	.899

There were sex differences in experiencing positive emotions, $p < .001$. These differences occurred mainly for Generations Z ($p < .01$) and Y ($p < .001$). In these generations, males experienced a higher positive affect than females (Table 6).

Table 6. *Positive affect by sex and generation – pairwise comparisons*

Generation	Sex		*M*		*M*s Difference	*p*
	Group 1	Group 2	Group 1	Group 2		
Z	Female	Male	41.29	46.64	-5.35**	.003
Y	Female	Male	43.41	47.81	-4.40***	.000
X i BB	Female	Male	43.50	45.54	-2.04	.249
Total	Female	Male	42.73	46.66	-3.93***	.000

$^{**}p < .01$; $^{***}p < .001$

Conclusions

This study showed an age and a sex effects on the experience of anxiety and positive affect. Younger generations experience higher anxiety compared to older generations. The findings of other studies confirmed that, as age increases, the frequency of expressing positive emotions (in place of negative ones) increases (Chung and Pennebaker, 2007; Pennebaker and King, 1999; Pennebaker and Stone, 2003). Older generations describe themselves as experiencing less intense emotions, which may be due to avoidance of arousal (Lawton, 2001). According to the concept of social selectivity, maximizing positive emotions in old age is possible due to limited social relationships. Since this type of relationships are a source of intense emotional burden, older generations tend to withdraw from them, maintaining and nurturing only contact with loved ones. As a result, despite the reduction in the number of social relationships, their quality increases. This pattern is also associated with a change in life goals (Carstensen et al., 2003).

Studies show that the ability to regulate and control emotions increases with age (Carstensen and Charles, 1998; Gross et al., 1997). A higher level of emotional intelligence and a greater focus on positive emotions among older generations can be explained by the concept of post-formal thinking which includes the individual's life experience, knowledge accumulated over the course of life, and the ability to reflect. Post-formal thinking makes it possible to adopt other people's perspectives and build social relationships by combining

emotional and cognitive abilities (Labouvie-Vief and Diehl, 2000). Therefore, it is likely that the obtained results are caused by a higher level of emotional intelligence in older generations, determined by the ability of post-formal thinking. This can help to reduce the severity of the perceived anxiety.

It is worth mentioning that, in Poland, among the elderly generation the rates of depression are significantly increasing (Czapiński and Panek, 2015). This may explain why the results of the older generations in terms of positive emotions in the presented studies do not differ from the results of the younger generations. Moreover, rates of depression are higher in females than males (Hammen, 2004). Research has shown that females, especially from the oldest generations, experience a higher level of anxiety compared to other groups. At the same time, females (especially from digital generations) experience a lower level of positive emotions than males. This may be due to the fact that gender (female) is a significant predictor of mood disorders, which may be related to their different perceptions of stressful situations (Rosal et al., 1997). This is especially true among students who are in the period of emerging adulthood (Dahlin et al., 2005), which is consistent with the results obtained.

Another explanation of our findings refers to social impact. Gen Z have been at the center of unprecedented social events in global history and in Poland too. Social factors such as global crisis, economic impasse, or climate crisis can be important determinants of increased anxiety in Gens Z. Our findings are consistent with data on the USA Gen Z population (Twenge, 2017; Twenge et al., 2018).

The presented research has shown that Generation Z experiences higher anxiety than Generation Y. This especially applies to females. Digital communication or social factors such as global crisis, climate crisis or pandemic may impact higher level of anxiety in Generation Z. Paying attention to generation Z is important because people from this generation enter adulthood and soon, they will decide about the functioning of societies. It is worthwhile to include them in supporting activities. Another important conclusion is that generations does not differ in level of positive affect. It suggests that positive emotion such as joy is independent from a generation. It may also mean that they experience similar level of positive affect, however, it is occurred by different causes.

Limitations

The presented research has some limitations. First, study was a cross-sectional study. Another limitation was that only the extent to which emotions were experienced was considered. Although the intensity of emotions is important, the results showed that there are no intergenerational differences in positive emotions. It would be valuable to consider not only the intensity of emotions among different generations, but also the internal structure of emotional concepts and different types of positive emotions. Data from the literature show that, despite the similar intensity of emotions, there may be differences in the understanding of their meanings. This could be a topic for further research.

References

Amstadter, A. B., Broman-Fulks, J., Zinzow, H., Ruggiero, K. J., Cercone, J. (2009). *Internet-based interventions for traumatic stress-related mental health problems: a review and suggestion for future research*, 29 (5), 410-420. Clinical Psychology Review.

Anderson, M., Perrin, A. (2017). *Tech adoption climbs among older adults*, 2017, 1-22. Pew Research Center.

Arampatzi, E., Burger, M. J., Novik, N. (2018). *Social network sites, individual social capital and happiness*, 19 (1), 99-122. Journal of Happiness Studies.

Autry, A. J., Berge, Z. (2011). *Digital natives and digital immigrants: getting to know each other*, 43 (7), 460-466. Industrial and Commercial Training.

Ball, C., Francis, J., Huang, K. T., Kadylak, T., Cotten, S. R., Rikard, R. V. (2017). *The physical–digital divide: Exploring the social gap between digital natives and physical natives*, 38 (8), 1167-1184. Journal of Applied Gerontology.

Bennett, S., Maton, K., Kervin, L. (2008). *The 'digital natives' debate: A critical review of the evidence*, 39 (5), 775-786. British Journal of Educational Technology.

Berezan, O., Krishen, A. S., Agarwal, S., Kachroo, P. (2019). Exploring loneliness and social networking: Recipes for hedonic well-being on Facebook, 115, 258-265. *Journal of Business Research*.

Berkup, S. B. (2014). *Working with generations X and Y in generation Z period: Management of different generations in business life*, 5 (19), 218-218. Mediterranean Journal of Social Sciences.

Bilgiç, H. G., Doğan, D., Seferoğlu, S. S. (2016). Digital Natives in Online Learning Environments: New Bottle Old Wine–The Design of Online Learning Environments for Today's Generation. In: M. Pinheiro and D. Simões (ed.), *Handbook of Research on Engaging Digital Natives in Higher Education Settings*, 192-221. IGI Global.

Bruggeman, H., Van Hiel, A., Van Hal, G., Van Dongen, S. (2019). *Does the use of digital media affect psychological well-being? An empirical test among children aged 9 to 12*, 101, 104-113. Computers in Human Behavior.

Brzozowski, P. (2010). *Skala Uczuć Pozytywnych i Negatywnych SUPIN. Polska adaptacja skali PANAS Davida Watsona i Lee Anny Clark. Podręcznik*. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

Carstensen, L. L., Charles, S. T. (1998). *Emotion in the Second Half of Life*, 7 (5), 144–149. Current Directions in Psychological Science.

Carstensen, L. L., Fung, H. H., Charles, S. T. (2003). *Socioemotional Selectivity Theory and the Regulation of Emotion in the Second Half of Life*, 27 (2), 103–123. Motivation and Emotion.

Casale, S., Fioravanti, G. (2011). *Psychosocial correlates of internet use among Italian students*, 46 (4), 288-298. International Journal of Psychology.

Chung, C., Pennebaker, J. (2007). The psychological functions of function words. In: K. Fiedler (ed.), *Social communication*, 343-359. Psychology Press.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates.

Czapiński J., Panek T., (2015). Diagnoza społeczna 2015. Dostęp 06.06.2022 z http://www.diagnoza.com/pliki/raporty/Diagnoza_raport_2015.pdf

Dahlin, M., Joneborg, N., Runeson, B. (2005). *Stress and depression among medical students: a cross-sectional study*, 39 (6), 594–604. Medical Education.

Epstein, M., Howes, P. (2008). *Recruiting, retaining and managing the millennial generation*. American Institute of Certified Public Accountants.

Gawda, B., Korniluk, A. (2022). *Multitasking among modern digital generations Y and Z*, 49 (2), 421–430. Journal of Modern Science.

Gawda, B., Kosacka, K., Banaszkiewicz, P. (2020). *Psychologia emocji pokolenia digital natives*. UMCS.

Gross, J. J., Carstensen, L. L., Pasupathi, M., Tsai, J., Götestam Skorpen, C., Hsu, A. Y. C. (1997). Emotion and aging: Experience, expression, and control, 12(4), 590–599. Psychology and Aging.

Hammen, C. L. (2004). *Depresja*. Gdańsk: GWP.

Joiner, R., Gavin, J., Brosnan, M., Cromby, J., Gregory, H., Guiller, J., Maras, P., Moon, A. (2013). *Comparing first and second generation digital natives' Internet use, Internet anxiety, and Internet identification*, 16 (7), 549-552. Cyberpsychology, Behavior, and Social Networking.

Khosravi, P., Rezvani, A., Wiewiora, A. (2016). *The impact of technology on older adults' social isolation*, 63, 594-603. Computers in Human Behavior.

Labouvie-Vief, G., Diehl, M. (2000). *Cognitive complexity and cognitive-affective integration: related or separate domains of adult development?*, 15 (3), 490–504. Psychology and Aging.

Lawton, M. (2001). *Emotion in later life*, 10 (4), 120–123. Current Directions in Psychological Science.

Nowland, R., Necka, E. A., Cacioppo, J. T. (2018). Loneliness and social internet use: pathways to reconnection in a digital world?, 13 (1), 70-87. Perspectives on Psychological Science.

Palfrey, J., Gasser, U. (2008). *Born digital: Understanding the first generation of Digital Natives*. Basic Books.

Pennebaker, J. W., King, L. (1999). *Linguistic styles: language use as an individual difference*, 77 (6), 1296–1312. Journal of Personality and Social Psychology.

Pennebaker, J. W., Stone, L. (2003). *Words of wisdom: language use over the life span*, 85 (2), 291–301. Journal of Personality and Social Psychology.

Prensky, M. (2001a). *Digital natives, digital immigrants: Part 1*. On the Horizon, 9 (5), 1–6.

Prensky, M. (2001b). *Digital natives, digital immigrants: Part 2*. Do they really think differently? On the Horizon, 9 (6), 1–6.

Prensky, M. (2005a). *Engage me or enrage me*, September/October, 61-64. EDUCASE Review.

Prensky, M. (2005b). *Listen to the natives*, 63 (4), 8-13. Educational Leadership.

Roblek, V., Mesko, M., Dimovski, V., Peterlin, J. (2019). *Smart technologies as social innovation and complex social issues of the Z generation*, 48 (1), 91–107. Kybernetes.

Rosal, M. C., Ockene, I. S., Ockene, J. K., Barrett, S. V, Ma, Y., Hebert, J. R. (1997). *A longitudinal study of students' depression at one medical school*, 72 (6), 542–546. Academic Medicine.

Seemiller, C., Grace, M. (2016). *Generation Z Goes to College*. San Francisco, Jossey-Bass.

Selfhout, M. H., Branje, S. J., Delsing, M., ter Bogt, T. F., Meeus, W. H. (2009). *Different types of Internet use, depression, and social anxiety: The role of perceived friendship quality*, 32 (4), 819-833. Journal of Adolescence.

Sosnowski, T., Wrześniewski, K., Jaworowska, A. i Fecenec, D. (2006). *STAI-Inwentarz Stanu i Cechy Lęku STAI. Polska adaptacja*. Pracownia Testów Psychologicznych PTP.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Consulting Psychologists Press.

Spielberger, C., Sydeman, S. J. (1994). State-trait anxiety inventory and state-trait anger expression inventory. W: M. E. Maruish (ed.), *The use of psychological testing for treatment planning and outcome assessment*, 292-321. Erlbaum.

Tapscott, D. (1997). *Growing up digital*. McGraw-Hill.

Titko, J., Svirina, A., Skvarciany, V., Shina, I. (2020). *Values of young employees: Z-generation perception*, 21 (1), 10-17. Business: Theory and Practice.

Tsai, H. Y. S., Shillair, R., Cotten, S. R., Winstead, V., Yost, E. (2015). *Getting grandma online: are tablets the answer for increasing digital inclusion for older adults in the US?*, 41 (10), 695-709. Educational Gerontology.

Twenge, J. M. (2017). *IGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy and completely unprepared for adulthood and what that means for the rest of us*. Atria Books.

Twenge, J. M., Joiner, T. E., Rogers, M. L., Martin, G. N. (2018). *Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents after 2010 and links to increased new media screen time*, 6, 3–17. Clinical Psychological Science.

Venter, E. (2017). *Bridging the communication gap between Generation Y and the Baby Boomer generation*, 22 (4), 497-507. International Journal of Adolescence and Youth.

Watson, D., Clark, L. A., Tellegen, A. (1988). *Development and validation of brief measures of positive and negative affect: the PANAS scales*, 54 (6), 1063-1070. Journal of Personality and Social Psychology.

Winograd, M., Hais, M. D. (2011). *Millennial momentum: How a new generation is remaking America*. Piscataway, Rutgers University Press.