

# Exploring the role of personality traits in environmental stewardship: insights from the FIKR (facet, insight, knowledge, and resilience) personality assessment tool

## Abstract

This study investigates the relationship between key personality traits—Self-criticism, Dependence, Nurturance, and Emotional—and their influence on sustainability behaviours, using the FIKR (facet, insight, knowledge, and resilience). A sample of 409 individuals was analyzed to examine correlations between these traits and 19 other personality dimensions, alongside 4 demographic factors. The results reveal significant interactions, particularly how self-criticism negatively correlates with emotional expressiveness, and how nurturance and dependency are positively associated with communal and support-driven sustainability behaviours. The findings underscore the potential for tailoring environmental interventions to specific personality profiles, thereby enhancing individual engagement in sustainability efforts and contributing to the health of biological planetary systems. These insights can inform strategies for promoting long-term environmental stewardship by aligning personal traits with collective sustainability goals, thereby making a significant contribution to the field of environmental psychology.

**Keywords:** FIKR personality assessment, sustainability, self-criticism, nurturance, biological planetary health.

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## Introduction

The growing urgency of environmental crises has sparked an increasing interest in understanding the psychological factors that drive sustainable behaviour. As we confront complex challenges such as climate change, biodiversity loss, and environmental degradation, it is critical to understand the role of individual differences in promoting or hindering sustainable actions. Personality traits, which shape behaviours, attitudes, and decisions, play a pivotal role in determining how people engage with environmental issues (Levontin & Bardi, 2019).<sup>1</sup>

The FIKR (facet, insight, knowledge, and resilience) Personality Assessment Tool has been used by Humanology Sdn Bhd. The FIKR Personality Assessment Tool provides a novel framework for exploring these traits, allowing researchers to investigate the relationship between personality and environmental stewardship. By examining specific traits—Self-criticism, Dependence, Nurturance, and Emotional—, this study aims to reveal their impact on sustainability behaviours and biological planetary health.

Self-criticism is characterized by introspective evaluation and self-doubt. While individuals with this trait are often highly conscientious, their critical nature may lead to hesitation or inaction when faced with complex global challenges like climate change.<sup>2</sup> In contrast, nurturing individuals who demonstrate high levels of empathy and care for others may be more inclined to engage in pro-environmental behaviours motivated by the well-being of their community and the planet.<sup>3</sup> Dependent individuals who seek emotional and social support from others thrive in collaborative environmental initiatives. Their reliance on social connections suggests that they are well-suited for

community-based sustainability efforts, though they may hesitate to take initiative or leadership roles, preferring to follow others.<sup>4</sup>

Understanding how these traits influence engagement with environmental issues can provide valuable insights for designing targeted interventions to foster sustainable behaviour. While many studies have explored the associations between personality traits and environmental concern, few have examined the role of the Big Five personality traits in environmental engagement. Traits such as Agreeableness, Conscientiousness, and Openness to Experience have been most strongly linked to environmental engagement across both individuals and nations.<sup>5</sup> Additionally, biospheric concern has been associated with factors like age, political orientation, Machiavellianism, and Big Five traits such as Agreeableness, Emotional Stability, and Conscientiousness.<sup>5,6</sup>

The primary objective of this paper is to explore the relationship between key personality traits—Self-criticism, Dependence, Nurturance, and Emotional—using the FIKR Personality Assessment Tool and their influence on sustainability behaviours and biological planetary health. Specifically, the paper aims to: a) examine the correlation between the four major personality traits and other traits to understand how these relationships impact pro-environmental behaviours; b) investigate the role of demographic factors such as age, gender, marital status, and religion in shaping the interaction between personality traits and sustainability engagement; c) analyze the potential of each personality trait to contribute positively or negatively to environmental stewardship, with a focus on community involvement, emotional engagement, and personal responsibility; and d) provide actionable insights for developing targeted interventions and strategies to promote sustainability by leveraging the strengths of different personality profiles.

## Methodology

Humanology Sdn Bhd provided us with independent samples of valid 409 participants. Each participant provided a full set of item responses on a 200-item. This version of the OPQ uses relatively simple language and is intended for use in a wide range of occupational groups. The questionnaire is quantitative type (dichotomous survey scale) with Yes (1) or No (0) surveys. This allows the respondents to provide quick and straightforward answers by choosing between the two options only. Correlation analysis was performed using the NCSS package (NCSS, 2024). Bar charts of absolute correlations were also generated.

## Results

### Descriptive statistics of all the 20 personality traits and 4 demographic variables

Table 1 shows the overall descriptive statistics of all 20 personality traits and 4 demographic variables based on 409 respondents from the present study. The mean age is 29.14 and the range is from 20 to 53 years.

**Table 1** Overall descriptive statistics of all the 20 personality traits and 4 demographic variables based on 409 respondents from the present study

Variable	Mean	Deviation	Minimum	Maximum
Age	29.14	6.63	20	53
Marital	1.67	0.53	1	4
Religion	1.32	0.86	1	4
Gender	1.7	0.46	1	2
Endurance	8.34	1.22	2	10
Variety	6.76	1.62	1	10
Aggressive	6.63	1.60	0	10
Self-criticism	3.98	2.09	0	10
Intuition	7.79	1.22	1	10
Dependent	6.57	1.73	0	10
Nurturance	9.25	1.14	2	10
Emotional	2.79	2.11	0	9
Extrovert	7.26	2.29	0	10
Achievement	7.94	1.24	0	10
Support	6.41	1.97	0	10
Analytical	7.67	2.1	0	10
Perceiver	5.01	1.47	0	10
Structure	8.69	1.12	1	10
Intellectual	6.58	2.00	0	10
Self-concept	8.36	1.13	2	10
Autonomy	6.39	1.64	0	10
Introvert	5.1	2.06	0	10
Control	4.92	2.48	0	10
Lie scale	5.14	2.15	0	10

Table 2 shows the correlation coefficients between all the four personality traits with other traits and four demographical variables based on the present study. This section presents the results of a comprehensive correlation analysis among the four selected personality traits with other traits and four demographical variables. The analysis examines the relationships between each pair of traits, providing insights into how these traits interact and influence one another.

**Table 2** Correlation coefficients between all the four personality traits with other traits and four demographical variables based on the present study. N= 409

Variables	Self-criticism	Dependent	Nurturance	Emotional
Endurance	-0.06	0.09	0.29	-0.13
Variety	0.15	0.26	0.13	0.19
Aggressive	0.11	0.24	0.15	0.2
Self-criticism	1	0.4	-0.11	0.52
Intuition	-0.05	0.12	0.23	-0.03
Dependent	0.4	1	0.06	0.3
Nurturance	-0.11	0.06	1	-0.14
Emotional	0.52	0.3	-0.14	1
Extrovert	-0.21	0.05	0.49	-0.19
Achievement	0.18	0.32	0.24	0.11
Support	0.31	0.44	0.1	0.4
Analytical	0.02	0.05	0.39	0
Perceiver	0.3	0.32	0.05	0.33
Structure	0.06	0.14	0.17	0.04
Intellectual	-0.04	0.03	0.27	-0.03
Self_concept	-0.08	0.17	0.17	0.04
Autonomy	0.08	0.08	0.01	0.1
Introvert	0.51	0.33	-0.15	0.4
Control	-0.07	-0.03	0.25	-0.04
Lie_Scale	-0.17	0.12	0.11	-0.11
Age	-0.18	-0.02	0.03	-0.07
Marital	0.19	-0.01	-0.01	0.13
Religion	-0.23	-0.16	-0.06	-0.08
Gender	0	-0.02	0.08	0.17

### Self-criticism

Self-criticism is perfectly correlated with itself ( $r = 1.00$ ), demonstrating strong internal consistency. It shows a moderate positive correlation with Dependent ( $r = 0.40$ ), suggesting that individuals who are more self-critical tend to feel more dependent on others, possibly reflecting a lower sense of self-sufficiency. This trait also has a slight positive link with Intuition ( $r = 0.12$ ), indicating that self-critical individuals might be more introspective or sensitive to their inner states. In contrast, significant negative correlations are observed with Emotional ( $r = -0.52$ ) and Nurturance ( $r = -0.11$ ), indicating that higher levels of self-criticism are associated with lower emotional expression and nurturing capabilities. Interestingly, there is a negative correlation with Extraversion ( $r = -0.21$ ), suggesting that more self-critical individuals may also be more introverted.

### Dependence

The Dependent trait correlates strongly with Self-criticism ( $r = 0.40$ ) and moderately with Nurturance ( $r = 0.23$ ). This alignment suggests that dependency in personality may drive or coincide with caring behaviors and a tendency to rely on others emotionally. It also shows a slight positive correlation with Emotional ( $r = 0.06$ ), indicating a trend towards more emotional expression among dependent individuals. Other minor positive relationships with traits like Support ( $r = 0.10$ ) and Perceiver ( $r = 0.05$ ) underscore a possible predisposition towards seeking support and being sensitive to environmental cues. The lack of significant demographical correlations suggests that dependency traits are consistently distributed across various age, gender, and marital status groups.

## Nurturance

Nurturance is strongly linked with Dependent ( $r = 0.23$ ), which is indicative of a reciprocal relationship where nurturing individuals may also exhibit or encourage dependency. It shows positive correlations with Achievement ( $r = 0.24$ ) and Support ( $r = 0.10$ ), reflecting its role in promoting supportive environments and achievement-oriented behaviors. Interestingly, there is a notable positive correlation with Analytical ( $r = 0.39$ ), suggesting that nurturing may involve thoughtful consideration and problem-solving. However, a slight negative correlation with Emotional ( $r = -0.14$ ) suggests that highly nurturing individuals might maintain emotional stability, possibly to remain effective in caregiving roles. The modest positive correlation with Gender ( $r = 0.08$ ) may reflect traditional or cultural gender roles associated with nurturing behaviours.

## Emotional

The Emotional trait, perfectly self-correlated ( $r = 1.00$ ), negatively correlates with Self-criticism ( $r = -0.52$ ), implying that emotional expressiveness may be inhibited by self-critical thoughts. The slight negative correlation with Nurturance ( $r = -0.14$ ) could indicate that emotional volatility might impact consistent nurturing behaviours. Positive correlations with Aggressive ( $r = 0.20$ ) and Extravert ( $r = 0.49$ ) suggest that emotional traits are often associated with more outward and possibly assertive behaviours. The lack of strong demographic correlations indicates that emotional traits are not significantly influenced by factors such as age or marital status, pointing to their universal expression across different population segments.

## Discussion

### The correlation between the four major personality traits and other traits to understand how these relationships impact pro-environmental behaviors

The relationship between the four major personality traits and 19 other traits offers a nuanced understanding of how different personality profiles influence pro-environmental behaviors. For instance, self-criticism shows moderate positive correlations with traits like Dependent, indicating that self-critical individuals tend to rely on others for validation and support.<sup>5</sup> This reliance may manifest in environmental behavior where they hesitate to act alone but are more effective in group efforts.<sup>5</sup> The negative correlation between Self-criticism and Emotional suggests that self-critical individuals suppress their emotions, which may limit their ability for emotionally charged environmental advocacy.<sup>7</sup> Furthermore, the weak positive correlation with Intuition hints that self-critical individuals may rely on internal reflection when facing environmental challenges, although their critical mindset might slow down decision-making processes.

For Dependent individuals, the positive correlations with Nurturance and Emotional highlight their strong interpersonal focus. Dependent individuals are more inclined to engage in environmental efforts involving social interaction and community-based projects, using their emotional connection with others to promote sustainability.<sup>8</sup> Interestingly, Dependent also shows a slight positive correlation with Aggressive, indicating that dependent individuals, despite their reliance on others, may exhibit assertiveness in specific situations, particularly when defending environmental causes aligned with their values.<sup>5,9</sup>

Nurturance, with its positive correlation to Achievement and Support, suggests that nurturing individuals are goal-oriented in their environmental activities, supporting both the success of others and

broader environmental objectives (Levontin & Bardi, 2019).<sup>1</sup> This trait's associations imply that nurturing individuals take a strategic and collaborative approach to environmental engagement, using their interpersonal skills to drive positive.<sup>5,9</sup>

### The role of demographic factors such as age, gender, marital status, and religion in shaping the interaction between personality traits and sustainability engagement

The relationship between demographic factors and the interaction between personality traits and pro-environmental behaviors is complex and nuanced. This study examines how characteristics such as gender, age, marital status, and religion influence the expression of personality traits and their subsequent impact on sustainability-related actions.<sup>10</sup>

The present findings suggests that gender shows a slight positive correlation with the personality trait of Nurturance, indicating that nurturing behaviors may be more prevalent in one gender, possibly due to societal expectations regarding caregiving roles.<sup>9</sup> This aligns with broader research on gender differences in environmental behaviors, where women are often found to be more actively engaged in sustainability practices, especially those centered on community well-being.<sup>9</sup> However, the weak correlation implies that gender's direct influence on pro-environmental behavior may be less significant than expected.<sup>11</sup>

In contrast, age, marital status, and religion exhibit minimal correlations with key personality traits, suggesting that these demographic factors may play a limited role in shaping sustainability-related engagement. Personality traits, rather than demographic variables, appear to be more direct determinants of environmental behavior. While older individuals may have more life experience and stronger opinions on environmental matters, personality traits such as Achievement, Extraversion, or Support seem to play a more significant role than age in influencing sustainability engagement.<sup>5,9,12</sup> Similarly, religion may shape ethical stances on environmental stewardship, but its correlation with personality traits was not strong enough to suggest a decisive influence in this study.

### The potential of each personality trait to contribute positively or negatively to environmental stewardship, focusing on community involvement, emotional engagement, and personal responsibility

Each personality trait examined in this study has the potential to either enhance or hinder environmental stewardship. Self-criticism, while often associated with high standards and conscientiousness, may negatively impact personal responsibility in sustainability efforts due to self-doubt and paralysis by analysis (Pappas, 2013; Gifford, 2011). However, self-criticism can be leveraged positively when individuals are given structured roles in environmental planning, where their critical thinking and attention to detail contribute to long-term sustainability strategies.<sup>5</sup>

Dependent individuals, with their strong interpersonal orientation, are well-suited for community involvement in sustainability initiatives. Their reliance on emotional and social support makes them ideal participants in collaborative projects such as community gardens, local clean-up campaigns, or advocacy for environmental policies (Ryan et al., 2001).<sup>13</sup> The slight positive correlation with Aggressive ( $r = 0.10$ ) suggests that dependent individuals might also take assertive roles in defending environmental causes when supported adequately.

Nurturance, as expected, contributes positively to environmental stewardship through its association with traits like Support and Achievement. Nurturing individuals are not only likely to participate in environmental activities but also lead them, guiding others and ensuring the well-being of the community. The emotional control exhibited by nurturers, indicated by the slight negative correlation with Emotional, makes them less prone to burnout, making them particularly effective in sustainability leadership roles.

The Emotional trait presents both positive and negative potential for environmental stewardship. Emotional individuals are likely to become passionate advocates for environmental causes, driven by their intense emotional reactions to issues like climate change or biodiversity loss (Williamson & Thulin, 2022).<sup>9</sup> However, this same emotional intensity can lead to burnout, requiring careful management to ensure sustained engagement.

### **Actionable insights for developing targeted interventions and strategies to promote sustainability by leveraging the strengths of different personality profiles**

The findings from this study provide several actionable insights for developing targeted sustainability interventions based on personality profiles (Soutter et al., 2020).<sup>8</sup> For individuals high in Self-criticism, interventions should focus on building confidence through structured, low-risk environmental tasks that gradually build self-efficacy.<sup>8</sup> Clear guidelines and achievable milestones can help mitigate the negative impact of self-doubt, enabling self-critical individuals to contribute effectively to environmental stewardship.<sup>14</sup>

For Dependent individuals, social and emotional support systems are essential for sustaining engagement in sustainability efforts. Community-based programs that emphasize teamwork and shared responsibility, such as collective recycling efforts or environmental awareness campaigns, can leverage their emotional and interpersonal strengths.<sup>4</sup> Mentorship or peer support can help them transition into more active roles, fostering leadership within sustainability efforts.<sup>8</sup>

Nurturance should be encouraged through leadership and educational roles in sustainability initiatives. Nurturing individuals are naturally inclined to support others and foster community well-being, making them ideal candidates for leading educational campaigns on environmental health or biodiversity conservation. Programs that emphasize community care and collective well-being can maximize the contributions of nurturing individuals while helping them avoid burnout (Tangen-Foster & Tangen-Foster, 1998; Schueller, 2009).

For Emotional individuals, interventions should aim to balance their passion with resilience. Emotional individuals are powerful advocates for environmental causes but require tools to manage emotional fatigue. Stress management workshops, mindfulness practices, and opportunities for emotional expression in supportive environments can help maintain their engagement over the long term, ensuring their intensity remains a driving force for sustainability rather than a source of burnout (González-Méndez et al., 2020; Treglown et al., 2016).

By tailoring sustainability interventions to the unique personality profiles of individuals, organizations and communities can leverage their strengths and mitigate their weaknesses to foster more effective and sustained engagement in environmental stewardship (Mock et al., 2019; Karp, 1996).<sup>15</sup>

## **Connection between the four personality traits to the sustainability of biological planetary health**

### **The critical role of nurturing individuals in promoting environmental education and leadership**

Nurturance, strongly linked to Achievement and Support traits, underscores the essential role of nurturing individuals in advancing environmental education and leadership.<sup>16</sup> Nurturers, motivated by care for others and community well-being, are particularly effective in spearheading initiatives that demand empathy and guidance, such as sustainability education campaigns, advocacy for environmental justice, and the protection of ecosystems and vulnerable populations.<sup>17</sup> Their slight negative correlation with Emotional traits indicates their capacity for emotional stability, making them ideal leaders in sustainability efforts that require long-term commitment and balance.<sup>17</sup> Nurturers serve as compassionate leaders, bridging the gap between environmental science and public engagement, fostering a culture of care for the planet.<sup>17,18</sup> Their role is crucial not only for promoting immediate environmental action but also for embedding sustainable practices into societal norms, ensuring the intergenerational stewardship of Earth's resources.<sup>17</sup>

The importance of nurturing environments in promoting environmental education and leadership cannot be overstated. Driven by a strong ethical commitment to the environment, nurturing individuals are poised to inspire positive environmental attitudes and overcome destructive behaviors.<sup>19</sup> Research suggests that effective environmental leaders must possess a broad knowledge base, a critical perspective, and a dedication to the greater good. Nurturers, with their empathy, emotional stability, and commitment to community well-being, are ideally positioned to fulfill this role. By harnessing their strengths, a culture of environmental stewardship can be promoted and sustained across generations.

### **Harnessing the power of emotional advocates for planetary health**

Individuals characterized by heightened emotional expressiveness possess a unique capacity to become powerful advocates for planetary health. Their emotional intensity fuels passionate campaigns that spotlight urgent environmental issues such as climate change, biodiversity loss, and pollution. The positive correlation between Emotional and Aggressive traits suggests that these individuals can channel their intensity into assertive environmental activism, becoming vocal proponents of environmental protection.<sup>20</sup>

Emotional appeals are a potent tool in driving environmental advocacy, as they engage audiences through identity, self-interest, and emotions.<sup>20-23</sup> These appeals mobilize support by leveraging psychological processes such as efficacy, psychological proximity, and emotional response. Emotions like sadness, anger, and fear can effectively induce behavioral support for environmental campaigns.<sup>20</sup> However, emotional burnout is a significant risk, especially when confronting the overwhelming scale of planetary health challenges. Emotional fatigue can lead to disengagement, undermining the consistency needed for sustained advocacy.<sup>24</sup>

To mitigate burnout, emotional individuals should be supported with strategies that foster resilience, such as mindfulness practices, peer support networks, and reflective rest periods. These strategies can help maintain their passion and commitment over the long term (Perlaviciute et al., 2018).<sup>23,25</sup>

## The synergistic potential of personality traits in sustainability efforts

Addressing the complexities of planetary health requires a multifaceted approach, integrating various personality traits to enhance sustainability efforts. Combining self-criticism, dependence, nurturance, and emotional traits offers valuable insights for enhancing these efforts.<sup>15,26</sup> This is well indicated in Figure 1.

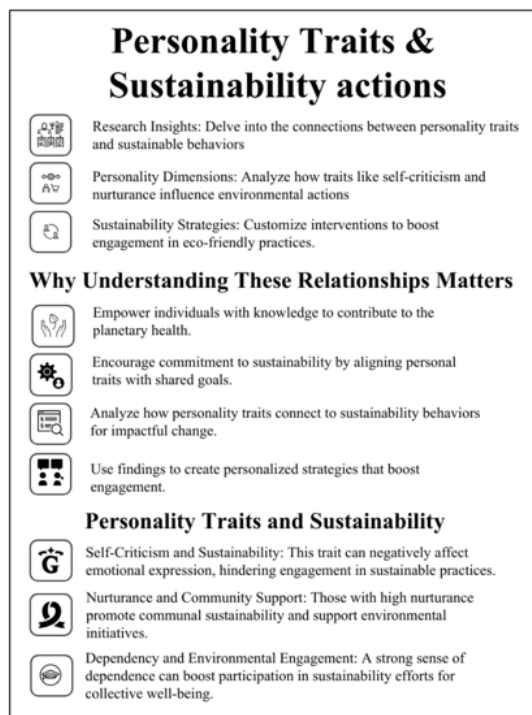


Figure 1 Overall findings from the present study.

Self-critical individuals ensure rigour and accountability in environmental policy-making and scientific monitoring. Their propensity for thorough scrutiny and attention to detail enhances the credibility and effectiveness of sustainability programs (Kaya Özbağ, 2016).<sup>27</sup> Dependent personalities, with their cooperative nature, foster community cohesion and collective action, which is essential for the success of sustainability initiatives.

With their compassionate leadership and dedication to education, nurturers are well-suited to lead advocacy and outreach efforts. Empowering these individuals in leadership roles enables sustainability campaigns to disseminate knowledge effectively and inspire eco-friendly practices. Emotional individuals bring passion and urgency to sustainability advocacy.<sup>28</sup> Their ability to evoke strong emotional responses can mobilize public engagement and catalyze meaningful change.

We can create more inclusive, effective, and enduring strategies to promote biological planetary health by aligning these traits with specific roles in sustainability efforts. This approach, grounded in personality dynamics, offers a balanced and resilient response to the complex demands of environmental preservation.<sup>29</sup>

## Conclusion

This study highlights the crucial role that personality traits—Self-criticism, Dependence, Nurturance, and Emotional—play in

influencing sustainability behaviours and their potential impact on biological planetary health. Using the FIKR Personality Assessment Tool, we uncovered how these traits, combined with 19 other personality factors and 4 demographic variables, shape individual and collective engagement in environmental stewardship. Each trait offers distinct strengths and challenges, from self-critical individuals contributing through meticulous environmental planning to emotional individuals driving passionate advocacy. Understanding these dynamics allows us to design more targeted, effective interventions that align personality traits with sustainability goals, ultimately fostering long-term commitment to planetary health and promoting more resilient environmental actions. This comprehensive approach to leveraging human psychology in sustainability efforts is essential for addressing the planet's complex challenges today.

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## Conflicts of interest

The authors declare that there is no conflict of interest.

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## References

- Sandler IN, Biglan A, Flay BR, et al. The critical role of nurturing environments for promoting human well-being. *Am Psychol*. 2007;67(4):257–271.
- Nguyen T, Dadzie CA, Chaudhuri HR, et al. Self-control and sustainability consumption: Findings from a cross-cultural study. *Journal of Consumer Marketing*, 2019;31(5):380–394.
- Beedu GK. A study on the effectiveness of DISC personality test. *International Journal of Recent Technology and Engineering*. 2021.
- Aydoğmuş C, Camgöz SM, Ergeneli A. Perceptions of transformational leadership and job satisfaction: The roles of personality traits and psychological empowerment. *Journal of Management & Organization*. 2016;24(1):81–107.
- Milfont TL, Sibley CG. The big five personality traits and environmental engagement: Associations at the individual and societal level. *Journal of Environmental Psychology*. 2012;32(2):187–195.
- Swami V, Chamorro-Premuzic T, Snelgar R, et al. Egoistic, altruistic, and biospheric environmental concerns: A path analytic investigation of their determinants. *Scandinavian Journal of Psychology*. 2009;51(2):139–145.
- Sherman DK, Cohen GL. The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology*. 2006;38:183–242.
- Zhao L. Personality traits that associate with sustainable behaviors perceived by individuals. *Brain and Behavior*. 2023;13(8):e3147.
- Hirsh JB. Personality and environmental concern. *Journal of Environmental Psychology*. 2010;30(2):245–248.
- Lemery-Chalfant K, Kao K, Swann G. Childhood temperament: Passive gene-environment correlation, gene-environment interaction, and the hidden importance of the family environment. *Development and Psychopathology*, 2013;25(1):51–63.
- Srivastava K, Chawla D. Demographic and psychographic antecedents of ecologically conscious consumer behaviour: An empirical investigation.

- International Journal of Indian Culture and Business Management*, 2017;14(4):480–496.
12. Magistro B, Abramson C, Ebanks D, et al. Identifying American climate change free riders and motivating sustainable behavior. *Scientific Reports*, 2024;14(1):6575.
  13. DiEnno CM, Thompson J. For the love of the land: How emotions motivate volunteerism in ecological restoration. *Emotion Space and Society*. 2013;6:63–72.
  14. Cloninger CR, Cloninger KM. Person-centered therapeutics. *International Journal of Person-Centered Medicine*. 2011;1(1):43–52.
  15. Doob LW. Sustainable people: Hypotheses and a call for publishable research. *The Journal of Social Psychology*. 1991;131(5):601–605.
  16. Erhabor NI. Developing leaders through mentoring in environmental education. *Electronic Green Journal*. 2018;41(1):41–51.
  17. Biglan A, Flay BR, Embry DD, et al. The critical role of nurturing environments for promoting human well-being. *American Psychologist*. 2012;67(4):257–271.
  18. Ferdig MA. Sustainability leadership: Co-creating a sustainable future. *Journal of Change Management*, 2007;7(1):25–35.
  19. Arvey RD, Rotundo M, Johnson W, et al. The determinants of leadership role occupancy: Genetic and personality factors. *The Leadership Quarterly*. 2006;17(1):1–20.
  20. Wang L. Three modes of rhetorical persuasion. *Journal of Literature and Art Studies*. 2019;16(3):106–112.
  21. Utami E, Hartanto AD, Adi S, et al. Profiling analysis of DISC personality traits based on twitter posts in Bahasa Indonesia. *Journal of King Saud University - Computer and Information Sciences*. 2022;34(2):264–269.
  22. Cheah WH, Karamehić-Muratović A. Applying theory to practice: Designing environmental messages using the concepts of sensation seeking and fear appeals. *International Journal of Environment and Resource*. 2002;4(2):131–143.
  23. Bloodhart B, Swim JK, Diccico EC. “Be worried, be VERY worried:” Preferences for and impacts of negative emotional climate change communication. *Frontiers in Communication*. 2019;3:63.
  24. Angelini G. Big five model personality traits and job burnout: A systematic literature review. *BMC Psychology*, 2023;11(1):49.
  25. Anspach N, Draguljić G. Effective advocacy: The psychological mechanisms of environmental issue framing. *Environmental Politics*. 2019;28(4):615–638.
  26. Koger SM. Psychological and behavioral aspects of sustainability. *Sustainability*. 2013;5(7):3006–3008.
  27. Matthews G, Stanton NA. Item and scale factor analyses of the occupational personality questionnaire. *Personality and Individual Differences*. 1994;16(5):733–743.
  28. Gattiker TF, Carter CR. Understanding project champions’ ability to gain intra-organizational commitment for environmental projects. *Journal of Operations Management*. 2009;31(5):380–394.
  29. Rozin P, Walker I, Watkins HM. Sustainable consumption: The psychology of individual choice, identity, and behavior. *Journal of Social Issues*. 2020;76(1):8–18.