

GREEN KNOWLEDGE AS ONE OF THE DIMENSIONS OF GREEN COMPETENCES: RESEARCH AMONG GENERATION Z

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Purpose: The article pursued two equally important research aims. The first aim of the study was to diagnose the extent to which Generation Z representatives assess their level of green knowledge. The second aim was to identify differences in the level of green knowledge among Generation Z, considering the demographic variable of gender.

Design/methodology/approach: To achieve the research aims, a representative survey was designed and conducted among representatives of Generation Z. Two techniques were used in the data collection process: CATI and CAWI. A total of 370 respondents (184 women and 186 men) were surveyed. Questions were asked on a five-point Likert scale, which allowed for the calculation of the weighted average of the responses and the construction of a Green Knowledge Index.

Findings: Based on the Green Knowledge Index obtained, a high level of knowledge was found among the respondents surveyed. Nevertheless, the index value was closer to average than to a very high level of green knowledge.

Research limitations/implications: A key limitation of the study was that respondents self-assessed themselves in the context of a given statement, which may involve the risk of overestimation (especially since the assessment concerned the respondents' knowledge). Furthermore, the questionnaire referred only to two aspects of green knowledge. Future research should expand the study of green knowledge to include new dimensions (e.g., the practical application of green knowledge in various sectors of the economy).

Practical implications: Attention was drawn to measures that should be implemented to more effectively promote the importance of green knowledge among Generation Z, especially in the context of their professional career development. One such measure is the need to develop cooperation between universities and businesses in the field of shaping green competences.

Originality/value: Attention was drawn to the need for further research in the context of green knowledge as a foundation for the development of other green dimensions of green competences. Key research gaps were identified, including the need to examine the extent to which green knowledge acquired through education (formal, informal and non-formal) is used by Generation Z representatives in their professional practice, especially in the context of green jobs. The article is addressed to all those interested in the issues of green knowledge and Generation Z.

Keywords: Generation Z, green competences, green jobs, green knowledge, sustainable development.

Category of the paper: Research paper.

1. Introduction

Climate change (e.g. Pekez et al., 2025; Xian et al., 2025), air pollution (e.g. Edgeman, 2020; Tarsitano, 2006), ecosystem degradation (e.g. Rokochynskiy et al., 2021; Zhang et al., 2023), biodiversity loss (e.g. Hou et al., 2025; Opoku, 2019; Su et al., 2019), and depletion of natural resources (e.g. Ahmed et al., 2025) are just a few of the issues that are the subject of an increasing number of scientific analyses conducted by researchers representing various scientific disciplines who are looking for ways to reduce (and ultimately even eliminate) the negative impact of human activity on the environment. Within the scope of these scientific considerations, it is important to note the efforts to develop various types of solutions that would support not only businesses or other market players, but also entire communities in embarking on the path to sustainable development. Achieving a balance between social, economic and environmental aspects is identified in scientific discussions as an essential element for further equitable development, for example in the context of meeting the needs of future generations (e.g. Izah et al., 2025; Job, Khanna, 2024; Sakshi et al., 2025). At the same time, it is pointed out that the effective and, consequently, sustainable implementation of the idea of sustainable development into socio-economic life requires the implementation of numerous supporting solutions.

Among such solutions, attention is often drawn to the need to develop and implement appropriate technological solutions that would be environmentally friendly. As a result, scientific research raises the issue of innovative green technologies (e.g. Kharb et al., 2024; Shahzad et al., 2022). The implementation of various economic and market solutions is also important in supporting the transition towards sustainable development. Particular attention is paid to the need to create environmental tax systems (e.g. Alola et al., 2023; Saqib et al., 2025; Zainol Ariffin et al., 2023) that would effectively discourage inappropriate behaviour in an environmental context. It is also pointed out that business models based on environmental responsibility should be promoted (e.g. Faccin et al., 2025). Attention is also drawn to the need to promote the greening of existing workplaces (e.g. Fleacă et al., 2024) or the creation of new green jobs (e.g. de Andrade et al., 2025; Kozar, Sulich, 2023b; Mathieu, 2024). Of course, such activities should be supported by the creation of an appropriate legal framework to prevent undesirable phenomena such as greenwashing (e.g. Sciortino et al., 2025; Wodnicka, 2023; Wu, Zuo, 2025). It should also be remembered that the above-mentioned solutions cannot be implemented in a sustainable manner without simultaneously shaping green awareness (e.g. Rustam et al., 2020), green attitudes (e.g. Ezech, Dube, 2025) and green behaviours (e.g. Le et al., 2025; Wu et al., 2025) in both social and economic life. Thus, on the one hand, it is important to promote responsible consumption patterns in social campaigns. On the other hand, there is a clear need to support and develop a high-quality education system for

sustainable development, which would shape green competences, especially one of their key dimensions, namely green knowledge (Sulich, Kozar, 2024b).

An important feature of contemporary socio-economic life is functioning in conditions of intense flow of various types of information. Numerous scientific studies point to the growing phenomenon of dissemination of content of dubious reliability, including distorted information (e.g. Bettis-Outland, 2015; Yuan et al., 2021) or deliberately manipulated information (e.g. Guarda et al., 2018; Stefanova et al., 2025). In this context, green knowledge takes on particular importance as a key element enabling a critical understanding of environmental phenomena. Moreover, it is essential for distinguishing facts from opinions or misinformation in the context of various environmental issues. Thus, as the author of this article points out, it can be assumed that the development of green knowledge can form a kind of foundation for shaping conscious green attitudes (also known as pro-ecological attitudes) and making responsible decisions in the field of sustainable development.

The important role of green knowledge in contemporary socio-economic development is recognised not only by the author of this article, but also by numerous researchers in this field. However, it is worth considering how Generation Z, a generation that is just entering professional life and shaping their career paths, perceives their green knowledge. Previous studies have often shown that Generation Z is a group raised in a digital environment and characterised by a high level of proficiency in information and communication technologies (e.g. Zahra et al., 2025), which has consequences in terms of their daily access to various types of information, including those of dubious reliability. At the same time, some studies devoted to this generation emphasise its clear interest in the issues of climate change and sustainable development (e.g. Tan et al., 2023). This aspect is evident, for example, in the consumer attitudes of some members of Generation Z (e.g. Borah et al., 2024; Deshmukh, Pasumarti, 2025; Ghorbanzadeh et al., 2025).

The article addresses two equally important research aims related to green knowledge among Generation Z. The first aim of the study was to diagnose the extent to which representatives of Generation Z assess their level of green knowledge. The second aim of the study was to identify differences in the level of green knowledge among Generation Z, considering the demographic variable of gender. To achieve the research aims, a study was conducted on a representative sample of 370 Generation Z respondents using Computer-Assisted Telephone Interviewing (CATI) techniques and, additionally, Computer Assisted Web Interview (CAWI). The quantitative analyses were supported by the PS IMAGO PRO 10.0 software.

The article is divided into five sections, which refer both to the role and significance of green knowledge in scientific research related to sustainable development and to the empirical research undertaken. The first part, i.e. this introduction, is theoretical in nature. It draws attention to the topicality of the research issue, outlines the research aims and indicates the research techniques used. The second part points out that green knowledge is one of the

dimensions of green competences. The third part presents a description of the research methodology. It outlines the individual research procedures and places the research in time. An important element of this part of the article is also the special attention paid to the measures taken to ensure the highest possible quality of the results of our own research. The penultimate part presents the research results obtained from the responses provided by respondents representing Generation Z. This part also includes a discussion outlining measures that could be implemented in economic practice and/or better supported to promote the importance of green knowledge in the professional development of Generation Z. The summary, which also concludes the article, indicates future research directions, including the need to undertake research on the level of use of green knowledge acquired in the education process in the labour market (particularly in green jobs). Attention was also drawn to the need to continue research on the issue of green knowledge itself, including the need to develop a research tool in the future that will address this research issue in a much broader way.

2. Green knowledge as one of the dimensions of green competences

Green competences are increasingly discussed in academic discourse due to their important role and significance in the process of socio-economic changes aimed at sustainable development (e.g. Doghan et al., 2024; Gadomska-Lila et al., 2024; Tahir et al., 2024). Some researchers clearly recognise that without the appropriate development of green competences among both employees (e.g. Galabova et al., 2025; Kozar, Sulich, 2023a) and society as a whole (e.g. Surono, 2025), the transition of the economy to a sustainable model will not be possible. It will be even more impossible for the greening of the economy. Therefore, the author of this article believes that green competences constitute a kind of foundation for sustainable development in both the social and economic dimensions.

Scientific research emphasises the complexity of green competences, drawing attention to their key dimensions, which include green knowledge (e.g. Iliescu, 2024; Maksimov et al., 2022), green skills (e.g. Fuchs, 2024; Sulich, Kozar, 2024a), green behaviour (e.g. Jasim et al., 2025; Wu et al., 2025), green attitudes (e.g. Sharma et al., 2025; Zhong et al., 2025), green abilities (e.g. Cabral, Dhar, 2021) and green awareness (e.g. Cabral, Dhar, 2019; Nurcholis et al., 2024). It should be noted that green knowledge, understood as the scope of information, concepts and theories concerning the principles of sustainable development, environmental protection, efficient use of natural resources and ways of reducing the negative impact of human socio-economic activities on the environment, constitutes a kind of cognitive basis for the development of other dimensions of green competences. Possessing green knowledge promotes, for example, more environmentally conscious consumer decisions, and in the workplace, it can lead to reduced or more rational consumption of resources. Labour market

research increasingly shows a demand for employees with relevant green competencies (e.g. Moczyłowska et al., 2024), including green knowledge. At the same time, researchers point out that because of the ongoing shift towards more sustainable management, new jobs are being created, which are referred to as green jobs (e.g. Sulich, Kozar, 2024b). In such jobs, due to the professional activities associated with them, employees are expected to have green competencies (e.g. Olekanma et al., 2024).

Due to the increasing importance of green knowledge in socio-economic life and the dynamic environmental changes taking place, the need to continuously deepen this type of knowledge is emphasised. Green knowledge can be shaped through formal education (an organised education system that takes place in schools), non-formal education (organised educational activities that take place outside the traditional school system) and informal education (acquiring knowledge through everyday experiences and the influence of the environment). The inclusion of pro-environmental content in formal education curricula can promote the development of various dimensions of green competences, including the consolidation of green knowledge from an early age (e.g. Kupper et al., 2012). Nevertheless, as the author of this article notes, it is necessary to recognise the need to develop, in the process of formal education, the ability to critically evaluate individual sources of information on environmental issues and to distinguish between reliable and manipulated content. These aspects will play an important role in the further development of green knowledge by individuals through both non-formal and informal education.

3. Research methodology

The analyses presented in this article are the results of research conducted between September 2024 and October 2025. The research process covered such a long period of time because it included the development of a research tool, the conduct of research, and the interpretation of the results obtained. As shown in Figure 1, the individual research activities can be grouped into four main stages of research, including: identification of the research problem, methodological approach and development of the survey instrument, conducting empirical research, and analysis and interpretation of the research results.

In the first stage of the research, as shown in Figure 1, the research problem was identified. To this end, an analysis of selected scientific publications on green competences indexed in the Scopus and/or Web of Science databases was carried out. Based on a free review of literature on the subject, it was noted that researchers are increasingly drawing attention to the need to conduct research on the issue of green competences among different generations in the labour market, especially among Generation Z. It has been noted that, in the field of green competences, scientific research is currently being conducted to examine their individual green

dimensions, i.e. green skills, green behaviour, green attitudes, green abilities and green awareness, as already mentioned in the second part of this article.

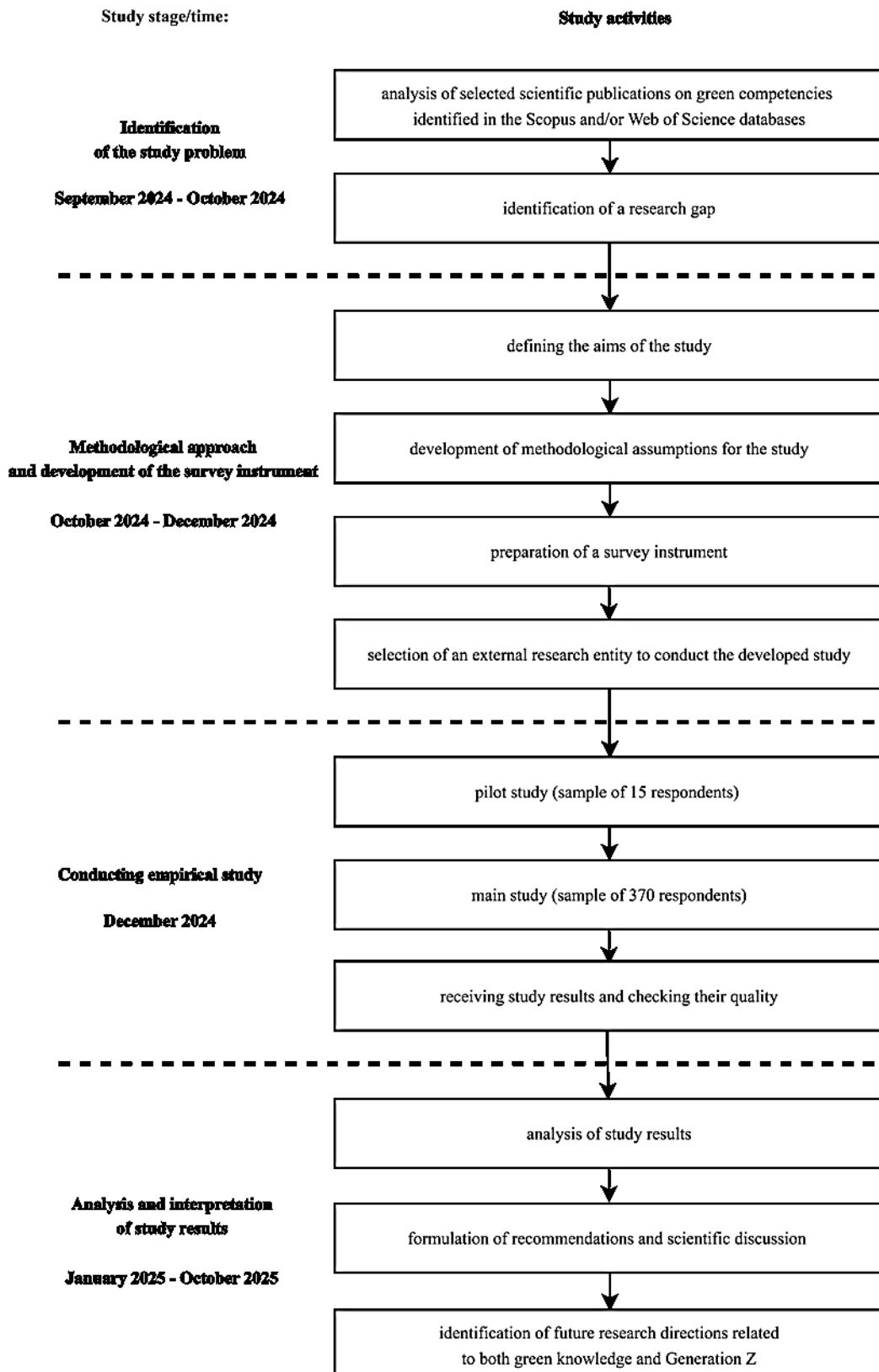


Figure 1. Research procedure stages and timeline.

Source: Author's elaboration.

At the same time, it has been noted that the scientific considerations in this area to date have been mainly theoretical scientific analyses. For example, there are numerous bibliometric analyses focusing on this issue (e.g. Gołaszewska-Kaczan, Augustyńczyk, 2025; Sulich, Kozar, 2024b). These analyses show a growing interest among researchers in the issue of green competences. Despite this, there is still little empirical research on the individual dimensions of green competences. Recognising a research gap in this area, it was decided to focus the empirical study on representatives of Generation Z, with particular emphasis on green knowledge as one of the key dimensions of green competences.

Based on the observed research gap, the aims of the planned research were formulated in the second stage of the study. The first aim of the research was to diagnose the extent to which representatives of Generation Z assess their level of green knowledge. The second aim of the research was to identify differences in the level of green knowledge among Generation Z, considering the demographic variable of gender. To achieve these research aims, a research questionnaire was developed in which representatives of Generation Z responded to two statements concerning green knowledge on a five-point Likert scale:

- ‘I believe that I have sufficient knowledge about actions that can reduce the negative impact of humans on the environment’ (hereinafter referred to as question ‘A’);
- ‘I have a good knowledge of the principles of sustainable development and environmental protection’ (hereinafter referred to as question ‘B’).

The choice of the above-mentioned measurement scale was a deliberate research decision and was aimed at analysing data in the context of the research aims. First, it was assumed that a weighted mean (1) would be calculated for each question, reflecting the average level of agreement with the statement on the part of the respondents. Due to the second aim of the research, it was assumed that this type of analysis would be carried out not only in relation to the total number of respondents, but also broken down by gender (women, men).

$$\bar{x} = \frac{\sum_{i=1}^n w_i \times x_i}{\sum_{i=1}^n w_i} \quad (1)$$

where:

\bar{x} - weighted mean,

x_i - category value - level on the Likert scale (1-5),

w_i - weight - the number of respondents who chose a given answer,

n - number of categories - in a 5-point Likert scale, $n = 5$.

Because two statements in the survey referred to green knowledge at the planning stage, it was assumed that a common index (2) would need to be created from them during the analysis by using weighted averages (1) for this purpose. This index is further referred to in this article as the Green Knowledge Index (GKI). As before, it was decided to calculate the values for all respondents (total) and broken down by gender (women, men).

$$GKI_g = \frac{\bar{x}_{Ag} + \bar{x}_{Bg}}{2} \quad (2)$$

where:

g - group of respondents – total, women, men,

\bar{x}_{Ag} - weighted mean from question ‘A’ for a given group of respondents,

\bar{x}_{Bg} - weighted mean from question ‘B’ for a given group of respondents.

At the same time, prior to conducting the research, a uniform interpretation was adopted for the weighted averages obtained for green knowledge in the context of the given statement being assessed and the GKI. This issue is presented in Table 1.

Table 1.

Interpretation of green knowledge level – guidelines

Average range	Interpretation	
	level of green knowledge	interpretative description
1.00-1.80	very low	respondents rate their green knowledge as very low
1.81-2.60	low	green knowledge is rated by respondents as low (insufficient)
2.61-3.40	average	respondents rate their green knowledge as average
3.41-4.20	high	respondents rate their green knowledge as high
4.21-5.00	very high	respondents rate their green knowledge as very high (very high confidence in green knowledge)

Source: Author's elaboration.

For the purposes of selecting an appropriate research sample, data from the Statistics Poland for 2024 on the state and structure of the population was used. As a result, it was assumed that a representative research sample would consist of 370 respondents (184 women and 186 men). It was assumed that all respondents should be of legal age at the time of the survey and belong to Generation Z. Therefore, people born between 1996 and 2006 were surveyed. The sample selection was based on stratified representativeness, considering three key variables: gender, labour market status and participation in formal education. It was assumed that two techniques, CATI and CAWI, would be used in the data collection process.

After selecting the research entity, the third stage of the research began. The first action taken here was to conduct pilot studies on 15 deliberately selected respondents representing Generation Z. The aim of this study was to identify and, in further actions, eliminate potential errors or inaccuracies in the design of the original research questionnaire. After verifying the quality of the research tool and introducing changes, the actual study was launched on a sample of 370 respondents. The interviewers conducted the study in accordance with the guidelines of the Interviewer Quality Control Programme, which guaranteed high methodological standards. As a result, the data collection process was reliable and compliant with the principles of social research ethics. After the survey was completed and the data was received, a data quality identification procedure was carried out (including in terms of its completeness).

The final stage of the research focused on the analysis and interpretation of the data obtained in the study. For the purposes of quantitative analysis, the PS IMAGO PRO 10.0 software was used, which enables the processing and interpretation of statistical data. At the same time, it should be noted that this software is used for scientific analysis by researchers in the context of quantitative research on various issues related to the green economy (e.g. Dziawgo, 2024), including the issue of green competences (e.g. Kozar, Sulich, 2023a).

4. Results and discussion

During the study, all Generation Z representatives participating in the study rated statements concerning the aspect of ‘green knowledge’ on a five-point Likert scale. Therefore, the results presented below refer to the subjective assessment of the level of green knowledge provided by the respondents. The results are presented in Table 2. In the case of the first statement, considering the entire study population, most people assessing this statement indicated ‘I neither agree nor disagree’. The same opinion on this statement was also most common among the responses given by men. In turn, most women assessing statement ‘A’ gave the rating ‘I rather agree’.

In the case of the second statement evaluated, as indicated by the data in Table 2, the largest number of respondents indicated ‘I rather agree’. It should be noted that in this statement, the same assessment as for the overall group of respondents was given by both women and men. The data obtained also indicate that in the case of statement ‘B’, women were significantly more likely to choose the assessment ‘I strongly agree’ than men.

Table 2.

Distribution of respondents’ answers to statements assessing the level of green knowledge by gender

Assessed statement		Scale*	Respondents:		
			total	women	men
A	I believe that I have sufficient knowledge about actions that can reduce the negative impact of humans on the environment.	1	8	3	5
		2	27	14	13
		3	138	65	73
		4	131	72	59
		5	66	30	36
B	I have a good knowledge of the principles of sustainable development and environmental protection.	1	7	1	6
		2	33	18	15
		3	131	60	71
		4	146	74	72
		5	53	31	22

* The following Likert scale was adopted in the survey: I strongly disagree (1); I rather disagree (2); I neither agree nor disagree (3); I rather agree (4); I strongly agree (5).

Source: Author's elaboration based on survey data.

To achieve the research aims in accordance with the methodology presented in the third part of the article, the weighted average for both questions was calculated for the total, women and men (Table 3). The Green Knowledge Index value was also calculated. The method of data collection was deliberate and resulted from the need not only to determine the overall level of green knowledge among all respondents, but also to capture any differences between women and men.

Table 3.

Weighted mean values of responses to statements assessing the level of green knowledge by gender

Assessed statement		Weighted mean (\bar{x})		
		total	women	men
A	I believe that I have sufficient knowledge about actions that can reduce the negative impact of humans on the environment.	3.59	3.61	3.58
B	I have a good knowledge of the principles of sustainable development and environmental protection.	3.55	3.63	3.48
Green Knowledge Index value		3.57	3.62	3.53

Source: Author's elaboration based on survey data.

In the case of the first statement ('A'), the weighted average obtained for the entire study group (without division by gender) was 3.59, which indicates that this group demonstrated a relatively high level of green knowledge about actions that can reduce the negative impact of humans on the environment. As Table 2 shows, more respondents agreed with the statement than disagreed or gave a neutral response. Nevertheless, this group of respondents was dominated by people who rather agreed with the statement, i.e. they did not declare full certainty, which could be expressed by the answer 'I definitely agree'. This response may indicate that these respondents consider their green knowledge on the issue in question to be sufficient, but at the same time there remains a certain gap or desire to further develop their green knowledge in this area in order to learn about a wider range of activities than before that can contribute to reducing the negative impact of humans on the environment. It is also worth noting that women (3.61) obtained a slightly higher weighted average score in their assessment of this statement than men (3.58). This result is in line with the trend observed in the literature, according to which women are more likely to show greater environmental sensitivity and interest in sustainable development issues (e.g. Gökmen, 2021; Li et al., 2022; Zhao et al., 2021). The results suggest that, regardless of gender, there is a need to deepen practical knowledge about ways to reduce the negative effects of human activity (in the context of the possibility of implementing specific measures).

The results for the second statement ('B') indicate that respondents declare a high level of knowledge of the principles of sustainable development and environmental protection. The weighted average for the entire sample assessing the respondents' green knowledge in this statement was 3.55, which meant that most respondents rather agreed with this statement, although not decisively. There were significant differences in the ratings given to this statement between women and men. Women scored 3.63, while men scored 3.48, suggesting that female

respondents were slightly more likely to identify themselves as having good knowledge of the principles of sustainable development and environmental protection. This difference may result from the observation already mentioned above that researchers in the literature on the subject note that women are more likely to show greater environmental sensitivity and interest in the topic of sustainable development. Nevertheless, as in the previous statement analysed, the need to further deepen green knowledge about the principles of sustainable development and environmental protection was also recognised. Such targeted knowledge provides the basis for developing other dimensions of green competences, in particular green attitudes and green skills. It can even be said that without adequate green knowledge about the principles of sustainable development and environmental protection, it is impossible to understand the complex relationships between natural, social and economic factors.

In the context of the analysed study, the Green Knowledge Index can be interpreted as a kind of measure of Generation Z's cognitive readiness to participate in processes supporting sustainable development. The result obtained, reflecting the GKI value, indicates a high level of green knowledge (3.57) in the group of respondents surveyed (Table 3). It is also worth noting that women achieved a slightly higher index level than men. On the one hand, this result may indicate the existence of general green knowledge among Generation Z, which may serve as a starting point for developing other dimensions of green competences. On the other hand, this result suggests that for most of the people participating in the study, the level of green knowledge was not fully established (this aspect is further emphasised by the number of 'strongly agree' responses to both statements analysed, which is not very high). In the opinion of the author of this article, the level of green knowledge may influence further career development in an economy entering the path of sustainable development. Thus, the obtained index level reflecting green knowledge, which is closer to the average than to the very high level, may indicate that some members of Generation Z may find it difficult to develop their professional careers. There is therefore a clear need to implement measures to more effectively promote the importance of green knowledge among Generation Z, especially in the context of their professional development. Such measures should include:

- developing cooperation between universities and businesses in the field of green competences (organising work placements and/or internships in businesses operating within the green economy sectors),
- incorporating 'green' content into formal and professional education programs at all stages of education,
- creating mentoring programmes that could enable members of Generation Z to connect with leaders promoting issues related to sustainable development and the green economy,
- supporting various types of information campaigns to raise awareness of the importance of green knowledge in professional and private life,

- promoting green entrepreneurship as an interesting career path,
- supporting and promoting young leaders who implement green solutions in economic practice.

The implementation of the above measures in practice may contribute to raising awareness among Generation Z of the role of green knowledge as an important element in the development of their professional careers in the context of an economy entering the path of sustainable development. However, it should be remembered that in this process it is important to use appropriate communication channels that will enable us to reach the widest possible group of representatives of this generation. In the context of shaping knowledge among Generation Z, as previous studies show, modern and interactive forms of communication are of particular importance (e.g. Düzenli, 2021). Therefore, promoting green knowledge in the context of professional career development for this generation should be done using social media, e-learning platforms and mobile applications created for this purpose. It is also worth using various types of visual and audiovisual channels (including short videos, podcasts and infographics). Such forms of communication, as recognised by various studies, meet the needs of young audiences who prefer fast communication (e.g. Manalu et al., 2025). Another effective solution may be to engage influencers, opinion leaders and youth organisations that are trusted by this group and can support the promotion of green knowledge in an authentic way. The use of interactive online campaigns, educational games and themed competitions that combine elements of learning and entertainment is also important. In the academic environment, it is worth developing platforms for cooperation between students, universities and businesses, enabling the exchange of experiences and examples of good practices in the field of sustainable development. In the opinion of the author of this article, such a broad communication approach is necessary to shape green knowledge among Generation Z.

5. Summary

The analyses carried out contributed to the achievement of the research aims. Based on the Green Knowledge Index obtained, a high level of green knowledge was found. Nevertheless, the index value was closer to the average than to a very high level of green knowledge. Thus, during the analyses, actions were identified that could lead to an increase in the level of green knowledge among Generation Z. Women in the study rated their own green knowledge slightly higher than men. The results obtained show that the Generation Z respondents surveyed were interested in pro-environmental issues, but their green knowledge needs to be further developed and deepened.

The survey had two key limitations. First, respondents self-assessed themselves in the context of a given statement, which may always involve the risk of overestimation (especially since the assessment concerned the respondents' knowledge). Furthermore, the questionnaire referred only to two aspects of green knowledge. Therefore, in the future, it would be worth considering expanding it to include, for example, the practical application of green knowledge in various sectors of the economy. The above limitations of the study do not affect its quality because the study was conducted on a representative sample of people representing Generation Z. Furthermore, as indicated in the methodology chapter, measures were implemented to maintain high methodological standards (including a pilot study preceding the main study).

The results obtained are of significant cognitive and practical importance, as they allow us to understand how the Generation Z respondents perceived their readiness to act in accordance with the principles of sustainable development. The study indicates that green knowledge should not be limited to knowledge of environmental issues but should also be assessed in the context of the ability to apply it in everyday decisions aimed at reducing the negative impact of humans on the environment. Therefore, as the author of the article points out, green knowledge is a factor that provides the cognitive basis for shaping pro-environmental skills, attitudes and behaviours. During the discussion, it was also noted that Generation Z, raised in the digital age, is open to acquiring environmental knowledge, especially if the message is conveyed in an attractive and interactive way. This reveals the potential for the development of modern methods of green education and environmental communication aimed at young audiences.

Green knowledge is a kind of foundation for shaping other dimensions of green competences. This highlights the need to conceptualize green knowledge as a strategic resource that enhances the capacity of societies and individuals to adapt to environmental and climate challenges. Therefore, the author of this article sees the need for further research in this area in the future. At this point, it is worth noting the need to examine the extent to which green knowledge acquired through education (formal, informal and non-formal) is used by Generation Z in their professional practice, especially in the context of green jobs. In the future, it would be worthwhile to develop a more comprehensive, yet universal research tool that would allow for a much broader research approach to green knowledge. Such a research tool should also consider, for example, the impact of intercultural differences on the development of green knowledge, which would allow for conducting research in different countries and comparing them with each other. In the opinion of the author of this article, continuing research around Generation Z's green knowledge is a very important area of research, considering the prospect of socio-economic life entering the path of sustainable development. The results obtained in such targeted research can form the basis for recommendations for educational institutions, decision-makers and businesses that want to actively support the development of green competences and consequently contribute to sustainable socio-economic development (including the 'greening' of its individual elements).

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