
Gender Equality Among Students and PhD Candidates at a Technical University: A Case Study of Rzeszów University of Technology

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Abstract:

Purpose: The aim of this article is to analyze the state of gender equality in the academic environment, using the example of Rzeszów University of Technology, with particular attention to the experiences of students and PhD candidates regarding gender discrimination.

Design/Methodology/Approach: The study was based on both quantitative and qualitative analysis. Surveys were conducted among a group of 876 students and PhD candidates, alongside an analysis of recruitment data and gender structure from 2020 to 2021. The scope of the survey covered experiences of discrimination, the process of reporting inequalities, and the effectiveness of university policies.

Findings: The results indicate significant differences in gender experiences within the academic environment. Although the recruitment process does not show considerable inequalities, over 40% of women reported experiences of gender-based discrimination during their studies. These manifestations include questioning competence, exclusion from projects, and inappropriate comments. The findings highlight the need to strengthen anti-discrimination policies, improve monitoring of gender equality issues, and raise awareness within the academic community about available support mechanisms and incident reporting systems.

Practical Implications: This article provides new data on gender equality in the context of Polish higher education, particularly in technical fields.

Originality/Value: It emphasizes the importance of implementing gender equality initiatives at technical universities such as Rzeszów University of Technology.

Keywords: Gender equality, higher education, technical universities, discrimination, students, PhD candidates.

JEL codes: I23, J16.

Paper type: Research article.

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1. Introduction

Gender equality is one of the cornerstones of sustainable social and economic development, playing a key role in decision-making processes and shaping public policies. It is not only an ethical imperative but also a necessity arising from the challenges of contemporary society, which strives to fully harness the potential of all its members. The academic environment, as a space for learning, innovation, and the development of future generations, should reflect the principle of gender equality.

Despite significant progress in promoting gender equality, including an increase in the number of women in fields traditionally dominated by men, many studies highlight persistent differences in the educational and professional experiences of women and men. The report "She Figures 2021: Gender Equality in Research and Innovation," prepared by the European Commission, shows that women are still underrepresented in key areas such as STEM (Science, Technology, Engineering, Mathematics).

This situation is mirrored in Polish universities, particularly technical ones, where women make up a minority, both among students and academic staff. Although the ratio of female to male students in Poland, according to data from TheGlobalEconomy, indicates relative numerical balance, this does not automatically translate into equal academic opportunities or experiences. Disparities arise, among other factors, from persistent gender stereotypes that shape educational and career decisions.

Women are more likely to choose humanities and social sciences, while men dominate technical fields. These deeply ingrained stereotypes not only influence the choice of study programs but also affect career paths, leading to inequalities in access to prestigious positions or research projects. Research on gender equality in academia confirms that universities reflect the values and inequalities present in society.

As Bryniarska Z., Pashkevich A., Puławska-Obiedowska S., and Żakowska L. note in their article "Equality Plans as an Opportunity for Balancing Professional Development of Women and Men in Engineering," gender equality plans and actions supporting equal professional development for women and men can significantly contribute to improving the situation in engineering, technical, and other male-dominated fields.

An analysis of the experiences of students at Rzeszów University of Technology concerning gender discrimination allows for a deeper understanding of the mechanisms behind such phenomena. Special attention was given to situations where students had either been victims or witnesses of discrimination, as well as how such incidents were reported and the university's response. The research findings enabled an assessment of the effectiveness of actions taken by Rzeszów

University of Technology in promoting gender equality. As a leading technical university in the region, Rzeszów University of Technology plays a crucial role in shaping gender equality policies, particularly in traditionally male-dominated fields.

The actions implemented at the university, such as the gender equality plan, support systems for students, and educational campaigns, aim to counter discrimination and raise awareness within the academic community. Their analysis allows for the identification of needs and outlines further steps in building an inclusive academic environment.

2. Literature Review

Gender equality in the academic environment, particularly among students, is a key area of research in the context of sustainable societal development. The European Commission's report *She Figures 2021* highlights persistent inequalities in STEM fields, where women remain underrepresented, which also influences the educational choices of female students.

The Educational Foundation *Perspektywy* (2022) indicates that despite the growing number of female students at technical universities in Poland, their participation in technical fields remains low, and gender stereotypes continue to shape educational and career decisions for young women. *Dziedziczak-Foltyn* (2010) emphasizes that discrimination in the academic environment, including against students, may be subtle, yet its effects are significant, particularly in limiting access to research projects or academic clubs.

Kosakowska-Berezecka et al. (2020) note that actions promoting gender equality, such as workshops and educational campaigns aimed at students, can contribute to greater gender integration in male-dominated fields. Research by the Women and Science Foundation (2016) and the OECD report (2020) indicate that students at technical universities often experience subtle forms of discrimination, such as questioning their competence or inequalities in access to educational resources and mentoring support.

In contrast, *Bryniarska et al.* (2020) underline that implementing gender equality programs among students, including policies supporting diversity in recruitment and throughout studies, can help overcome these barriers and increase engagement from both genders in technical sciences.

3. Research Methodology

To investigate the situation regarding gender equality at Rzeszów University of Technology, a quantitative study was conducted focusing on the analysis of data from applicants and students enrolled in Bachelor's, Master's, and PhD programs. The data analysis covered the period from 2020 to 2021, during which the university

offered 35 study programs. In addition, qualitative research was carried out through an anonymous survey among students and PhD candidates. The scope of the questions mainly focused on discriminatory experiences based on gender, experiences of mistreatment during the recruitment process, both direct and indirect forms of discrimination, and the university's existing solutions and actions on this issue.

The research problem was formulated as follows: How is gender equality among students and PhD candidates at Rzeszów University of Technology structured, and what are the key challenges in ensuring it? The research findings served as a basis for developing a Gender Equality Plan, which forms part of Rzeszów University of Technology's strategy for the years 2022-2025.

4. Research Results and Discussion

To illustrate the structure of students and PhD candidates at Rzeszów University of Technology, quantitative research was conducted, revealing that the majority of applicants for both Bachelor's and Master's programs were men. They represent the dominant group both among applicants and enrolled students. Over recent years, the number of female students has decreased (from 41% in 2014 to 28% in 2021).

When dividing students by faculty, the highest number of men study at the Faculty of Electrical Engineering and Computer Science, followed by the Faculty of Mechanical Engineering and Aviation, and the Faculty of Mechanical and Technological Engineering. The highest proportion of women is observed at the Faculty of Chemistry and the Faculty of Management. The most balanced gender ratios are found at the Faculty of Mathematics and Applied Physics, and the Faculty of Civil Engineering, Environmental Engineering, and Architecture.

Table 1. The participation of women and men in individual faculties

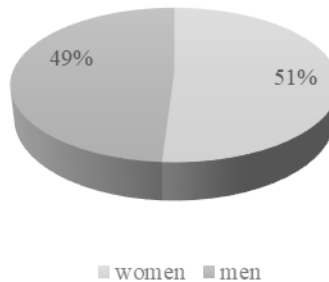
	Full-time studies				Part-time studies			
	Bachelor's studies		Master's studies		Bachelor's studies		Master's studies	
	Women	Man	Women	Man	Women	Man	Women	Man
Faculty of Chemistry	71%	29%	76%	24%	----	----	----	----
Faculty of Management	53%	47%	73%	27%	56%	44%	73%	27%
Faculty of Mathematics and Applied Physics	51%	49%	65%	35%	---	---	---	---
Faculty of Civil Engineering, Environmental Engineering and	49%	51%	52%	48%	24%	76%	29%	71%

Architectur								
Faculty of Mechanical and Technological Engineering	30%	70%	25%	75%	6%	94%	16%	84%
Faculty of Mechanical Engineering and Aeronautics	23%	77%	13%	87%	9%	91%	21%	79%
Faculty of Electrical and Computer Engineering	94%	6%	9%	91%	5%	95%	9%	91%

Source: Own elaboration.

Analyzing the data on the level of study, it can be concluded that gender distribution proportions vary depending on the level of study. For second-cycle studies, an increase in the participation of women is observed across all faculties. To examine the opinions of students at Rzeszów University of Technology regarding gender equality initiatives undertaken by the university, a survey was conducted. The survey included a group of 876 participants. Among the respondents, men slightly outnumbered women (51% compared to 49%). However, no significant gender disparity was observed (Figure 1).

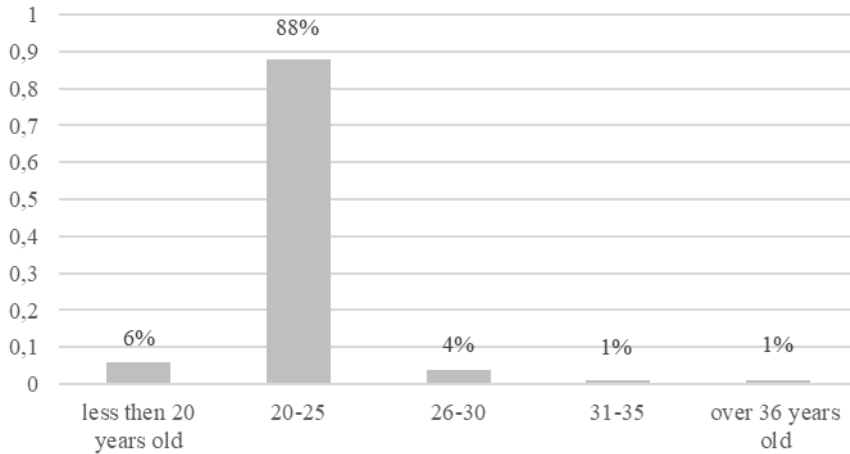
Figure 1. Gender of respondents



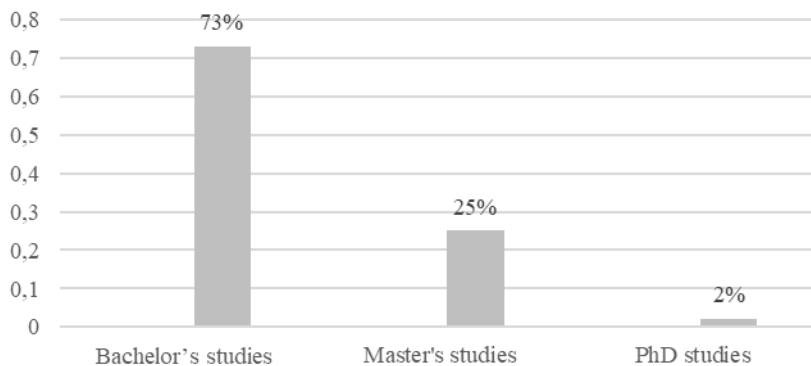
Source: Own elaboration

Considering the age of the respondents, the largest group consisted of individuals aged 20–25 years (88%), followed by those under 20 years of age (6%), while the smallest group was represented by individuals aged 31–35 years (1%) (Figure 2).

The main group of respondents consisted of first-cycle (undergraduate) students – 73%, followed by second-cycle (graduate) students (25%) and doctoral candidates (2%) (Figure 3).

Figure 2. Age of the respondents

Source: Own elaboration.

Figure 3. Type of studies.

Source: Own elaboration.

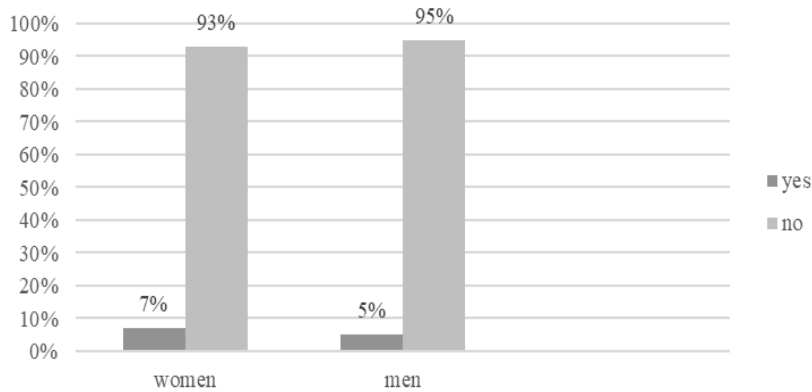
The first question included in the questionnaire addressed the respondents' experiences with discrimination and unequal treatment based on gender during the recruitment process.

The results of the survey conducted among students of Rzeszów University of Technology did not indicate any noticeable discriminatory behaviors violating the principle of gender equality, either during the recruitment process or throughout their studies.

During recruitment, only 7% of women and 5% of men experienced unequal treatment, such as malicious comments, biased assessments of suitability for their chosen field of study based on gender, or inappropriate and degrading behavior. The

responses provided support the conclusion that the issue of unequal treatment in this area is not highly noticeable, as illustrated below (Figure 4).

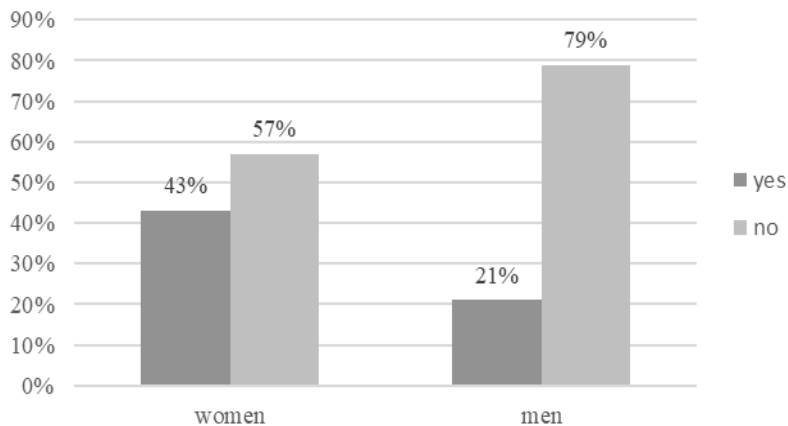
Figure 4. *Experience of mistreatment based on gender during the recruitment process*



Source: Own elaboration.

In the case of manifestations of discrimination during the course of studies, the results differ slightly. In this instance, over 40% of women reported experiencing direct gender-based discrimination (Figure 5).

Figure 5. *Experience of direct gender-based discrimination in professional work*



Source: Own elaboration.

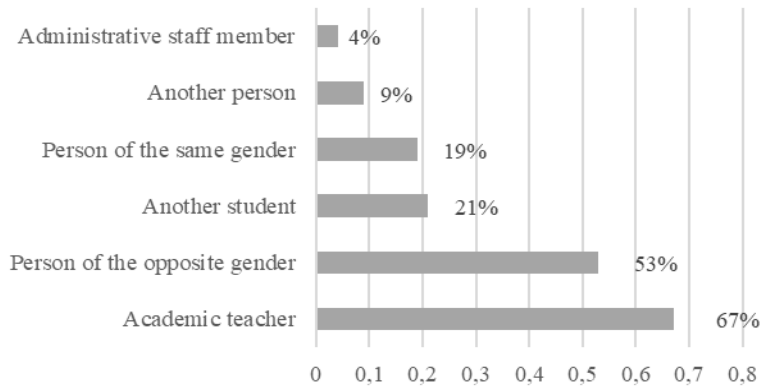
The respondents mainly identified the following forms of such behavior:

- Undermining competencies and skills relevant to a specific field of study,
- Devaluing individuals based on their gender,
- Commenting on appearance,

- Ignoring their voice in discussions,
- Demeaning and ridiculing statements,
- Discrimination in selection for projects, student organizations, and student council bodies.

Among those responsible for such behaviors, respondents primarily pointed to academic staff and individuals of the opposite gender (Figure 6).

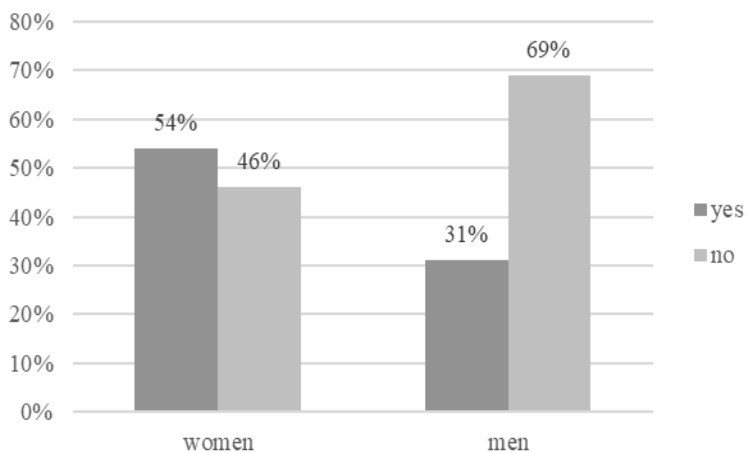
Figure 6. *The person who engaged in such behavior*



Source: *Own elaboration.*

When asked whether they had ever witnessed such a situation, 42% of the respondents answered positively, including 54% of the female respondents and 31% of the male respondents (Figure 7).

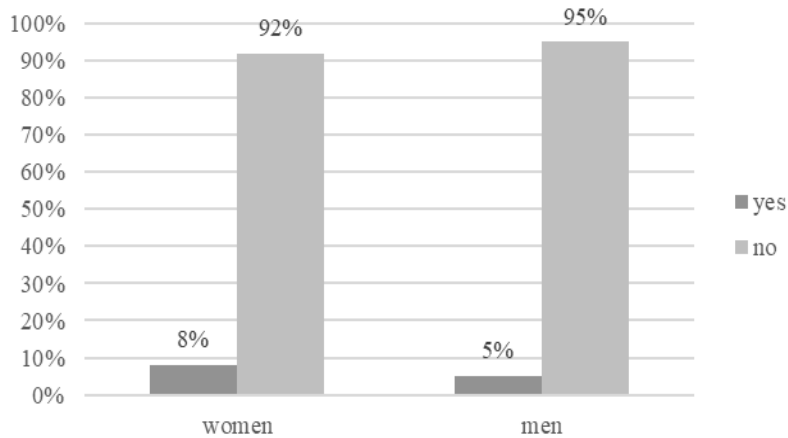
Figure 7. *Being a witness to behavior violating gender equality by gender*



Source: *Own elaboration.*

Regarding the question on reporting unequal treatment, the results differ slightly—only 8% of female respondents and 5% of male respondents answered positively (Figure 8).

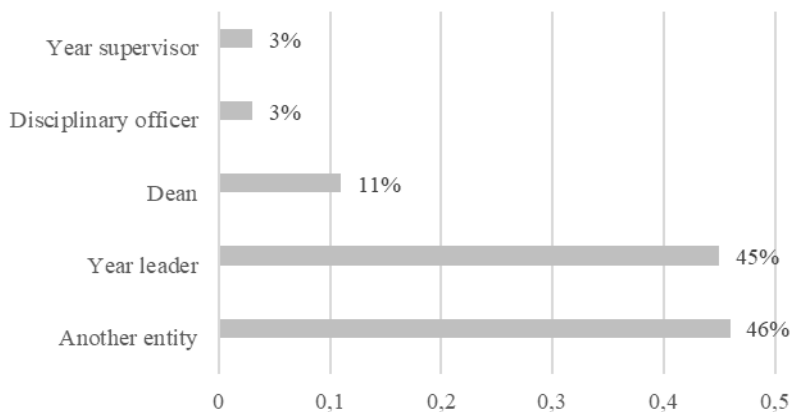
Figure 8. Unequal treatment behaviors as the subject of complaints



Source: Own elaboration.

When asked about the recipient of such complaints, 46% of respondents indicated another entity, 45% directed their complaints to the class representative, followed by the dean and the year supervisor (Figure 9).

Figure 9. Recipients of complaints

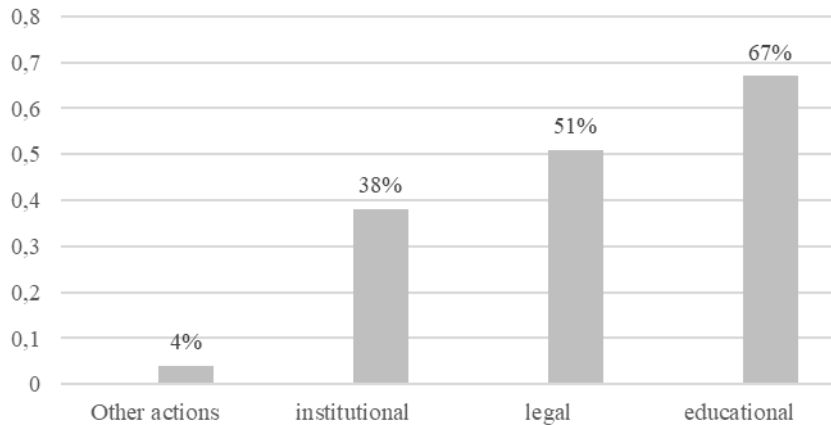


Source: Own elaboration.

In the survey, approximately 60% of respondents believe that the Rzeszów University of Technology adequately monitors issues related to discrimination against students based on gender. Among the remaining 40% of respondents,

possible suggestions for increasing gender equality and desired areas of action by the university in this regard were indicated (Figure 10).

Figure 10. *Expected actions from the university in the specified area*



Source: Own elaboration.

5. Conclusions

The research conducted among students and PhD candidates at the Rzeszów University of Technology identified key areas where inequalities exist, as well as actions that the university can take to improve the situation. An analysis of the gender structure of students and PhD candidates across various faculties indicates that, in line with general statistics, men dominate in technical fields.

However, there is a noticeable trend of increasing numbers of women in technical fields at higher levels of study (Master's degree) across all faculties, which may reflect the positive effects of the university's efforts to encourage women to pursue and develop in STEM fields. In terms of students' and PhD candidates' experiences related to gender discrimination, the research findings show that although this issue is not widespread in the recruitment process, cases of unequal treatment do occur during studies.

Over 40% of female respondents reported experiencing discriminatory behaviors such as undermining their competence based on gender or unequal access to research projects and student organizations. These results highlight the need for continuous strengthening and development of anti-discrimination policies, as well as supporting equality initiatives.

Despite the reported cases of discrimination at the university, the research findings point to a low rate of reporting these incidents, which may suggest a need for further increasing awareness among students and PhD candidates about available complaint

mechanisms and promoting trust in the existing support systems. It is worth noting, however, that the vast majority of students and PhD candidates believe that Rzeszów University of Technology effectively manages and monitors gender discrimination issues and takes actions aimed at eliminating these inequalities.

Further developing actions for gender equality, strengthening procedures for reporting discrimination cases, and ongoing education on gender equality will undoubtedly be crucial for the continued success of Rzeszów University of Technology in promoting gender equality in the academic space.

References:

- Bryniarska, Z., Pashkevich, A., Puławska-Obiedowska, S., Żakowska, L. 2021. Equality Plans as an Opportunity to Balance Professional Development of Women and Men in Engineering. *CORDIS - EU research results*.
<https://cordis.europa.eu/project/id/741128>.
- Dziedziczak-Foltyn, A. 2010. *Gender Equality in Higher Education and Science – Theory and Practice*. University of Łódź.
- Educational Foundation Perspectives. 2022. *Report, Women at Technical Universities 2022*.
- European Commission. 2020. *A Union of Equality: Gender Equality Strategy 2020-2025*. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions.
- European Commission. 2021. *She Figures 2021: Gender Equality in Research and Innovation*.
- Foundation for the Development of the Education System (FRSE). 2024. *Gender Gap in Education*.
- Kopczewski, M., Pawalec, L. 2012. *Equality Education: Education Free from Discrimination*. *Przegląd Naukowo-Metodyczny, Edukacja dla Bezpieczeństwa*, (3).
- Kosakowska-Berezecka, N., Żadkowska, M., Pawlicka, P. 2020. *Gender Equality = Common Cause: Actions for Gender Equality as an Element of Effective Diversity Management and a Source of Positive Structural Changes in Higher Education Institutions on the Example of the University of Gdańsk*. *Miscellanea Anthropologica et Sociologica*.
- OECD. Poland - Gender Equality Profile. Retrieved from:
<https://gpseducation.oecd.org/CountryProfile?primaryCountry=POL&treshold=10&opic=EO>.
- ResearchGate. 2016. *Polish Science and the Higher Education System – Gender Still Matters*.
- Rzeszów University of Technology. 2022. *Gender Equality Plan 2022-2025*. *TheGlobalEconomy*. Report.
- University of Gdańsk. 2020. *Women in Science: Managing Diversity and Gender Equality as Part of the Social Responsibility of the University of Gdańsk*.
- Women and Science Foundation. 2016. *Beautiful Minds Report – The Role of Women in Science*.