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Personality traits and environmental identity in participating in trekking: The flow theory

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Abstract: This research aims to investigate the effect of five-factor personality traits and environmental identity on the flow experience of levels of individuals participating in trekking activities, a form of special-interest tourism. The research model was built on flow theory. The relationship among the related variables was tested using Smart PLS. The research universe consists of individuals (n=384) who participated in trekking activities with outdoor sports clubs in Eskişehir Province. The study found that while five-factor personality traits—extraversion, agreeableness, openness, and neuroticism—positively affect environmental identity, the personality trait of conscientiousness has no significant effect on environmental identity. Individuals with the personality traits of openness and neuroticism were also found to have experienced flow, while extraversion, conscientiousness, and agreeableness did not have any significant effect on the flow experience. Finally, environmental identity positively influenced the flow experience. Based on the research findings, original recommendations have been developed for enterprises organising trekking activities within the tourism sector.

Keywords: Five-factor personality traits, environmental identity, special-interest tourism, flow theory, trekking, tourism and recreation

1 Introduction

The number of individuals attaching importance to environmental values and recreational activities performed outdoors has been increasing. Humans, by their nature, are concerned with socialization, interaction with the environment, personal development, and participation in recreational activities. For this reason, the environment where such activities take place and the characteristics and design of this environment are very important for individuals to ensure complete benefit from such recreational activities (Williams, 2003). In addition to the needs of individuals participating in special-interest tourism, it should also be remembered that each special-interest tourist has a different personality trait, so their behaviours differ. To understand why some activities are more effective, fun, and useful than others, the conditions of the flow experience need to be reviewed. When flow experience is ensured, people tend to desire to continue performing such activities willingly (Csikszentmihalyi, 2020). According to Csikszentmihalyi (2005), who created the concept of the flow theory, individuals with specific personality traits have more flow experiences than the average individual and can be more successful in this area. Five-factor personality traits, which is one of the first theories that come to mind regarding personality traits, have been accepted as a supported model in the literature for quite a long time (Burger, 2006; Caprara & Cervone, 2000; McCrae & Costa, 2008). The five-factor personality model consists of five factors: agreeableness, extraversion, neuroticism, conscientiousness, and openness (McCrae & John, 1992).

The concept of environmental identity, on the other hand, serves as a bridge between individual and social issues. It could be claimed that the phenomenon of environmental identity is formed at a very young age, so a person's experiences related to the environment and nature have a huge impact on the formation of this identity (Clayton & Opatow, 2003).

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Wu and Liang (2011) conducted research and found that future studies should examine how various personality traits, and the flow experience are related; they also highlight how useful it could be to research how these characteristics may affect tourists' perceptions regarding the flow experience. Ding and Hung (2021) found that eco-recreation activities increased participants' flow experience level, and positive changes occurred in individuals' behavioural intentions. Ajibade and Boateng (2021) concluded that individuals with altruistic values in terms of identity characteristics and personal norms have a stronger environmental identity. Bravo and Farjam (2022) found that environmental behaviours cause the formation of environmental attitudes and identities in individuals. Current research indicates that, although the subject has been studied in the literature, there are still some missing aspects. In this context, this paper seeks answers to the research question: What are the antecedents of flow experience in individuals participating in trekking activities? as well as the following subtopics.

- Does an individual's perception of environmental identity affect the flow experience?
- Are the five-factor personality traits a determinant of environmental identity?
- Is a five-factor personality trait a determinant of the streaming experience?

This research is intended to contribute to the literature in five different ways. The first contribution is the classification of participants in trekking activity according to the five-factor personality traits. The second contribution is to determine the environmental identities of individuals whose five-factor personality traits are determined and to reveal the effect that the personality traits have on environmental identities. The third contribution is the determination of the flow experience levels of the individuals whose five-factor personality traits and environmental identity factors are determined. The fourth contribution is to reveal the mediating role of environmental identity in the flow experience level. The last contribution is the suggestion offered to tourist enterprises and sports clubs within the framework of the flow level experienced by individuals participating in trekking activities. Considering these contributions, this research is expected to offer new perspectives to the field.

2 Theoretical background and hypothesis development

2.1 Explanation of the research mechanism with the flow theory

The concept of personality, which helps predict how an individual may behave in any event or situation encountered, differs from person to person (Erikson, 1984; Parks-Leduc et al., 2015). The five-factor personality models, which have emerged from studies that have been going on for more than 50 years, along with the study of terms allowing individuals to recognize themselves and the people around them more clearly, are the name of the system and personality dimensions defined by researchers McCrae and Costa (1995). The five-factor personality is considered a model that allows theorists to explain the differences and similarities between individuals as well as being a personality theory that explains emotion, action, and cognitive consistency (McCrae, 2010). While many factors shape a person's identity, the element of identity is considered to be a product of the physical environment along with other factors (LappegardHauge, 2007). Considering that people act considering their environmental identity, the element of environmental identity has been expressed as "meaning associated with the environment."

Based on this, environmental identities are stated to have had a direct and indirect effect on several environmental behaviours (Edwards, 2018; Stets & Biga, 2003). The flow theory means that an individual focuses their full attention on the action they are performing, and that individual can isolate himself or herself from all the elements other than the performed action at that moment as other elements lose their importance (Csikszentmihalyi, 2020). As there is no effort required during this process, a feeling of control is at the forefront. As an experience during the flow process, while the action is taking place, there is a strong balance between skill and difficulty, a feeling of control, feedback, loss of self-consciousness, and focusing, and thus a state of consciousness takes place towards the feeling of pleasure (Csikszentmihalyi & Csikszentmihalyi, 1992).

During the flow process, a person gives all their attention to the work they are engaged in. Moreover, as the experiences performed are generally quite fun, exciting, or satisfying, individuals will participate in this action to experience the same emotions again and enter into the flow experience, even if they sometimes bear a huge cost or sometimes no cost (Nakamura &

Csikszentmihalyi, 2005). Flow theory suggests that an individual devotes himself or herself completely to an activity (Csikszentmihalyi, 2020). In addition, according to Csikszentmihalyi (1990), the engagement state of an individual to a flow may differ according to their personality characteristics. In this context, the research model, which shows that the five-factor personality traits affect the flow experience through environmental identity, is built on flow theory. The construction of the research model within the scope of flow theory is a clear indication that the model has a scientific basis.

Recent research has broadened our understanding of the motivations behind participation in adventure and nature-based leisure activities, revealing complex dynamics between personality traits, flow experiences, and environmental behaviours. Jackson et al. (2023) explored the motives for adventure recreation, highlighting that traditional notions of thrill-seeking do not capture the full spectrum of participant motivations. Their study, involving 199 participants engaged in activities such as rock climbing and downhill mountain biking, revealed that mastery, perceived connection to the activity, and trust in personal skills were more significant motivators than risk-seeking. The findings emphasized the importance of flow experiences, assessed through established scales, indicating that these states significantly enhance engagement and satisfaction in adventure settings.

Similarly, Akçakese et al. (2024) investigated the interplay between nature-relatedness, flow experiences, and environmental behaviours among individuals participating in nature-based activities like hiking and cycling. Their findings demonstrated that a higher degree of nature-relatedness significantly influenced flow experiences, which in turn fostered positive environmental behaviours and heightened environmental sensitivity. This suggests that fostering a connection to nature can enhance the likelihood of entering flow states, further encouraging sustainable environmental practices.

Additionally, Cheng et al. (2024) examined the role of the recreational safety climate (RSC) in shaping flow experiences within the context of serious leisure activities. Their study of scuba divers revealed that RSC positively moderated the relationship between serious leisure involvement and flow experiences. This indicates that enhancing safety perceptions in recreational settings can strengthen participant engagement and satisfaction, contributing to a more profound and enjoyable experience in outdoor activities.

These studies collectively underline the relevance of flow theory in understanding not only the psychological

engagement of participants in outdoor recreation but also the implications for environmental behaviour and safety in recreational contexts. By recognizing the diverse motives that drive participation and the significant role of flow experiences, practitioners can create more effective programs that enhance participant satisfaction and foster sustainable behaviours in natural settings.

2.2 Five-factor personality traits and environmental identity

While individual identity characteristics create environmental effects, they also increase the level of environmental anxiety significantly in societies with a collective structure. This also increases the perception of environmental identity in society (Lou & Li, 2021). Environmental behaviours counted within the scope of personality traits can cause the formation of some environmental attitudes and identities in individuals (Bravo & Farjam, 2022). The concept of environmental identity varies according to a person's individual characteristics and social components (Blanchard & Paquet, 2023). The environmental identity phenomenon is directly proportional to the duration of time spent in nature and is influenced by personal identity characteristics (Keith et al., 2022). Individuals with altruistic values in terms of identity characteristics and personal norms tend to have a stronger environmental identity (Ajibade & Boateng, 2021). In addition to the personality traits of an individual, environmental self-identities of individuals are also formed by love of nature, environmental awareness, and nature-related self-identity (Chen & Hsieh, 2023). In light of all this information, personality traits could be claimed to have positively affected the phenomenon of environmental identity. For this purpose, the following hypotheses have been developed to be tested in the study.

H1a/b/c/d: Of the five-factor personality traits, (a) agreeableness, (b) extraversion, (c) self-control subdimensions, and (d) openness to development positively affect environmental identity.

H1e: The subdimensions of neuroticism, out of the five-factor personality traits, negatively affect environmental identity.

2.3 Five-factor personality traits and flow experience

Csikszentmihalyi (2020) found that the participants continued their work with intense internal motivation

despite obstacles such as fatigue, restlessness, or hunger. Following Csikszentmihalyi's studies, the flow experience process was tested on different genders, ages, activities, and culture groups, and the research results were found to overlap with each other (Asakawa, 2004). Five-factor personality traits have significant effects on the flow experience and exhibit a structure that affects the organizational commitment and behaviour of individuals (Kim et al., 2019). While the flow experience levels of individuals participating in outdoor recreational activities increase, positive changes also occur in their behaviours (Ding & Hung, 2021).

H2a/b/c/d: The subdimensions of (a) agreeableness, (b) extraversion, (c) openness, and (d) self-control, out of the five factors of personality traits, positively affect the flow experience.

H2e: The subdimension of neuroticism, out of the five factors of personality traits, negatively affects the flow experience.

2.4 Environmental identity and flow experience

The discovery of a bidirectional connection between the environment and the identities of people and studying these relationships have revealed a new concept in the literature. This new concept, expressed as “environmental identity,” aims to reveal the human-nature relationship while examining responsible behaviours towards nature. A person's perceived relationship with the environment could be in two forms, such as “I am separate from the environment” or “I am a part of the environment” (Blatt, 2013; Clayton & Opatow, 2003). It could be claimed that the feelings, emotions, and behaviours experienced by individuals may change according to individuals' environmental identity ownership (Carfora et al., 2017). People's interactions with the environment through environment and positive psychology facilitate flow experiences (Xie et al., 2022). The flow experience in one's preferred environment is reflected in individuals positively and significantly (Bonaiuto et al., 2016). The flow process takes place with voluntary participation, and it can be experienced when individuals feel harmony with their skills and the environment matches the presented challenges (Pomfret, 2006). For this purpose, the following hypothesis has been developed to be tested in the study.

H3: The phenomenon of environmental identity has a statistically significant effect on the flow experience.

2.5 Mediating role of environmental identity

The five-factor personality traits model is a very remarkable theory, as it can base personality on five subfactors and provide a general definition for it. Agreeableness, conscientiousness, and openness are the traits that are most often linked to the issue of environmental participation, as suggested by Milfont and Sibley (2012). These findings shed light on how stable regularities in general behavioural patterns are related to more specific aspects of attitudes and protective behaviour, both in individuals and societies. Five factors positively affect the flow experience level of the agreeableness subdimension in personality traits (Tian & Ou, 2023). Xiang et al. (2023) examined glamping participants within the framework of five-factor personality traits and concluded that individuals are in the flow experience and in an emotional cycle, and they also found that individuals are involved in interaction depending on some environmental factors. In this direction, the following hypotheses have been developed to be tested in the study. Figure 1 presents the representation of the theoretical construct of the research model, developed in alignment with the existing literature.

H4a/b/c/d: Of the five-factor personality traits, the environmental identity has a mediating role in the subdimensions of (a) extraversion, (b) agreeableness, (c) openness, (d) self-control on the flow experience.

H4e: Of the five-factor personality traits, (e) environmental identity has a mediating role in the effect of neuroticism on flow experience.

3 Methodology

3.1 Research universe and sample

Eskişehir, which is a very rich city in terms of nature-based activities, has become a highly preferred destination for individuals because of its nature and history. Eskişehir and its surroundings are very convenient for trekking and mountain walks due to its location and historical importance. Therefore, the research universe consists of individuals residing in Eskişehir Province, who participate in trekking activities organized by mountaineering, trekking and nature clubs at least twice a year. While this criterion may limit the diversity of trekking experiences, it was chosen to focus on individuals who are more engaged with trekking as a

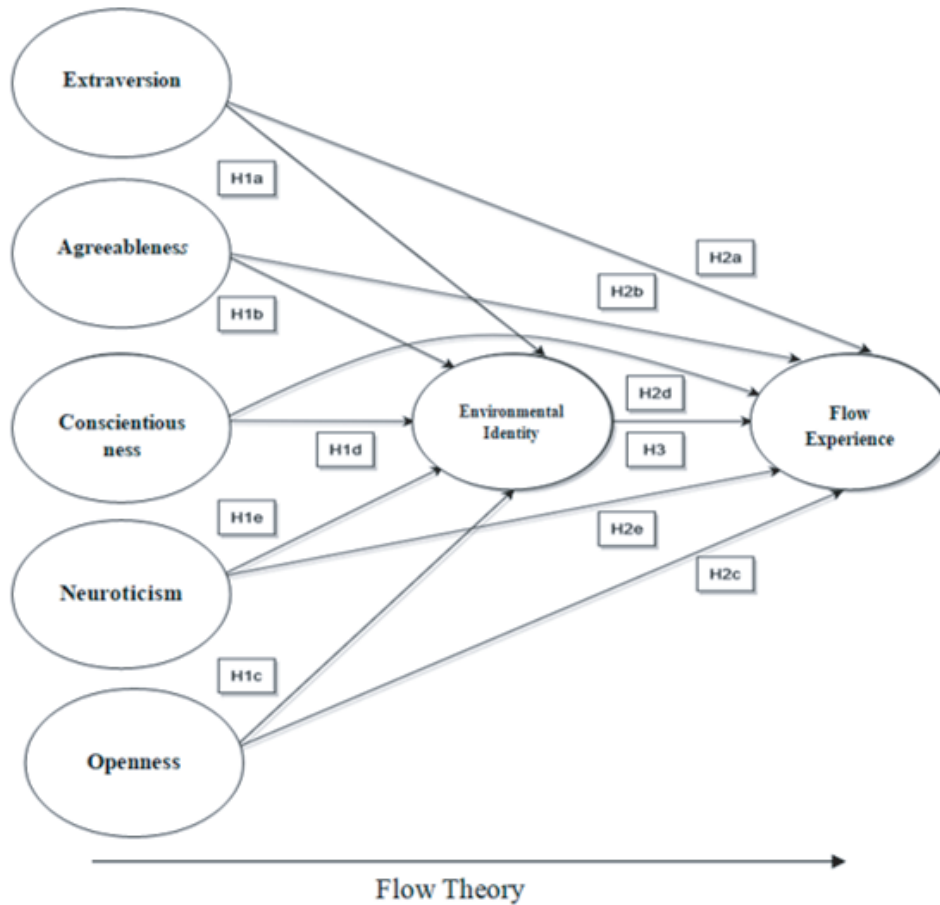


Figure 1: Representation of the Theoretical Construct of the Research on the Model (Şenel, 2023)

recreational activity. This engagement is important for understanding the flow experience in trekking, as more frequent participants are likely to have developed a deeper connection to the activity, thus providing richer insights into the effects of personality traits and environmental identity on their experiences. Based on this, the existing extreme sports clubs in Eskişehir and the individuals who participated in the trekking events were reached by the researcher. During the administration stage of the survey, 500 questionnaires were distributed, and 440 of them were returned. After controlling for the 440 returned surveys, 56 survey forms were found to have missing data, and so they were excluded from the analysis. Therefore, research analyses were carried out on the remaining 384 questionnaires. After collecting the questionnaires, each questionnaire form was checked to discover whether they were filled out completely, whether some of them had some incorrect encodings, and whether the number of acceptable questionnaires was sufficient when the sample volume was considered.

3.2 Questionnaire design and data collection

Smart PLS 4.0 (Partial Least Square Structural Equation Modeling, PLS-SEM) was used to test the hypotheses created in this research. The PLS-SEM method has been frequently used in tourism research (Jiang & Tu 2022; Rather et al., 2021). For this reason, PLS-SEM was used in the analysis of the data. To examine how significant factor loads and path coefficients of research data are, the “bootstrapping” technique was used with 5000 samples. In the research, the literature on five-factor personality traits, the concept of environmental identity, and flow theory were first examined, and the collection of primary data was started within the framework of the theoretical information obtained. In the research, the data were collected using the survey technique. The Continuous Optimal Emotional State-2 Scale was used to determine the optimal performance emotional states of individuals, the Five-factor Personality Traits Scale was used to determine participants’ personality traits, and the Environmental Identity

Scale was used to determine the relationship levels of participants with the environment. The second part of the survey includes statements about the gender, marital status, educational level, age, profession, and income status of the participants, how many years they have been participating in trekking activities, and how many times they have participated in the trekking activity in a month.

3.3 Findings related to the research model

PLS-SEM was used to test the hypotheses. PLS-SEM is a convenient method to analyze the collected data collected with the use of ordinal scales such as the Likert-type scale, and it is also effective and efficient in explaining and predicting (Hair et al., 2017). Therefore, PLS-SEM is a convenient analysis tool for this research.

3.4 Measurement model

The data regarding the piloting of the survey were collected from 100 trekking participants. First, the measurement model was tested to make sure that internal consistency, convergent validity, distinctive validity, and reliability were achieved (Hair et al., 2017). All of the inversely encoded expressions in the research were transformed with varimax in the context of scales. First, 13 expressions of the environmental identity factor, whose factor loads remained below 0.50, and 25 expressions of the flow experience scale remaining below 0.50 were removed from the scale. As a result, an environmental identity scale under a single dimension consisting of 11 expressions with factor loads above 0.50 was obtained, as well as a flow scale under a single dimension consisting of 11 expressions with factor loads above 0.50.

4 Results

4.1 Data analysis

PLS-SEM was used in the analysis of the research data (Ringle et al., 2022). Considering that the evidence regarding the relationships examined in this study is not sufficient, the research could be claimed to have exploratory characteristics. Therefore, PLS-SEM is convenient for this study.

4.2 Descriptive findings

The demographic characteristics of the study's sample, comprising 384 participants, are detailed in Table 1. These findings provide a comprehensive overview of the participants' gender, marital status, age, education level, income, experience, frequency of participation, and occupation.

4.3 Measurement model

The measurement model results are presented in Table 2. All the expressions encoded inversely in the research were transformed with varimax in the context of scales. The majority of external factor loads were found to be above 0.70. The factor loads between 0.60 and 0.70 were examined. The relevant factor loads were kept in the data set as they did not decrease Cronbach alpha, composite reliability (BD), and the described average variance/average variance extracted (AOV) values below acceptable limits (Hair et al., 2017). In addition, three expressions of environmental identity (CC9, CC10, and CC11) were excluded from the analysis, as their factor loads remained below 0.50. All Cronbach alpha values of the variables were found to be above 0.70, which confirms the internal consistency of the structures. The composite reliability values were found to be above 0.80, which indicates the reliability of the structure. AOV values were found to be above 0.50, which means that convergent validity was achieved (Hair et al., 2017).

The Heterotrait-Monotrait (HTMT) values and the Fornell-Larcker criterion were used in the analysis of the validity of the decomposition. The HTMT values were found to be below 0.90, which reveals that the validity of the decomposition has been fulfilled (Henseler et al., 2015). Second, the square root of the AOV values was found to be higher than the interstructural correlation. For this reason, the validity of decomposition has been fulfilled once again (Fornell & Larcker, 1981). The results regarding the validity of the decomposition are presented in Table 3.

4.4 Structural model

The results regarding the structural model are presented in Table 4. First, the variance inflation factor (VIF) values were examined. The values were found not to have exceeded 5. For this reason, it was decided that there is no multiple linear regression problem (Hair et al., 2017). Second,

Table 1: Demographic Features (Şenel, 2023: 112)

Variable	Sample (n=384)	Percentage (%)	Variables	Sample (n=384)	Percentage (%)
Gender			How many years		
Female	180	46.9	1–3	72	18.8
Male	204	53.1	4–6	152	39.6
Marital status			7–9	120	31.3
Married	168	43.8	10+	40	10.4
Single	216	56.3	How many times		
Age			1–2	93	24.2
18–25	42	10.9	3–4	166	43.2
26–35	100	26.0	5–6	107	27.9
36–45	122	31.8	7+	18	4.7
46–55	66	17.2	Occupation		
56+	54	14.1	Student	54	14.1
Educational level			Employee	47	12.2
Primary school	29	7.6	Business owner	38	9.9
Secondary education	116	30.2	Officer	115	29.9
Foundation Degree / Undergraduate	188	49.0	Tourism professional	28	7.3
Postgraduate	51	13.3	Retired	61	15.9
Income			Unemployed	28	7.3
Very poor	43	11.2	Other	13	3.4
Poor	35	9.1			
Average	127	33.1			
Good	157	40.9			
Very good	22	5.7			

the R^2 values were examined. The R^2 values were found to be 0.651 and 0.578 for environmental identity and flow, respectively. The values of 0.75, 0.50, and 0.25 are categorized as significant, moderate, and weak, respectively as suggested by Hair et al. (2011). Third, the Q^2 values were examined. The Q^2 values were found to be 0.339 and 0.333 for environmental identity and flow, respectively. The Q^2 values of 0.00, 0.25, and 0.50 indicate that the tested model has a weak, moderate, and significant predictive relationship, respectively (Hair et al., 2019). Finally, the f^2 statistic was examined. The values of 0.02, 0.15, and 0.35 f^2 are accepted as weak, moderate, and significant, respectively (Cohen, 1988). When Table 4 is examined, the f^2 statistic is seen to have appropriate values.

According to the results, extraversion positively and significantly affects environmental identity ($\beta = 0.155$; $p < 0.05$). Agreeableness positively and significantly affects environmental identity ($\beta = 0.470$; $p < 0.001$). Openness

positively and significantly affects environmental identity ($\beta = 0.240$; $p < 0.001$). Therefore, hypotheses H1a, H1b and H2c are supported. Conscientiousness was found not to have a significant effect on environmental identity ($\beta = 0.005$; $p = 0.924$). Therefore, H1d was rejected. Neuroticism has a negative and significant effect on environmental identity ($\beta = -0.089$; $p < 0.05$). Therefore, H1e was supported. Extraversion ($\beta = -0.050$; $p = 0.449$) and agreeableness ($\beta = -0.004$; $p = 0.952$) were found not to have had a significant effect on flow. Therefore, H2a and H2b were rejected. Openness has a positive and significant effect on flow ($\beta = 0.450$; $p < 0.001$). Conscientiousness does not have a significant effect on flow ($\beta = -0.073$; $p = 0.193$). Neuroticism has a negative and significant effect on flow ($\beta = 0.207$; $p < 0.001$). Therefore, H2a, H2b, and H2d were rejected, while H2c and H2e were supported. Finally, environmental identity has a positive and significant effect on the flow ($\beta = 0.351$; $p < 0.001$).

Table 2: Results Regarding Measurement Model (Şenel, 2023: 109)

Items	Factor Loads	Cronbach's Alpha	BG	AOV
Flow		0.932	0.942	0.596
I'm not interested in what other people think about me.	0.771			
I feel that time is passing (slowing down or speeding up).	0.782			
I feel competent enough to overcome difficulties.	0.735			
I know what achievement I would like to have.	0.734			
I have strong ideas about how well I'm performing.	0.789			
My goals have been clearly defined.	0.862			
I can tell you how well I have performed when the time comes.	0.778			
I fully concentrate on the work I am doing	0.826			
I can completely control my body.	0.804			
I don't worry about what other people might think about me.	0.751			
The experiences acquired during the activity are beneficial and far better.	0.640			
Openness		0.951	0.952	0.953
I consider myself someone who has an interest in art.	0.976			
I consider myself a creative person.	0.977			
Neuroticism		0.861	0.874	0.877
I consider myself a person who can cope with stress.	0.946			
I consider myself a person who gets angry easily.	0.947			
Extraversion		0.972	0.974	0.973
I consider myself an introvert.	0.987			
I consider myself a social person.	0.985			
Conscientiousness		0.957	0.979	0.959
I consider myself prone to being lazy.	0.978			
I feel like someone who can do the task completely.	0.980			
Agreeableness		0.925	0.929	0.930
I consider myself a reliable person.	0.962			
I see myself as someone who tends to find fault with others.	0.967			
Environmental identity		0.915	0.936	0.612
I spent a lot of time in natural environments (woodlands, mountains, etc.).	0.818			
If I had enough time and money, I would spend some of it on the protection of the environment.	0.813			
Spending time in nature when I am unhappy makes me feel better.	0.809			
I need to live close to the wild nature; I don't want to live in the city all the time.	0.805			
I believe that some of the social problems will improve when I return to rural life.	0.779			
I like gardens.	0.798			
Being a part of the natural world is an important part of my image.	0.686			
I like camping in nature.	0.743			
AOV= explained average variance; BD= composite reliability (rho_a).				

Table 3: Results Regarding the Validity of the Decomposition (Şenel, 2023: 114)

HTMT Criteria							
	(1)	2)	3)	4)	5)	6)	7)
Flow							
Openness	0.690						
Neuroticism	0.620	0.567					
Extraversion	0.482	0.464	0.522				
Conscientiousness	0.544	0.865	0.463	0.390			
Agreeableness	0.538	0.489	0.584	0.895	0.438		
Environmental identity	0.667	0.571	0.553	0.664	0.482	0.732	
Fornell–Larcker Criteria							
Flow	0.772						
Openness	0.675	0.976					
Neuroticism	–0.570	–0.516	0.937				
Extraversion	0.467	0.446	–0.480	0.986			
Agreeableness	0.539	0.825	–0.423	0.377	0.979		
Conscientiousness	0.506	0.460	–0.523	0.849	0.413	0.964	
Environmental identity	0.647	0.575	–0.536	0.706	0.493	0.761	0.782

The mediation analysis was conducted considering the guidelines suggested by Zhao et al. (2010). Table 5 shows that the indirect effect of extraversion on flow through environmental identity is positive and significant ($\beta = 0.054$; $p < 0.05$). The indirect effect of agreeableness on flow through environmental identity is positive and significant ($\beta = 0.165$; $p < 0.001$). The indirect effect of openness on flow through environmental identity is positive and significant ($\beta = 0.084$; $p < 0.001$). As seen in Table 5, the upper and lower confidence intervals of these relationships are different from zero. Therefore, H4a, H4b, and H4c are supported. The indirect effect of conscientiousness on flow through environmental identity is insignificant ($\beta = 0.002$; $p = 0.925$). The indirect effect of neuroticism on flow through environmental identity is insignificant ($\beta = -0.031$; $p = 0.065$). However, the lower and upper confidence intervals of the relevant variables contain zero. Therefore, hypotheses H4d and H4e were rejected.

In the evaluation of the mediation type, the decision tree that Zhao et al. (2010) suggested was followed. Considering that extraversion ($\beta = -0.050$; $p = 0.449$) and agreeableness ($\beta = -0.004$; $p = 0.952$) were found not to have had a direct significant effect on flow, the H4a and H4b test results are classified only as indirect mediation/ full mediation. On the other hand, considering that openness has a positive and significant direct effect on flow ($\beta =$

0.450; $p < 0.001$), H4c test results are classified as complementary mediation / partial mediation.

5 Discussion

The findings of the hypothesis testing obtained have revealed that extraversion, which is one of the five-factor personality traits, positively and significantly affects environmental identity. This reveals that individuals in the category of extraversion think positively about pro-environmental behaviours not only in social environments. In the context of trekking as a special-interest tourism activity, extraverted individuals may be more inclined to engage with their surroundings and appreciate natural beauty, thereby enhancing their overall experience. It has also been found that, as they have social, people-oriented, and active characteristics, they seem to have a more positive consideration about environmentally friendly behaviours.

Another finding of the research is that the agreeableness personality trait positively and significantly affects environmental identity. This reveals that in this personality type where the humanitarian aspect prevails, these individuals are careful in their attitude towards the environment as they have love for people but also act with sharing, kind, and compassionate fee-

Table 4: Results Regarding Structural Model (Şenel, 2023: 117)

	Hypotheses	Path Coefficient	GA Lower Limit	GA Upper Limit	T Values	p	Result	VIF	f ²
H1a	Extraversion > Environmental identity	0.155	0.023	0.322	2.064	0.039	Supported	3.658	0.021
H1b	Agreeableness > Environmental Identity	0.470	0.313	0.610	6.251	0.01	Supported	3.888	0.165
H1c	Openness > Environmental identity	0.240	0.133	0.353	4.218	0.01	Supported	3.587	0.046
H1d	Conscientiousness > Environmental identity	0.005	-0.099	0.107	0.095	0.924	Not supported	3.159	-
H1e	Neuroticism > Environmental identity	-0.089	-0.179	-0.001	1.982	0.048	Supported	1.592	0.020
H2a	Extraversion > Flow	-0.050	-0.173	0.088	0.757	0.449	Not supported	3.728	-
H2b	Agreeableness > Flow	-0.004	-0.153	0.129	0.061	0.952	Not supported	4.529	-
H2c	Openness > Flow	0.450	0.332	0.575	7.341	0.01	Supported	3.754	0.130
H2d	Conscientiousness > Flow	-0.073	-0.178	0.042	1.302	0.193	Not supported	3.159	-
H2e	Neuroticism > Flow	-0.207	-0.296	-0.113	4.412	0.01	Supported	1.615	0.064
H3	Environmental identity > Flow	0.351	0.234	0.463	5.969	0.01	Supported	2.901	0.102

GA= Confidence interval; environmental identity ($R^2 = 0.651$; $Q^2 = 0.339$); flow ($R^2 = 0.578$; $Q^2 = 0.333$); *** $p < .01$ ($t > 2.58$), ** $p < .05$ ($t > 1.96$), * $p < .10$ ($t > 1.65$).

lings. Such traits are particularly beneficial in tourism contexts, as they can lead to collaborative efforts in conservation and sustainable practices during trekking activities. McCrae and Costa (1997) argue that compatible individuals exhibit more positive characteristics in the environment they are in, just like extroverted individuals.

One finding suggested that the personality trait of openness positively and significantly affects environmental identity. Poškus (2017) stated that openness is very important in exhibiting pro-environmental behaviours. In the realm of trekking tourism, this trait may encourage individuals to seek diverse experiences, which can lead to greater environmental awareness and stewardship. One of the main reasons for this situation could be that a sustainable lifestyle can be new and unusual for an individual. Conscientiousness does not have a significant effect on environmental identity. This finding reveals that the feelings of conscientiousness of individuals do not correlate with environmental identity. In other words, individuals perceive personal conscientiousness as conscientiousness, and personal conscientiousness is not related to environmental identity.

Another finding is that neuroticism has a negative and significant effect on environmental identity. Milfont and Sibley (2012) stated that environmental values have a negative relationship to the dimension of neuroticism. Another finding is that extraversion and agreeableness traits do not have a significant effect on flow (emotional state of optimal performance), which indicates that extraverted and compliant individuals have difficulty entering the flow. Of the five factors of personality traits, openness was found to have had a positive and significant effect on the flow. This suggests that individuals with high openness may find greater enjoyment and immersion in trekking experiences, allowing them to achieve flow more readily. Regarding the optimal performance dimension, Egan and Stelmack (2003) found in their research that individuals with a state of extraversion emotion scored high, while they scored low on the neuroticism dimension. Conscientiousness does not have a significant effect on flow.

The reason for this could be that individuals with the conscientiousness personality trait have too detailed and planned characteristics. In addition, the rigorous and punctual nature of these individuals may also be among the obstacles to their entry into the flow (Arthur & Grazi-

Table 5: Results of Mediation Analysis (Şenel, 2023: 118)

	Hypotheses	Indirect Effect	GA Lower Limit	GA Upper Limit	t Value	p Value	Result	Mediating Role
H4a	Extraversion > Environmental identity > Flow	0.054	0.011	0.122	1.971	0.049	Supported	Only indirect mediation (full mediation)
H4b	Agreeableness > Environmental identity > Flow	0.165	0.099	0.248	4.385	0.000	Supported	Only indirect mediation (full mediation)
H4c	Openness > Environmental identity > Flow	0.084	0.043	0.141	3.334	0.001	Supported	Complementary mediation (partial mediation)
H4d	Conscientiousness > Environmental identity > Flow	0.002	-0.035	0.038	0.094	0.925	Not supported	-
H4e	Neuroticism > Environmental identity > Flow	-0.031	-0.070	-0.003	1.844	0.065	Not supported	-

GA= Confidence interval.

ano, 1996; Zhao & Seibert, 2006). Another finding is that neuroticism has a negative and significant effect on flow. The inclination of individuals exhibiting neurotic characteristics to behavioural disorders, long-term negative emotions, and difficulties in human relationships generally affects the optimal performance mood level. Swann et al. (2012) found that negative feedback, lack of motivation, and high anxiety levels are psychological factors that negatively affect optimal performance mood levels in individuals who play sports.

Environmental identity has a positive and significant effect on flow. Environmental identity shapes some environmental behaviours but also constitutes a concept with direct and indirect effects. Clayton (2003), referring to the dimensions of the concept of environmental identity, stated that individuals with a stronger environmental identity experience less difficulty in making decisions on environmental issues and have higher rates of making reliable decisions.

When the results of the mediation analysis are considered, the indirect effect of extraversion on flow through environmental identity is positive and significant. In addition, the indirect effect of agreeableness and openness on flow through environmental identity is positive and significant.

According to the current findings, environmental identity has a mediating role in the flow experience of extroverted, agreeable, and open-to-experience individuals. Thus, environmental identity has been revealed to have an intermediary factor in extraverted, agreeable, and open-to-experience individuals who have the flow experi-

ence. In contrast, the indirect effect of conscientiousness and neuroticism on flow through environmental identity is insignificant. The current results could be explained by the fact that emotionally unstable personality traits negatively affect flow; responsible people also do not have the flow experience.

5.1 Theoretical contribution

The research was theoretically constructed within the scope of the flow theory of Csikszentmihalyi (1990). The theory refers to the fact that a person performs any work or behaviour with an internal motivation, not for external rewards (Csikszentmihalyi, 2020). Based on this, the experiences of the individuals participating in the trekking event have been explained within the framework of flow theory. While the feelings that individuals experience in the activities they participate in will have an impact on optimal performance emotional states, this differs with the influence of some variables. One of the first antecedents of this difference is that, as stated by Csikszentmihalyi (2020), the motivation that occurs may be based on a personality trait (Csikszentmihalyi & Csikszentmihalyi, 1992; Csikszentmihalyi & Nakamura, 1989). Tian and Ou (2023) conducted a study and concluded that the agreeableness subdimension included in the five-factor personality traits positively affects the flow experience level. Xiang et al. (2023) concluded that individuals are in the flow experience and emotional cycle within the framework of five-factor personality traits; these individuals

also experience interaction depending on environmental factors.

5.2 Contribution to the application

This research provides a framework for trekking enterprises to help them create, organize, and design plans that will allow individuals to experience flow. Although trekking activities are known as activities that are carried out during the day and are usually organized in warm weather, there are also trekking organizations that carry them out at night or in cold weather in winter. This indicates that participation in trekking activities can be possible throughout the year, during all four seasons. Given that each of the participants of trekking activities has different personality traits, and each of them has varying flow experiences depending on their personality traits, it is necessary to make arrangements for trekking activities with varying difficulty levels. When the fact that extraversion and agreeableness personality traits have difficulty entering the flow experience process is considered, the personality traits of participants could be determined, and they could be put into relevant groups based on their personality traits before the trekking activity. Then, the appropriate track levels for these groups could be created, and they could be guided according to these groupings.

Considering that there are differences in environmental identity phenomena according to the personality traits of individuals, participation in trekking activities in an environment where each personality trait could experience flow will be much more beneficial. While this reinforces the phenomenon of environmental identity, it will also activate many environmental feelings in individuals who do not have an environmental identity. In the process of participation in trekking activities, the phenomenon of environmental identity is among the factors affecting the level of flow experience. Therefore, training could be given to increase individuals' environmental recognition and the amount of time that they spend in nature. Moreover, these briefings can be given by volunteer environmental trainers during trekking activities. Together with the results of this research, it is considered that individuals will have information about the antecedents of the flow experience, as well as guide practitioners in a broad and detailed way on how they can benefit from trekking activities within the scope of special-interest tourism.

5.3 Limitations and recommendations

This study has some limitations. The first is that it was conducted only with individuals who participated in trekking groups in Eskişehir Province. Future research can be carried out on individuals who participate in trekking groups in other provinces. The model created with this research can be adapted to other recreational activities. Apart from trekking activity, which constitutes the main framework of this study, the flow experience process can be examined in other special-interest tourism activities. In addition, the relationship between other personality theories and the flow experience can be examined instead of using the five-factor personality traits, which was the focus of this study. This study measured the emotional states of the individuals' continuous optimal performance in the flow experience. Future research can measure the optimal performance emotional state of the individuals performing the trekking activity immediately after the event and compare these two levels of emotional states.

6 Conclusion

This research aimed to explore the relationships between five-factor personality traits, environmental identity, and flow experiences among individuals participating in trekking activities, a form of special-interest tourism. Grounded in flow theory, the research employed Smart PLS for structural equation modeling to analyze data from 384 participants involved in trekking activities with outdoor sports clubs in Eskişehir Province. The findings of this study offer significant contributions to both the theoretical and practical understanding of how personality, identity, and flow experiences interact in recreational tourism contexts.

The research found that specific personality traits—extraversion, agreeableness, openness, and neuroticism—positively influence environmental identity, indicating a strong connection between these traits and individuals' environmental perceptions. This finding aligns with the existing literature, which suggests that personality traits play a crucial role in shaping environmental attitudes and behaviours (Bravo & Farjam, 2022; Poškus, 2017). In contrast, conscientiousness did not significantly affect environmental identity, suggesting a possible distinction between personal conscientiousness and environmental conscientiousness. This may indicate that individuals perceive conscientiousness more in terms of personal res-

possibility than environmental concern (Milfont & Sibley, 2012).

The research also revealed that openness and neuroticism were positively associated with experiencing flow during trekking. Individuals with high levels of openness are likely to seek novel experiences and engage more deeply with their surroundings, thus facilitating flow. Similarly, neuroticism's positive relationship with flow suggests that those with this trait find emotional release and fulfillment in engaging with nature, supporting the therapeutic potential of outdoor activities (Csikszentmihalyi, 2005). On the other hand, extraversion, conscientiousness, and agreeableness did not significantly impact flow experiences, indicating that while these traits contribute to environmental identity, they do not necessarily predict the immersive experience of flow in trekking contexts.

Environmental identity was found to positively influence flow experiences, emphasizing its role as a mediator between personality traits and experiential outcomes. This suggests that individuals who identify strongly with the environment are more likely to experience deep engagement and optimal performance during outdoor activities. The mediating role of environmental identity highlights its importance as a psychological construct that links personal dispositions to experiential engagement (Ajibade & Boateng, 2021).

The methodological approach using Smart PLS enabled a comprehensive analysis of the complex relationships among the variables of interest. The use of structural equation modeling provided valuable insights into the direct and indirect effects of personality traits on flow experiences through environmental identity, enhancing the study's ability to capture the nuanced interactions within special-interest tourism.

The implications of this research are multifaceted, offering insights for both academics and practitioners in the tourism sector. Understanding the personality profiles of trekking participants can inform the design of experiences that enhance flow and satisfaction. By fostering an environment that encourages openness and environmental identity, organizers can create more engaging and meaningful trekking experiences. These insights contribute to sustainable tourism development by promoting activities aligned with participants' intrinsic motivations and environmental values.

While this study provides valuable insights, certain limitations should be considered. The sample was geographically limited to Eskişehir Province, which may affect the generalizability of the findings. Future research could expand to include diverse geographical regions and cultural contexts to validate and extend the understanding

of these relationships. Longitudinal studies could further explore how personality traits and environmental identity evolve over time and how they have a their sustained impact on flow experiences.

In conclusion, this research highlights the importance of personality traits and environmental identity in shaping flow experiences within trekking activities. By understanding these psychological dimensions, tourism practitioners can design experiences that foster deeper engagement and connection with nature. As outdoor recreational activities continue to gain popularity, leveraging these insights will be essential for the sustainable development and enrichment of tourism offerings. This research provides a valuable foundation for future explorations into the dynamic interactions between personality, identity, and experiential engagement in diverse tourism contexts.

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