

# What is the link between internal communication, organizational culture and environmental strategy? The context of company size and employee perception

Company size  
and employee  
perception

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## Abstract

**Purpose** – The article explores the linkages between the type of environmental strategy (ES), the use of internal communication (IC), and the greening of organizational culture (OC). Moreover, the article empirically examines whether company size matters in the use of environmental IC practices in the green context. Additionally, the article considers differences between people employed at different organizational hierarchy levels. The basis for such a comparison is their opinions about the effectiveness of communication practices. **Design/methodology/approach** – Empirical research employed a survey method done on 199 organizations in 2020. Statistical analyses used the chi-squared test, Kendall's Tau-b correlation coefficient, and the Mann-Whitney U test.

**Findings** – The research showed that companies with a proactive green strategy more often use different communication practices related to ES and have a greener culture. The study proved that larger companies more often use the analyzed communication practices. However, we found no significant difference in opinion between middle managers and line employees about the effectiveness of these practices.

**Practical implications** – The main contribution to business practice is the exploratory model based on the empirical study, which allows organizations to successfully implement the ES.

**Originality/value** – Studies rarely combine the three organizational elements: IC, OC, and ES. This article provides new empirical evidence on relationships between features of OC, green strategy types, and communication practices.

**Keywords** Business strategy, Environmental sustainability, Green communication, Organizational culture

**Paper type** Research paper

## 1. Introduction

Problems related to the natural environment have begun to influence society and businesses to a greater extent and with greater force than ever before. Solving environmental problems requires that companies implement a dedicated type of environmental strategy (ES). The basic typology of ESs includes indifference, offensive, defensive, and innovative ES (Steger, 1993).

## JEL Classification — D83, L10, L21, M14

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Strategy implementation falls in the scope of many studies, because the percentage of successful strategies remains unsatisfactory (Pignata, Lushington, Sloan, & Buchanan, 2015). Internal communication (IC) is treated as a crucial factor for success in implementing strategies (Umrani *et al.*, 2020). Most assume that this should also be related to the ES implementation. Therefore, the new IC subject focuses on the ES with the aim to engage employees in green practices in the workplace (Yong *et al.*, 2020).

The academic literature dedicated to ES discusses the issue of external communication in the form of environmental sustainability reporting (Loh & Tan, 2020; Nguyen, 2020) rather than the issue of IC. The need for exploration of the matter of communication practices in the context of the ES is mentioned by Wagner (2011), Manika, Wells, Gregory-Smith, and Gentry (2013), and Brunton, Eweje, and Taskin (2017). Therefore, further research and analysis are recommended to fully explain this research gap. Companies differ in terms of their activities to protect the natural environment. One of the important factors that impact communication practices is company size (Morsing & Spence, 2019). This can influence the level of engagement in environmental strategies and practices (Graafland, van de Ven, & Stoffele, 2003), which is associated with financial and human resources (Nguyen, 2020). However, many practices used in IC are costless and thus available to a wide range of companies. This engenders the need to explore whether company size matters in the use of informal green IC practices.

Another essential factor in business practices is stakeholders. Largely applied in environmental management (Balasubramanian, Shukla, Mangla, & Chanchaichujit, 2021), stakeholder theory states that employees are stakeholders with moderate power, legitimacy, and urgency (Fernández Gago, & Nieto Antolín, 2004). In turn, the person-organization fit theory assumes that the organizational activities are effective as much as they fit employee needs (Kristof, 1996). Since a company's internal audience consists of employees and managers (Pignata *et al.*, 2015), researchers should identify a potential disparity between them in their expectations toward organizational practices. Most agree that employee expectations stem from their position in the organizational hierarchy (Newman, Miao, Hofman, & Zhu, 2016).

Finally, researchers should examine the relationships between ES, IC, and organizational culture (OC), because the implementation of a strategy can introduce cultural changes (O'Reilly, 1989). In turn, OC shapes the decision-making process, strategy, and communication while impacting overall organizational performance (Mathew, 2007) – in particular environmental performance (Bakhsh, Ong, Ho, & Sheikh, 2018). There are studies of pro-environmental OC (Chwialkowska, Bhatti, & Glowik, 2020; Piwowar-Sulej, 2020), but they theoretically discuss the importance of cultural values and intra-organizational communication for environmental and CSR performance instead of empirically examining relationships between the specific type of strategy, cultural profile, and intra-organizational communication practices.

This article aims to fill the presented research gap by examining the relationships in the ES–IC–OC triangle. The primary focus lies on the IC of the ES, which is associated with “informing and educating individuals, achieving some level of social engagement, and taking action” (Genç, 2017, p. 515). Therefore, this article analyzes the differences between line employees and middle managers in their opinions about the importance and effectiveness of individual IC practices, verifying whether company size matters in the use of IC activities.

This article is based on both critical literature review and empirical research. In 2020, we applied a survey method to collect data from 199 companies located in Poland. The statistical analysis was conducted with the use of the chi-squared test, Kendall's Tau-b correlation coefficient, and Mann–Whitney U test.

This study translated the theoretical assumptions into practice by explaining how such elements as ES, IC, and OC influence each other. To perform a complex analysis of the IC, the

perspectives of managers and line employees were considered along with the impact of company size. Moreover, the presented research was conducted in a Central European country, so it fulfilled the recent postulates regarding environmental sustainability research in the region (Bombiak, 2019).

The article is organized into six sections, this introduction being the first one. The second section will present a theoretical framework in terms of the relationship between such variables as ES, OC, and IC. Moreover, the same section will present company size and job level as control variables, which will lead to hypothesis formulation. The materials and methods will be presented in the third section. Then, we will present and discuss the implications stemming from the study results. Finally, the article will end with conclusions and limitations while presenting possible directions for further research.

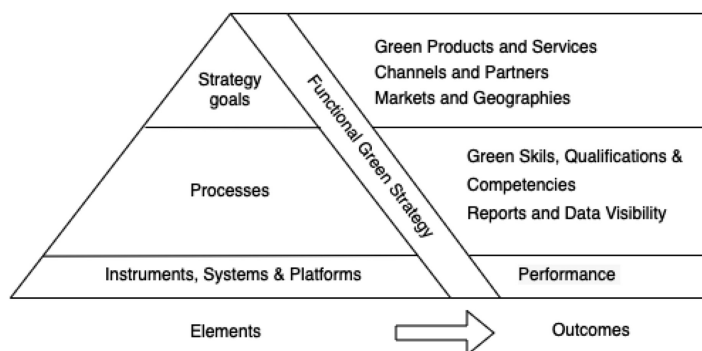
## 2. Theoretical framework and hypotheses

### 2.1 Environmental strategy, internal communication, and organizational culture

For decades, numerous studies have shown a positive relationship between formulated strategy and organizational performance (D'Aveni, Dagnino, & Smith, 2010; Hart & Dowell, 2011). However, more researchers have been focusing recently on sustainability and environmental strategies so as to present mechanisms by which companies gain competitive advantage (Arend, 2020; Sulich & Sołoducho-Pelc, 2021). At this point, we should mention the three levels of overall company strategy (Steyn, 2007):

- (1) *Corporate strategy* is the foundation for other strategies like the differentiation or specialization strategy;
- (2) *Business strategy* concerns the positioning and competition of a specific business unit like subsidiaries;
- (3) *Functional strategy* affects the functioning of specific departments like marketing or human resources.

The ES can be strictly connected with environmental management and treated as a functional strategy, considering the above strategy levels. In this case, the communication strategy should be one of the sub-strategies of the ES (Figure 1). The other sub-strategies would cover sourcing and technology. However, the ES can also be less developed and exist only as a part



Source(s): Own elaboration inspired by Olson (2008)

**Figure 1.**  
Dimensions of the ES  
translated into  
functional strategy



of other functional strategies. For example, a green marketing strategy can aim at increasing consumers’ ecological awareness through marketing campaigns.

The ES treated as a functional green strategy (Figure 1) can be defined as dedicated to different goals: (1) limiting the negative pressure of organization on the natural environment; (2) preserving some elements or features of this environment; or (3) repairing or compensating for damages to this environment (Olson, 2008; Worthington, 2013). This functional green strategy should be formulated on three levels: *physical artefacts* form the equipment that reflects the organizational technology; *processes* are required in production or to provide services; while *knowledge and communication* are necessary to use the artefacts and processes as well as decision-making (Bissing-Olson, Iyer, Fielding, & Zacher, 2013).

Although extant literature distinguishes many typologies of ES (Piwowar-Sulej, 2022; Soloducho-Pelc & Sulich, 2022), four major types recur (Figure 2). The first one is the offensive (proactive) strategy, which uses all available means to improve production processes in terms of environmental protection (Steger, 1993; Worthington, 2013). Technical and technological measures are introduced, enabling a reduction of the pressure on the environment.

Innovative strategy is based on the search for new technologies, structures, and products adapted to the requirements of environmental protection. The implementation of this strategy entails such activities as the construction of closed facilities or the reuse of waste. Such a strategy is related to economic development. All related actions are directed toward a radical improvement of the company–environment relationship (Worthington, 2013).

The characteristic features of a defensive strategy are the withdrawal from the market of such products that are harmful to the environment and the abandoning of technologies that do not meet ecological criteria. This strategy is generally used until a better solution or new measures for an offensive or innovative strategy are implemented. Finally, an indifferent (neutral) strategy involves observing only the necessary regulations on environmental protection (Worthington, 2013).

Regardless of the strategy type, the implementation of a strategy is generally defined as “the communication, interpretation, adoption, and enactment of strategic plans” (Noble, 1999). This definition directly highlights the importance of communication. The IC of such a strategy plays the same role (Worthington, 2013). The literature assumes that strategy creates value when shared and implemented by all decision-makers in the organization. This can be achieved with the support of IC defined as communication flow among people in the organization (Brunton *et al.*, 2017).

Because employees are essential to the survival of the organization, IC is one of the most critical issues for any company (Zerfass & Sherzada, 2015). As research shows, the lack of effective communication can lead to gossip, hence intensifying employees’ negative feelings and discouraging them from implementing changes (Piwowar-Sulej, 2022; Polowczyk, Zaks,

|                              |       | Market opportunities for environmental protection |            |
|------------------------------|-------|---|------------|
|                              |       | small   | large      |
| Corporate environmental risk | small | Indifferent                                       | Offensive  |
|                              | large | Defensive   | Innovative |

Source(s): Steger (1993); Worthington (2013)

Figure 2.  
Environmental  
strategies matrix



& Trąpczyński, 2021). The lack of appropriate communication channels that ensure sufficient autonomy for subordinates and superiors – who act as green role models – can significantly weaken employee willingness to adopt green initiatives (Farias, Farias, Krysa, & Harmon, 2020). In turn, if employees are environmentally aware, their daily activities may include broader care for the environment, beyond the measures suggested in the company programs. The process of information flow can be vertical (top-down and bottom-up) or horizontal. Companies may apply various practices of IC like intranet communication, emails, and meetings (Brunton *et al.*, 2017). One crucial practice in top-down communication is training (Sammalisto & Brorson, 2008). Paillé, Chen, Boiral, and Jin (2014) and Yuriev, Boiral, Francoeur, and Paillé (2018) emphasize the importance of managers' informal communication ecological activities in the workplace, which can significantly encourage their subordinates to follow suit.

Previous research proves that both IC and OC positively affect environmental performance (Guerci, Longoni, & Luzzini, 2016; Masri & Jaaron, 2017; Yong *et al.*, 2020). Therefore, scholars should analyze the phenomenon of organizational and pro-environmental culture.

The OC can be defined as “a pattern of basic assumptions . . . developed by a given group to cope with problems of external adaptation and internal integration, that correct way to perceive, think, and feel in relation to those problems” (Linnenluecke & Griffiths, 2010). The OC bridges the gap between what is formally announced and what is actually happening (Martins, Rampasso, Anholon, Quelhas, & Leal Filho, 2019).

Organizational culture (OC) strongly influences IC. By offering a common system of meanings, OC founds organizational communication and contributes to the proper understanding (Martins *et al.*, 2019). At the same time, the OC is established and developed through the multidirectional and multilateral exchange of information in which managers and employees participate (Heisel & Rau-Oberhuber, 2020).

As mentioned above, IC and OC are interrelated, and both influence employee commitment (Quirke, 2007). Therefore, sustainable development is closely related to the issue of OC and communication (Pinzone, Guerci, Lettieri, & Huisingsh, 2019; Yuriev *et al.*, 2018). The concept of pro-environmental culture has been developed by scholars from the general concept of OC.

Pro-environmental (green) culture can be briefly defined as “an element of organizational culture that reflects how important environmental problems are to the organization” (Piowar-Sulej, 2020). It can be analyzed from the perspective of the elements distinguished in Schein's (Schein, 1990) cultural model. Behavioral artifacts may be regular meetings devoted to environmental problems. Physical artefacts may be visual campaigns promoting ecological activities or environmentally friendly technologies. Green culture foregrounds the natural environment as the main value. The cultural norms should cover open communication, openness to change, and knowledge sharing. Finally, the basic assumption of green culture is how people truly feel concerned for the environment, which is the most hidden level of culture.

In their research, Yuriev *et al.* (2018) identified that the main barrier hindering the implementation of pro-environmental activities in the workplace stems from corporate values, an element of the OC. The lack of green OC reduces the likelihood that employees will follow pro-ecological behavior. The highest contribution to environmental practices is achieved by accommodating an OC of involvement, participation, and engagement (Singh Chouhan, Tandey, Sen, Mehta, & Mandal, 2019).

## 2.2 Relationship between environmental strategy type and internal communication

The ES differs between companies in terms of the IC practices frequency and depends on company size (Teixeira, Chiapetta Jabbour, De Sousa Jabbour, Latan, & De Oliveira, 2016).

Moreover, it influences OC through training (Chiappetta Jabbour, 2015): the greener the OC, the more frequent the different forms of communication that enhance employee proactive behavior (de Sousa Jabbour, Chiappetta Jabbour, Latan, Teixeira, & de Oliveira, 2014). However, companies that follow an indifferent ES can also often communicate the assumptions of this strategy, but the content of such communication will differ from offensive or innovative green strategies. For example, training in a company with an offensive/innovative strategy will stimulate employee creativity toward pro-environmental solutions. In contrast, a company with an indifferent strategy will train employees how to avoid breaking the law with minimum effort. Previous research proved that proactive ES is related to training (Chiappetta Jabbour, 2015), but other communication practices mentioned in this study were not examined. Therefore, we hypothesize the following:

- H1. There is a statistically significant difference in the frequency of using environmental IC practices between companies with different types of environmental strategies, reflected in the features of OC.

### *2.3 Company size and internal communication*

Many authors highlight that company size influences the level of engagement for both environmental and CSR strategies and practices (Darnall, Henriques, & Sadorsky, 2010; Hörisch, Johnson, & Schaltegger, 2015; Uhlaner, Berent-Braun, Jeurissen, & de Wit, 2012). Wagner (2011) found that company size matters in the context of a propensity to introduce environmental training. In turn, Graafland *et al.* (2003) note that large companies are more likely to use formal CSR reporting, while small and medium-sized companies employ informal ways (Suder, Kusa, Duda, & Dunska, 2022) to manage activities related to CSR, such as daily communication.

Large companies have more resources (human or financial), so scholars expect them to be more exposed to public pressures (Fitjar, 2011; Hörisch *et al.*, 2015). They are “more visible” in the field of sustainability, because they report their practices using international standards such as those by the Global Reporting Initiative (GRI). Directive 2014/95/EU requires them to disclose certain information related to their sustainability. However, the reasons mentioned above refer to external communication rather than IC. Larger companies welcome formal and high-cost communication solutions, whereas smaller companies prefer informal and costless ones. On the other hand, IC in large companies is difficult to conduct effectively exactly due to their size (Hörisch *et al.*, 2015). Direct IC is protean as there are different message recipients representing multiple opinions and organization levels. All things considered, we formulate the following hypothesis.

- H2. There is greater usage of environmental IC practices in large companies than in medium-sized ones.

### *2.4 Job level as a factor influencing expectations toward internal communication*

At this point, let us note that previous research on environmental practices has been mainly based on target populations such as human resource and supply chain managers (Agyabeng-Mensah *et al.*, 2020), executives (Acharyya & Agarwala, 2022), chief financial officers, and CEOs (Ren, Tang, & Jackson, 2020) or people formally responsible for introducing environmental initiatives (Zibarras, Judson, & Barbes, 2012). Rono, Bomet, and Ayiro (2019) revealed that there is some diversity in the opinions of top management and lower management on the implementation of strategic plans.

Researchers often assume that people employed on a managerial level have the best knowledge of organizational practices in the company (Guerci & Carollo, 2016; Obeidat, Al-Hadidi, Tarhini, & Masa'deh, 2017; Zaid, Jaaron, & Talib Bon, 2018). However, there is a



potential mismatch between managers' and line employees' perceptions of organizational practices (Wang, Kim, Rafferty, & Sanders, 2020). Relying solely on managers' opinions as managerial aspects of respondent evaluation is burdened with many biases regarding the research problem (Favero, Andersen, Meier, O'Toole, & Winter, 2018).

One aspect perceived differently depending on the position held is IC. This is due to the fact that communication between different levels in the organizational hierarchy is particularly likely to deform (Favero *et al.*, 2018). Middle managers have closer contact with senior management, so they are more exposed to direct communication, which is assessed as more effective (Conte, Siano, & Vollero, 2017), and the message the former receives is less distorted compared to the message received by line employees. Moreover, managers may formulate a message that will be ambiguous or unintelligible to subordinates (Favero *et al.*, 2018). Furthermore, line employees are usually in the receiving position while managers formulate the message. Even this dependence can cause disproportions. Therefore, we will test two more hypotheses based on the issue of job position.

- H3. There is a statistically significant difference between managers and line employees in their opinions about the importance of barriers related to IC in implementing an ES.
- H4. There is a statistically significant difference between managers and line employees in their opinions about the effectiveness of IC practices in implementing an ES.

### 3. Material and methods

The adopted method was a survey conducted among middle managers and line employees in 2020. We adopted the survey questionnaire created by Zibarras *et al.* (2012). The research was primarily designed to be conducted directly, albeit the COVID-19 pandemic made us develop solutions for indirect contact. Therefore, the survey was conducted via an online questionnaire and with snowball sampling. Because of this study's features – such as the focus on environmental issues and the professional language used in the questionnaire – we wanted to collect opinions from people with completed higher education, hence the choice of snowball sampling, which gave us access to relevant respondents.

The survey gathered 199 valid questionnaires from people employed in companies of different sizes and industry types. The characteristics of the research sample are presented in Table 1. Achieving such diversity in the sample is a necessary condition through which the validity of the research is ensured (Kirchherr & Charles, 2018).

The statistical analyses were performed in IBM SPSS software and RStudio programming environment, which used the chi-squared test, Kendall's Tau-b correlation coefficient, and the Mann–Whitney U test.

### 4. Results

The research instrument allowed us to identify many different practices related to environmental protection (17 practices in total) and OC features. We assigned the latter to particular ES types. Table 2 presents statements related to pro-environmental OC and ES.

In the case of statements presented in Table 2, the respondents could choose between the following answers: "I don't agree," "I haven't thought about it," and "I agree." Tables A1–A4 in Appendix present the results of the chi-squared test analysis that was designed to find correlations between OC features and the usage frequency of the above-presented practices related to IC.

Our analysis revealed a statistically significant relationship between all communication practices and all "green" features of OC. The OC of companies that often use these

**Table 1.**  
Information about the  
research sample  
population

| Criterion                           | Description                               | Number (N = 199)                               | % in the research sample |
|-------------------------------------|---|--|--------------------------|
| Company size                        | Very large (more than 5000 employees)     | 41   | 0.21                     |
|                                     | Large (251–5000 employees)                | 82   | 0.41                     |
|                                     | Medium-sized (51–249 employees)           | 34   | 0.17                     |
|                                     | Small (less than 50 employees)            | 42   | 0.21                     |
| Job level of respondent<br>industry | Line employee                             | 120  | 0.60                     |
|                                     | Middle-level manager                      | 79   | 0.40                     |
|                                     | Manufacturing                             | 102  | 0.51                     |
|                                     | Retail and wholesale                      | 18   | 0.09                     |
|                                     | ICT                                       | 16   | 0.08                     |
|                                     | Business services                         | 11   | 0.06                     |
|                                     | Finance                                   | 8  | 0.04                     |
|                                     | Education                                 | 7  | 0.04                     |
|                                     | Others (e.g. construction or hospitality) | 37, but less than 4 companies in each industry | 0.19                     |
| Source(s): Own elaboration          |   |  |                          |

**Table 2.**  
Statements related to  
OC, their impact on OC  
greening, and the  
relationship with  
particular ES types

| Statement  | Impact on OC greening | Symptom of an ES type |
|--|-----------------------|-----------------------|
| <ul style="list-style-type: none"><li>• My company is interested in developing employees' pro-ecological behaviors</li><li>• My company does everything it can to protect the environment</li><li>• My company aims to have an image of a pro-ecological company</li><li>• Employees in my company are motivated to behave in an ecological manner</li><li>• My company is proud of its environmental activities</li><li>• Organizational practices actively encourage environmental behaviors</li><li>• The way in which my company operates internally is in line with its external "green" image</li><li>• Managers provide practical support for line employees' environmental behaviors</li></ul> | positive              | offensive             |
| <ul style="list-style-type: none"><li>• Environmental goals are being replaced by other priorities</li><li>• The main environmental concern of the organization is to avoid breaking the law</li></ul>   | negative              | indifferent           |
| Source(s): Own elaboration   |                       |                       |

communication practices manifests more often as individual “green” cultural features than the culture of companies, which rarely or never use them. In turn, companies that rarely or never use the examined communication practices have cultural features that negatively impact OC greening and follow the indifferent ES. Our findings agree with the assumptions made in the first hypothesis, so hypothesis H1 is confirmed.

The respondents were asked how often the IC practices shown in Table 3 are used. They could choose from the answers “never,” “rarely,” or “often.” Our analysis of the relationships between company size and the frequency of using individual practices related to IC revealed



the presence of positive correlations in all sampled cases (Table 3). The larger the company, the more frequent the individual communication practices, which supports hypothesis H2.

As far as the perception of barriers to the application of ES in the workplace is concerned, the respondents were asked to mark an appropriate adjective to describe the significance of individual barriers: “insignificant/of little importance,” “moderately significant,” or “significant/very important.” The chi-squared test showed statistically insignificant differences between the surveyed groups of respondents (Table 4), thus rejecting hypothesis H3.

The questionnaire also included a request to rank the above-presented communication practices from the most to the least effective ones. As mentioned before, the research instrument included 17 different practices in total, including 15 that were not connected with communication issues, so the ranking was designed to range from first place (the most important practice) to the 17<sup>th</sup> place (the least important practice). The results related to communication practices are presented in Table 5.

A statistically significant difference between managers and employees in the perceived effectiveness of communication practices was identified only in the case of communicating an attitude toward environmental issues in the vision and mission of the company ( $Z = -2.491$ ;  $p = 0.01$ ). This practice is perceived as more effective by managers but not by line employees. In the case of the remaining three communication practices, no statistically significant differences were found between the opinions of managers and line employees. This allows us to confirm hypothesis H4 only in part.

## 5. Discussion

As presented in the literature review, there are multilateral relationships between ES, OC, and IC. To clarify the relationships between them, we propose the triangle between ES, OC, and IC (Figure 3).

## Company size and employee perception

| Practices related to IC about environmental issues  |          | Company size |
|---|----------|--------------|
| Communicating an attitude towards environmental issues in the vision and mission of the company | $\tau_b$ | 0.360**      |
|   | $p$      | <0.001       |
| Informal communication: managers encouraging employees  | $\tau_b$ | 0.138        |
|   | $p$      | 0.029        |
| Internal information campaigns or internal marketing  | $\tau_b$ | 0.346        |
|   | $p$      | <0.001       |
| Training about environmental issues   | $\tau_b$ | 0.272        |
|   | $p$      | <0.001**     |

**Note(s):**  $\tau_b$  –Kendall's Tau-b indicator

**Source(s):** Own elaboration

**Table 3.**  
Relationship between company size and the frequency of individual communication practices usage

| Barrier  | The most common perception of the barrier | $\chi^2$ | Asymptotic significance (two-sided) |
|--|---|----------|-------------------------------------|
| Unclear strategy and company goals related to environmental issues                 | Significant                               | 1.509    | 0.470                               |
| Lacking awareness among employees that the organization wants to be pro-ecological | Significant                               | 3.650    | 0.161                               |
| Insufficient training on the importance of environmental behavior                  | Moderately significant                    | 0.944    | 0.624                               |

**Source(s):** Own elaboration

**Table 4.**  
Respondents' perception of barriers associated with IC to the application of ES

**Table 5.**  
Data related to the differences between managers and line employees in their opinion about the effectiveness of IC practices in the implementation of ES

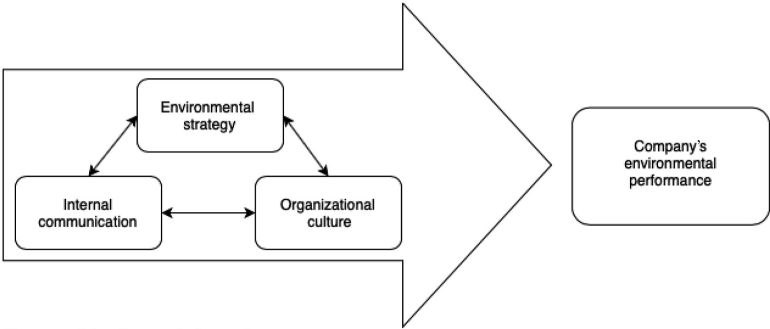
This study showed that both formal and informal communication practices are more often used in larger companies. It extends previous research, which found that company size matters in the context of implementing environmental practices (Uhlauer *et al.*, 2012; Wagner, 2011). Brunton *et al.* (2017) note that small enterprises typically have limited resources and no significant awareness of the value of investing in CSR. Since one of the findings from the present research is that communication practices – whether they require expenditure or not – are more often used in larger companies than in smaller ones, we may suppose that the decision is not connected with money. Thus, we assume that this results from the pressure on large companies to care about the environment (Hörisch *et al.*, 2015) and specific organizations’ cultural aspects.

Our study showed a similar perception of both groups of respondents in the case of barriers associated with IC in the application of ES. The statistically significant difference between managers and employees in the perceived effectiveness of communication practices was identified only in the case of communicating an attitude towards environmental issues in the vision and mission of the company. We could explain this by the fact that middle managers are closer to top managers, who are mostly responsible for formulating strategy. This can also indicate that middle managers participate in new strategy formulation (Branco, Ferreira, & Jayantilal, 2021).

| Practice   | Z      | p     | Job level | n   | M <sub>Rank</sub> | Me |
|--|--------|-------|-----------|-----|-------------------|----|
| Communicating an attitude toward environmental issues in the vision and mission of the company | -2.491 | 0.013 | L         | 119 | 107.74            | 11 |
|  |        |       | M         | 79  | 87.09             | 10 |
|  |        |       | Total     | 198 |                   | 10 |
| Informal communication: managers encouraging employees   | -1.844 | 0.065 | L         | 119 | 105.60            | 11 |
|  |        |       | M         | 79  | 90.31             | 8  |
|  |        |       | Total     | 198 |                   | 10 |
| Internal information campaigns or internal marketing   | -0.668 | 0.504 | L         | 119 | 101.71            | 10 |
|  |        |       | M         | 79  | 96.17             | 9  |
|  |        |       | Total     | 198 |                   | 10 |
| Training about environmental issues  | -1.139 | 0.255 | L         | 119 | 103.27            | 9  |
|  |        |       | M         | 79  | 93.82             | 8  |
|  |        |       | Total     | 198 |                   | 8  |

**Note(s):** Z – standardized result of the Mann-Whitney U test; L – line position; M – managerial position  
**Source(s):** Own elaboration

**Figure 3.**  
The triangle between environmental strategy, internal communication, and organizational culture



**Source(s):** Own elaboration

Although training is described in the literature as an effective means of shaping pro-environmental attitudes (Zibarras & Coan, 2015), the lack of training is perceived by the respondents as a moderately important barrier to the application of green strategy. It is understandable that the company needs to have a clear strategy first (significant factor) and then organize appropriate training. However, we were surprised that for the respondents, the lack of employees' awareness that their organization wants to be pro-ecological is a significant factor, while training is moderately important. However, this finding contradicts the answers about the effectiveness of individual communication practices. Training as a formal communication practice was assessed as more effective than informal communication by managers or other communication practices mentioned in the survey. These discrepancies may result from the respondents' previous experiences and the fact that companies in Poland are in the early stages of implementing pro-environmental initiatives (Bombiak, 2019), thus from "wandering" or experimental training. Polish companies still struggle with adjusting their processes to EU regulations and social expectations related to their environmental performance (Poskrobko & Poskrobko, 2012).

Our study also found a significant relationship between the degree of "greening" in OC and the frequency of using communication practices. This means that when the company is following an indifferent (reactive) strategy, not only will the messages sent to employees have different content than in the case of an offensive strategy but there will also be fewer messages. Thus, reactivity concerns environmental activities as well as other activities (in the analyzed case: communication activities), which forms a specific cultural pattern.

Our results identify practical implications for companies, highlighting how important ES, IC, and OC are in achieving environmental sustainability. Managers should be aware of these factors not only in the context of motivating their employees toward appropriate environmental behaviors but also that of cultivating an environmentally friendly image.

Moreover, when analyzing environmental performance factors, we should consider their mutual relationships. Only by integrating ES, IC, and pro-environmental OC can companies achieve benefits. Because the effectiveness of IC practices was assessed as lower than any other organizational green practices, managers should maximize the potential of IC. Not to mention that both verbal and nonverbal communication influence such matters. Managers also communicate messages through their behavior, which can change employees' attitudes and corporate culture.

This study provided guidelines regarding the implementation of pro-environmental IC practices, perceived as most effective by employees working on different job positions. As human resources management literature emphasizes, different practices should be used to manage different types of employees, and their effectiveness follows employee needs (Snell & Morris, 2021). If employees perception of green practices is positive, they are more likely to engage in environmentally friendly activities (Kim, Kim, Choi, & Phetvaroon, 2019).

The persons who can find useful material in this study are educational institutions that develop skills of line employees and managers, thus significantly influencing the transformation of society toward environmental sustainability. These institutions may use the study results when teaching about the "green strategy – internal communication – organizational culture" triangle, emphasizing the role of such costless practices that induce ES (communication and culture). They may also introduce a new subject on integrating green strategy into IC and OC. This subject needs a process-oriented approach, mapping a long-term development path for these organizations.

Finally, the fulfillment of the above postulates directed toward businesses and educational institutions will positively influence the general public. Green practices directly contribute not only to the company's environmental performance but also – and more importantly – to the quality of the lives of individuals and societies. For the future of our planet and

## 6. Conclusions, limitations, and directions for further research

This article brings new empirical evidence regarding relationships between features of OC, types of green strategy, and communication practices. These relationships are presented as the ES–IC–OC triangle. Our study revealed there is a dependency between OC greening – corresponding with a specific type of ES – and the frequency of using particular IC practices. Moreover, the study revealed that correlations between such variables as company size and the frequency with which different communication practices are used favor large companies. On the other hand, this research did not fully prove that an employee's position differentiates their perception of the importance of communication barriers and that their opinions about the effectiveness of communication practices in the implementation of ES are related to one another. In turn, we noted a difference between the two groups of respondents in their perception of company mission and vision communication effectiveness: for middle managers – but not for line employees – this communication practice is effective in the context of implementing ES. One of the most important findings was that training is the most effective communication practice among all the examined options.

This study has several limitations. First, the adopted research instrument does not include questions that could be called ES types other than offensive and indifferent strategies. The challenge for future research is to design an instrument that would combine cultural features with all types of ES. Second, we also do not know how individual beliefs, awareness, and approaches toward the natural environment can bias the responses collected in studies of organizations (Teixeira *et al.*, 2016; Yuriev & Sierra-Barón, 2020). Third, our study focused only on top-down communication. Because employees can influence both OC and strategy, future studies should also explore bottom-up communication in the context of environmental issues. Finally, our study analyzed company size and used a quantitative research approach, so future studies should go deeper and try to answer which elements of OC make IC on the ES more efficient, following a qualitative research approach.

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**Appendix**  
**Results of the chi-squared test analysis**

Company size  
and employee  
perception

| Statements related to “green” company culture  | Communicating the vision and mission of the company |                             |                            | $\chi^2$ | <i>p</i> | <i>V</i> |
|--|---|-----------------------------|----------------------------|----------|----------|----------|
|  | Never<br>% of<br>responses                          | Rarely<br>% of<br>responses | Often<br>% of<br>responses |          |          |          |
| My company is interested in developing employees’ pro-ecological behavior                  | 71.7  | 83.9                        | 93.6                       | 8.46     | 0.015    | 0.23     |
| My company does everything it can to protect the environment                               | 17.0  | 47.4                        | 82.5                       | 39.47    | <0.001   | 0.55     |
| My company aims to have an image of a pro-ecological company                               | 31.6  | 60.8                        | 92.1                       | 34.53    | <0.001   | 0.49     |
| Employees in my company are motivated to behave in an ecological manner                    | 27.9  | 47.5                        | 75.7                       | 18.22    | <0.001   | 0.39     |
| My company is proud of its environmental activities  | 34.9  | 71.9                        | 86.5                       | 24.28    | <0.001   | 0.47     |
| Organizational practices actively encourage environmental behavior                         | 4.1   | 33.3                        | 77.4                       | 46.35    | <0.001   | 0.62     |
| The way in which my company operates internally is in line with its external “green” image | 33.3  | 62.2                        | 80.0                       | 16.90    | <0.001   | 0.39     |
| Managers provide practical support for line employees’ environmental behavior              | 14.9  | 33.3                        | 74.3                       | 30.50    | <0.001   | 0.51     |
| Environmental goals are being replaced by other priorities                                 | 66.0  | 86.7                        | 48.6                       | 13.70    | 0.001    | 0.32     |
| The main environmental concern of the organization is to avoid breaking the law            | 59.5  | 70.0                        | 27.8                       | 13.16    | 0.001    | 0.36     |

**Note(s):**  $\chi^2$  – chi-squared test result; *V* – Cramer’s *V* indicator  
**Source(s):** Own elaboration

**Table A1.**  
The relationship  
between “green” OC  
features and  
communication of the  
vision and mission of  
the company

**Table A2.**  
The relationship  
between particular  
features of “green” OC  
and the use of informal  
communication in the  
form of managers  
encouraging  
employees

| Statements related to “green” company culture  | Informal communication – managers encouraging employees |                             |                            | $\chi^2$ | <i>p</i> | <i>V</i> |
|--|---|-----------------------------|----------------------------|----------|----------|----------|
|  | Never<br>% of<br>responses                              | Rarely<br>% of<br>responses | Often<br>% of<br>responses |          |          |          |
| My company is interested in developing employees’ pro-ecological behavior                  | 69.0  | 92.2                        | 100.0                      | 17.71    | <0.001   | 0.34     |
| My company does everything it can to protect the environment                               | 30.9  | 57.1                        | 78.6                       | 14.69    | 0.001    | 0.33     |
| My company aims to have an image of a pro-ecological company                               | 48.6  | 60.0                        | 92.9                       | 9.65     | 0.008    | 0.26     |
| Employees in my company are motivated to behave in an ecological manner                    | 23.1  | 63.0                        | 92.9                       | 28.97    | <0.001   | 0.49     |
| My company is proud of its environmental activities  | 47.2  | 70.2                        | 100.0                      | 13.71    | 0.001    | 0.35     |
| Organizational practices actively encourage environmental behavior                         | 10.9  | 50.0                        | 83.3                       | 33.96    | <0.001   | 0.53     |
| The way in which my company operates internally is in line with its external “green” image | 35.2  | 65.9                        | 100.0                      | 22.16    | <0.001   | 0.44     |
| Managers provide practical support for line employees’ environmental behavior              | 11.9  | 58.1                        | 81.2                       | 37.16    | <0.001   | 0.56     |
| Environmental goals are being replaced by other priorities                                 | 71.4  | 68.6                        | 50.0                       | 2.48     | 0.290    | 0.14     |
| The main environmental concern of the organization is to avoid breaking the law            | 56.9  | 51.3                        | 30.8                       | 2.82     | 0.244    | 0.17     |

**Note(s):**  $\chi^2$  – chi-squared test result; *V* – Cramer’s V indicator  
**Source(s):** Own elaboration

**Table A3.**  
The relationship  
between particular  
features of “green” OC  
and the use of internal  
information campaigns  
or internal marketing

| Statements related to “green” company culture  | Internal information campaigns,<br>internal marketing |                             |                            | $\chi^2$ | <i>p</i> | <i>V</i> |
|--|---|-----------------------------|----------------------------|----------|----------|----------|
|  | Never<br>% of<br>responses                            | Rarely<br>% of<br>responses | Often<br>% of<br>responses |          |          |          |
| My company is interested in developing employees’ pro-ecological behavior                  | 60.5  | 89.2                        | 90.9                       | 17.30    | <0.001   | 0.33     |
| My company does everything it can to protect the environment                               | 21.4  | 47.4                        | 75.0                       | 21.10    | <0.001   | 0.40     |
| My company aims to have an image of a pro-ecological company                               | 31.8  | 58.5                        | 86.5                       | 24.63    | <0.001   | 0.41     |
| Employees in my company are motivated to behave in an ecological manner                    | 25.0  | 41.5                        | 88.6                       | 33.00    | <0.001   | 0.52     |
| My company is proud of its environmental activities  | 33.3  | 63.0                        | 90.9                       | 23.35    | <0.001   | 0.46     |
| Organizational practices actively encourage environmental behavior                         | 9.1   | 32.1                        | 76.0                       | 32.41    | <0.001   | 0.52     |
| The way in which my company operates internally is in line with its external “green” image | 36.1  | 51.1                        | 86.2                       | 16.91    | <0.001   | 0.39     |
| Managers provide practical support for line employees’ environmental behavior              | 5.4   | 36.7                        | 78.1                       | 38.53    | <0.001   | 0.57     |
| Environmental goals are being replaced by other priorities                                 | 70.8  | 74.1                        | 54.5                       | 3.85     | 0.146    | 0.17     |
| The main environmental concern of the organization is to avoid breaking the law            | 48.1  | 57.4                        | 44.8                       | 1.30     | 0.521    | 0.11     |

**Note(s):**  $\chi^2$  – chi-squared test result; *V* – Cramer’s V indicator  
**Source(s):** Own elaboration

| Statements related to “green” company culture  | Training about environmental issues |                       |                      | $\chi^2$ | $p$    | $V$  | Company size and employee perception |
|--|-------------------------------------|-----------------------|----------------------|----------|--------|------|--------------------------------------|
|  | Never % of responses                | Rarely % of responses | Often % of responses |          |        |      |                                      |
| My company is interested in developing employees’ pro-ecological behavior                  | 69.0                                | 98.1                  | 100.0                | 23.71    | <0.001 | 0.39 |                                      |
| My company does everything it can to protect the environment                               | 23.0                                | 65.9                  | 100.0                | 41.11    | <0.001 | 0.56 |                                      |
| My company aims to have an image of a pro-ecological company                               | 40.9                                | 75.6                  | 100.0                | 27.99    | <0.001 | 0.44 |                                      |
| Employees in my company are motivated to behave in an ecological manner                    | 34.8                                | 60.0                  | 87.5                 | 16.76    | <0.001 | 0.37 |                                      |
| My company is proud of its environmental activities  | 43.1                                | 85.7                  | 100.0                | 25.71    | <0.001 | 0.48 |                                      |
| Organizational practices actively encourage environmental behavior                         | 15.9                                | 61.3                  | 88.9                 | 34.95    | <0.001 | 0.54 |                                      |
| The way in which my company operates internally is in line with its external “green” image | 32.4                                | 88.9                  | 100.0                | 37.39    | <0.001 | 0.58 |                                      |
| Managers provide practical support for line employees’ environmental behavior              | 20.0                                | 62.1                  | 85.7                 | 30.93    | <0.001 | 0.51 |                                      |
| Environmental goals are being replaced by other priorities                                 | 71.8                                | 68.4                  | 41.7                 | 4.39     | 0.111  | 0.18 |                                      |
| The main environmental concern of the organization is to avoid breaking the law            | 50.9                                | 57.5                  | 30.0                 | 2.43     | 0.296  | 0.15 |                                      |
| <b>Note(s):</b> $\chi^2$ – chi-squared test result; $V$ – Cramer’s $V$ indicator           |                                     |                       |                      |          |        |      |                                      |
| <b>Source(s):</b> Own elaboration  |                                     |                       |                      |          |        |      |                                      |

Table A4.  
The relationship between particular features of “green” OC and the use of training about environmental issues

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