

Relationship between Instagram Users' Information-Sharing Behavior and Nature Relatedness

Saltanat Zhamaliyeva^{1,*}, Cezar Giosan¹, Cristian Opariuc-Dan^{1,2}

¹ Faculty of Psychology and Educational Sciences, University of Bucharest, Romania

² Ovidius University, Constanta, Romania

Received 15.08.2022; Received revised 28.04.2023; Accepted 31.05.2023

Available online 16.06.2023

People have varied levels of nature relatedness and engagement in climate change information sharing on social media. Understanding the factors contributing to differences in pro-environmental behaviors on social media is important. The present study focuses on Instagram and explores the underlying motives behind sharing environmental information related to climate change. It hypothesized an association between the nature relatedness of Instagram users who engage in pro-environmental activities and their propensity to share environmental information on the platform. After controlling for other relevant variables, the results showed that sharing on Instagram is associated with nature relatedness. Implications of the results are discussed.

Keywords: Instagram; information-sharing behavior; nature relatedness

Address of correspondence: Saltanat Zhamaliyeva, University of Bucharest, Faculty of Psychology and Educational Sciences, Soseaua Panduri no. 90-91, Sector 5, 050657, Bucharest, Romania. E-mail: zhamaliyevasalta@gmail.com

ORCID: Saltanat Zhamaliyeva - 0000-0002-9356-2998; Cezar Giosan - 0000-0002-1260-6830; Cristian Opariuc-Dan - 0000-0003-4079-0142

Authors contribution: Saltanat Zhamaliyeva: Conceptualization, Writing - Original Draft Preparation, Writing - Review & Editing; Cezar Giosan, Cristian Opariuc-Dan: Writing - Review & Editing.

Introduction

Nature relatedness has been found to positively impact various aspects of an individual's well-being, including their character traits, mood, and overall health (Cervinka et al., 2011; Howell et al., 2011; Mayer et al., 2004; Zelenski et al., 2014).

Nisbet et al. (2009) suggest that nature relatedness is a subjective construct that denotes an individual's connection with nature. This construct offers valuable insights into various aspects of human-nature relationships, such as pro-environmental behavior, sustainable attitudes, and cognitive, affective, and experiential aspects (Nisbet, 2005; Nisbet et al., 2009a; Nisbet et al., 2013). Nature relatedness has been found to be a significant predictor of various outcomes such as a positive affective bond with nature, environmental awareness, engagement in pro-environmental activities, happiness (Nisbet et al., 2009a, 2011; Tam, 2013), as well as well-being (Howell et al., 2011; Tam, 2013).

Numerous researchers and scientists have posited that social networking platforms have contributed substantially to the dissemination of information related to climate change (Flynn et al., 2022; Smith et al., 2021). Research in this area has demonstrated the influence of ecology on mental health, environmental behavior, and nature relatedness. This indicates that individuals who possess higher levels of environmental consciousness and a greater drive to address climate change are more inclined to participate in environmental information-sharing behavior on social media (Chen, 2020; Panu, 2020; Searle et al., 2010).

The current research concentrates on the sharing behavior of environmental information among Instagram users and their nature relatedness, for two primary reasons. Firstly, NR has been utilized in previous studies to examine individuals'

subjective connection with nature and its association with well-being and happiness (Adiwena et al., 2019a; Mayer et al., 2004; Nisbet, 2011), but not specifically regarding nature relatedness of social media users. Secondly, previous research has mostly been conducted on Canadian and Australian societal samples (Mayer et al., 2009; Nisbet et al., 2011), with an increase in the number of studies in Asia in recent years (Adiwena et al., 2019b; Burhanudin et al., 2017). This raises the question of whether the relationship between nature relatedness and social media users' information-sharing behavior is consistent across different regions of the world.

Scholars have examined the behavior of social media users with regards to sharing of information from various perspectives, among which is the Theory of Planned Behavior (TPB) (Ajzen, 1991).

According to the Theory of Planned Behavior (TPB), behavioral intention is considered the primary predictor of actual behavior, consisting of three antecedents: attitude towards the behavior, subjective norm, and perceived behavioral control. Attitude towards the behavior refers to an individual's personal opinion on the behavior, while subjective norm refers to a person's perception of societal ideas and opinions (e.g., family, friends) regarding the behavior. Perceived behavioral control is situation-dependent and refers to a person's perception of the ability to engage or perform in such behavior (Ajzen, 1991a). One of the features of this model is its flexibility, allowing researchers to supplement it with other predictors. For instance, Parker et al. (1995) investigated personal norm, which reflects an individual's perception (Parker et al., 1995).

The primary focus of this study was to examine the association between Nature Relatedness, the frequency of

Instagram usage, and the sharing of environmental information among Instagram users. Through a comprehensive investigation of these variables, the study aimed to provide insights into the mechanisms underlying environmental behavior on social media platforms.

Hypotheses

TPB is a critical framework for understanding social behavior (Ajzen, 1991). TBP is used to study prosocial behavior (Zhao et al., 2016) or share information (Chen, 2020). In the present study, we investigated the influence of the Theory of Planned Behavior (TPB) on the nature relatedness of Instagram users. Building upon the principles of TPB, we put forth the following hypothesis for empirical testing:

(1) *Environmental information sharing on Instagram significantly predicts Nature Relatedness while controlling for the level of Instagram use and Instagram intensity.*

Methods

The necessary sample size for detecting small effects was 776 (effects > 0.02, power 0.95). Several (N = 776) participants were enrolled in the study via announcements on social media sites. The inclusion criteria for this study stipulated that the participants possessed English fluency and an active Instagram account with a minimum usage frequency of once per week. All measures were administered online. The study was approved by a large university in Europe.

Participants

A total of 210 males and 557 females were included in the study ($M_{age} = 29.00$, $SD = 10.23$, see Table 1 for demographic information).

Table 1. Demographic information

Measure	Items	Total
Gender	Female	557
	Male	210
	Other	9
Education level	Some high school	2
	High school	61
	Some college	68
	BA/BS	323
Race	Advanced degree	322
	Latina/Hispanic	27
	African	27
	American	9
	European	463
	Asian	174
	Arab	3
Marital status	Indian	21
	Mixed/Other	52
	Married	91
	Never married	486
	Divorced	23
	Not married but attached	135
Other	Not divorced but separated	2
	Other	39

Measures

Environmental Information-Sharing (EIS) was evaluated with an adapted version by Chen (2020), who used this instrument in his research on Chinese WeChat Users' Environmental Information-Sharing Behavior (Chen, 2020). In this survey, we changed WeChat with Instagram. With 15 items, we measured *environmental information-sharing*

behavior (attitudes toward the behavior ($\alpha=0.88$, $CI_{95\%}=0.86$ to 0.89), subjective norm ($\alpha=0.87$, $CI_{95\%}=0.86$ to 0.88), personal norm ($\alpha=0.90$, $CI_{95\%}=0.89$ to 0.91), behavioral intention ($\alpha=0.87$, $CI_{95\%}=0.85$ to 0.88), actual behavior ($\alpha=0.91$, $CI_{95\%}=0.90$ to 0.92)) with a five-point Likert scale.

Nature Relatedness was assessed with the 21-item Nature Relatedness Scale (NR) (Nisbet et al., 2009b) coded on a Likert scale (1-5). Examples of items include (a) I enjoy being outdoors, even in unpleasant weather, and (b) some species are just meant to die out or become extinct. A number of 3 subscales are related to this measure, *identification with nature* ($\alpha=0.80$, $CI_{95\%}=0.78$ to 0.82), *environmental subjectivity* ($\alpha=0.67$, $CI_{95\%}=0.63$ to 0.70), and *physical connection* ($\alpha=0.48$, $CI_{95\%}=0.42$ to 0.53), the last with a very low internal consistency.

Instagram use time was assessed with the Social Networking Time (SONTUS) (Olufadi, 2016), adapted for Instagram usage with 29 items. Respondents were asked to determine how often they use Instagram in different situations and places on a scale of 1 ("Not applicable to me during the past week") to 11 ("I used it more than 3 times during the past week but spent more than 30 min each time"). A number of 5 scales was used in this measure as follows: *relaxation and free periods* ($\alpha=0.88$, $CI_{95\%}=0.87$ to 0.89), *academic-related periods* ($\alpha=0.83$, $CI_{95\%}=0.81$ to 0.85), *public-places-related use* ($\alpha=0.87$, $CI_{95\%}=0.86$ to 0.89), *stress-related periods* ($\alpha=0.87$, $CI_{95\%}=0.86$ to 0.88) and *motives for use* ($\alpha=0.82$, $CI_{95\%}=0.81$ to 0.84).

Instagram Intensity Use (IIS) was assessed using the Trifiro & Prena (2021) version of the Instagram Intensity Scale (Ellison et al., 2007). The scale measures the emotional connection with Instagram and the role of Instagram in everyday activity with 6 items. Examples of items are: "Instagram is part of my everyday activity," "I am proud to tell people I'm on Instagram" (Trifiro, 2018). The scale has proved a good internal consistency, Cronbach's α for *Instagram Intensity Scale* was $\alpha=0.87$, $CI_{95\%}=0.86$ to 0.88).

Personal and Demographic Information. Participants were asked to complete questions about demographic information, which inquired about age, education level, race/ethnicity, and marital status.

Results

H1 - Environmental information sharing on Instagram is a significant predictor of Nature Relatedness, while controlling for the level of Instagram use time and Instagram intensity.

To examine the proposed hypothesis, we employed a hierarchical linear regression model. Specifically, we used the Nature Relatedness total score as the criterion variable, which was predicted by the total score of Instagram Intensity and Social Media use, along with the components of environmental information-sharing behaviour, including actual behavior, attitudes toward the behavior, behavioral intention, personal norm, and subjective norm.

The data were tested in five steps:

Step 1 Nature Relatedness and demographics.

Step 2 Nature Relatedness and Well-being.

Step 3 Nature Relatedness and Instagram Intensity use.

Step 4 Nature Relatedness and Instagram use time.

Step 5 Nature Relatedness and Attitudes Toward the Behavior, Personal Norm, Subjective Norm.

Step 6 Nature Relatedness and Behavioral Intention.

Step 7 Nature Relatedness and Actual Environmental Information-Sharing Behavior (Table 2).

Table 2. Hierarchical Regression of Nature Relatedness on Environmental Information-Sharing Behavior

		R square change	F	Beta	t	P-value
Step 1	Demographics	.036	4.820		20.91	.000
	Age			.058	1.457	.145
	Gender			-1.89	-2.254	.024
	Marital status			-0.22	-0.428	.668
	Education			1.51	3.482	.000
	Birthplace (urban/rural)			1.62	1.803	.072
	Race			0.55	1.819	.069
Step 2	Well-being	.001	1.324	.083	1.15	.250
Step 3	Instagram Intensity use	.001	0.110	-.023	-0.341	.733
Step 4	Instagram use time	.06	8.510	.173	3.124	.048
	Relaxation and free periods			.135	1.417	.157
	Academic-related periods			.127	1.116	.265
	Public-places-related use			-.097	-1.171	.242
	Stress-related periods			.310	3.124	.002
	Motives for use			.286	2.604	.009
Step 5	Attitudes toward the behavior	.101	.000	1.11	8.27	.000
	Personal norm			.168	2.85	.004
	Subjective norm			.175	-3.19	.001
Step 6	Behavioral intention	.061	.000	.130	7.11	.000
Step 7	Actual Environmental Information-Sharing Behavior	.035	.000	.114	5.31	.000

Nature Relatedness and age have a significant relationship, especially with Identification with nature scale.

No significant relationship was found between Nature Relatedness and Instagram Intensity use, and respectively well-being (Table 2).

The regression analysis of Nature Relatedness and Instagram Use time indicates a correlation between Physical Connection and Instagram Use in Public places. Moreover, Instagram users' Nature Relatedness is significantly related to Stress-related periods and Motives for use.

Environmental subjectivity demonstrated significant

correlations with Instagram usage, with the exception of usage related to public places.

The regression analysis on the relationship between Nature Relatedness and Environmental Information-Sharing Behavior indicates that the most significant predictor is "Attitude towards the behavior", followed by "Behavioral intention", and then "Subjective norm" (Table 2). Conversely, the correlation analysis shows that Actual behavior significantly correlates with Attitudes toward the behavior, Behavioral intention, Personal norm, and Subjective norm (Table 3).

Table 3. Correlation analysis of Environmental Information-Sharing behavior indicators

	EISB. Attitudes toward the behavior	EISB. Personal norm	EISB. Subjective norm	EISB. Behavioral intention	EISB. Actual behavior
EISB. Attitudes toward the behavior	1				
EISB. Personal norm	0.217116	1			
EISB. Subjective norm	0.14461	0.677915	1		
EISB. Behavioral intention	0.440535	0.630041	0.543665	1	
EISB. Actual behavior	0.283372	0.608528	0.522751	0.712302	1

Overall, the study highlights the importance of nature relatedness and attitude toward environmental behavior in predicting pro-environmental actions on social media platforms like Instagram.

Discussion

In summary, this study examined the relationships between nature relatedness, Instagram use, and environmental behavior. The results show that nature relatedness is significantly related to age, particularly in the identification with nature scale. Additionally, there is no significant relationship between nature relatedness, Instagram use intensity, and well-being. However, there is a correlation between physical connection and Instagram use in public places, and nature relatedness is significantly related to Instagram use during stress-related periods and motives for use. Environmental subjectivity is significantly correlated with Instagram use, except for usage related to public places. Lastly, the regression analysis

indicates that attitude towards the behavior is the most significant predictor of environmental information-sharing behavior, followed by behavioral intention and subjective norm. Actual behavior significantly correlates with attitudes towards the behavior, behavioral intention, personal, and subjective norms.

The regression analysis results revealed a significant association between the predictors of environmental information-sharing behavior, Instagram usage, and nature relatedness.

Previous research has utilized TBP to explore various aspects of environmental behavioral intentions such as workplace behavior (Greaves et al., 2013), online purchase intentions of customers (Gu, 2019), environmental behavior in the context of the tourism (Fenitra et al., 2021), and environmental information sharing behavior of WeChat users (Chen, 2020). The present study, however, focuses on the relationship between nature relatedness and Instagram use periods and behavior.

Strengths

An advantageous aspect of the present study lies in its unique examination of the relationship between variables that have received limited attention in tandem. The study's findings offer valuable insights into the nature relatedness construct, its connection to social media utilization, and the consequent behavioral outcomes. The study extends our understanding of the complex interplay between environmental attitudes, behavior, and social media usage.

Theoretical and practical implications

The present study has several theoretical implications. The study underscores the significance of involving social media users in the research process to ensure that the construct of nature relatedness remains relevant and applicable to actual behavior. Additionally, the Theory of Planned Behavior (TPB) model demonstrated substantial explanatory power in predicting behavioral intentions, emphasizing the utility of this model in predicting and understanding environmental behavior. These theoretical implications contribute to the existing literature and pave the way for future research in the field.

There are also practical implications. The results suggest that attitude toward environmental behavior is a critical predictor of nature relatedness. Moreover, the study highlights that subjective norms are linked to the time spent on Instagram and sharing of environmental information. These findings have significant implications for promoting nature conservation messages and enhancing the content of social networks with a focus on environmental themes. Practitioners can utilize these findings to design targeted campaigns and tailor messaging to encourage sustainable behavior and foster a deeper connection with nature among social media users.

References

- Adiwena, B. Y., & Djuwita, R. (2019a). Nature Relatedness as a Predictor of Psychological Well-Being: A Study of Indonesian Urban Society. *ANIMA Indonesian Psychological Journal*, 34(4), 175–187. <https://doi.org/10.24123/aipj.v34i4.2578>
- Adiwena, B. Y., & Djuwita, R. (2019b). Nature Relatedness as a Predictor of Psychological Well-Being: A Study of Indonesian Urban Society. *ANIMA Indonesian Psychological Journal*, 34(4), Art. 4. <https://doi.org/10.24123/aipj.v34i4.2578>
- Ajzen, I. (1991a). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (1991b). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Burhanudin, B., & Unnithan, A. (2017, December 7). *Toward Developing Sustainable Tourism: Correlation between Nature Relatedness, Eco-friendly Behavior, Willingness to Sacrifice for the Environment, and Happiness among Indonesian Tourists*.
- Cervinka, R., Röderer, K., & Hefler, E. (2011). Are nature lovers happy? On various indicators of well-being and connectedness to nature. *Journal of Health Psychology*, 17, 379–388. <https://doi.org/10.1177/1359105311416873>
- Chen, L., Gong, T., Kosinski, M., Stillwell, D., & Davidson, R. L. (2017). Building a profile of subjective well-being for social media users. *PLOS ONE*, 12(11), e0187278. <https://doi.org/10.1371/journal.pone.0187278>
- Chen, Y. (2020). An investigation of the influencing factors of chinese wechat users' environmental information-sharing behavior based on an integrated model of UGT, NAM, and TPB. *Sustainability (Switzerland)*, 12(7). Scopus. <https://doi.org/10.3390/su12072710>
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The Benefits of Facebook "Friends": Social Capital and College Students' Use of Online Social Network Sites. *Journal of Computer-Mediated Communication*, 12(4), 1143–1168. <https://doi.org/10.1111/j.1083-6101.2007.00367.x>

Limitations and Implications for future research

The present research exhibits commendable strengths in examining the relationship between environmental behavior intention and nature relatedness in Instagram users. Nonetheless, some limitations should be considered. Firstly, due to the study's correlational nature, caution should be exercised when attempting to infer causality. Secondly, the study's exclusive focus on Instagram may limit the generalizability of the findings to other social media platforms, thus warranting further exploration in future research. Thirdly, limiting the study's participants to adults may result in potential age-related biases and preclude a comprehensive understanding of younger populations' environmental attitudes and behaviors. Therefore, future research should consider including a diverse range of age groups to achieve a more nuanced perspective.

Conclusion

In conclusion, the ubiquitous nature of Instagram has made it a popular platform for the dissemination of environmental information. The current study has utilized a sample of 776 Instagram users to explore the relationship between their intention to engage in environmental behavior and their level of nature relatedness. It utilizes the Theory of Planned Behavior (TPB) as a theoretical framework. By adopting this approach, the study has provided valuable insights into the factors that influence users' attitudes and behaviors toward environmental issues on Instagram. These findings may have implications for developing effective communication strategies to promote sustainable behaviors and enhance users' connection with nature.

- Fenitra, R., Tanti, H., Gancar, C., Usman, I., & Hartini, S. (2021). Extended theory of planned behavior to explain environmentally responsible behavior in context of nature-based tourism. *GeoJournal of Tourism and Geosites*, 39, 1507–1516. <https://doi.org/10.30892/gtg.394spl22-795>
- Flynn, M. A., Veilleux, E., & Stana, A. (2022). A post from the woods: Social media, well-being and our connection to the natural world. *Computers in Human Behavior Reports*, 5, 100171. <https://doi.org/10.1016/j.chbr.2022.100171>
- Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*, 34, 109–120. <https://doi.org/10.1016/j.jenvp.2013.02.003>
- Gu, S. (2019). *Using the Theory of Planned Behaviour to Explain Customers' Online Purchase Intention*. 5, 226–249. [https://doi.org/10.6911/WSRJ.201909_5\(9\).0026](https://doi.org/10.6911/WSRJ.201909_5(9).0026)
- Howell, A. J., Dopko, R. L., Passmore, H.-A., & Buro, K. (2011). Nature connectedness: Associations with well-being and mindfulness. *Personality and Individual Differences*, 51(2), 166–171. <https://doi.org/10.1016/j.paid.2011.03.037>
- Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. *The Uses of Mass Communications: Current Perspectives on Gratifications Research*.
- Leaver, T., Highfield, T., & Abidin, C. (2020). *Instagram: Visual Social Media Cultures*. John Wiley & Sons.
- Mak, T. M. W., Yu, I. K. M., Wang, L., Hsu, S.-C., Tsang, D. C. W., Li, C. N., Yeung, T. L. Y., Zhang, R., & Poon, C. S. (2019). Extended theory of planned behaviour for promoting construction waste recycling in Hong Kong. *Waste Management*, 83, 161–170. <https://doi.org/10.1016/j.wasman.2018.11.016>
- Mayer, F., & Frantz, C. (2004). The Connectedness to Nature Scale: A Measure of Individuals' Feeling in Community with Nature. *Journal of Environmental Psychology*, 24, 503–515. <https://doi.org/10.1016/j.jenvp.2004.10.001>
- Mayer, F. S., Frantz, C. M., Bruehlman-Sencel, E., & Dolliver, K. (2009). Why Is Nature Beneficial?: The Role of Connectedness

- to Nature. *Environment and Behavior*, 41(5), 607–643. <https://doi.org/10.1177/0013916508319745>
- Nisbet, E. (2005). *The human-nature connection: Increasing nature relatedness, environmental concern, and well-being through education* [Master of Arts, Carleton University]. <https://doi.org/10.22215/etd/2005-07882>
- Nisbet, E. (2011). *A Nature Relatedness Intervention to Promote Happiness and Environmental Concern* [Doctor of Philosophy, Carleton University]. <https://doi.org/10.22215/etd/2011-09488>
- Nisbet, E. K., & Zelenski, J. M. (2013). The NR-6: A new brief measure of nature relatedness. *Frontiers in Psychology*, 4, 813. <https://doi.org/10.3389/fpsyg.2013.00813>
- Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2009a). The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*, 41(5), 715–740.
- Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2009b). The Nature Relatedness Scale: Linking Individuals' Connection With Nature to Environmental Concern and Behavior. *Environment and Behavior*, 41(5), 715–740. <https://doi.org/10.1177/0013916508318748>
- Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2011). Happiness is in our Nature: Exploring Nature Relatedness as a Contributor to Subjective Well-Being. *Journal of Happiness Studies*, 12(2), 303–322. <https://doi.org/10.1007/s10902-010-9197-7>
- Olufadi, Y. (2016). Social networking time use scale (SONTUS): A new instrument for measuring the time spent on the social networking sites. *Telematics and Informatics*, 33(2), 452–471. <https://doi.org/10.1016/j.tele.2015.11.002>
- Panov, V. I. (2013). Ecological Thinking, Consciousness, Responsibility. *Procedia - Social and Behavioral Sciences*, 86, 379–383. <https://doi.org/10.1016/j.sbspro.2013.08.583>
- Panu, P. (2020). Anxiety and the Ecological Crisis: An Analysis of Eco-Anxiety and Climate Anxiety. *Sustainability*, 12(19), Art. 19. <https://doi.org/10.3390/su12197836>
- Parker, D., Manstead, A. S. R., & Stradling, S. G. (1995). Extending the theory of planned behaviour: The role of personal norm. *British Journal of Social Psychology*, 34(2), 127–138. <https://doi.org/10.1111/j.2044-8309.1995.tb01053.x>
- Quan-Haase, A., & Young, A. (2010). *Uses and Gratifications of Social Media: A Comparison of Facebook and Instant Messaging*. <https://doi.org/10.1177/0270467610380009>
- Searle, K., & Gow, K. (2010). Do concerns about climate change lead to distress? *International Journal of Climate Change Strategies and Management*, 2(4), 362–379. <https://doi.org/10.1108/17568691011089891>
- Smith, C., Allen, A., & Kannis-Dymand, L. (2021). Social Media May Contribute to Eco-Distress: The Role of Nature Relatedness as Both Causal Mechanism and Protective Factor. *Ecopsychology*. <https://doi.org/10.1089/eco.2021.0020>
- Stanley, S. K., Hogg, T. L., Leviston, Z., & Walker, I. (2021). From anger to action: Differential impacts of eco-anxiety, eco-depression, and eco-anger on climate action and wellbeing. *The Journal of Climate Change and Health*, 1, 100003. <https://doi.org/10.1016/j.joclim.2021.100003>
- Tam, K.-P. (2013). Concepts and measures related to connection to nature: Similarities and differences. *Journal of Environmental Psychology*, 34, 64–78. <https://doi.org/10.1016/j.jenvp.2013.01.004>
- Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 Well-Being Index: A Systematic Review of the Literature. *Psychotherapy and Psychosomatics*, 84(3), 167–176. <https://doi.org/10.1159/000376585>
- Trager, V., & Drozd, K. (2019). Encouraging pro-environmental behaviour amongst Millennials in Online Communities—The role of information and goal-frames on Instagram. *Undefined*. <https://www.semanticscholar.org/paper/Encouraging-pro-environmental-behaviour-amongst-in-Trager-Drozd/c98fb4f86aa3b293250242e46c7977da4ad4bfd>
- Trifiro, B. & Prena, K. (2021). Instagram Use and It's Effect on Well-Being and Self-Esteem. *Technology, Mind, and Behavior*, 1-5, <https://doi.org/10.1037/tmb0000043>
- Wang, W., Zhuang, X., & Shao, P. (2020). Exploring Health Information Sharing Behavior of Chinese Elderly Adults on WeChat. *Healthcare*, 8, 207. <https://doi.org/10.3390/healthcare8030207>
- White, P. R. (2011). A Phenomenological Self-Inquiry into Ecological Consciousness. *Ecopsychology*, 3(1), 41–50. <https://doi.org/10.1089/eco.2010.0054>
- Zelenski, J. M., & Nisbet, E. K. (2014). Happiness and Feeling Connected: The Distinct Role of Nature Relatedness. *Environment and Behavior*, 46(1), 3–23. <https://doi.org/10.1177/0013916512451901>
- Zhao, L., Yin, J., & Song, Y. (2016). An exploration of rumor combating behavior on social media in the context of social crises. *Computers in Human Behavior*, 58, 25–36. <https://doi.org/10.1016/j.chb.2015.11.054>