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## INDUSTRY SECTOR'S INFLUENCE ON THE NARRATIVES IN ENVIRONMENTAL DISCLOSURES IN THE OPINION OF REPORTS PREPARERS. EVIDENCE FROM POLAND

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**ABSTRACT:** The narrative phenomenon in accounting concerns, i.e., the disclosure of environmental information and the impression management of stakeholders. The study examines and assesses the dependence between the company's industry of activity and the narration perception adopted by the preparers of environmental reports, in particular, the impression management techniques used. To achieve the purpose of the article, an in-depth survey was conducted covering a non-random sample of the employees of Polish enterprises involved in the preparation and reporting of environmental information. Contingency tables and association measures for categorical variables were used in the statistical analysis of the survey data. The analysis results of the collected empirical data confirmed that the company's industry of activity impacts the way report preparers evaluate the scope and apply narrative strategies, especially impression management techniques. The research expands knowledge on the perception of the importance of environmental disclosures and the issue of environmental narrative practices from an enterprise perspective. The results of the analysis indicated a level of pro-environmental awareness and confirmed the knowledge of narrative strategies and techniques. This study contributes to the discussion on the effects of environmental narrative in accounting, offering yet another element of the current practice diagnosis in this area in Poland.

**KEYWORDS:** environmental reporting, sustainability, perception of environmental disclosures, narrative, impression management

## Introduction

The importance of environmental information is constantly growing along with the increase in social awareness and expectations regarding the specific actions taken by enterprises to reduce the adverse effects of their impact on the environment. More and more users of financial and non-financial statements are looking for information about the activities they have undertaken or planned and their already-achieved effects. This type of information is crucial to monitor the impact of actions taken by specific enterprises and the effects in the macroeconomic dimension. Environmental reporting is one of the main tools for implementing sustainable development goals in the field of environmental protection (e.g. Schaltegger & Burritt, 2017; Rahman & Rahman, 2020; Dura & Suharsono, 2022). Reporting environmental information is primarily associated with non-financial reports, and these are characterised by much greater freedom and discretion in terms of the scope and method of disclosure compared to financial reports (van der Lugt et al., 2020). In practice, the reporting of environmental information is burdened with the freedom of disclosure, and for many entities with their voluntary nature as well, despite the launched process of standardisation and extending the obligation (Directive, 2022). The entities required to make disclosures do so in practice somewhat arbitrarily. In turn, the entities that do not have such an obligation disclose information to a different extent and degree of significance (Turzo et al., 2022). Such practices fit into the context of legitimacy, agency, and stakeholder theories (e.g. Deegan & Gordon, 1996; Wilmshurst & Frost, 2000; Deegan, 2002; Cho & Patten, 2007).

Given the sustainable development goals, proper and reliable communication between the main participants in the CSR relational framework, especially in environmental reporting (ER), is particularly important (e.g. Camilleri, 2015). The instruments and regulators that limit enterprises' freedom in the reporting system, which may be conditioned by various factors, are important in proper communication. This issue is particularly visible in environmental reporting. The results of many studies indicate that environmental information is the subject of narration in economic practice, in particular the impression management strategy, which may result in making it difficult for users to formulate an accurate assessment of the state of affairs (e.g. Hooghiemstra, 2000; Sandberg & Holmlund, 2015; Talbot & Boiral, 2018). Research shows that ER and, more broadly, CSR users expect a greater scope of disclosures, reliability, transparency, and relevance (e.g. Deegan & Gordon, 1996; Camilleri, 2015). This, in turn, is closely related to the reduction of negative effects of using narratives concerning environmental disclosures through appropriate initiatives at the government and international level, including, in particular, the development of legal regulations and standards as an appropriate tool to improve communication efficiency (Camilleri, 2015). Such activities require a diagnosis of environmental disclosure conditions and an examination of its determinants. Mata et al. (2018) presented the results of a literature review on ER. The authors analysed papers that covered the research published in 20 leading accounting journals in the period 2006-2015. Research showed that most studies were conducted in the United States, the United Kingdom, and Australia. Highly developed countries, including Western Europe, dominate. However, regarding the countries of Central and Eastern Europe, only Poland, Romania, and Hungary had one study each. The countries of this area have been relatively poorly covered by in-depth research (Mata et al., 2018).

A company's industry of activity is often studied as one of the factors of environmental disclosures (e.g. Sahay, 2004; Ho & Taylor, 2007; Reverte, 2009; Qi et al., 2012; Dyduch & Krasodomska, 2017; Papaj-Wlisłocka, 2021). Most ER factor research is conducted using text analysis based on non-financial reports (Mata et al., 2018). This type of research refers to the information needs of report users. However, a complete diagnosis of economic practice in the field of ER also requires taking into account the viewpoint of preparers of the reports containing environmental disclosures. This type of research is carried out primarily using survey or interview methods. In some studies, the perception of preparers and users of environmental information is compiled (e.g. Deegan & Rankin, 1999; Helfaya et al., 2019). The studies focused on preparers do not refer to the narrative problem in conjunction with the industry factor.

The article authors note a gap in this group of studies regarding the correlation between the industry and the perception by report preparers of the narrative scope and type in environmental disclosures. The few studies addressing this problem did not cover the countries of Central and Eastern Europe. This analysis is intended to bridge the indicated research gap. The article assesses the

dependence between the company's industry of activity and the perception of using narratives, in particular impression management techniques, by the preparers of environmental reports. The following research questions referring to the preparers' perceptions were posed:

- Q1: What is the thematic scope of the environmental narratives disclosed in the company's non-financial reports?
- Q2: Are the narratives disclosed in the non-financial reporting subject to impression management techniques?

The following hypotheses were adopted concerning the questions posed:

- H1: The industry influences how the narrative aspects of environmental disclosures are perceived by the report preparers.
- H2: The industry impacts the impression management techniques used by the preparers of non-financial reports.

As part of the research, in-depth surveys were conducted among the practitioners reporting environmental information on a non-random group of enterprises based on the Polish Statistical Classification of Economic Activities (PKD) codes.

Our study will contribute to a deeper understanding of the factors affecting the use of narrative in environmental disclosures and report preparers' perceptions of this issue. It can also contribute to the diagnosis of business practices in this area.

The structure of the article is adapted to the assumed purpose and nature of the research. In the first part, a review of the research on environmental reporting factors in the context of the narrative problem was conducted. In particular, the industry factor was taken into account. The second part describes the research method used. The third part discusses the obtained results and substantiates the adopted hypotheses and their reference to the results of other studies. In the last part, the research conclusions are presented, and the limitations are indicated.

## Environmental reporting – legal foundation and literature review

Environmental reporting is included in the sustainable development of enterprises and in coordinating environmental and social processes affecting the development of responsible and long-term business activities (Hernádi, 2012; Ignat et al., 2016). Cairns (2009) and Mason and Simmons (2014) indicated the elements that enable the integration of green accounting with the company's system by implementing environmental policy, developing ecological strategies, creating environmental financial reports, introducing environmental accounts, and disclosing environmental reports documenting processes that reduce the company's impact on the environment.

The disclosed environmental information is often non-financial and a part of the sets of information presented in non-financial reports or integrated reports. The obligation to report non-financial information was specified in Directive (EU) 2014/95 (NFRD – Non-Financial Reporting Directive), implemented into Polish law in 2016 (Act, 2016), and applies to approx. 500 companies that disclose non-financial information in the form of a statement on non-financial information or a report on the activities of the management board or a separate report (e.g. sustainable development report, integrated report). The variety of forms and scope of disclosing non-financial information contributed to the so-called creative information chaos and reduced the transparency and comparability of this information.

For the sake of standardising the methods of reporting disclosures on sustainable development and emphasising the consistency of financial statements and the ESG (Environmental, Social, Corporate Governance) report, the European Commission published a new CSRD (Corporate Sustainability Reporting Directive) on December 16, 2022, which is to replace the existing directive on non-financial reporting that extends the group of entities (e.g. small and medium-sized listed companies) subject to the obligation of non-financial reporting and extends the scope of disclosures (Directive, 2022). Reporting will be carried out according to the uniform ESRS (European Sustainability Reporting Standards), which in the "Environment" module distinguishes 5 standards covering climate change, pollution, water and marine resources, biodiversity and ecosystems, resource use, and sustainable economy closed circuit (PR, 2023). Some entities had voluntarily disclosed non-financial information, including environmental information, even before the new CSRD and ESRS were enacted.

Companies do not always demonstrate a high awareness of disclosing standardised environmental and climate aspects, which is confirmed by research measuring the scope of reporting climate-related information by companies recognised as CSR leaders in Poland using the climate-related disclosure index (Jastrzębska, 2023).

Companies are under increasing social pressure to disclose the environmental footprint of their activities (Deegan & Gordon, 1996; Camilleri, 2015). For this reason, the environmental aspect has become one of the most crucial aspects of corporate reporting. Reported environmental information can be financial or non-financial (quantitative, descriptive, interpretive, etc.). However, it is worth emphasising that the effects of the company's footprint on the natural environment are also presented in financial statements (Günther, 2006; Reizinger-Ducsai, 2007; Griffin, 2013). Still, the analysis of the information scope of financial statements indicates the lack of sufficient visibility of this type of information by presenting it as a separate item in the report, or the lack of transparency in the description of the valuation method used (Strojek-Filus & Sulik-Górecka, 2022). As a result, financial statements are currently of little importance in reporting environmental information.

A variety of factors can induce voluntary environmental disclosures. According to the legitimisation theory, one of them may be the management board's desire to present its organisational effectiveness and pro-ecological attitude (Deegan & Gordon, 1996; Deegan, 2002; Cho & Patten, 2007; Camilleri, 2015).

Most ER studies use annual non-financial or integrated reports as the main data source and employ text analysis methods (Mata et al., 2018). Researchers' attention is often focused on the determinants of environmental disclosures. One of the indicated factors affecting the scope of disclosures is the company's industry (sector) of activity and its size (e.g. Sahay, 2004; Ho & Taylor, 2007; Cho, 2009; Reverte, 2009; Coetzee & Staden, 2011; Qi et al., 2012; Ahmad & Mohamad, 2013; Akbaş, 2014; Dyduch & Krasodomska, 2017; Papaj-Wlisłocka, 2021). Research shows that entities from the sectors particularly exposed to adverse environmental impact disclose more environmental information than others. Industry-related disasters and incidents causing environmental pollution also induce management boards to draw up more extensive and diligent reports (Cho, 2009; Coetzee & Staden, 2011). Company size and public listing are also significant factors (Cho & Patten, 2007; Cho et al., 2010; Mata et al., 2018). In the studies, the industry factor is often closely related to the enterprise size. Larger concerns from sensitive sectors that are under greater social pressure and obligatorily report environmental information also expand the scope of environmental information, referring to standards, e.g. GRI indicators. Listed companies, usually the largest concerns (capital groups), are subject to mandatory reporting of environmental information (Henri & Journeault, 2008). Access to their reports facilitates social control, which may also translate into the quality of environmental disclosures. The increased level of detail in the information may lead the user to believe that "the company has nothing to hide" (e.g. de Villiers & Staden, 2006; Cho & Patten, 2007; Mata et al., 2018). However, the impression obtained may be deceptive compared to the actual activities (Cho et al., 2015).

Some studies focus on ER quality as measured by text analysis (e.g. Jones & Shoemaker, 1994; Marston & Shrivs, 1991; Beattie et al., 2004; Beretta & Bozzolan, 2008; Michelon et al., 2015). Research results indicate that the amount of text does not always translate into the quality of reported information. The problem of ER is the phenomenon of narrative, which is becoming increasingly widespread (Jones & Shoemaker, 1994; Beattie et al., 2004; Jones, 2011; Beattie, 2014; Bąk & Strojek-Filus, 2022). Research shows that environmental non-financial information is particularly vulnerable to management's use of impression management strategies when preparing reports (e.g. Cho et al., 2012; Cho et al., 2015; Diouf & Boiral, 2017).

Based on their analyses, many researchers conclude that non-financial reporting containing environmental information is treated by management boards as a marketing instrument or a social legitimisation tool, and often as an instrument for managing the impression of report recipients (e.g. Hooghiemstra, 2000; Sandberg & Holmlund, 2015; Talbot & Boiral, 2018).

Merkl-Davies and Brennan (2011; 2013) distinguished seven techniques of impression management (including six in two strategies), which involve characteristic manipulations:

- I. strategies for obfuscation (hiding) of unfavourable situations or outcomes: 1) syntactic manipulation – using complex language, affecting the degree of readability and 2) rhetorical manipulation – using eloquent rhetoric and persuasive language,

- II. strategies for emphasising positive situations or results: 3) thematic manipulation – highlighting good news and downplaying bad ones, 4) visual and structural manipulation – using appropriate graphic means to focus attention on good information through typeface, size, and colour of writing, text arrangement, 5) performance comparisons – selection of comparative periods favourable to the entity, 6) selectivity – focus on selected information, omitting some indicators,
- III. and the technique of impression management: 7) attribution of achievements – attributing positive achievements to the entity (and managers), and negative ones to independent external factors.

Each of these techniques requires the use of an appropriate impression management detection method (Merkl-Davies & Brennan, 2011), e.g. syntactic manipulation – readability indexes, thematic manipulation – coding positive and negative keywords, visual manipulation – the use of different fonts and colours, selection of charts.

Numerous studies on the applied techniques of impression management (shaping and controlling the impressions of the reports' recipients) confirm that such efforts take place and are practised (e.g. Courtis, 2004; Merkl-Davies & Brennan, 2007; du Toit, 2017), hiding negative information with persuasive language (e.g. Cho et al., 2010; Sandberg & Holmlund, 2015), highlighting good news, including a focus on social and environmental outcomes (e.g. Diouf & Boiral, 2017), the selection of the most favourable comparison periods (Boiral & Henri, 2015), the use of visual effects to focus attention on good information using the font type, face colour, and text background, charts, text arrangement or the selection of appropriate photos (e.g. Rämö, 2011; Cho et al., 2012; Wang, 2016; Kanbaty et al., 2020; Szadziewska & Kujawski, 2022) and focusing on selected information and ignoring unfavourable information (Talbot & Boiral, 2018). Merkl-Davies and Brennan (2007) confirmed that corporate executives use environmental disclosures to apply impression management techniques by manipulating the amount of information, thematic content, verbal language, and tone. Studies also confirmed “window dressing” of company performance by charting environmental and social information (Cho et al., 2012; Kanbaty et al., 2020).

Research shows that the standardisation of reporting, e.g., by adopting GRI indicators as the basis, does not increase the transparency and responsibility of entities in terms of the quality of reports (Michelon et al., 2015; Mata et al., 2018). One of the methods for counteracting bad practices in non-financial reporting is the introduction of auditing (Nitkin & Brooks, 1998). The importance of ethics among accountants and other people involved in the preparation of reports is also emphasised (Hahn & Lülfs, 2014; Morrison, 2015).

Given the purpose of this article, an important group of studies is focused on the perception of ER with respect to the expectations gap. Deegan and Rankin (1999) compared the views of users and preparers of ER in Australia. The research results indicate significant differences in the perception of demand and supply balance in the role of ER in practice. Helfaya et al. (2019) used a questionnaire survey to investigate “what preparers and users perceive as important factors depicting the quality and the relative importance they place on those factors”. On the other hand, Wilmshurst and Frost (2000) researched the dependence between the validity (relevance) of identified factors related to the decision-making process assigned by CFOs and the actual environmental reporting practice. The research results confirmed such a correlation. The authors linked the obtained findings with the theory of legitimacy (Wilmshurst & Frost, 2000). The results of a survey conducted by Jaggi and Zhao (1996) among accountants and managers preparing environmental reports indicated a large discrepancy between their assessment of the validity (relevance) of certain types of environmental information. The survey respondents indicated certain information as important from the point of view of Hong Kong's social and economic interests, and at the same time, they did not disclose this information in their reports. According to the authors, this may indicate the reluctance of preparers (accountants and managers) to disclose environmental information. In turn, Cormier and Gordon (2001) noted that government-owned enterprises disclose more information than private ones in terms of environmental information.

## Data and research methods

The empirical data used in the article were collected in a non-exhaustive survey based on a questionnaire survey among 70 enterprises. In non-exhaustive (partial) studies, the subject of analysis is a statistical sample composed of population units (it is a subset of units of the surveyed population). Following the purpose of the study, the sample of enterprises was created in a non-probability manner based on the PKD (Polish Statistical Classification of Economic Activities) register. The sample was created using the technique of accidental sampling, also known as convenience sampling (Szreder, 2004). The sample is a non-representative one. Therefore, it is not possible to generalise the obtained results by referring them to the entire population of enterprises.

Survey methods are also used to research the issue of disclosing environmental information. For example, Krivačić and Janković (2017) presented the results of a survey covering managers' attitudes regarding the importance of environmental information as an element of corporate social responsibility in a sample of 73 enterprises from Croatia. From the point of view of the surveyed companies, collecting and reporting environmental information is ethical and useful for various stakeholders. Furthermore, Novovic Buric et al. (2022) studied attitudes toward the implementation of green accounting in the tourism industry in Montenegro. The study was conducted on a sample of 115 employees of tourist enterprises. The study results indicated that most tourism enterprises include corporate social responsibility in their strategy and business policy. Socio-demographic factors are also important in terms of their impact on understanding the importance of green accounting in the tourism sector.

Contingency tables and association measures for categorical variables were used in the statistical analysis of the survey data. Cramer's  $V$  contingency coefficient was used, which takes values in the range  $[0; 1]$  (Ott, 1984; Agresti, 2002). The calculations were carried out using the R program and the `vcd`, `epade`, `DescTools` packages (R Development Core Team, 2023; Aitkin et al., 2009).

Contingency tables enable the study of interdependencies between nominal variables. They show the distribution of answers to two selected questions from the survey questionnaire. Contingency coefficients (association measures) provide more information on the studied phenomenon, which assesses the degree of association of the features. Association measures are constructed based on the  $\chi^2$  (chi-square) statistic, which shows the deviation of the numbers observed in the cross-section of both features from the theoretical numbers that would be expected if the features were independent. The  $\chi^2$  statistics are calculated based on the data presented in the contingency table:

$$\chi^2 = \sum_i \sum_j \frac{(n_{ij} - \hat{n}_{ij})^2}{\hat{n}_{ij}} = \sum_i \sum_j \frac{\hat{n}_{ij}^2}{\hat{n}_{ij}} - n, \quad (1)$$

where:

$n_{ij}$  – observed values,

$\hat{n}_{ij}$  – expected values,

$n$  – sample size.

The  $\chi^2$  statistic takes values from the range:

$$[0; n \times \sqrt{(r - 1) \times (c - 1)}], \quad (2)$$

where:

$r$  – number of rows,

$c$  – number of columns in the contingency table.

The  $\chi^2$  statistic is zero (lower bound) when the theoretical (observed) values are the same as the empirical (expected) values. The upper limit depends on the surveyed population size and the contingency table number of rows and columns. Based on the value of the  $\chi^2$  statistic, measures of the interdependence (correlation) of nominal variables (contingency coefficients) can be calculated. These contingency coefficients are the numbers in the range  $[0; 1]$ ; they take into account the size of the array and the number of observations. Cramer's  $V$  contingency coefficient was used in the analy-

sis of the survey results:  $V = \sqrt{\frac{\chi^2}{n \times \min(r-1; c-1)}}$ , whose values can be interpreted as follows:

$V = 0.00$  – independence of features,  $V \in (0.00-0.33]$  – weak dependence,  $V \in (0.33-0.66]$  – clear dependence,  $V \in (0.66-1.00)$  – strong dependence,  $V = 1.00$  – functional dependence.

The collection of empirical data was carried out based on an original questionnaire. Sampling and data collection were commissioned by the research agency Biostat, Poland. The study covered 70 enterprises (medium and large). Biostat selected a non-random sample of respondents based on PKD codes, specifying the type of business activity. 721 enterprises were contacted. Ultimately, 70 enterprises representing 14 industries (sectors) agreed to participate in the survey. The CATI technique was used to collect the data. The research was carried out from May 18 to June 5, 2023.

This pilot research concerns reporting environmental information (financial and non-financial) as a specific area of narrative in accounting from the perspective of non-financial report preparers. The survey questionnaire consists of four parts: 1) characteristics of the surveyed enterprise, 2) environmental information in financial and non-financial reporting, 3) environmental narratives in non-financial reporting, and 4) respondent characteristics. The second and third parts of the survey consist of in-depth research based on detailed questions.

All the respondents, who were employees of the enterprises surveyed, stated that they participated directly or indirectly in preparing the non-financial report. The breakdown of respondents by gender is 56% females and 44% males. In the age structure, the largest group is represented by Generation X (born in 1965-1980) – 49% and Generation Y Millennials (born in 1981-1994) – 44%. Less numerous generational groups are the Generation BB (Baby Boomers) born before 1964, constituting 4% of the respondents, and Generation Z born since 1995 – 3%.

The survey involved enterprises operating in the following industries: energy (3), raw materials (8), chemical (4), metallurgy (1), food (9), construction (6), electromechanical (2), metallurgy (13), automotive (7), transport and logistics (5), wood, paper and furniture (6), retailing (2), services (3), pharmaceutical (1). Despite the authors' assumptions, it was not possible to induce any company from the following industries to participate in the survey: fuel, clothing, textiles, new IT technologies, and telecommunications. The survey authors intended to select enterprises according to the criterion of significantly negative environmental impact of the business activity.

The number of employees and total assets or net income is one of the criteria to characterise the company size (Act, 2018; Act, 1994). The study involved:

- 41% of enterprises employing over 500 employees (one of the criteria met underlying the mandatory disclosure of non-financial information under the Accounting Act and Directive (EU) 2014/95 and the CSRD Directive from 2024),
- 33% of enterprises employing less than 500 to 250 employees (one of the criteria met for mandatory ESG reporting under the new CSRD from 2025),
- 26% of enterprises with fewer than 250 to 50 employees (ESG reporting obligation for medium-sized enterprises listed on the Stock Exchange from 2026).

When specifying the size of the surveyed enterprises, the authors also point to their new non-financial reporting obligations under the new CSRD Directive.

The survey also includes questions about total assets and net income, but the most frequent answer provided by the respondents was "I don't know," and each question accounted for over 70% of the answers. Therefore, it is difficult to unequivocally determine the size of the surveyed enterprises based only on the criterion of employment. Assuming that, in addition to the employment criterion, the enterprises met one of the other two (total assets or net income), then it can be stated that a total of 74% of the surveyed enterprises cover large concerns employing more than 250 employees, while medium-sized enterprises represent 26%.

## Results of the research

According to the respondents, the surveyed enterprises for which they prepare reports disclose environmental information in non-financial reporting (50%) and in both financial and non-financial reporting (49%). Only 1% of the surveyed enterprises declared disclosing environmental information in their financial statements. This may indicate that enterprises do not associate financial reporting with disclosing environmental information, e.g. they treat the disclosed information on land filling fees, environmental investments, or expenditure on environmental R&D as items of the balance sheet and profit and loss account.

A non-financial report is obligatorily drawn up by 81% of the surveyed enterprises (according to the respondents, it may be identical to disclosing non-financial information), and only 19% voluntarily. The mandatory disclosures of non-financial information include the most frequently used activity report containing a separate section on non-financial information (56%) and the non-financial report (24%).

Mandatory disclosure of environmental information (e.g. by enterprises employing more than 500 employees) was assessed positively by 89% of the respondents, and only 11% of them expressed a negative opinion. Such a significant dominance of positive answers may indicate pro-environmental awareness and the need for the company to participate in the global process of saving the environment, legitimising its operations, and building a positive image among stakeholders.

The majority of respondents preparing mandatory reports (56%) spoke positively about the extension of the compulsory scope of subjective and objective disclosure of environmental information. Such an attitude should be considered satisfying as the new CSRD will soon introduce these extensions. In turn, the respondents' more varied answers concerned whether the company's managers intend to voluntarily expand the existing scope of environmental information disclosed in the non-financial report. The majority of respondents (54%) answered "I don't know," 26% said they did not intend to, and 20% replied "Yes." Perhaps the answers resulted from many reporting obligations and ever-increasing requirements in this matter, which may induce reluctance to make such a decision or the attitude of "not going beyond what needs to be done." The indication of more than half of the respondents that they do not know the answer to the last question may also indicate that the decisions of the management board on environmental disclosures are made on an ongoing basis during the preparation of reports. In turn, unambiguous answers "yes" or "no" may be explained by the policy adopted by the management board in this respect for the coming years.

To gain knowledge about environmental narratives in non-financial reporting and impression management, the authors asked two questions in the survey (SQ1, SQ2), extended by several detailed answers based on the subject area of the narrative and impression management techniques (the questions are similar to the ones in the article):

- SQ1: What issues do the environmental narratives included in the company's non-financial reporting concern?
- SQ2: When preparing a company's non-financial report/integrated report, are the following activities exploited to affect the content perception and make an impression on the report user?

The respondents' answers were correlated with the industry, recognised as one of the significant factors shaping the company's operations and approach to environmental issues. Research hypotheses H1 and H2 can be verified by searching for dependences between the industry and environmental narratives (SQ1) and impression management techniques (SQ2).

Tables 1 and 2 summarize the answer options for questions SQ1 and SQ2, the number of positive and negative answers for each option in questions SQ1 and SQ2, and Cramer's V coefficient determining the dependence between the industry and questions SQ1 and SQ2.



**Table 1.** Dependencies between the industry and Question SQ1

SQ1 question options	Cramer's V coefficient	Number of responses	
		Yes	No
a) description of the company's activity as pro-ecological	0.459	43	27
b) climate responsibility	0.524	46	24
c) environmental investment expenditure	0.364	40	30
<b>d) reduction of energy consumption and CO<sub>2</sub> emissions</b>	<b>0.338</b>	<b>57</b>	<b>13</b>
e) energy policy	0.381	41	29
<b>f) air protection. incl. air emissions</b>	<b>0.492</b>	<b>59</b>	<b>11</b>
<b>g) waste management and Earth's surface protection</b>	<b>0.332</b>	<b>59</b>	<b>11</b>
h) sewage management and water protection	0.535	53	17
i) responsible use of natural resources	0.474	41	29
j) noise and vibration protection	0.376	45	25
k) Eco-aware – product, manufacturing and sales	0.394	22	48
l) circular economy	0.488	29	41
ř) development of renewable energy sources	0.390	36	34
m) biodiversity protection	0.449	25	45
n) nature reserves and afforestation	0.500	13	57
o) cooperation of pro-ecological organizations	0.374	25	45
p) other	0.376	3	67

**Table 2.** Dependencies between the industry and Question SQ2

SQ2 question options	Cramer's V coefficient	Number of responses			
		never	rarely	often	very often
<b>a) using key/professional industry-specific words (phrases)</b>	<b>0.418</b>	<b>10</b>	<b>20</b>	<b>33</b>	<b>7</b>
<b>b) using keywords (phrases) associated with a pro-ecological attitude</b>	<b>0.456</b>	<b>11</b>	<b>20</b>	<b>34</b>	<b>5</b>
<b>c) using positive-connotation words</b>	<b>0.395</b>	<b>10</b>	<b>11</b>	<b>38</b>	<b>11</b>
d) avoiding negative-connotation words	0.476	14	19	27	10
e) using different fonts and bold in the texts	0.435	17	21	22	10
f) using colored fonts in certain parts of the text	0.441	32	12	19	7
g) combining short text with figures and charts	0.535	18	14	24	14
h) presenting unfavorable information in headwords against favorable information presented in detail	0.385	24	32	13	1
<b>i) focus on selected information and achievements</b>	<b>0.449</b>	<b>14</b>	<b>12</b>	<b>37</b>	<b>7</b>
j) using small and large photos matching the composition of the disclosed content and indicators	0.548	24	23	19	4
k) attaching photos on a specific topic (e.g., nature, family)	0.546	22	23	23	2
l) attaching color drawings, tables, and charts in the company's livery or associated with nature (green)	0.536	20	15	28	7
m) using long, compound-complex sentences to explain complicated issues	0.454	24	28	17	1
n) using complex vocabulary to emphasize a professional attitude	0.387	20	37	11	2
o) using complex vocabulary and obscure wording to limit the content of unfavorable information	0.434	33	32	5	0

The analysis of the dependence between the industry and SQ1 shows that, in the opinion of the respondents, the following options received the most “yes” answers: air protection, including air emissions (59), waste management, and Earth’s surface protection (59), reduction of energy consumption and CO2 emissions (57), and wastewater management and water protection (53). These are the most frequently described and disclosed environmental issues in non-financial reports. The most “no” answers were given to the following issues: nature reserves and afforestation/reforestation (57), Eco Aware – product, production, and sale (48), biodiversity protection (45), and cooperation with pro-ecological organisations (45). This means that the respondents rarely disclose such information. It may indicate that their companies are not involved in such activities or that they are not considered important from the perspective of environmental protection.

The applied Cramer’s  $V$  coefficient shows a dependence between the studied characteristics (industry and environmental narrative topics) and a clear connection (all index values are higher than 0.33). Cramer’s  $V$  coefficient indicated clear dependencies (the highest in the study), e.g., for wastewater management and water protection (0.535), responsibility for the climate (0.524), nature reserves and afforestation (0.500), air protection, including air emissions (0.492).

During the analysis of the results, the situations were also observed when a clear dependence determined by Cramer’s  $V$  index does not always coincide with the dominance of positive answers from the respondents. Therefore, it was decided to verify the conclusions drawn. Since the study is not conducted on a representative sample, Cramer’s  $V$  index is not the main basis for interpreting and evaluating the results. The authors then decided to follow the substantive premise, i.e., the number of positive responses from the respondents. In this type of research, they have an advantage over statistical research. In the case of “sewage management and water protection” and “air protection, including air emissions,” the Cramer  $V$  index and the number of positive answers coincide, i.e., they are high compared to the other items.

Table 1 shows selected topics of environmental narratives (with the highest number of positive responses) marked in bold, for which the dependence between the industry and these narratives is illustrated in Figures 1-4. Figure 1 illustrates the dependence between the industry and narratives on reducing energy consumption and CO2 emissions. Most positive answers regarding this dependence were given by the respondents from the following industries: metallurgy (10), food (8), automotive (5), and construction (5). Positive answers prevail in each industry for this type of environmental narrative, and the respondents provided only positive answers in five industries.

Figure 2 shows the dependence between the industry and the air protection narrative, including air emissions. In the respondents’ opinion, the largest number of disclosures is in metallurgical (11), automotive (7), food (6), raw materials (6), and wood, paper, and furniture (6) industries. Only the steel industry does not disclose such narratives. The respondents from merely eight industries answered “yes.”

Figure 3 illustrates the dependence between the industry and narratives about waste management and the Earth’s surface protection. Most positive answers were given by the respondents from metallurgical (10), food (8), automotive (7), raw materials (6), and wood, paper, and furniture (6) industries. In seven sectors, the respondents gave only an answer confirming the disclosures about waste management and Earth’s surface protection. These are, among others, trade, energy, electro-mechanical wood, paper, and furniture industries.

Figure 4 shows the distribution of dependencies between the industry and wastewater management and water protection narratives. Most disclosures of this type were reported by the respondents from the following industries: metallurgy (10), food (8), raw materials (6), and automotive (6). Negative answers dominate in three sectors: transport and logistics (3), services (2), and electro-mechanical (2).

The techniques used for impression management highlighted in Table 2 can be attributed to the methods classified according to Merkl-Davies and Brennan (2011). The distinguished practices of impression management are marked as items a, b, c, d, h, and the authors classified them into thematic manipulation, items e, f, g, j, k, l into visual and structural manipulation, and items m, n, o into syntactic manipulation.

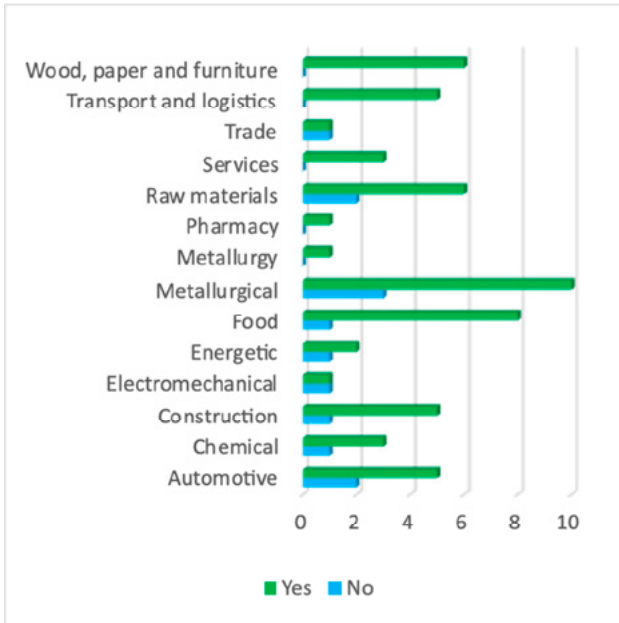


Figure 1. Dependency between the industry and environmental narratives (energy consumption and CO<sub>2</sub> emission reduction)

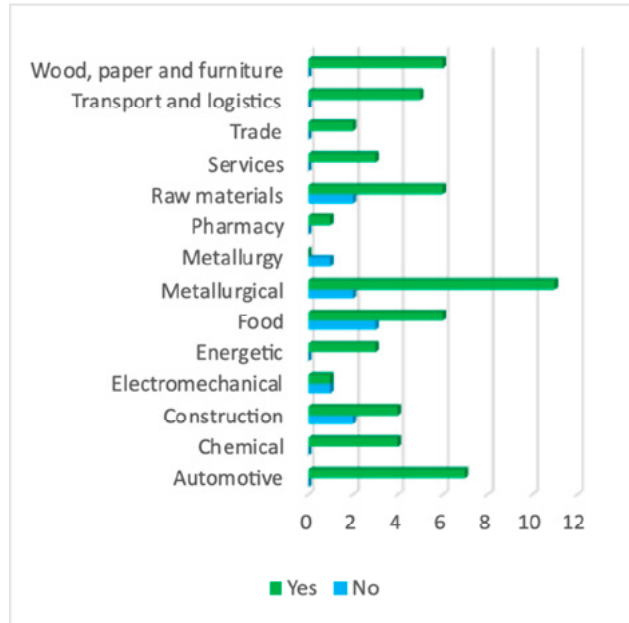


Figure 2. Dependency between industry and environmental narratives (air protection with air emissions)

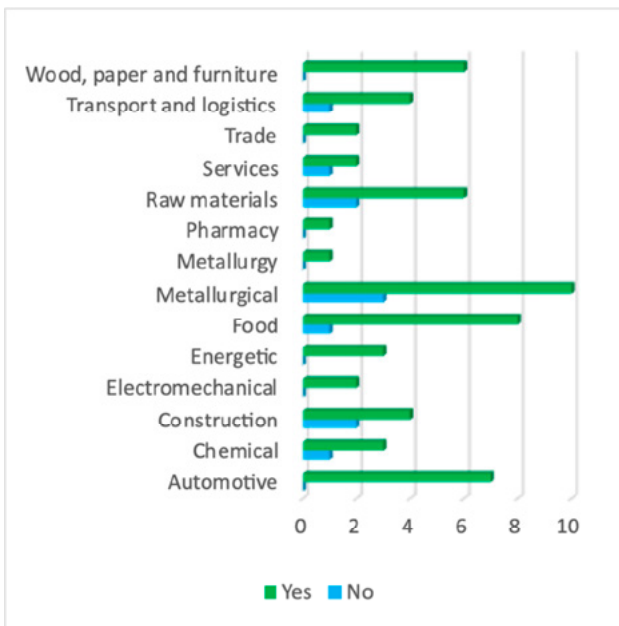


Figure 3. Dependency between the industry and environmental narratives (waste management and Earth's surface protection)

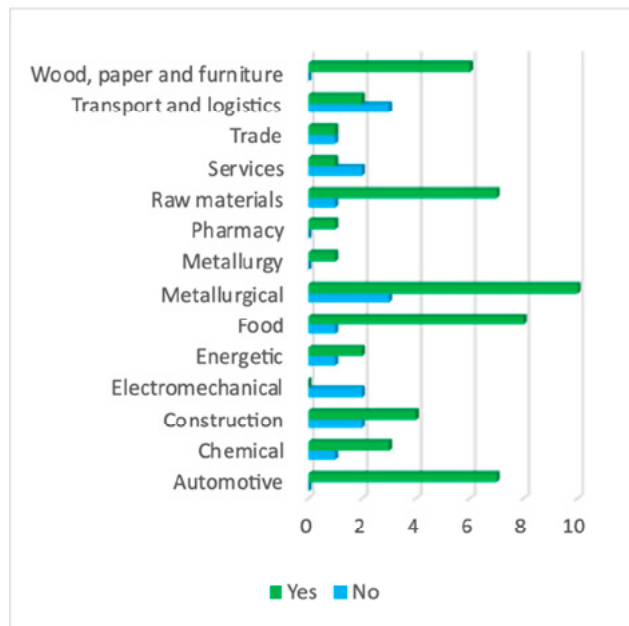


Figure 4. Dependency between the industry and environmental narratives (sewage management and water protection)

All Cramer's *V* coefficients for the industry and SQ2 show a clear dependence. The highest values of a clear dependence apply to impression management techniques such as inserting photos on a specific topic (e.g. nature, family) (0.546), attaching colour drawings, tables, and charts in the company's livery or colours associated with nature (green) (0.536), combining a short text with drawings and charts (0.535), using small and large photos that match the content and indicators to be disclosed (0.548). The highlighted techniques are classified as visual and structural manipulation.

The respondents' answers were ranked: never, rarely, often, and very often. The following techniques received the most responses "very often:" visual and structural manipulation – combining a short text with drawings and charts (14), using different fonts and bold in texts (10), and thematic manipulation – using words with positive overtones (11), avoiding negative words (10). In the

respondents' opinion, the following techniques received the highest number of "never" answers: using difficult vocabulary and unclear expressions to limit the transmission of unfavourable information (33) and using coloured fonts in some text fragments (32). Techniques classified as syntactic manipulation are the least used for the "very often" option.

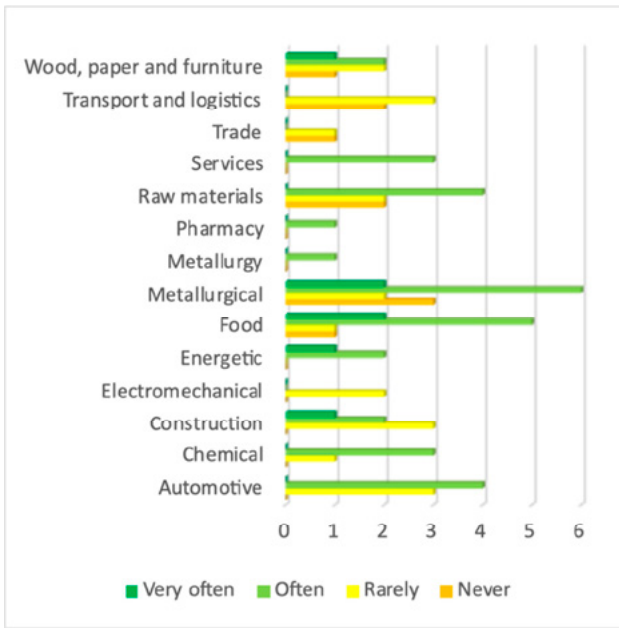


Figure 5. Dependency between the industry and impression management (use of key/professional industry-specific words (phrases))



Figure 6. Dependency between the industry and impression management (use of keywords (phrases) associated with pro-ecological attitude)

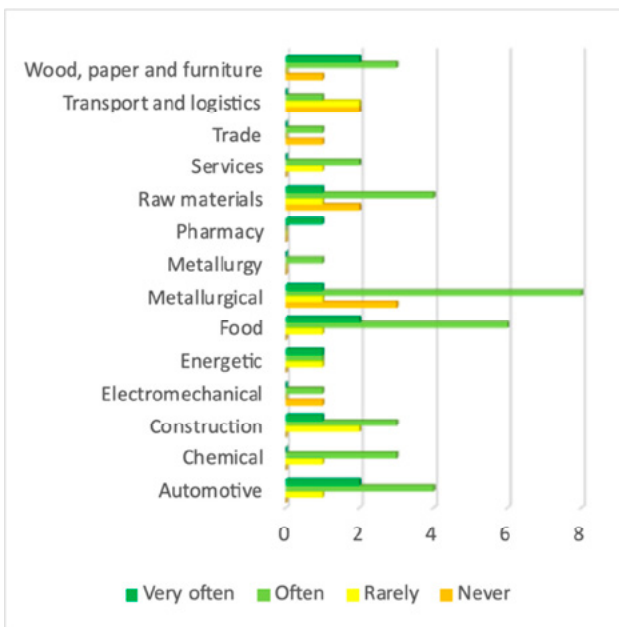


Figure 7. Dependency between the industry and impression management (use of positive-notation words)

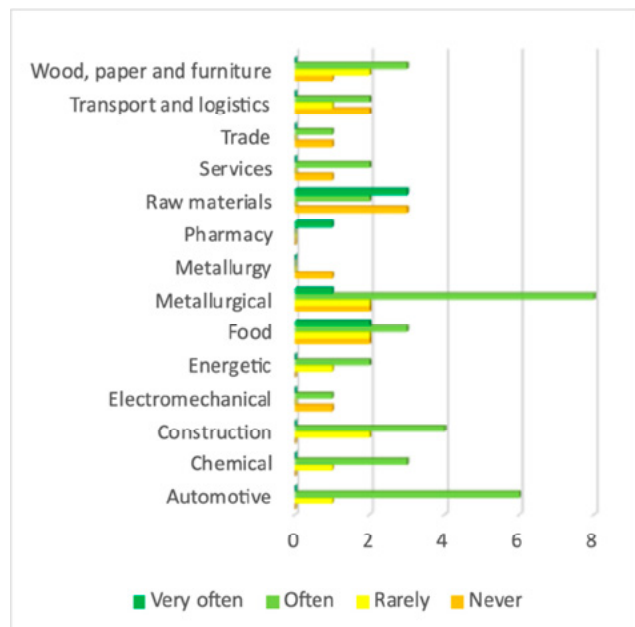


Figure 8. Dependency between the industry and impression management (focus on selected information and achievements)

Given the responses, the highest number of positive answers (very often, often), taking into account a significant dominance over negative answers (never, never, rarely) concerns, e.g. management techniques classified as thematic manipulation: using keywords (phrases) specific to the industry (40), using keywords (phrases) associated with pro-ecological attitude (39), using words with positive overtones (49), focusing on the selected information and achievements (44). The depend-

ences between the industry and impression management techniques were examined and illustrated for the distinguished techniques, as presented in Figures 5-8.

Figure 5 illustrates the dependence between the industry and the technique of impression management – the use of keywords/professional words (phrases) characteristic of the industry. This technique is frequently used by seven sectors: metallurgy (6), food (5), raw materials (4), automotive (4), services (3), chemical (3), and energy (2). Only in three industries are all four response options present (metallurgy, food, wood, paper, and furniture), and in two of them, the answers “often” dominate (metallurgy, food). In three industries, this technique is rarely used: automotive (3), construction (3), transport, and logistics (3).

Figure 6 shows the dependency between the industry and the technique of using keywords (phrases) associated with a pro-ecological attitude. Very often, pro-ecological keywords are used by companies operating in the following industries: pharmaceutical, metallurgical, raw materials, construction, as well as wood, paper, and furniture. Nine industries frequently use pro-ecological words in their reports, these are: metallurgy (6), food (5), automotive (5), and raw materials (4).

Figure 7 shows the dependency between the industry and the use of words with positive connotations. Respondents believe it is a frequently used impression management technique, and nine industries use it more frequently than other options. Frequent use of positive connotation words is declared by companies from the following sectors: metallurgy (8), food (6), raw materials (4), automotive (4), construction (3), chemical (3), wood, paper and furniture (3). This technique is very often used by the food, automotive, wood, paper, and furniture industries.

Figure 8 illustrates the distribution of dependencies between the industry and the focus on selected information and achievements. Only four industries with very frequent use of this technique were recorded: raw materials (3), food (2), pharmaceutical (1), and metallurgy (1). Frequent (and at the same time dominant among other options) highlighting of selected information was declared by respondents from eight industries, including metallurgical, automotive, construction, chemical, and food industries.

The research results allow us to verify positively the adopted Hypotheses H1 and H2. The findings also provide answers to the research questions Q1 and Q2. In the respondents' opinion, environmental narratives focus on the problems considered crucial from the point of view of environmental protection, such as reducing CO2 emissions, sewage management, or production waste. Research has also confirmed that the reporters are aware of the impact of environmental disclosures using selected techniques as part of the narrative, in particular thematic manipulation, as well as visual and structural manipulation.

## Discussion

The obtained research results provide the basis for positive verification of the adopted hypotheses H1 and H2, which relate to the perception of the report preparers. The results of other studies also indicate the influence of the industry on the scope of environmental disclosures and the narratives used in them.

The research conducted by Papaj-Wliśłocka (2021) on a large sample of enterprises in 2012-2017 confirmed that the industry has a strong impact on the scope of disclosed non-financial information, including environmental information.

The highest amount of the disclosed non-financial information concerned general information about the entity and economic issues, and a much smaller scope related to environmental, employee and social issues. The research conducted by Akbaş (2014) also confirmed such a relationship. The researcher took into account several characteristics of Turkish entities. The industry sector was correlated with the scope of environmental disclosures.

The quoted research was carried out using text analysis of non-financial reports. In the research, the industry was often associated with the size of the company. Both of these factors were correlated with the extent of environmental disclosures (e.g. Cho, 2009; Coetzee & Staden, 2011; Akbaş, 2014). In light of the research conducted on the basis of financial and non-financial reports, our survey results confirm the level of awareness presented by the reporting party about the state of affairs.

The results obtained in our research provide answers to the research questions Q1 and Q2. In the opinion of the respondents, environmental narratives focus on the issues considered crucial from the viewpoint of environmental protection, such as reducing CO<sub>2</sub> emissions, sewage management or production waste. The research has also confirmed that the reporters are aware of the impact of environmental disclosures through selected techniques within the narrative, in particular thematic manipulation, as well as visual and structural manipulation.

In a study by Helfaya et al. (2019), both the preparers and users of reports expressed the opinion that the amount of text does not translate into the quality of environmental information. They were aware of narrative activities, such as the use of visual techniques, as well as the selection of thematic scope (similar conclusions to those obtained based on the study conducted by the authors of the article are conclusions to those obtained based on the study conducted by the authors of the article). In turn, the research conducted by Jaggi and Zhao (1996) among the accountants and managers involved in the preparation of environmental reports in Hong Kong assessed correctly the significance of environmental information in the survey and thus showed high awareness of the importance of this type of disclosure, while in the reports prepared by them, these information was not disclosed or was disclosed only to a limited extent.

In light of these studies and our findings, it can be concluded that the awareness of environmental problems presented by reporters does not necessarily translate into the quality of environmental disclosures. The research conducted by Bąk and Strojek-Filus (2022) confirmed the environmental disclosures of the selected groups in Poland representing various sectors, different techniques of using impression management strategies, and the scope of disclosures.

The authors selected groups from the so-called polluters, i.e. the entities that operate under strong social and financial pressure, e.g. in terms of CO<sub>2</sub> emissions. This situation probably influenced the awareness of those preparing reports as to the effects of their activities on the natural environment. The techniques used indicated a desire to show a “softened picture” of the effects of this activity.

## Conclusions

The results of the research showed the majority of respondents had a pro-ecological attitude. Most of them attribute significant importance to environmental disclosures and favour extending the subjective and objective obligation of such reporting. This positively demonstrates the respondents' level of environmental awareness. At the same time, they indicate the actions taken at the report preparation stage, which proves the use of narrative, including impression management techniques. Such a combination of respondents' answers may suggest that they do not notice the adverse effects of such practices.

The research assumed the industry as a factor related to the environmental narrative adopted by the preparers of reports. Based on the analysis of empirical data using the descriptive and quantitative methods, deductive reasoning, and Cramer's V index, the authors positively verified the H1 and H2 hypotheses. Firstly, there was a clear dependence between the industry and the thematic scope of environmental narratives disclosed in non-financial reports. Secondly, there was a clear dependence between the industry and the techniques of impression management used.

The research results broaden the knowledge about the attitudes of report preparers in environmental disclosures and their opinions on the use of impression management narratives in this area. They also indicate the importance of the industry of activity factor in this context. They are an additional element to the study of reports and information expectations of their users and thus contribute to the diagnosis of the practice of using environmental narrative, which should be the basis for legislative solutions.

In our opinion, the research has three limitations. The first is the number of analysed surveys. These are pilot studies that will be extended in subsequent stages. The second limitation is the survey respondents' opinions, which may be burdened with subjectivity bias. In the next research stage, the authors intend to compare the survey results with the data analysis in the reports. The third limitation is the analysis of exclusively Polish enterprises. In the second stage, cross-country comparisons with other Central and Eastern European states will be carried out.

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## The contribution of the authors

Conceptualization, M.B. and M.S.-F.; literature review, M.S.-F. and M.B.; methodology, A.B.; formal analysis, A.B.; writing, M.B., M.S.-F. and A.B.; conclusions and discussion, M.S.-F., M.B. and A.B.; project administration, M.B.

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## WPŁYW SEKTORA PRZEMYSŁU NA NARRACJE W UJAWNIENIACH ŚRODOWISKOWYCH W OPINII PRZYGOTOWUJĄCYCH RAPORTY. DOWODY Z POLSKI

**STRESZCZENIE:** Zjawisko narracji w rachunkowości dotyczy między innymi ujawniania informacji środowiskowych i zarządzania wrażeniem interesariuszy. Celem jest zbadanie i ocena związku między branżą działalności przedsiębiorstwa a postrzeganiem przez sporządzających raporty środowiskowe stosowanej narracji, w szczególności technik zarządzania wrażeniem. Aby osiągnąć cel artykułu, przeprowadzono pogłębione badanie ankietowe na nielosowej próbie pracowników polskich przedsiębiorstw zajmujących się przygotowaniem i raportowaniem informacji środowiskowych. W analizie statystycznej danych ankietowych wykorzystano tablice kontyngencji i miary asocjacji dla zmiennych kategorialnych. Wyniki analizy zgromadzonych danych empirycznych potwierdziły, że branża prowadzonej działalności przedsiębiorstwa ma wpływ na to, jak pracownicy sporządzający raporty oceniają zakres i stosowane strategie narracji, w szczególności techniki zarządzania wrażeniem. Badania poszerzają wiedzę w obszarze postrzegania znaczenia ujawnień środowiskowych oraz problemu stosowanych praktyk w zakresie narracji środowiskowej z punktu widzenia przedsiębiorstw. Wyniki analizy wykazały poziom świadomości proekologicznej oraz potwierdziły znajomość strategii i technik narracyjnych. Badania wpisują się w dyskusję na temat skutków narracji środowiskowej w rachunkowości oraz stanowią kolejny element diagnozy aktualnej praktyki w tym zakresie w Polsce.

**SŁOWA KLUCZOWE:** raportowanie środowiskowe, zrównoważony rozwój, postrzeganie ujawnień środowiskowych, narracja, zarządzanie wrażeniem

