

## ATTITUDE TOWARDS SUSTAINABLE ENTREPRENEURSHIP AMONG STUDENTS: TESTING A MEASUREMENT SCALE

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**Abstract.** The overwhelming goal of the research is to evaluate the attitudes and behaviours of youth towards sustainability issues and sustainable entrepreneurship. The current paper reflects the results of the first research stage and aims at testing a measurement scale that consists of three groups of items: 1) statements about environmental attitudes and behaviours, 2) general intention to start a sustainable business, 3) intention to start a social business in the field of the circular economy. The reliability analysis to measure the internal consistency of the scale was performed in SPSS environment, using Cronbach alpha. A focus group discussion was organized among business students to evaluate the perceived quality of the questionnaire.

**Keywords:** circular economy, sustainable development, Entrepreneurship, higher education, survey.

**JEL Classification:** Q01, L31, I23, C83.

### Introduction

Sustainable entrepreneurship (SE) is one of the instruments to achieve Sustainable Development Goals (SDGs) that “define global priorities for development up to the year 2030 and are pivotal for addressing the global economic, social and environmental challenges faced by the communities” (Apostolopoulos et al., 2018). The relationship between SE and SDGs is perfectly visualized by Crecente, Sarabia, and del Val (2021) in their paper “Sustainable entrepreneurship in the 2030 horizon”.

Schaltegger and Wagner (2011) see companies as core drivers towards sustainability, and their innovations play a key role for society to become more sustainable. Sunny and Shu (2019) stressed the tight relationship between economic growth, entrepreneurship, and innovations. Gu and Wang (2022) emphasize the importance of innovations as an engine of economic growth and highlight the new role of sustainable entrepreneurship by exchanging

traditional entrepreneurship. The characteristics of sustainable entrepreneurship could be named as the management of activities by focusing on both personalization and team initiatives (Hoogendoorn et al., 2019; Schaltegger & Wagner, 2011), while contributing to the solution of social and environmental problems through innovation for sustainable development (Hockerts & Wüstenhagen, 2010; York & Venkataraman, 2010; Zahra et al., 2009; Hoogendoorn et al., 2019).

Based on United Nations Conference on Trade and Development [UNCTAD] researchers (2015), one of the impediments that impact young entrepreneurs is “Insufficient promotion of entrepreneurship opportunities”.

The authors of the given paper have an intention to conduct a cross-country study aimed at evaluating students’ attitudes towards sustainability, the environment and sustainable entrepreneurship. The overwhelming ambitious goal is to increase awareness about sustainable entrepreneurship concept and opportunities.

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The goal of the current paper is to test the measurement scale of the authors' developed research instrument.

For this specific purpose, a pilot study among 36 Latvian students was conducted. Besides, before dissemination of the questionnaire, it was discussed by the focus group of Master students representing different study programmes from the study field of Economics and Entrepreneurship of the EKA University of Applied Sciences (Latvia).

Pilot survey results also allowed getting a preliminary understanding about students' attitudes towards sustainable business. Survey data was processed in an Excel and SPSS environment. The quality of the measurement scale

was evaluated by means of reliability analysis, using the test for internal consistency with the calculation of Cronbach alpha.

## 1. Sustainable entrepreneurship

### 1.1. The concept of sustainable entrepreneurship

SE can be defined in a different manner, highlighting the different aspects of sustainability. It "describes the nexus between sustainable development and entrepreneurship" (Farny & Binder, 2021).

Development of the SE concept was discussed by many researchers (Sarango-Lalangui et al., 2018; Urbaniec, 2018; Muñoz, 2013) and others.

The related, but not synonymous concepts, are "social entrepreneurship", "environmental entrepreneurship", "ecopreneurship", "circular entrepreneurship", and "green entrepreneurship". SE can be considered as an "umbrella concept". The authors of the current paper in their understanding of it follow the statement of Baporikar (2020) about sustainable entrepreneurs, i.e. "...sustainable entrepreneurs share the economic desires of conventional entrepreneurs; but they have additional desires to preserve the environment: desires attributed to ecological values."

Table 1 summarizes several definitions provided by the researchers in 2011–2019.

The authors of the given paper understand sustainable entrepreneurship as an activity of entrepreneurs to "start a business to serve both self-interests and collective interests by addressing unmet social and environmental needs".

However, for the purposes of the research, the authors link sustainable entrepreneurship mostly with circular entrepreneurship, or social business in the field of circular economy. The concept of circular entrepreneurship is also frequently discussed in the literature (Cullen & De Angelis, 2021; Kuzma et al., 2021). Circular entrepreneurship model shows the entrepreneurial processes of exploration and exploitation of opportunities in the circular economy domain (Zucchella, 2019). In turn, circular economy is defined as "...a new economic model that represents sustainable progress towards efficient green growth, moving from a consumption and disposal-based linear model to extending the life and use of products and materials and minimising wastage" (European Investment Bank, 2019).

### 1.2. Attitudes towards the circular economy and sustainable entrepreneurship

The number of studies devoted to the investigation of attitudes towards environment, circular economy, sustainable entrepreneurship and related topics is quite big (Kalsoom, 2019; van Langen et al., 2021; Dunne & Bijwaard, 2021; Balakrishnan et al., 2020).

However, the main interest of the authors of the given paper was to find the papers with the described research instruments in order to use some questions for own

Table 1. Definitions of the terms "sustainable entrepreneurship" or "sustainable entrepreneurs" (SE) or terms-related text segments

Source	Definitions
Farny and Binder (2021)	SE "...aspires to create viable market solutions and to act as change agents who realize and exploit opportunities for sustainable development. To achieve such ambitious sustainable development gains, sustainability entrepreneurship offers market-oriented solutions to counteract environmental degradation and rectify social injustice and inequality"
Hoogendoor, van der Zwan and Thurik (2019)	Entrepreneurs who start a business to serve both self-interests and collective interests by addressing unmet social and environmental needs are usually referred to as sustainable entrepreneurs
Masciarelli and Leonelli (2020)	SE "...borns from a desire to stop activities having a negative impact on the environment, along with a motivation to create economic value"
Schaltegger, and Wagner (2011)	SE "...is in essence the realisation of sustainability innovations aimed at the mass market and providing benefit to the larger part of society. By realising such (radical) sustainability innovations sustainable entrepreneurs often address the unmet demand of a larger group of stakeholders"
Blumfelde-Rutka (2021)	SE "...encompasses the ability to use resource-preserving methods, factoring in the nature neutrality level and keeping it unchanged in the long run"
Sarango-Lalangui, Santos, and Hormiga (2018)	SE "...is able to generate employment, enhances products and processes, and sets up new companies and changes people's lives. It is not only about the exploration of opportunities and market threatens, but also about consciously analyzing the social, economic and environmental impact that corporations' performance is having on territories"
Shepherd and Patzelt (2011)	"... concept of sustainable entrepreneurship requires a balance between profit orientation, and social and environmental responsibility"
Tunjungsari, Selamat, and Chairy (2021)	SE "...is an activity to build and run a business with attention to the environment and the sustainability of existing resources to be used both for the present and in the future"

questionnaire. The basic sources that have been used are summarized in Table 2.

Table 2. Main literature sources to develop the questionnaire (source: compilation by the authors)

Source	Statements in the questionnaire
Wray-Lake, Flanagan, and Osgood (2010)	Environmental attitudes and behaviours
Deloitte (2021)	Attitudes to environmentally sustainable or ethical practices, and sustainable life-style
Liñán and Chen (2009)	Entrepreneurial intentions
Soomro, Almahdi, and Shah (2020)	Eco-friendliness, Green marketing, Buying behaviour, Favourable market conditions, Attitudes to sustainable entrepreneurship
Thornton (2019)	Examples of companies engaged in circular economy
Brendzel-Skowera (2021)	Circular economy business models

The results of the previous studies conducted in different countries that could be useful for the current research are, as follows:

- A study conducted by Soomro, Almah-di, and Shah (2020, Pakistan, 412 MBA students) indicated the positive relationship between eco-friendliness and attitudes towards sustainable entrepreneurship;
- A study by Koe, Alias, and Othman (2019, 185 students, Malaysia) revealed that “customers who understand sustainability and are prone to buying green products could be a great attraction for people to embark on sustainable entrepreneurship”;
- The hypothesis “A positive attitude towards sustainable entrepreneurship has a positive influence on the intention to start a sustainable enterprise” was supported within the study of Thelken and Jong (2020, 407 students, the Netherlands and Germany). Similar results were received within the research of Vuorio, Puumalainen, and Fellnhofer (2018, 393 European students).

The authors will not test hypotheses about the relationship between scale items within the current study; these activities are planned for the future, based on a large sample size.

## 2. Methodology

To achieve the research goal, the authors of the paper developed a questionnaire that consists of three parts:

- Respondent profile questions – part A;
- Environmental attitudes – part B;
- Attitudes to sustainable entrepreneurship – part C;
- Willingness to start a sustainable business (to be a social entrepreneur in the field of circular economy) – part D.

The structure of the questionnaire is presented in Table 3.

Table 3. Structure of the questionnaire (source: authors' developed, based on sources summarized in Table 2)

Part	Question	Type of the question; responses
A	Respondent profile	Age, gender, country of residence
B	Environmental attitudes	12 statements. Evaluation scale: level of agreement (1 – absolutely disagree; 5 – absolutely agree)
C	Attitudes to sustainable entrepreneurship	6 statements. Evaluation scale: level of agreement (1 – absolutely disagree; 5 – absolutely agree)
D	Willingness to start a circular business	9 business types. Evaluation scale: level of readiness (1 – never, the lowest probability; 5 – the highest probability)

The alternative responses to the question “Age” were formulated, based on the theory of generations and relevant periods of birth (McCrinkle & Wolfinger, 2010).

Part B was included into the questionnaire due to the fact that entrepreneurial intentions of sustainable entrepreneurs are driven mostly by their ecological values (Baporikar, 2020) or biospheric values (Thelken & Jong, 2020). The statements of B scale and their labels are presented in Table 4.

Table 4. B scale statements and their labels (source: authors' developed)

Statement	Label
I am ready to reduce the use of single-use plastics	Reduce the use of plastics
I am ready to reduce the amount of new products and goods I buy	Reduce purchasing
I am ready to reduce my air travel	Reduce air travel
I would rather choose brands that have environmentally sustainable practices/values	Sustainable brands
I am ready to stop purchasing certain brands or products if I have ethical or sustainability related concerns about them	Non-sustainable brands
I am ready to make an effort to cut down on the amount of electricity I use in order to save energy	Reduce the use of electricity
I am ready to reduce the heat at my house in the winter to save electricity	Reduce heating
I am ready to use a bike or mass transit (if available) rather than a car to get to work	Change transport
I am ready to use a bike or mass transit (if available) rather than a car to get to work	Change buying habits
People should change their buying habits and way of life to solve our environmental problems	Government actions 1
Government should take action to solve our environmental problems even if it means that some of the products we now use would have to be changed or banned	Government actions 2
Government should place higher taxes on products that cause pollution in their manufacture or disposal, so that companies will be encouraged to find better ways to produce them	Government actions 3

The statements of the C scale and their labels are presented in Table 5.

Table 5. B scale statements and their labels (source: authors' developed)

Statement	Label
I have a preliminary sustainable business idea	Business idea
I intend to start a sustainable business in the future	Start a business
I am ready to start a sustainable business within five years after graduation	Start a business in 5 years
I want to start a sustainable business to solve environmental problems	Business to solve environmental problems
I want to start a sustainable business to solve social problems (gender equality, reducing unemployment)	Business to solve social problems
I want to start a sustainable business to get profit	Business for profit

Part D includes several types of circular business with a short explanation and examples of real companies engaged in such a business. The business types offered to respondents were:

- Production from waste, used products;
- Closed-loop product design and prototyping;
- Production of eco-products, environment-friendly products;
- Collection of products for recycling;
- Collection of waste;
- Co-working services;
- Collection and re-selling;
- Sharing services;
- Providing product-as-a-service (PAAS) or infrastructure-as-a-service (IAAS).

The information about the companies used to explain the certain business type also included a link to the official web pages to simplify the process of understanding.

Initially, the questionnaire was discussed within the focus group – 14 Master students of the EKA University of Applied Sciences (EKA) representing study programmes “Business Administration”, “International Culture Project Management” and “Circular Economy and Social Entrepreneurship”.

First of all, the students were provided with the list of definitions of sustainable entrepreneurship (Table 1) to get a full understanding of the concept. Then, the items of the questionnaire were discussed to check the perceived clarity.

After the corrections, the questionnaire as a Google form was disseminated between the students of EKA and the BA School of Business and Finance (BA). Participants from BA were the students representing the study programmes “Finance”, “Business process management”, and “Information systems of financial management”. 36 responses were received and processed, using frequency analysis and reliability analysis to test internal

consistency of measurement scales (questionnaire's parts B and C).

### 3. Results

Focus group discussion yielded the following changes in the questionnaire:

- In the part B, the statement “I am ready to reduce the use of plastics” was replaced with the statement “I am ready to reduce the use of single-used plastics”.
- The statement “I am ready to change some, or all, of my personal financial investments for more ethical or sustainability related investments options” was removed from the part B, because students did not really understand what kind of investments was asked about.
- The Part C scale was initially based on the statements from the research instrument developed by Soomro, Almah-di, and Shah (2020). The students evaluated the statements as “too primitive” and “not consistent with the level of other questions”. In the final version of the questionnaire, C scale was based on Liñán and Chen (2009).

At the first stage of data processing, frequency analysis was applied to evaluate students' attitude to environment and readiness to care about it, attitude towards sustainable entrepreneurship, as well as the most attractive business types in the field of circular economy.

To respond to questions B and C, respondents were offered to use a five-point scale (1 – absolutely disagree; 5 – absolutely agree). Table 6 and Table 7 summarize the responses. The authors analysed only the answers “4” (agree) and “5” (absolutely agree) in order to rank the statements in the scales.

Table 6. Percentage of respondents who selected “agree” or “absolutely agree” to evaluate the statements of B scale (source: authors' calculations)

Label of the statement	% of respondents
Reduce the use of plastics	94.44%
Change buying habits	86.11%
Government actions 1	72.22%
Sustainable brands	63.89%
Reduce the use of electricity	63.89%
Government actions 2	63.89%
Change transport	52.78%
Reduce purchasing	47.22%
Non-sustainable brands	47.22%
Government actions 3	47.22%
Reduce heating	33.33%
Reduce air travel	25.00%

According to the pilot survey results, respondents are ready to “reduce the use of single-used plastics” (94%). They also consider that “people should change their



buying habits and way of life to solve our environmental problems” (86%). 72% of the respondents also think that “Government should take action to solve our environmental problems even if it means that some of the products we now use would have to be changed or banned.”

The lowest number of respondents is ready to reduce heating at home to save electricity (33%) and reduce air travel (25%).

Considering that all the respondents in this pilot study were from Latvia – the country with relatively low average temperature, the non-readiness to reduce heat can be explained. For sure, this could be checked, based on larger sample with representatives of other, warmer countries.

Table 7. Percentage of respondents who selected “agree” or “absolutely agree” to evaluate the statements of C scale (source: authors’ calculations)

Label of the statement	% of respondents
Business for profit	69.4%
Start a business	50%
Start a business in 5 years	50%
Business to solve social problems	33.3%
Business to solve environmental problems	30.6%
Business idea	27.8%

According to these preliminary results, students are mostly ready to start a sustainable business to get profit. Solving of social or environmental problems is not a priority. Only 28% of the respondents have a sustainable business idea.

Table 8 summarizes the responses of the respondents, evaluating different types of business in the field of circular economy. The offered response scale was from 1 (never, the lowest probability) to 5 (the highest probability).

Table 8. Percentage of respondents who selected “4” or “5” to evaluate the statements of D scale (source: authors’ calculations)

Type of business	% of respondents
Production from waste, used products	19.4%
Closed-loop product design and prototyping	38.9%
Production of eco-products, environment-friendly products	55.6%
Collection of products for recycling	25.0%
Collection of waste	8.3%
Co-working services	41.7%
Collection and re-selling	25.0%
Sharing services	58.3%
Providing product-as-a-service (PAAS) or infrastructure-as-a-service (IAAS)	33.3%

The most attractive businesses for pilot survey respondents are “sharing services” (58.3%) and “production

of eco-products, environment-friendly products” (55.6%). The less attractive business (8.3%) is “collection of waste”.

At the second stage of data processing, a reliability analysis was performed in SPSS to test the measurement scales for internal consistency. Results of B scale test are presented in Table 9.

Table 9. Test of the B scale for internal consistency (source: authors’ calculations)

Question	Label of the statement	Cronbach’s Alpha if Item Deleted
B1	Reduce the use of plastics	0.721
B2	Reduce purchasing	0.694
B3	Reduce air travel	0.735
B4	Sustainable brands	0.717
B5	Non-sustainable brands	0.731
B6	Reduce the use of electricity	0.706
B7	Reduce heating	0.730
B8	Change transport	0.784
B9	Change buying habits	0.722
B10	Government actions 1	0.684
B11	Government actions 2	0.708
B12	Government actions 3	0.693

Cronbach’s alpha for the whole B scale was 0.737 that indicated a relatively high level of internal consistency (Taber, 2018). Deleting of the item “change transport” will increase the overall consistency of the measurement scale significantly (to 0.784). However, the authors took a decision to leave this item in the list and make an additional test, based on a larger sample.

Results of C scale test are presented in Table 10.

Table 10. Test of the C scale for internal consistency (source: authors’ calculations)

Question	Label of the statement	Cronbach’s Alpha if Item Deleted
C1	Business idea	0.856
C2	Start a business	0.807
C3	Start a business in 5 years	0.810
C4	Business to solve environmental problems	0.855
C5	Business to solve social problems	0.835
C6	Business for profit	0.831

Cronbach’s alpha for the whole C scale was 0.856 that indicated a high level of internal consistency. There was no need revealed to remove any item from the scale, based on the criterion “Cronbach’s Alpha if item deleted”.

## Conclusions

The current paper reflects the results of the first stage of a large-scale cross-country research “Attitude towards sustainable entrepreneurship among students”. The overwhelming goal of the research is to evaluate attitudes and behaviours of youth towards sustainability issues and sustainable entrepreneurship.

The aim of the current study was to test the quality of the authors developed research instrument by testing the measurement scale for internal consistency. This was done through the pilot survey and the focus group discussion.

Scale B was changed slightly, removing one statement and correcting another one. Scale D remained without any corrections. However, scale C containing the statements to evaluate respondents’ attitude to sustainable entrepreneurship and their entrepreneurial intentions was changed significantly, taking into account recommendations of focus group participants.

The research is limited with the sample size. Besides, it was conducted only among Latvian students.

This research has several potential directions to be continued. The authors plan to disseminate the questionnaire at least in two countries – Latvia and Lithuania. So, it will be possible to compare the results depending on students’ residence and other profile characteristics. The other question to be investigated is the relationship between environmental values and attitudes to sustainable entrepreneurship.

## Disclosure statement

The authors do not have any competing financial, professional, or personal interests from other parties.

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