

The Circular Economy as an Ecological Solution. Perceptions and Participation in Sustainable Practices Among Youth

Eugen Cătălin Zoican¹, Florica Morariu¹, Andreea Cîrstea, Milica Stankovic²,
Raluca Ruxandra Pușcașu (Milaciu)¹

¹University of Life Sciences "King Mihai I" from Timisoara, Calea Aradului no. 119, 300645-Timisoara, Romania

²Academy of Applied Technical and Preschool Studies, Beogradska 18, 18000 Nis, Republic of Serbia

Abstract

The circular economy has become an essential concept in environmental protection and sustainable development strategies. This paper explores the impact of the circular economy on the environment, focusing on individuals' perceptions of recycling and sustainable practices in the fashion industry. The study uses a questionnaire to assess respondents' level of familiarity with the circular economy, their motivations for participating in upcycling workshops and their interest in adopting an eco-friendly lifestyle. The results show that, although there is a medium level of awareness of the circular economy, the interest in active involvement in sustainable practices is high. The paper highlights the need for education and promotion of the circular economy, to stimulate a transition towards an efficient use of resources and reduction of environmental impact.

Keywords: circular economy, environmental awareness, recycling, sustainable practices, upcycling workshops

1. Introduction

The circular economy is an innovative and essential concept in environmental protection and sustainable development [1]. Unlike the traditional economic model, known as the linear economy, which involves an "extract-production-consumption-disposal" cycle, the circular economy is based on the principles of reuse, recycling and regeneration of resources, thus minimizing waste and pollution [2, 3]. In this context, the circular economy is not only an ecological solution, but also a model that can support a sustainable economy, protecting natural resources and ecosystems.

The global context of the circular economy

Currently, the global economy is dominated by linear consumption patterns, which have led to the overuse of natural resources and a considerable increase in pollution [4]. For example, the textile industry, one of the largest and most polluting industries in the world, generates millions of tons of textile waste annually and emits significant amounts of greenhouse gases. Plastics, widely used in various industries, are another major source of pollution, having a long-lasting impact on aquatic and terrestrial ecosystems [5, 6]. The adoption of the circular economy in various industries, such as fashion, construction, electronics, and agriculture, can significantly contribute to reducing carbon emissions and pressure on natural resources. The circular economy not only promotes the efficient use of resources, but also encourages changes in consumption behaviour, such as reducing excessive purchases, reusing products and repairing them before they are disposed of [7].

* Corresponding author: Eugen Cătălin Zoican
Tel: +40762030004, catalin.zoican@usvt.ro

Basic principles of the circular economy

The circular economy is based on a few fundamental principles. The first of these is extending the lifespan of products [8]. Instead of products being thrown away after a single use, they are designed to be reused, repaired, or recycled. This helps to reduce waste and protect resources.

A second principle is the regeneration of natural resources. Under the circular economy, natural resources are not only consumed, but are regenerated through sustainable practices, such as organic farming, the use of renewable energy and sustainable ecosystem management. These practices contribute to the restoration of biodiversity and the fight against climate change [9].

Impact on the fashion industry

The fashion industry, known for its negative impact on the environment, is a sector where the circular economy can bring about major changes. The massive production of clothing implies a high consumption of natural resources and contributes to massive pollution with textile waste. Upcycling and recycling practices can significantly reduce these negative effects by turning old materials into new and valuable products.

By using recycled materials and extending the lifespan of garments, the circular economy can significantly reduce the industry's carbon footprint [10]. Additionally, the adoption of these practices by consumers can help raise awareness and promote more responsible consumer behaviour.

The role of education in promoting the circular economy

Education plays a crucial role in the adoption and promotion of the circular economy. Integrating sustainability concepts into education systems, from school to university level, can contribute to the formation of a generation that understands the importance of environmental protection and adopts responsible behaviours. Environmental education programmes and practical activities, such as recycling and upcycling workshops, can stimulate interest in the circular economy and help change mindsets.

Therefore, the circular economy is not only a successful economic model, but also an educational tool that can contribute to the

development of a more sustainable society [11]. In conclusion, the adoption of the circular economy is essential to respond to the ecological challenges we face today and to create a greener and more responsible future.

2. Materials and methods

The research was conducted based on a questionnaire distributed online, intended for a sample of 50 respondents, aged between 18 and 54, coming from various educational and occupational backgrounds. The main objective of the research was to assess the awareness of the circular economy and the motivations for participating in upcycling and recycling workshops.

Questionnaire structure

The questionnaire was structured in 10 questions, most of them with multiple answers, which covered the following main themes:

1. Level of familiarity with the circular economy: Participants were asked how familiar they are with the concepts of circular economy and recycling, to assess their awareness.
2. Interest in upcycling workshops: Respondents were asked about their interest in participating in workshops that promote the reuse of materials and the creation of new products from recycled materials.
3. Motivations for adopting sustainable practices: This section of the questionnaire assessed the main reasons why respondents would choose to adopt sustainable behaviour in their daily lives.
4. Factors limiting circular economy adoption: Respondents were asked about perceived barriers to adopting a circular lifestyle, including lack of education, high costs, or lack of access to sustainable resources.

Sample and data collection

The sample included 50 participants from diverse educational and occupational backgrounds, from students to active professionals. The sample was chosen to reflect a heterogeneous group, with the aim of assessing the varied perceptions of the circular economy. Data was collected over a two-week period, using online questionnaire platforms to facilitate access by respondents.

Analysis tools

After data collection, they were processed using descriptive statistics techniques, with the help of Microsoft Excel software. The data were summarised and presented in the form of tables and graphs to facilitate interpretation and identification of trends.

Response analysis methods

1. Quantitative analysis: the data were analysed quantitatively, by identifying the distribution of responses and correlations between respondents' level of education and their familiarity with the circular economy. In addition, correlations between age, occupational status and interest in participating in upcycling workshops were assessed. Through this method, we were able to identify the segments of the population with the greatest potential for adopting a sustainable lifestyle.
2. Qualitative analysis: the open-ended questions in the questionnaire were analysed to identify the main reasons that lead respondents to adopt or not adopt sustainable behaviours. The main motivations focused on the desire to protect the environment, saving financial resources and community involvement.

Limitations of the method

One of the limitations of the research is the relatively small sample size, which can influence the representativeness of the results. Data collection through online questionnaires may also exclude certain segments of the population that do not have access to the internet or are not familiar with digital technology. This could limit the generalisation of conclusions to the whole population.

Another limitation is related to respondents' subjective perception of the terms "sustainability" and "circular economy", which can vary depending on education, culture and personal experiences. This variability can influence responses and their interpretation.

3. Results and discussion

The results of the questionnaire showed that most respondents (around 65%) have a medium level of familiarity with the term "circular economy". About 20% of respondents said they were very

familiar with the concept, while the remaining 15% were either not familiar at all or had only vaguely heard of it. These results highlight the need for education and awareness campaigns to improve the public's understanding of the circular economy.

Interest in upcycling workshops was high, with 70% of participants saying they would probably or very likely attend such events. This indicates a general openness to active involvement in creative activities that promote the reuse of resources.

In terms of motivations for adopting sustainable practices, environmental protection was the main factor, mentioned by 80% of respondents. Other important reasons included saving financial resources (60%) and community involvement (45%).

However, several respondents also mentioned barriers to adopting the circular economy, including lack of access to sustainable resources, high upfront costs, and lack of sustainability education. These obstacles underline the need for government and educational initiatives to make the circular economy more accessible to the public.

The results of this study are consistent with previous research, which shows that while there is an increased interest in sustainability, awareness and education among the public remains moderate. This underlines the importance of formal and informal education in promoting the circular economy. Integrating this concept into school curricula, especially through practical projects and workshops, could help increase involvement and awareness among the younger generations.

The study also shows that there is a strong interest in upcycling activities, suggesting significant potential for the development of community initiatives and creative recycling workshops.

These activities not only encourage environmentally responsible behaviour but can also create economic opportunities for communities by developing valuable products from recycled materials.

The motivations identified in the study – environmental protection, resource saving and community involvement – reflect a global trend towards sustainability. However, the barriers identified, such as high upfront costs and lack of access to resources, point to the need for public policies to support the transition to a circular

economy. Governments and environmental organizations could provide financial incentives and educational resources to encourage the adoption of sustainable behaviour.

Another important aspect that emerges from the study is the impact of education on awareness of the circular economy. Respondents with a higher level of education were more familiar with the concept of circular economy and showed a greater interest in active involvement in sustainable practices. This underlines the importance of including sustainability concepts in educational curricula at all levels.

In the long term, the success of the circular economy depends on society's ability to adopt a mindset that values resource and minimizes waste. Through education, public policies and community involvement, we can stimulate a transition from a linear to a circular economic model, which ensures a more sustainable future.

4. Conclusions

The circular economy is a vital approach to reducing human impact on the environment and ensuring a sustainable future. The study showed that, although the degree of familiarity with this concept is moderate, there is a significant interest in active involvement in sustainable practices, especially in the field of upcycling.

Environmental protection has been identified as the main motivation for adopting the circular economy, reflecting a growing concern for conserving natural resources and combating climate change. At the same time, respondents stressed the importance of community involvement and saving financial resources as additional factors that would encourage them to adopt a sustainable lifestyle.

However, the study also identified significant barriers, such as high costs and lack of access to sustainable resources, that hinder the transition to fully circular behaviour. These barriers suggest that greater involvement of public authorities, private companies and environmental organisations is needed to facilitate access to sustainable resources and educate the public about the benefits of the circular economy.

Education plays a central role in promoting the circular economy. Respondents with a higher level of education showed a better understanding of the

concept and a greater desire to participate in upcycling and recycling activities. The integration of sustainability concepts into educational curricula is therefore essential for forming a generation that values resource and adopts ecological behaviours.

In the long term, the success of the circular economy depends on creating an enabling framework for education, access to resources and public policies that encourage the adoption of sustainable behaviour. By promoting the circular economy among the public and supporting community initiatives, we can build a sustainable economy that protects natural resources and ensures a greener and more responsible future for future generations.

References

1. Suchek, N., Fernandes, C. I., Kraus, S., Filser, M., Sjögrén, H., Innovation and the circular economy: A systematic literature review, *Business Strategy and the Environment*, 2021, 30(8), 3686-3702.
2. Stahel, W. R., The circular economy, *Nature*, 2016, 531(7595), 435-438.
3. Tambovceva, T. T., Melnyk, L. H., Dehtyarova, I. B., Nikolaev, S. O., Circular economy: Tendencies and development perspectives, 2021
4. Holland, J. H., The global economy as an adaptive process. In *The economy as an evolving complex system*, CRC Press, 2018, pp. 117-124.
5. Cornejo-D'Ottone, M., Molina, V., Pavez, J., Silva, N., Greenhouse gas cycling by the plastisphere: The sleeper issue of plastic pollution, *Chemosphere*, 2020, 246, 125709.
6. Shen, M., Huang, W., Chen, M., Song, B., Zeng, G., Zhang, Y., (Micro) plastic crisis: un-ignorable contribution to global greenhouse gas emissions and climate change, *Journal of Cleaner Production*, 2020, 254, 120138.
7. Camacho-Otero, J., Boks, C., Pettersen, I. N., Consumption in the circular economy: A literature review, *Sustainability*, 2018,10(8), 2758.
8. Box, J. M., Extending product lifetime: Prospects and opportunities, *European Journal of marketing*, 1983, 17(4), 34-49.
9. Shono, K., Chazdon, R., Bodin, B., Wilson, S. J., Durst, P., Assisted natural regeneration: harnessing nature for restoration, *Unasylva*, 2020, 252(71), 71-81.
10. Illankoon, C., Vithanage, S. C., Closing the loop in the construction industry: A systematic literature review on the development of circular economy, *Journal of Building Engineering*, 2023, 107362.
11. Robinson, J., Francis, G., Legge, R., Lerner, S., Defining a sustainable society: values, principles and definitions, *Alternatives*, 1990, 36-46.