

# Circular Concepts and Values: Will Reuse Become Fashionable?

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Analysts often treat the circular economy as a technical issue. They often focus on how to organise work processes better. The authors' concept is that circularity is much more than that, and a more precise and holistic approach can help create a better and more inclusive future for all. Young people play a key role in achieving a circular future (as a socioeconomic system). In this paper, the authors will look at how young people relate to circular processes. The research, based on a survey of 1,442 university students, took place in November and December 2022. The majority of the respondents were born around 2000 and are enrolled in undergraduate studies at Széchenyi István University. The questions of a standardised questionnaire were designed to collect information on the awareness of participation in the socioeconomic cycle process, the understanding of the context and the way of participation. The results of the research show that the students who consider themselves environmentally conscious are more likely to recycle and collect waste selectively, but it is not clear whether they participate in extending the life of the objects (swapping, second market, etc.). The research also found that students do not use and are typically unaware of online applications promoting circular lifestyles. The research sheds light on what a circular future would look like and what could be built on it.

## 1. Introduction

Much of the contemporary literature on circular economy (CE) presents the transition to CE as a simple, neutral process characterised by techno-optimism and eco-modernism. The majority of research on circular economy focuses on practical and technical levels, examining the material and energy flows of production-consumption systems, for example, using LCA analysis (Fan et al., 2022). However, the underlying worldview assumptions that need to be embedded in CE are largely ignored (Lowe and Genovese, 2022). Research by Bauwens et al. (2020) develops four scenarios for the future of the circular economy, these are:

- "Planned circularity" - the CE transition is centrally controlled by the government through strong coercive measures (taxation, bans, mandatory repair); it is reflected in China's national strategy.
- "Bottom-up sufficiency" – it focuses on small-scale CE solutions at the local level; the production is aimed primarily at meeting the immediate needs of the community; it is critical of the eco-efficiency agenda; it emphasises democratic participation and community-led solutions; the emphasis is on higher level R-strategies such as rejection, reduction and reuse.
- "Circular modernism" - technological innovation and market forces are seen as capable of decoupling resource use and carbon emissions from human development; it is compatible with the concept of 'green growth'; it does not question the business models of largely capitalist societies focused on high consumption and growth; decoupling is an important element of it.
- "Peer to peer circulation" – it focuses on technologies that enable shared consumption (e.g. internet platforms); it shifts the focus from products to access to resources through arrangements that can be ecologically beneficial thanks to higher asset utilisation.

The authors point out that a circular economy can be organised in very different ways (Bauwens et al., 2020). An important finding in the literature is that the time dimension does not feature prominently in the definitions of

circular economy (Bauwens et al., 2020). Using the ScienceDirect database, 12 articles were found using the search term ("Circular future" students), of which three were considered relevant to the current research based on a review of the abstracts.

According to Vanhuysse et al. (2022), in Sweden, there is a paucity of research on the effects of the transition to a circular economy. According to Serrano-Bedia and Perez-Perez (2022), there is a lack of literature reviews on the critical role of higher education institutions in the CE paradigm. The analysis points to the fact that although HEIs have increased their efforts to support CE, they do not place equal emphasis on all roles. Thus, the majority of CE initiatives developed by higher education institutions have focused on curriculum reform. However, it appears that research activities, government and industry collaborations to extend the value and impact of education and research to their own communities, and university initiatives to cultivate a CE mentality and environmental citizenship appear underdeveloped. This underlines the importance of research on the circular lifestyle of students.

Korsunova et al. (2021) surveyed 249 Finnish secondary school students to investigate how CE is reflected in the daily lives of young adults in Finland. The results highlight that young adults strongly associate CE with recycling, waste sorting and reselling/buying used items. Although CE has a broader potential to be associated with more active citizenship roles related to repair, maintenance and recycling, these aspects are often overlooked in favour of more familiar lifestyles.

Our research focuses on which circular vision of the future we consider likely to be fulfilled based on the present behaviour of students in higher education. Our research is based on the theoretical model of Bauwens et al. (2020) and the elaboration by Lowe and Genovese (2022). The first research results (Szigeti et al., 2023) show that young people are highly environmentally conscious and participate in selective waste collection, which is a feature of circular modernism. In the current phase of the research, the authors are investigating whether there are significant differences in the attitudes of students in different courses towards circular processes.

## 2. Methodology

The questionnaire used for the survey contains closed questions and was completed electronically by university students between 29 November and 13 December 2022. In total, there were 1,442 completions. Five professional groups can be distinguished on the basis of the responses:

- Engineering fields: 741 students (I)
- Legal and administrative fields: 216 students (II)
- Social fields: 35 students (III)
- Economic fields: 308 students (IV)
- Higher vocational training: 122 students (V)

The Roman numerals in brackets indicate the areas in Figures 1 and 2.

The following fields are classified under these groups:

### Engineering fields

- Civil Engineer
- Mechanical Engineer
- Automotive Engineer
- Environmental Engineer
- Logistics Engineer
- Mechatronics Engineer
- Engineer
- Computer Engineer

### Legal and administrative fields

- Legal field
- Judicial Administration
- International Relations BA
- International Studies

### Social fields

- Human resources, labour
- Sociology
- Tourism
- Labour

### Economic fields

- Commerce and Marketing
- Economist

- Business and Management
- MBA
- Technical Manager
- Business Informatics

The majority of students who completed the questionnaire (83.9 %) were born after 2000. In addition to the demographic questions, 5 questions were asked, the first of which is now detailed. The first question was, "To what extent do these statements apply to you?". The following 11 statements were formulated:

- I am environmentally conscious (A),
- Recycling is important to me (B),
- I collect my waste separately (C),
- I do not buy products in disposable packaging (D),
- We swap personal stuff, books and clothes among friends (E),
- I am a member of online groups, the main profile of which is to facilitate swaps between members (F),
- I often swap items via internet platforms (G),
- I buy second-hand clothes (H),
- I borrow books from the library (I),
- I like to use recycled products (e.g. a bag sewn from used jeans) (J),
- I live frugally, I spend my money wisely (K).

Questions (A) and (K) are general statements, while questions (B), (C) and (D) reflect the techno-optimist position. Statements (E), (H), (I) and (J) refer to active participation in circular processes in everyday life. Finally, statements (F) and (G) refer to the use of internet platforms in circular processes. The letters in brackets in Figures 1 and 2 refer to the labelling of the statements. The statements were rated by the respondents using a 6-point Likert scale (6: very typical, 1: not typical at all). To avoid neutral responses, a 6-point Likert scale was used so that the respondents must decide at the time of scoring whether they consider the statement to be typical or not. Accordingly, the answers can be ranked, but the "distance" between them cannot be explained, and therefore, the strength of the interval scale is not met. Spearman's correlation coefficient was tested to determine the strength and direction of the association between two variables measured on the ordinal scale. The calculation can be considered a non-parametric alternative to Pearson's correlation.

### 3. Results

The results of the questionnaire are summarised in Figure 1. Students consider themselves environmentally conscious (A) and believe that they spend their money rationally. 87 % of the students surveyed consider themselves to be more environmentally aware than average, i.e. they gave a score of 4 or more (hereafter 'high') to this question. There is no significant difference between the answers given by students attending different courses. Among the techno-optimistic statements, they consider selective waste collection and recycling to be typical (B, C). 85 % of students gave a high score to question B and 79 % to question C. For question C, there is a significant difference between the different sections, with the highest proportion (87 %) of students in Group III scoring high on this question. However, avoiding disposable bottles seems to be less typical of them (D) as only 35 % of the students surveyed gave a high score to this statement. Group III is also an exception, but this time, only 21 % of the respondents gave high scores. For the bottom-up sufficiency statements (E, I, J), the distribution of completions is almost identical across the acceptance levels. Here, only 42–54 % of students gave high scores, but this is not the case for all groups of students, with at least 67 % of Group III students. The most rejected statement among the groups of questions is the one about buying second-hand clothes (H). 42 % of the students gave a high score to this question, but Group III is an exception with higher percentages. Questions referring to the use of internet swap platforms also show a high level of rejection (F, G), to which only 33–39 % of respondents gave a high score.

As shown in Figure 2, the strongest correlation is between statements F and G, which are strongly related in content. Respondents are not likely to swap items and participate in such groups via the Internet. There is a strong relationship between environmental awareness (A) and selective waste collection (B), where it is interesting to note that there is a difference between the different completer groups. The least strong relationship (0.58) is observed for the students in the field of economics (Group IV). It is interesting to note that there is a very weak association between frugal lifestyle (K) and the use of online swap platforms (F, G). There is also no strong link between environmental awareness (A) and frugal and conscious lifestyle (K), but here, there is a significant difference between the groups. The weakest link is observed for students in the field of economics (Group IV). Looking at the whole sample, the correlation coefficient is positive for all questions. Here, a negative correlation occurs in several cases for students in Group III (social field): the strongest correlation is between

selective collection (C) and buying second-hand clothes (H). It is also in this group that a negative correlation is observed between a frugal lifestyle (J) and the use of online swap platforms.

Spearman correlation		1	2	3	4	5	6
A	Total	0	2	11	35	41	12
	I.	1	1	11	33	41	13
	II.	0	2	11	33	41	13
	III.	0	2	10	42	29	17
	IV.	1	2	12	38	40	7
	V.	0	2	9	37	41	11
B	Total	1	3	12	31	37	17
	I.	1	2	12	29	36	20
	II.	0	2	8	32	38	19
	III.	0	4	8	31	37	21
	IV.	1	3	14	32	36	13
	V.	0	2	11	36	40	10
C	Total	3	6	12	19	30	30
	I.	3	6	12	20	31	29
	II.	5	7	10	20	24	34
	III.	0	2	12	23	29	35
	IV.	3	7	13	15	31	30
	V.	5	6	12	16	28	33
D	Total	13	23	28	23	9	3
	I.	12	21	29	24	11	4
	II.	16	23	27	24	7	3
	III.	17	23	38	10	10	2
	IV.	15	30	25	22	6	2
	V.	11	25	26	27	9	2
E	Total	15	15	16	22	20	11
	I.	18	14	16	23	19	9
	II.	14	12	15	20	25	14
	III.	8	8	13	19	29	23
	IV.	13	18	16	20	22	11
	V.	10	25	15	21	14	15
F	Total	32	16	13	14	13	12
	I.	34	15	13	12	14	11
	II.	29	15	11	17	9	19
	III.	37	8	12	12	19	13
	IV.	31	17	13	15	13	11
	V.	34	18	11	12	15	10
G	Total	35	18	14	14	12	7
	I.	32	17	14	15	13	7
	II.	34	17	14	14	11	10
	III.	37	13	15	13	15	6
	IV.	37	19	16	12	10	7
	V.	40	21	12	8	12	6
H	Total	29	16	13	13	14	14
	I.	31	16	14	16	13	10
	II.	28	14	11	9	19	19
	III.	25	8	6	10	17	35
	IV.	28	19	14	11	14	14
	V.	30	16	16	14	7	17
I	Total	25	17	16	15	13	14
	I.	31	17	16	15	12	9
	II.	10	16	16	14	18	26
	III.	13	8	10	15	29	25
	IV.	26	19	14	17	10	14
	V.	21	16	20	12	13	16
J	Total	19	16	17	18	16	14
	I.	19	15	17	18	17	14
	II.	17	18	19	18	13	16
	III.	13	8	12	25	19	23
	IV.	20	15	18	19	17	10
	V.	20	22	16	16	14	13
K	Total	2	3	10	25	32	28
	I.	2	3	9	24	33	28
	II.	2	2	12	29	27	29
	III.	0	0	10	27	25	38
	IV.	1	4	10	26	35	24
	V.	3	7	11	23	30	27

Figure 1: Distribution of completions (%)

Spearman correlation		A	B	C	D	E	F	G	H	I	J	K
A	Total		0.66	0.42	0.35	0.18	0.21	0.21	0.17	0.22	0.25	0.30
	I.		0.68	0.46	0.41	0.23	0.23	0.23	0.22	0.26	0.33	0.30
	II.		0.70	0.45	0.33	0.13	0.26	0.20	0.15	0.13	0.23	0.39
	III.		0.75	0.46	0.27	0.13	0.24	0.16	0.01	0.31	0.21	0.27
	IV.		0.58	0.33	0.21	0.10	0.19	0.22	0.12	0.20	0.13	0.21
V.		0.65	0.38	0.37	0.13	0.07	0.12	0.07	0.17	0.11	0.33	
B	Total			0.50	0.31	0.19	0.19	0.18	0.19	0.22	0.34	0.31
	I.			0.54	0.38	0.23	0.19	0.18	0.24	0.25	0.39	0.31
	II.			0.51	0.28	0.16	0.31	0.24	0.16	0.12	0.30	0.42
	III.			0.44	0.27	0.17	0.20	0.16	0.02	0.14	0.32	0.21
	IV.			0.44	0.14	0.14	0.15	0.16	0.13	0.19	0.25	0.24
V.			0.52	0.44	0.04	0.04	0.05	0.14	0.23	0.24	0.31	
C	Total				0.26	0.14	0.11	0.11	0.09	0.21	0.19	0.20
	I.				0.34	0.17	0.12	0.15	0.15	0.24	0.24	0.16
	II.				0.26	0.11	0.21	0.15	0.05	0.22	0.15	0.25
	III.				0.17	-0.17	-0.05	-0.06	-0.25	0.31	0.15	0.33
	IV.				0.15	0.14	0.11	0.08	0.06	0.14	0.12	0.18
V.				0.17	0.06	-0.08	-0.02	0.03	0.11	0.13	0.34	
D	Total					0.22	0.23	0.25	0.18	0.26	0.23	0.17
	I.					0.27	0.26	0.28	0.22	0.36	0.29	0.19
	II.					0.17	0.20	0.22	0.13	0.14	0.12	0.20
	III.					0.15	0.08	-0.01	0.04	-0.02	0.20	0.24
	IV.					0.23	0.23	0.24	0.13	0.20	0.13	0.07
V.					0.23	0.24	0.31	0.30	0.38	0.33	0.21	
E	Total						0.41	0.42	0.51	0.42	0.41	0.19
	I.						0.38	0.43	0.50	0.45	0.43	0.27
	II.						0.46	0.47	0.56	0.48	0.46	0.04
	III.						0.49	0.40	0.69	0.33	0.48	0.07
	IV.						0.42	0.38	0.43	0.30	0.31	0.11
V.						0.39	0.40	0.48	0.42	0.35	0.19	
F	Total							0.70	0.44	0.33	0.35	0.11
	I.							0.70	0.42	0.34	0.32	0.12
	II.							0.78	0.44	0.33	0.45	0.15
	III.							0.77	0.43	0.21	0.30	-0.11
	IV.							0.65	0.51	0.35	0.35	0.11
V.							0.66	0.37	0.23	0.29	0.04	
G	Total								0.48	0.31	0.35	0.10
	I.								0.46	0.33	0.34	0.10
	II.								0.48	0.31	0.42	0.12
	III.								0.47	0.27	0.35	-0.11
	IV.								0.48	0.31	0.35	0.10
V.								0.48	0.24	0.26	0.14	
H	Total									0.41	0.49	0.14
	I.									0.41	0.50	0.18
	II.									0.42	0.58	0.15
	III.									0.29	0.33	-0.11
	IV.									0.38	0.46	0.10
V.									0.38	0.39	0.08	
I	Total										0.43	0.17
	I.										0.43	0.19
	II.										0.42	0.21
	III.										0.48	0.04
	IV.										0.38	0.08
V.										0.58	0.21	
J	Total											0.22
	I.											0.25
	II.											0.27
	III.											0.00
	IV.											0.12
V.											0.24	

Figure 2: Correlation coefficients

## 5. Conclusions

The sample of the research is not representative, but it provides a sufficient basis to support the preparation of further research. The results of the current research show that techno-optimistic statements (B, C, D) are most strongly associated with environmental awareness (A). Spearman correlation coefficient in the I–V. Groups are (1) 0.58–0.75 between A and B, (2) 0.33–0.46 between A and C, and (3) 0.21–0.41 between A and D. Students are less open to second-market solutions (E, G, K, i.e. swapping clothes, buying second-hand articles), and this is not associated with a frugal lifestyle (K) at all. Spearman correlation coefficient in the I–V. Groups are: (1) 0.04–0.24 between E and K, (2) -0.11–0.14 between G and K, and (3) -0.11–0.18 between H and K. Further research is needed to identify the reasons. The assessment of students studying in the social field is generally different from that of other groups of students. They are more interested in community solutions and less interested in technology-driven solutions. This suggests that the proportion of students in the social field among all students may also influence the circular vision. One limitation of the research is that the survey was conducted among Hungarian students, and although the composition of the university student body justifies the over-representation of students in technical fields in the sample, this may bias the evaluation of the results. At the current stage of our research, the results of testing the theoretical model in other countries are not yet available, so we cannot determine the extent to which the results are biased by cultural and national characteristics.

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