

INVESTIGATING THE RELATIONSHIP BETWEEN ENVIRONMENTAL CONSCIOUSNESS AND SHARING ECONOMY ATTITUDES AMONG YOUTH IN SERBIA

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Abstract. This paper explores the relationship between environmental consciousness and attitudes towards the sharing economy, aiming to shed light on the potential interplay between environmental awareness and participation in collaborative consumption practices. The research investigates whether individuals with a heightened environmental consciousness exhibit more favorable attitudes towards sharing economy initiatives. By delving into the motivations, values, and perceptions that shape environmentally conscious decisions of individuals, the paper seeks to unravel the underlying factors influencing their engagement with sharing platforms. A conceptual model is proposed to explore the mentioned relationships. To test the validity of the model, we conducted a survey among the Gen Z population in Belgrade, Republic of Serbia. The model was verified using structural equation modelling (SEM). The results point out that environmental consciousness and environmental behavior impact perceptions and attitudes regarding the sharing economy. However, that impact is moderate to low. The research implications extend to policy-makers, businesses, and scholars seeking to understand and promote sustainable practices within the context of the sharing economy.

Keywords: *responsible behavior, environmental awareness, sharing economy, platform economy, SEM analysis, conceptual model*

Introduction

The surge in excessive and one-time consumption contributes to the escalation of resource use and material waste, posing an environmental concern that is garnering growing attention. This trend underscores the urgency of addressing unsustainable consumption practices and emphasizes the need for innovative solutions and business models to curb resource depletion and minimize waste production (Bocken et al., 2021). At the same time, in the digital age, the rapid consumption of internet-based content has given rise to innovative business models designed to cater to evolving consumer demands (Richter et al., 2017). Among the myriad initiatives emerging to promote new consumption practices, the concept of sharing economy (SE) demonstrates significant promise (Puschmann et al., 2016).

Sharing economy, also known as collaborative consumption, is an economic model where individuals share access to goods, services, or resources often

facilitated by digital platforms, promoting efficiency, community, and sustainability (Belk, 2014). Participants in the business model are users, service providers, platforms, as well as local government and policy-makers (Hossain, 2020). Sharing economy is, therefore, fostering an environment conducive to sustainable practices by prioritizing utilization over ownership and by transitioning consumption patterns from traditional purchasing to alternatives such as borrowing, leasing, and short-term access (Khalek et al., 2023).

The ecological potential of the sharing economy, as highlighted by Toni et al. (2018), lies in its ability to reduce consumption, minimize waste, and conserve natural resources, thereby helping to protect limited non-renewable resources used in production and extend product lifecycles. Due to the idea of better utilization of existing resources, many sharing economy initiatives are part of the sustainable development program of cities, especially sustainable mobility. While the scientific perspective on the environmental impact of the sharing economy varies, it is indisputable that this concept increases the amount of time that shareable items are used (Demailly et al., 2014). In addition to the above, the sharing economy, often described as part of sustainable consumption, is emerging as a global socio-economic trend, reshaping lifestyles and consumer behaviors. While existing survey data suggests a growing trend towards eco-conscious consumption among consumers (see for example PwC, 2021), research on the link between consumer attitudes towards environmental consciousness and the sharing economy is scarce.

As society navigates the digital landscape, fostering collaboration between technology, business, and environmental stewardship becomes essential for building a more sustainable future (Silvestre et al., 2019). In line with that, our research delves into whether individuals with a strong environmental consciousness hold more positive attitudes towards sharing economy initiatives. By exploring the motivations, values and perceptions that influence environmentally conscious decisions, the paper aims to uncover the underlying factors that drive their involvement with sharing platforms. Hence, to address the research gap, this paper aims to respond to the following research question: *“Do environmental attitudes and behaviors have an impact on attitudes related to sharing economy?”*

In the forthcoming sections, we offer a literature review of both environmental consciousness and the sharing economy concept, along with an exploration of their relationship. The next part of the paper proposes the conceptual model with the aim of examining the relationship between consumer environmental consciousness and attitudes towards the sharing economy. The research results and the conceptual model verification are outlined in the section that follows. The paper concludes by exploring the theoretical and policy implications of the study and provides insights for future research endeavors.

Literature review

Environmental consciousness

Environmental consciousness among consumers refers to their awareness and concern about the environmental impact of their purchasing decisions and lifestyle choices. Due to increasing awareness of environmental issues such as climate change, pollution, deforestation, and habitat destruction, the environmental consciousness has

been steadily growing in recent years. This emerging trend reinforces environmental attitudes and subsequently influences consumers' behavior (Verplanken, 2018).

According to Diamantopoulos and associates (2003) research that has conceptually or empirically addressed various aspects of pro-environmental behavior, including environmental attitudes, concerns, and actual green behavior, can be collectively termed as research on environmental consciousness. Terms responsible purchasing, green behavior, eco-friendly products, and green/sustainable consumption are commonly used to denote environmentally responsible consumption practices (Gadeikiene et al., 2021).

Young people (late Millennials and Generation Z), in the process of forming their consumer habits, are increasingly taking initiatives to support the environment. This is largely due to their awareness that current actions can shape the future state of the environment (Yadav et al., 2016). Kumar et al. (2021) found that young consumers are willing to pay a premium price if they perceive environmental benefits associated with the product or service. As underlined by Dabija et al. (2019), marketing products to younger consumers may require the implementation of eco-friendly tactics, either in manufacturing methods or in promoting them with sustainable principles. Green consumption actions of young consumers are also seen as a part of their social appeal. They seek acknowledgement of their behavior from peers and family or employ their consumption habits to distinguish themselves from their social circle. Young consumers are also inclined to support environmentally friendly policies and initiatives. Their pro-environmental attitude can be demonstrated through diverse means, ranging from particular beliefs to actions like recycling, purchasing environmentally friendly products and participation in other environmental activities.

Sharing economy

The emergence of the sharing economy, which is characterized as an innovative and transformative economic approach, started at the dawn of the 21st century with the appearance of the first hospitality exchange platform, known as CouchSurfing. Merely a decade later, sharing economy platforms intensively began to appear in accommodation and transportation, with Airbnb and Uber leading the way. Currently, the sharing economy has expanded to include almost every sector globally, granting access to various goods and services such as transportation, accommodation, consumer durables, labour and human capital, as well as intellectual property (Goudin, 2016). The popularity of sharing economy services has surged in recent years, with the expectation for this trend to persist. Projections suggest that the total value of the sharing economy will reach nearly 794 billion US dollars by 2031, with a significant increase from 150 billion US dollars in 2023 (Statista, 2024).

Goudin (2016) defined the sharing economy as a “*use of digital platforms or portals to reduce the scale for viable hiring transactions or viable participation in consumer hiring markets (i.e., ‘sharing’ in the sense of hiring an asset) and thereby reduce the extent to which assets are under-utilized.*” The sharing economy involves utilizing physical goods, properties, or amenities through rental, sharing, or exchanging resources using information technology. It is facilitated through crowd-based services or intermediaries without entailing any permanent transfer of ownership (Eckhardt et al., 2019). The characteristics and business models of the sharing economy concept overlap with other emerging modes of consumption, including collaborative consumption, access-based consumption, the gig economy, and platform economy, among others.

The foundation of the sharing economy comprises three core elements (Bojković et al., 2022): (1) users – persons looking for products and services; (2) service providers - those who share goods, resources, times or skills, whether they are private individuals or legal entities (i.e., professional service providers) and (3) online platforms - facilitators of interactions between users and providers. These platforms primarily serve a mediation function, facilitating the development of social relationships and economic transactions. A wide array of business models within the sharing economy sphere enables individuals and/or businesses to share various resources, ranging from accommodation (e.g., apartments via AirBnB platform) to car and car rides (via Uber and BlaBlaCar) to consumer durables (e.g., tools or clothing via Peerby platform).

Apart from its numerous economic and social potentials, it is perhaps the environmental component of the sharing economy that garners the most attention. The literature suggests that, among other factors, the expansion of the sharing economy is driven by increased environmental awareness (Curtis et al., 2019). The concept of sharing economy intersects with environmental consciousness in several ways. When it comes to resource optimization, sharing economy platforms promote the efficient use of resources by maximizing the utilization of underutilized assets (Barbu et al., 2018). For example, carpooling platforms like BlaBlaCar allow multiple individuals to share ride in the same vehicle, reducing the overall number of cars on the road and the associated environmental impacts such as pollution and resource extraction for manufacturing. In this regard, the BlaBlaCar platform helped prevent the emission of 1.55 million tons of CO₂ by optimizing the usage of cars and buses in 2022 alone (BlaBlaCar, 2023). This is notable, keeping in mind the global levels of CO₂ emission (Albijanić et al., 2023). Sharing economy also contributes to reducing waste by extending product lifespan and encouraging reuse (Demailly et al., 2014). Instead of purchasing new items that may quickly become obsolete or underused, consumers can access shared goods and services as needed, minimizing the disposal of unwanted items and reducing landfill waste. This shift in consumers' mindset aligns with environmental consciousness by promoting more sustainable lifestyles, prioritizing environmental stewardship and mindful consumption.

Sharing economy platforms can also facilitate energy conservation by promoting shared transportation options such as bike-sharing services (Eckelman et al., 2023; Zhang et al., 2018). By reducing the number of individual vehicles on the road, these services can help decrease greenhouse gas emissions and energy consumption associated with personal transportation (Ala-Mantila et al., 2016).

Furthermore, many sharing economy initiatives focus on local communities and encourage peer-to-peer transactions. This localization aspect can reduce the environmental footprint associated with long-distance transportation and global supply chains by promoting local production and consumption. By facilitating the sharing and reuse of goods and services, sharing economy platforms contribute to the transition towards a more circular economy model, which is essential for sustainable resource management (Barbu et al., 2018).

It can be concluded that the sharing economy can serve as a powerful tool for promoting environmental consciousness by fostering resource efficiency, waste reduction, energy conservation, and sustainable lifestyles. However, it is essential to ensure that sharing economy initiatives are designed and implemented in ways that prioritize environmental sustainability and social equity to maximize their positive impact on both people and the planet.

Research methodology

Conceptual model and hypothesis development

Having in mind that the sharing economy can have a positive impact on the environment by promoting resource efficiency and reducing overall consumption through the shared use of goods and services (Liu et al., 2020), it is paramount to decipher what are the factors which shape participation and positive perception on the sharing economy. This research aims to shed light on these factors, especially focusing on environmental attitudes and behaviors as predictors. To do so, a conceptual model was developed to explore do and how environmental attitudes and behaviors affect attitudes related to the sharing economy. *Figure 1* presents the proposed conceptual model, with detailed explanations in the sections below.

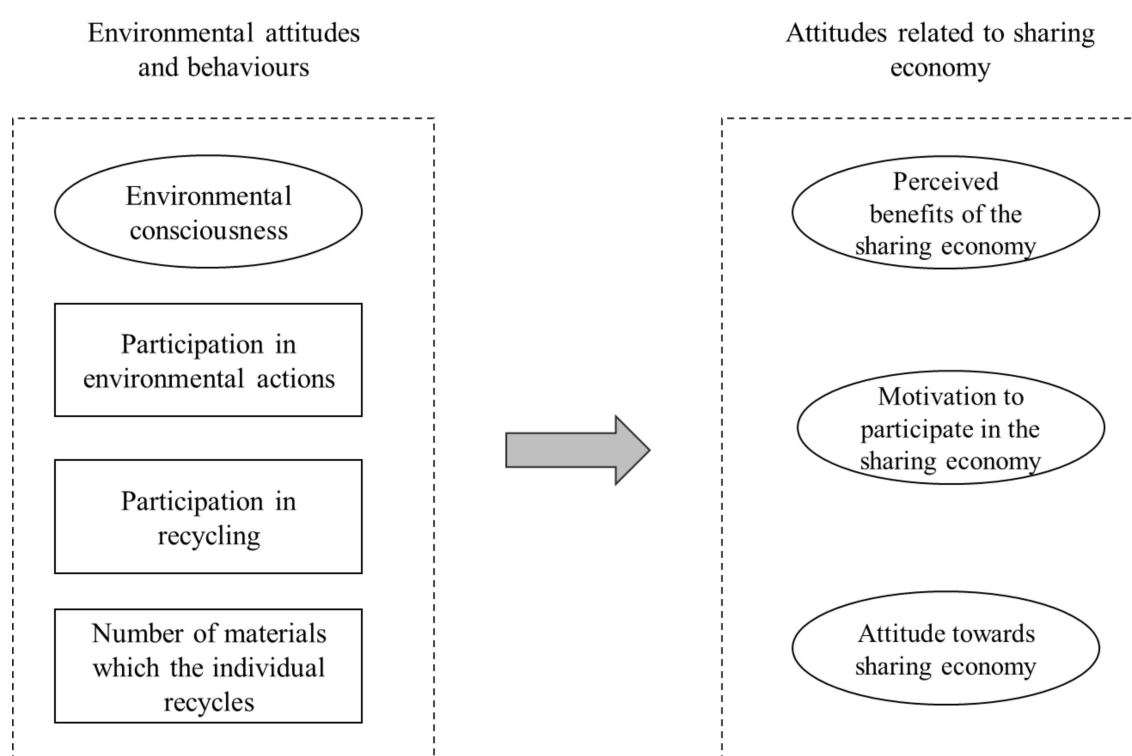


Figure 1. *Proposed conceptual model*

So far, numerous studies have delineated the multiple motivation factors influencing consumers' attitudes and behaviors regarding participation in the sharing economy. Among the studies that offer a comprehensive overview of motivational factors, notable examples include those by Hamari et al. (2016), Hawlitschek et al. (2016), and Gazzola et al. (2019). In addition to financial reasons, social benefits, product/service availability, or altruistic motivations, sustainability is the most frequently cited in discussions regarding sharing economy consumers' motives (Merino-Saum et al., 2023).

Hamari et al. (2016) noted that the sustainability motive in the sharing economy context is a significant factor due to its influence on consumers' attitudes. Besides that, a noteworthy finding of this study is that sustainability is not directly linked to participation unless it is concurrently correlated with positive attitudes towards the

sharing economy. Hartl et al. (2018) discovered that environmental motives serve as an additional incentive when a consumer selects peer-to-peer (P2P) carsharing services over business-to-consumer (B2B) alternatives. Research also identified a notable correlation between environmental attitudes and green consumer behavior. For instance, Muller et al. (2021) found that environmental consciousness directly and positively influences the intention to purchase green products. Caspersen and Navrud (2021) concluded that favorable attitudes towards green consumption or environmentally sustainable behavior affect both engagement in the sharing economy and the demand for sustainable last-mile delivery services.

Sharing economy consumers' environmental attitudes and behaviors can be shaped by different factors. Matharu et al. (2020) discovered that attitudes, subjective norms, and perceived behavior control positively and significantly influence customers' intentions for sharing economy sustainable practices. Kumar et al. (2021) found relatively similar conclusions in their paper. The results of the study conducted by Khan et al. (2020) revealed that death anxiety significantly influences individuals to alter their consumption preferences upon realizing that environmental degradation can ultimately lead to death. Their research also suggested that when individuals are socially connected, their inclination towards adopting green consumption intensifies. Therefore, social connectedness was identified as a significant predictor of green consumption within a sharing economy. Kim and Jin (2020) indicated that environmentally conscious consumers who prioritize reducing waste in society are more inclined to engage in collaborative consumption.

Perceived benefits/values also play a crucial role in shaping consumers' attitudes towards the sharing economy. Perceived benefits are related to the consumer's evaluation, perception, or comparison of the benefits received versus the costs incurred (Zeithaml, 1988). Among the values of the sharing economy that have been most verified by research are monetary and time savings, ease of use, usefulness, economic benefits, customized additional services, increased confidence, and social and safety welfare. Gadeikiene and Svarcaite (2021) highlighted four core dimensions of consumer perceived value: functional, economic, social, and emotional. They also discovered that consumer environmental consciousness significantly influences attitudes towards the sharing economy and directly affects perceived social value among consumers. A study conducted by Zhou et al. (2021) indicated that the perceived ease of use is the most influential factor affecting the intention to use bike-sharing services.

Another factor that contributes decisively to participation in the sharing economy is age. The "younger" generations, particularly generations Y and Z, are seen as more technologically skilled and open to changing consumer habits and are more prone to participating in the sharing economy. Research indicates that individuals aged between 22 and 35 are the most active participants in the sharing economy (Kumar et al., 2018; Martínez-González et al., 2021). Younger millennials, the so-called Gen Z, iGen or centennials, have grown up in a world dominated by the Internet, social media, and mobile applications, making them even more inclined to value access over ownership and integrate sharing into their daily lives. Additional distinctive characteristics of this generation include a high level of education, a deep comprehension of environmental concerns, and a strong inclination towards embracing eco-conscious products (Chaturvedi et al., 2020).

Distinct studies have focused on centennials' involvement in the sharing economy, particularly emphasizing their environmental motives, thereby highlighting this

demographic as a notable group of interest within the field. As pointed out by Chaturvedi et al. (2020), environmental concerns, willingness to pay, perceived value, and personal norms influence Generation Z's intention to purchase recycled clothing. One of the most recent studies indicated that although utilitarian and hedonic values impact the intention to use peer-to-peer accommodation for both young generations, Gen Z places greater importance on sustainability, social interaction values, and perceived social media exposure compared to Millennials (Fan et al., 2023).

Building upon the previous discussion, twelve hypotheses were formulated:

Hypothesis 1: Environmental consciousness impacts the perceived benefits of the sharing economy.

Hypothesis 2: Environmental consciousness impacts the motivation to participate in the sharing economy.

Hypothesis 3: Environmental consciousness impacts the attitude towards the sharing economy.

Hypothesis 4: Participation in environmental actions impacts the perceived benefits of the sharing economy.

Hypothesis 5: Participation in environmental actions impacts the motivation to participate in the sharing economy.

Hypothesis 6: Participation in environmental actions impacts the attitude towards the sharing economy.

Hypothesis 7: Participation in recycling impacts the perceived benefits of the sharing economy.

Hypothesis 8: Participation in recycling impacts the motivation to participate in the sharing economy.

Hypothesis 9: Participation in recycling impacts the attitude towards the sharing economy.

Hypothesis 10: The number of materials which the individual recycles impacts the perceived benefits of the sharing economy.

Hypothesis 11: The number of materials which the individual recycles impacts the motivation to participate in the sharing economy.

Hypothesis 12: The number of materials which the individual recycles impacts the attitude towards the sharing economy.

Survey instrument

To collect the data needed for model verification, we devised a survey instrument consisting of the following eight sections: Socio-demographic characteristics, Environmental consciousness, Participation in environmental actions, Participation in recycling, The number of materials which the individual recycles, Perceived benefits of the sharing economy, Motivation to participate in the sharing economy and Attitude towards sharing economy. Within this section, we provide an explanation of each survey section and provide example questions and references to previous work from which the scales and questions have been taken. The full list of questions per survey section is given in the Appendix.

Socio-demographic characteristics included the questions related to gender, year of birth, size of the city the respondent grew up in, region in which the respondent grew up, level of monthly income the respondent has at his/her disposal, type of household the respondent resides, and ownership of the place of residence.

Environmental consciousness was measured using seven statements taken from the studies of Kumar et al. (2021), Paul et al. (2016) and Taufique et al. (2018). The aim of this construct was to measure the individuals' awareness, concern, and attitudes towards environmental issues, as well as their willingness to take action to protect the environment. An example of a question within this construct is: *It is important to me that the products I use do not pollute the environment*. All seven statements were measured on a five-point Likert scale.

The question related to *Participation in environmental actions* measured the number of environmental actions a participant takes part in. The question was in the form of a multiple-choice question, so a participant could check several answers. Some of the listed environmental actions were *Recycling* and *Using paper bags*. A similar approach to measuring participation in environmental actions was taken in the study of Triantafyllidou and Zabaniotou (2022).

Participation in recycling was measured as a binary Yes/No question. Gartland and Piasek (2009) used the same form of question in their research.

The number of materials which the individual recycles was measured as the number of different materials a participant regularly recycles. The question was in the form of a multiple-choice question, so a participant could check several materials. Some of the materials offered were *plastic* and *paper*. A similar approach to observing the recycling of materials was employed in the study of Bjelkemyr et al. (2015).

The construct *Perceived benefits of the sharing economy* measures individuals' beliefs and attitudes about the positive outcomes or advantages of participating in the sharing economy. To measure this construct, we asked the respondents their level of agreement with eight statements. An example of a statement within this construct is: *Sharing economy enables savings or income acquisition*. Previous research has also observed some of these benefits (Maričić et al., 2023a; Yang et al., 2017).

To measure *Motivation to participate in the sharing economy*, the respondents were asked to mark how much would, on a scale from 1 to 5, each of the chosen nine aspects motivate them to start or continue using sharing economy platforms. An example of a motivational factor is: *Better awareness of the concept of the sharing economy and its advantages/disadvantages*. Some of these motivating factors have been previously investigated in the literature (Guttentag et al., 2018; Lee et al., 2018).

Finally, to measure the *Attitude towards sharing economy*, we asked the respondents to rate their agreement on a scale from 1 to 5 with 12 statements. An example of a statement from this construct is: *Sharing economy makes life easier and more efficient*. Some of these statements have been considered in the work of Hamari and associates (2016).

As presented, the defined constructs are measured using validated statements and scales from existing literature, ensuring a robust and comprehensive assessment of respondents' environmental awareness, actions, and perceptions of the sharing economy. We believe that the detailed devised survey provides valuable insights into the behavior and attitudes of individuals related to environmental consciousness and sharing economy practices.

Data collection procedure

During May 2023, the survey was distributed among the University of Belgrade (UB) Faculty of Organizational Sciences (FOS) students. This faculty is renowned for its comprehensive programs in information systems and management, providing

students with a strong foundation in both technical and managerial skills. Every year, FOS enrolls approximately 1000 students in bachelor studies (FOS, 2024), attracting a diverse cohort of individuals from across Serbia.

For this study, we specifically targeted students in their second and third years of study. This decision was made based on the assumption that these students have already acclimated to university life, life in the capital and have spent some time in the academic environment gaining access to information on new consumption and sharing economy trends (Tan, 2018). Consequently, our overall population consisted of around 2000 students, representing a significant portion of the FOS undergraduate community. Taking into account the sample size, the margin error of 5%, the minimal suggested sample size is 323. The calculation has been done using the Stratified Fisher's exact test for sample size calculation (Jung, 2014).

The conducted study was cross-sectional, meaning that we surveyed the students at a single point in time (Wang et al., 2020). These kinds of studies are observational in nature and do not involve manipulation or influence of the researcher on the collected data. This approach allows for a snapshot of the target population's current attitudes, behaviors, or characteristics without the need for follow-up or longitudinal tracking.

The survey was distributed online. To facilitate data collection, students were provided with a link to the survey, which they could easily access and complete using their mobile phones. The survey was administered in the classroom setting under the supervision of a professor or teaching assistant. This approach ensured a controlled environment for data collection while maintaining the convenience and familiarity of digital survey methods.

To encourage participation and ensure a higher response rate, students were offered additional points for their class activities as an incentive for completing the survey. This strategy not only helped to maximize the sample size but also potentially increased the diversity of respondents, as it appealed to students with varying levels of academic engagement.

Statistical method applied—structural equation modelling (SEM)

The statistical multivariate analysis chosen to verify the proposed conceptual model and accept or reject the defined research hypotheses was Structural Equation Modelling (SEM). The SEM stands on the principles of two acknowledged analyses: factor analysis and multiple linear regression (Kline, 2005). Factor analysis allows for the grouping of items/variables into latent constructs, thus creating measures of complex multidimensional phenomena. Multiple linear regression, on the other hand, allows the exploration of relationships among latent constructs and other measured variables in the model (Byrne, 2001). Two major groups of SEM algorithms are most commonly applied in research: covariance-based (CB) SEM (Jöreskog, 1978) and partial least squares (PLS) SEM (Lohmöller, 1989). CB-SEM is a covariance-based approach that relies on the covariance matrix of observed variables. The approach assumes that the data follows a multivariate normal distribution. On the other hand, the PLS-SEM is a variance-based approach that focuses on maximizing the explained variance in the dependent constructs (Komazec et al., 2023). This approach does not assume a normal distribution, making it robust for non-normal data. The CB-SEM was applied in this study using the AMOS 22 software. The CB-SEM approach was chosen as the purpose of our study was not prediction but conceptual model verification (Ivančević et al., 2023).

Research results

Descriptive analysis of the collected data

In total, 325 respondents participated in the study, of which 226 were female (69.5%) and 99 were male (30.5%). Gender disproportion can be noticed. However, it was expected for two reasons and was not treated as a methodological issue. First, females are more prone to entering higher education than men in Serbia (Statistical Office of the Republic of Serbia, 2023), and second, females are prone to taking part in surveys (Smith, 2008). The survey participants range in age from 20 to 30 years, with a mean age of 21.34 years and a standard deviation of 1.035. The observed age range is anticipated, with instances of academic year renewal in mind, resulting in a slight extension of educational tenure. Most respondents (37.5%) spent their formative years in Belgrade, followed by those from medium-sized cities with populations ranging from 20,000 to 100,000 inhabitants (32.3%). Regionally, the highest proportion hails from Belgrade (42.8%), followed by Western Serbia (15.4%) and Central Serbia (14.8%). Regarding living arrangements, a significant proportion cohabits with their parents (52.9%), while 28.9% share accommodations with roommates. Notably, 15.4% of respondents reside independently. The predominant housing situation involves ownership, either by the respondents themselves or their family members (59.7%). We were curious to observe the amount of money the respondents have at their disposal. The majority reported having up to 170 EUR (37.8%) and 170 to 340 EUR (30.5%) at their disposal monthly. A noteworthy 20.0% of respondents opted not to disclose their financial status. In summary, our sample comprises of students predominantly originating from Belgrade, residing with their parents in self-owned accommodations, and possessing monthly disposable incomes of up to 170 EUR.

Besides analyzing the structure of the sample covered in the study, we observed the descriptive statistics of the scales and variables in the model. The analysis is presented in *Table 1*. Looking at the model section related to environmental attitudes and behaviors, we can see that the mean value of the scale *Environmental consciousness* is 3.720 with a standard deviation of 0.760. A relatively low standard deviation indicates that the students' answers were coherent. We can say that the students are environmentally conscious. The following variable, *Participation in environmental actions*, indicates the number of environmental actions a student participated in. As this was a multiple-choice question, the answers range from 0 to 5. The mean number of environmental actions students participate in is as much as 2.588. However, a high standard deviation and the interquartile range (IQR) indicate discrepancies in the student behavior related to taking part in eco-actions. The variable *Participation in recycling* should be interpreted in the light of its coding. The variable was coded so that 1 indicated the answer "Yes" while 2 indicated "No." Therefore, the mean of 1.630 signals that students mostly do not recycle. Based on the mean value of the variable *Number of materials the individual recycles*, we can conclude that students do not recycle. However, a promising result is that there are students who recycle as many as five different materials.

Descriptive statistics of the three scales related to the attitudes and perceptions of the sharing economy show that the student's perception of the sharing economy benefits, motivation to participate in the sharing economy, and attitude towards the sharing economy is mostly positive, with all mean scale values being above 3.500. Low standard deviations also indicate that the students' opinions on the sharing economy are consistent.

Table 1. Descriptive statistics of the model variables and constructs

Model element	Mean	Std	Min	Max	IQR
Environmental consciousness	3.720	0.760	1.00	5.00	0.86
Participation in environmental actions	2.588	1.357	0.00	5.00	2.00
Participation in recycling	1.630	0.484	1.00	2.00	1.00
Number of materials the individual recycles	0.809	1.191	0.00	5.00	2.00
Perceived benefits of the sharing economy	3.766	0.620	1.00	5.00	0.88
Motivation to participate in the sharing economy	3.551	0.763	1.44	5.00	1.11
Attitudes towards sharing economy	3.606	0.566	1.92	5.00	0.75

We offer further insights from the gathered data to enhance comprehension of the behavioral patterns of students concerning recycling and engagement in environmental initiatives. As students were asked to check all the different types of materials they recycle, we provide *Figure 2*. The histogram shows that as much as 43.00% of answers were that the person does not recycle. Students most commonly marked that they recycle plastic (24.40%) and paper (13.00%). Interestingly, some students recycle clothes, metal and even organic waste.

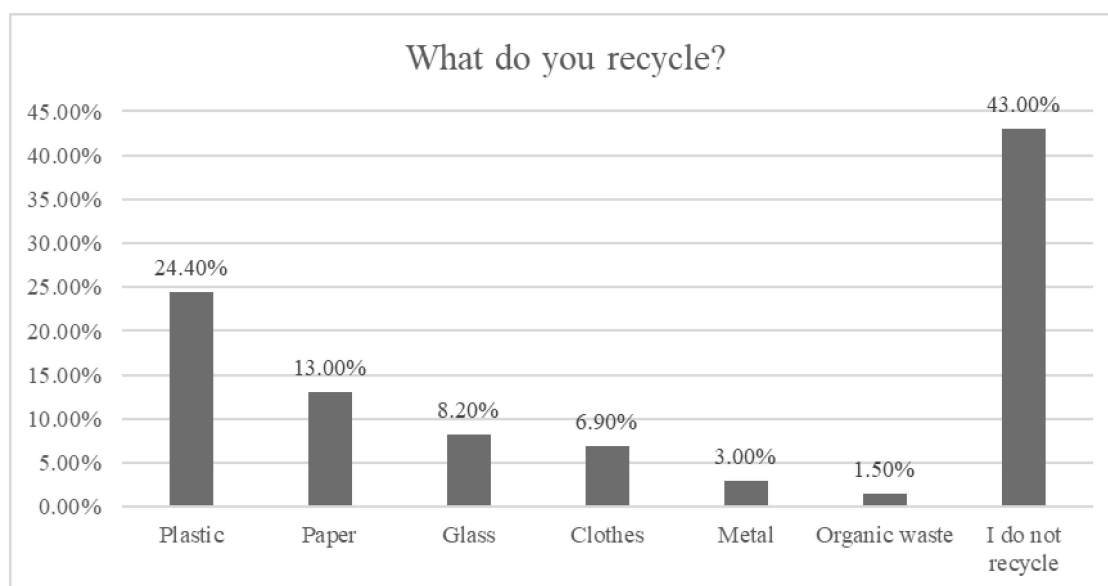


Figure 2. Analysis of the materials students recycle

As students were asked to check all environmental actions they participated in, we visually present the results in *Figure 3*. The environmental action in which more than half of students take part is using paper bags. As many as 214 students use paper bags instead of plastic ones. This result is not a surprise, as in Belgrade, since 2020, retailers have been obliged to sell paper bags, cotton bags, or bags made of recycled plastic in stores (Paragraf, 2020). Students are also conscientious and try to minimize the amount of waste they generate by using electrically efficient light bulbs. Participation in environmental actions with a humanitarian character is also an action in which students take part. One of the most famous such actions is “Čep za hendikep” (Cap for handicap)

in which bottle caps are collected and recycled, and the raised money is used to buy orthopedic aids for those who cannot afford them (Čep za hendikep, 2024). Students participate in other actions, but not in large percentages.

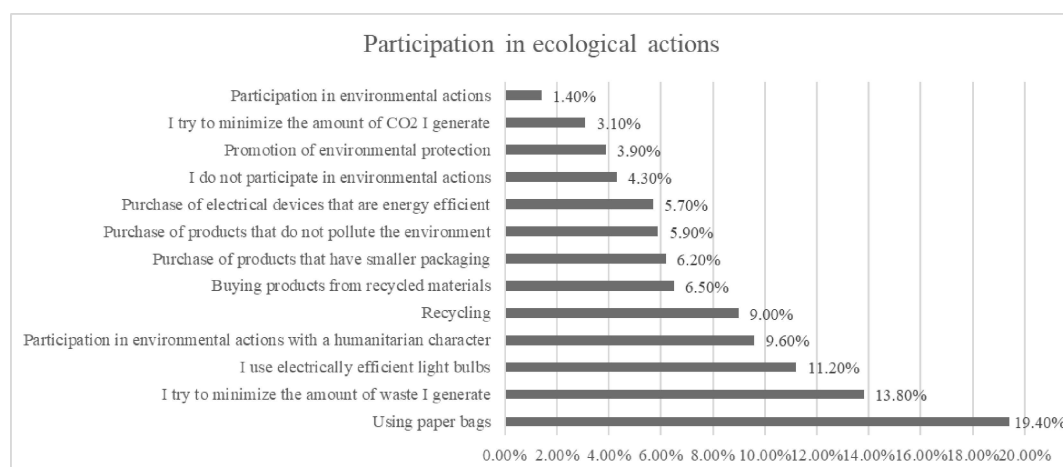


Figure 3. Analysis of the environmental actions students participate in

The final aspect that should be observed prior to SEM analysis is the respondents' previous experience with the sharing economy. First, we asked them whether, before the survey, they had heard of the sharing economy concept. As much as 80.9% said they had not heard about the concept. However, when asked if they used a service provided through sharing platforms (such as Uber, Airbnb, BlaBlaCar), 51.9% of the respondents answered positively. These results indicate that students participate in the sharing economy business model without being aware of the business model itself and its characteristics.

Internal consistency test

Before conducting the SEM analysis, it is recommended to conduct internal consistency tests of the model constructs. The most commonly used measure of internal consistency is Cronbach's alpha (Cronbach, 1951). Cronbach's alpha calculates the extent to which items within a scale measure the same construct. This metric takes values from 0 to 1. The closer the alpha is to 1, the higher the scale's internal consistency. The suggested threshold for interpretation is 0.7 (Gliem et al., 2003). The obtained Cronbach's alphas per scale are provided in *Table 2*. As presented, the calculated alphas range from 0.708 (*Perceived benefits of the sharing economy*) to 0.864 (*Environmental consciousness*). This result indicates that all four scales are consistent and valid. Therefore, we can continue with the application of SEM analysis.

Table 2. Construct validity analysis

Construct	Environmental consciousness	Perceived benefits of the sharing economy	Motivation to participate in the sharing economy	Attitude towards sharing economy
Items	7	8	9	12
Alpha	0.864	0.708	0.797	0.779

Model verification results

The initial model results show a moderate fit to the data (Chi-square = 2199.132, $df = 693$, $p < 0.000$, RMSEA = 0.082, CFI = 0.648, TLI = 0.601). We used modification indices to fine-tune and enhance the model and removed all the non-significant paths (paths with critical ratios in absolute values below 1.96). The metrics of the final model show a better fit to the data (Chi-square = 1729.505, $df = 664$, $p < 0.000$, RMSEA = 0.070, CFI = 0.799, TLI = 0.751). It can be observed that the value of the Chi-square statistics visibly decreased. At the same time, the value of the RMSEA is now closer to the lower threshold value of 0.05. The values of the CFI and TLI indices are closer to the suggested level of 0.9. Although these indices are below the defined threshold, considering the model complexity and the sample size, we can accept the current model and interpret the results. The model assessment results are presented in Table 3.

Table 3. Results of the conceptual model verification: construct, predictor(s), standardized and unstandardized coefficients, critical ratio (CR) and R^2

Construct	Predictor(s)	Standardized Coeff.	Unstandardized Coeff.	CR.	R^2
Perceived benefits of the sharing economy	Participation in environmental actions	0.132	0.043	1.967	0.086
	Participation in recycling	-0.233	-0.214	-3.263	
Motivation to participate in the sharing economy	Environmental consciousness	0.312	0.264	4.366	0.111
Attitudes towards sharing economy	Environmental consciousness	0.151	0.071	2.253	0.099
	Participation in environmental actions	0.155	0.037	2.482	
	Participation in recycling	-0.171	-0.114	-2.711	
	Number of materials the individual recycles	-0.125	-0.041	-2.441	

The construct *Perceived benefits of the sharing economy* proved to have two statistically significant predictors related to participation: *Participation in environmental actions* and *Participation in recycling*. The measured coefficient of 0.132 indicates that if a student participates in more environmental actions, he/she will have a more positive perception of the benefits of the sharing economy concept. The negative coefficient associated with *Participation in recycling* shows that if a person recycles, his/her perception of the benefits of the sharing economy concept will be negative. The two predictors explain 8.6% of variability of the construct *Perceived benefits of the sharing economy*. The remaining two model elements, *Environmental consciousness* and the *Number of materials the individual recycles* do not impact the perceived benefits of the sharing economy.

Interestingly, *Motivation to participate in the sharing economy* has only one statistically significant predictor – *Environmental consciousness*. The relationship is such that a higher environmental consciousness leads to higher motivation to participate in the sharing economy. The measured coefficient is 0.312, which can be classified as a

coefficient of medium strength. The one predictor explains 11.1% of the variability of the construct *Motivation to participate in the sharing economy*.

Finally, *Attitude towards sharing economy*, has as many as four statistically significant predictors. Namely, all environmental attitudes and behaviors have an impact on this construct. If an individual has a higher environmental consciousness, participates in environmental actions, and recycles, he/she will have a more positive attitude towards the sharing economy. However, the more different materials one recycles, the less positive attitude towards sharing economy one will have. The four predictors explain 9.90% of the variability of the construct.

Discussion and contributions

While studies on the participation of youth in the sharing economy are scarce, interest in this area has been growing recently. However, research linking youth attitudes towards environmental consciousness and the sharing economy is nearly non-existent, which we consider to be one of the valuable contributions of our research.

An expanding demographic of youth across the globe actively engages and enriches the digitally networked landscape through multifaceted activities, including but not limited to creative expressions on social media, interactive gaming, and collaborative initiatives (Lombana-Bermudez et al., 2020). The consumer's age emerges as a significant determinant in participating in the sharing economy, suggesting its discriminatory influence (Gazzola et al., 2021). University students serve as exemplary representatives of young digital consumers, possessing the requisite knowledge and skills to embrace behaviors associated with the sharing economy (Martínez-González et al., 2021). In addition to their communicative and collaborative nature, and their tendency to construct their identity less around possessions and more around relationships, young people exhibit strong inclinations towards participating in the sharing economy. Moreover, they demonstrate concern about social and environmental issues (Tabassum et al., 2020). We tested the proposed conceptual model on the relationship between environmental consciousness and sharing economy attitudes within this population segment. The summary of the research hypothesis and conclusions is given in *Table 4*.

The findings of our study suggest that environmentally conscious young individuals are more inclined to participate in the sharing economy, thus confirming the hypotheses outlined in the paper that environmental consciousness influences motivation to engage in sharing economy activities (H2) and attitude towards sharing economy (H3). However, it is noteworthy that despite this inclination, many are unaware of their involvement in such activities due to a lack of comprehensive understanding of the concept itself. This could explain the fact that even though environmental consciousness influences motivation to engage in sharing economy activities, it does not impact the perceived benefits of the sharing economy (H1).

These findings may be interpreted within the context of limited information and knowledge concerning the full range of potential positive impacts that the sharing economy can offer regarding sustainability and environmental benefits. Considering that 80.9% of respondents from our survey were unfamiliar with the concept of the sharing economy, it is worth noting that students engage in sharing economy activities without necessarily being aware of the business model itself and its characteristics. Therefore, in their promotion and advertising efforts, providers should also emphasize

the modalities, benefits, and environmental impact of participating in the sharing economy. This includes aspects like shared mobility, accommodation, and products, especially when targeting young people and students. This strategic emphasis not only stands to bolster the sales of specific products and services but also fosters the adoption and utilization of pertinent digital platforms. Such initiatives serve to extend the reach and impact of the sharing economy, thus yielding positive outcomes for both ecology and sustainability.

Table 4. *Research hypothesis and conclusions summary*

Hypothesis	Conclusion
Hypothesis 1: Environmental consciousness impacts the perceived benefits of the sharing economy	Reject
Hypothesis 2: Environmental consciousness impacts the motivation to participate in the sharing economy	Accept
Hypothesis 3: Environmental consciousness impacts the attitude towards sharing economy	Accept
Hypothesis 4: Participation in environmental actions impacts the perceived benefits of the sharing economy	Accept
Hypothesis 5: Participation in environmental actions impacts the motivation to participate in the sharing economy	Reject
Hypothesis 6: Participation in environmental actions impacts the attitude towards sharing economy	Accept
Hypothesis 7: Participation in recycling impacts the perceived benefits of the sharing economy	Accept
Hypothesis 8: Participation in recycling impacts the motivation to participate in the sharing economy	Reject
Hypothesis 9: Participation in recycling impacts the attitude towards sharing economy	Accept
Hypothesis 10: The number of materials which the individual recycles impacts the perceived benefits of the sharing economy	Reject
Hypothesis 11: The number of materials which the individual recycles impacts the motivation to participate in the sharing economy	Reject
Hypothesis 12: The number of materials which the individual recycles impacts the attitude towards sharing economy	Accept

The research results show that, although participants in environmental actions are aware of the importance and benefits of the sharing economy, they are not necessarily motivated to participate in the sharing economy process itself. Therefore, participation in environmental actions impacts the perceived benefits of and attitude towards the sharing economy (H4 and H6) while simultaneously not impacting the motivation to participate in the sharing economy (H5).

These findings may be interpreted in the context of the lack of definitive evidence demonstrating the sharing economy's positive impact on sustainability. Such insight could enhance our understanding of why individuals engaged in environmental actions may hesitate to participate in the sharing economy (Heinrichs, 2013; Ricci, 2015). Conversely, they can also be understood in the context of the negative attitudes held by participants in environmental actions, such as environmental activists, towards modern forms of consumerism. This reluctance may stem from the belief that such practices

only exacerbate consumption rather than mitigate it. There could be skepticism about the effectiveness of the sharing economy in fostering environmental sustainability. This skepticism often arises from the perception that there is an insufficient community and environmental interest in the sharing economy, particularly given the prevailing dominance of the capitalist system. It turns out that the criticism of capitalism emerged as one of the predominant themes within the narratives of transformation provided by young environmentalists (Herbert, 2021; Pepper, 2002).

Identical results were obtained when examining the relationship between participation in recycling and motivation to engage in the sharing economy. The correlation between participation in recycling and involvement in the sharing economy should be approached with the same consideration as the association between participation in broader environmental actions and the sharing economy. There is a noticeable lack of understanding of the various aspects and complexities of the sharing economy, particularly concerning recycling. Given that recycling is closely linked with the circular economy and the sharing economy is a subset of the circular economy (Aldieri et al., 2021; Henry et al., 2021; Ragossnig et al., 2019), this highlights the apparent insufficiency in familiarity and education surrounding this concept.

While the disparities in the research results regarding the impact of environmental consciousness on one hand, and participation in environmental actions and recycling on the other, on benefits, attitude, and participation in the sharing economy may appear perplexing initially, Piscicelli et al. (2015) suggest that values are typically perceived as having minimal influence on behavior, often being influenced by other factors, and demonstrating limited predictive power for environmentally conscious consumer behavior. This observation leads us to the phenomenon known as the “value-action gap,” which underscores the perceived disparity between stated values and actual behavior. Essentially, values often do not directly translate into behavior (Piscicelli et al., 2015).

Lastly, in evaluating the sharing economy’s environmental and ecological actions, it is important to consider the overall environmental impacts comprehensively. Increased consumption and intensified activities in certain sectors of the sharing economy, such as the growing volume of transportation and the expanded use of physical assets involved in sharing, can potentially lead to adverse effects on the environment, including increased emissions and energy consumption.

Policy implications

Given the significant environmental and ecological challenges that developing countries like Serbia encounter, encouraging environmentally conscious young individuals to participate in sharing economy activities could be a valuable component of the solution. In this regard, the paper identifies several policy implications drawn from the research findings.

According to official statistics in Serbia, which examine the share of Internet users (in the last three months) based on work status, 100.0% of the student population used the Internet at least once. This socio-demographic category also demonstrates the highest representation in e-commerce compared to other categories, with 66% of students having used e-commerce at least once in the last three months. This indicates significant potential within this segment of society for utilizing collaborative platforms and participating in sharing economy activities (Statistical Office of the Republic of Serbia, 2022).

On the other hand, almost 81% of respondents from our survey indicated that they are not familiar with the concept of the sharing economy. Therefore, by educating and familiarizing young people and the student population with the concept of the sharing economy, we can significantly contribute to advancing sustainable development goals and potentially addressing environmental and ecological issues.

Hence, it is imperative to enhance the prominence of this concept within university curricula and related activities, especially within faculties and institutions specializing in fields relevant to sharing economy business models. A prime example of best practices is the establishment of the Serbian Sharing Economy Competence Center (SeSECC) at the University of Belgrade. SeSECC functions as a digital hub of knowledge, facilitating networking within the academic community, establishing collaboration with governmental and non-governmental organizations at both national and local levels. Furthermore, it serves as an educational hub, organizing skill-development sessions encompassing technical, business, and managerial aspects pertinent to the sharing economy field (Petrović et al., 2022).

The favorable attitudes of environmentally-conscious young individuals towards participating in sharing economy activities should transcend mere consumerism, acknowledging their potential as entrepreneurial agents in this sphere. They have the capacity to establish businesses within the sharing economy domain, whether through the creation of digital platforms or by offering services via existing platforms. Hence, policy-makers should explore measures for incentivizing the integration of young people into the sharing economy, whether as platform operators or service providers.

These incentives may include facilitating access to funding and knowledge for establishing businesses (start-ups), enhancing the legislative framework for alternative forms of financing (such as venture capital and crowdfunding (Živanović et al., 2023)), promoting collaboration between academia and industry, bolstering the capacities of scientific and technological hubs, and providing tax benefits, among others. These measures would not only stimulate private investments, which are currently lacking (Randelović et al., 2024), but also address the significant issue of youth unemployment in Serbia (Kuzman, 2023), and promote sustainable business practices aligned with the trending Environmental, Social, and Governance (ESG) concept, further enhancing the environmental situation in Serbia (Domanović, 2021; Đuričin et al., 2024; Pérez-Pérez et al., 2021).

Concluding remarks and future directions of the study

Nevertheless, the findings of this study have to be seen in light of some limitations. The first limitation of the study is the sample. Our sample covered only students from one faculty of one university. To gain more generalizable results, the sample should be extended. The sample could be extended to the student population of Belgrade or Serbia. It would also be interesting to conduct the analysis in the neighboring countries and compare the models to see whether socio-economic and cultural factors impact the relationships in the model (Melanthiou et al., 2020). Another limitation worth mentioning is the fact that the sample covered soon-to-be highly educated individuals. Namely, several studies concluded that highly educated persons are greener (Jain et al., 2008), more socially conscious consumers (Berkowitz et al., 1968), and therefore, more prone and open to the sharing economy concept. The sample is partially biased towards a population which is expected to have a positive attitude towards sharing economy. A

more representative sample encompassing a broader youth demographic should be collected to address this issue and provide more generalizable conclusions.

If the sample is extended, the model structure could be extended as well. Examples of factors which could be added to the model are the social value and emotional value of the sharing economy (Gadeikiene et al., 2021) or green purchase attitude, green purchase intention, and green purchase behavior (Mishal et al., 2017).

Future directions of the study also emerge, encompassing the application of different statistical methods. One could see the application of segmentation analysis using clustering (Maričić et al., 2023b) or biclustering algorithms (Nikolic et al., 2022). Namely, the participants could be segmented based on their ecology-related behaviors, and their behavior patterns related to the sharing economy could be explored afterwards. Also, agent-based simulations could be performed, such as in the work of Živojinović and Zornić (2022). Also, an interesting additional analysis could be the application of multi-group SEM analysis (MG-SEM) (Kock, 2014). The MG-SEM analysis would be used to explore whether there are differences in the path coefficients between different groups of respondents.

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APPENDIX

Table A1. Detailed list of questions from the developed and conducted survey

Construct	Item	Type	Reference
Environmental consciousness	1. It is important to me that the products I use do not pollute the environment 2. I think about the impact my activities have on the environment 3. My shopping habits have changed because of my concern for the environment 4. I am concerned about the way natural resources are used on a global scale 5. I am concerned about the way natural resources are used at the local level 6. I would describe myself as someone who behaves responsibly towards the environment 7. I am interested in supporting environmental and sustainable initiatives.	Five-point Likert scale	Kumar et al. (2021) Paul et al. (2016) Taufique et al. (2018)
Participation in environmental actions	1. Recycling 2. Using paper bags 3. Promoting environmental protection 4. Buying products from recycled materials (clothing, notebooks, product packaging...) 5. Buying electrical appliances that are energy efficient 6. Purchasing products that have less packaging (e.g. buying vegetables in bulk instead of shopping vegetables that are packed in plastic packaging) 7. Buying products that do not pollute the environment (e.g. dish detergent, washing powder, fabric softener...) 8. I try to minimize the amount of waste I generate 9. I try to minimize the amount of CO2 I generate (e.g. I prefer to travel by bus than by plane) 10. I use electrically efficient light bulbs 11. Participation in environmental actions (e.g. Roll up your sleeves, Plant a tree, Hour for our planet) 12. Participation in environmental actions with a humanitarian character (e.g. Cap for handicap) 13. Other 14. I do not participate in environmental actions	Multiple-choice question	Triantafyllidou and Zabaniotou (2022)

Participation in recycling	Do you recycle?	Binary question	Gartland and Piasek (2009)
The number of materials which the individual recycles	1. Plastic 2. Paper 3. Metal 4. Glass 5. Clothes 6. Organic waste 7. Other 8. I do not recycle	Multiple-choice	Bjelkemyr et al. (2015)
Perceived benefits of the sharing economy	1. Enables savings or income acquisition 2. It does not cost a lot 3. Allows socialization and getting to know each other 4. Allows for the effective use of underutilized goods/services 5. Allows for the efficient use and saving of resources 6. Enables environmental protection 7. Develops environmental awareness 8. Develops economic awareness	Five-point Likert scale	Maričić et al. (2023a) Yang et al. (2017)
Motivation to participate in the sharing economy	1. Better awareness of the concept of the sharing economy and its advantages/disadvantages 2. Knowing that I can achieve financial savings or make a profit 3. Positive experiences of other people I know 4. Positive experiences of other people I do not personally know 5. Gaining new experiences and acquaintances 6. Knowing that sharing improves the quality of my social life 7. Simpler sharing apps and web platforms 8. Knowing that by sharing I protect the environment and preserve it for future generations 9. Confirmation that my data will be protected from misuse	Five-point Likert scale	Guttentag et al. (2018) Lee et al. (2018)

Attitude towards sharing economy	1. Sharing economy makes life easier and more efficient 2. Sharing economy contributes to building a stronger community 3. Sharing economy makes goods/services more affordable 4. Sharing economy is environmentally sustainable 5. Sharing economy is not regulated by laws but by the market 6. The development of the sharing economy is based on trust between its participants 7. Matching supply and demand is much easier today than before thanks to the growing number of digital devices and digital platforms specialized in sharing economy 8. Matching supply and demand is much simpler today than before thanks to the change in people's consciousness 9. Materialism is no longer popular, Experiences gained through sharing economy increase satisfaction far more than the purchase of shared goods/services 10. I could imagine myself as a user in the sharing economy in a few years 11. I could imagine myself as a provider in the sharing economy in a few years	Five-point Likert scale	Hamari et al. (2016)
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