“Comparative influence of gender, age, industry and management level on communication”

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ARTICLE INFO	Anastassiya Lipovka, Natalya Korolyova, Maigul Nugmanova and Aizhan Salimzhanova (2021). Comparative influence of gender, age, industry and management level on communication. *Problems and Perspectives in Management*, *19*(2), 170-182. doi:10.21511/ppm.19(2).2021.14
DOI	http://dx.doi.org/10.21511/ppm.19(2).2021.14
RELEASED ON	Friday, 28 May 2021
RECEIVED ON	Wednesday, 17 March 2021
ACCEPTED ON	Wednesday, 12 May 2021

JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
55	1	5

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

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COMPARATIVE INFLUENCE OF GENDER, AGE, INDUSTRY AND MANAGEMENT LEVEL ON COMMUNICATION

Abstract

The protracted COVID-19 pandemic repeatedly demonstrates the necessity of effective communication inside and outside organizations. However, a deficient comprehensive study of factors able to affect managerial communication limit further progress in the improvement of such business interactions. The research fills in the knowledge gap about the comparative influence of various factors on managerial communication and particularly the impact of individual and organizational characteristics of managers on communication. The paper aims to determine the significance of the relationships between managerial communication and age, genders, managerial levels, and industries in private companies from the energy, education, trade, service, extraction, construction, and production sectors. Within the organizational study, 224 subordinates from Kazakhstan firms reflected on their supervisors' communications through a multivariate closed questionnaire. The obtained data was further processed and examined through correlation coefficients and dispersion analysis. The research results identified the considerable relationship between communication practices and managers' age (R^2=0.9637), managerial level (R^2=0.9640), and industry (R^2=0.9653). The study reveals the weak relationship between manager's gender and communication practices (R^2=0.1535): women insignificantly outperform men in this linking process. The research postulates that effectiveness of managerial communication considerably varies by managers' age, managerial level, and industry, and insignificantly by gender. The paper lays the groundwork for gender-unbiased practices of human resource management and contributes to the idea of building diverse management teams.

Keywords diversity management, human resources, men, women, top managers, Kazakhstan

JEL Classification M54, M14, J24

Received on: 17th of March, 2021
Accepted on: 12th of May, 2021
Published on: 28th of May, 2021

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Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

The significance of communication, a critical linking process penetrating all management functions, has risen under current conditions of vulnerability and uncertainty caused by the COVID-19 pandemic (Herman, 2021). Notwithstanding managerial communications have already been the most demanded types of interactions taking place in contemporary organizations, their intensity is still raising for managers of the 21st century (Turco, 2016).

Managers represent a diverse group of leaders with their distinctive individual and organizational characteristics; the diversity of the managers' pool positively contributes to organizational prosperity (Arioglu, 2020; Reguera-Alvarado & Bravo-Urquiza, 2020). Communication and human resource (HR) diversity in companies are closely interrelated: the better managers communicate with their subordinates, the more positive impact diversity brings to working teams and the more diverse management teams are, and thus the more comprehensive communications they lead (Kelemen et al., 2020).

http://dx.doi.org/10.21511/ppm.19(2).2021.14

Managerial communication practices may vary depending on various aspects including individual, biological, social, and organizational (Levasseur, 2013). However, most studies on managerial communication consider only one or a few characteristics in isolation with others (Snaebjornsson & Edvardsson, 2013) that limit a proper understanding of the phenomena of managers as real people endowed with certain characteristics and working under specific organizational and industrial conditions. Deficient knowledge on the comparative influence of individual and organizational factors decelerates both theoretical and practical development of the issue. Moreover, isolated consideration of gender and age factors causes stereotype-based, age-biased, and gender discrimination during selection, promotion or advancement of managers. In their turn, biased and discriminatory HR practices decrease the effective utilization of human capital that further undermines the effectiveness of HR management. Therefore, a comprehensive comparative study of individual and organizational characteristics is required to shed light on what is actually influencing the effectiveness of organizational communication in private organizations.

1. LITERATURE REVIEW AND HYPOTHESES

The recent review of highly regarded management and psychology peer-reviewed journals has revealed insufficient control of individual and organizational variables in leadership studies (Bernerth et al., 2017). Bernerth et al. (2017) emphasize the critical importance of multiple factors within management studies to improve their validity and real-life orientation.

1.1. Effective managerial communication

Managerial communication is "a communication between the manager and subordinates – the goal of this communication is both to develop and disseminate relevant knowledge that will increase the effectiveness and efficiency of managers in the contemporary business environment" (Gheorghe et al., 2009). Managers are involved in different types of daily communications: intra organizational and inter-organizational, upward and downward, formal and informal, etc. However, the largest share of managerial communication present interactions with the staff (Mintzberg, 2011).

The crucial importance of communication for a company prosperity causes a demand for managers with advanced communication skills. Excessive information flow overloading communication channels sets higher requirements for managers and pervasive computerization engenders a bigger communication gap. Such communication-based skills as negotiation, persuasion, and social perceptiveness guarantee management occupations a low risk of extinction and replacement by computer capital in the next 20 years (Frey & Osborne, 2016).

Effective communications assume initially downward and then upward communication as a reaction or response to the former. Managers should be open to listening to subordinates and be aware of their values, aspirations, and beliefs to increase perception capacity (Nguyen et al., 2019). Securing accurate perception of upward information is implemented through gaining constant feedback from followers (Mintzberg, 2011). Contemporary HR set higher requirements towards the characteristics and behavior of managers. Nowadays subordinates look for gaining continuous feedback from their supervisors, valuing work environments oriented for cooperation, openness, and flexibility (Baron et al., 2018). Proficient managers keep a dialogue open with subordinates to provide upward communications and continuous bilateral feedback and explain performance expectations accurately via regular discussions (Bell & Roebuck, 2015).

Effective leaders should listen to their subordinates and be flexible in applying various leadership styles that will be favorable under a highly competitive and multifaceted environment (Bamel et al., 2016). Adaptability and flexibility are considered critical conditions for manager effectiveness and particularly for communication (Bamel et al., 2015). Adaptability allows choosing the best way of approaching people to motivate highly effective performance.

Many works are dedicated to such a factor as gender that moderate communication practices. At the same time, a few studies focus on several factors simultaneously. However, most of them embrace managerial level, gender, and organizational status (Bamel et al., 2016; Furnham et al., 2012). On contrast, manager age and industry of organization are understudied (Snaebjornsson & Edvardsson, 2013).

1.2. Relationship between a manager`s gender and communication within organizations

Previous findings on managerial communications note both existence and absence of differences between men and women. Women are associated with communal qualities while men with agentic one. This assumes the former communicate with warmth and the latter with assertiveness (Martin & Phillips, 2017). Male and female managers have different communication purposes: men focus on power demonstration whereas women tend to have an equal talk. Men managers demonstrate a more authoritative and assertive communication style, while women focus on advising and motivating (Khorvash & Afghari, 2016).

Women encourage downward communication, are more open to dialogue, better in supportive talk, individual treatment of staff, and emotional intelligence (Appelbaum et al., 2013a; Gartzia & van Engen, 2012). Female managers possess better listening skills and are inclined to be more attentive and interactive listeners compared to their male counterparts (Radu et al., 2017; Roebuck et al., 2016). Appelbaum et al. (2013b) postulate that women are better at expressing empathy, support, and establishing relationships with subordinates, they positively contribute to organizations with their distinct communication practices (Gartzia & van Engen, 2012). The above-mentioned communication differences between genders are substantial and favorable for a company diversity, and a diverse team of managers positively contributes to the prosperity of a company via team cohesion, employee commitment, higher effectiveness, and financial growth (Kamasak et al., 2019).

A range of studies reports in favor of absence or a rather insignificant relationship between gender and communication practices. Shadare (2011) claims insignificant distinction between men and women managerial styles. Tonidandel et al. (2012) defined a weak relationship between gender and effectiveness including human skills and found a small positive relationship between managerial effectiveness and gender in favor of women. Furnham et al. (2012) outline a small correlation in such qualities contributing to human interactions as openness, expressing of feelings and emotions, proneness to social skills, and warmth in favor of women. Bamel et al. (2016) identify a weak relation between flexibility including leading communication, effectiveness, and gender. Roebuck et al. (2016) assert that women and men do not differ in work environments.

A type of research influences its results in terms of absence or presence of differences. In laboratory studies of communications within teams, men demonstrated more self-assertion and dominance and women expressed more warmth and deference; men are somewhat more oriented to task, while women – to social behavior (Powell, 2019). In the meta-analysis of task versus relationship and participative versus directive styles, women showed more inclination to interpersonal and directive styles comparing to men within laboratory and assessment studies and less inclination within organizational studies (Sczesny et al., 2019). In their organizational studies, Gartzia and van Engen (2012) identified women leaders demonstrated more interpersonal orientation than men managers did.

The dimension of differences between women and men managerial communications is disputed and requires more complex research. To reduce the revealed gap the scope of gender influence along with such important factors as managerial level, age, and industry were considered. It is required to consider women and men management and communication as non-opposite with an account of other individual and organizational factors (Snaebjornsson & Edvardsson, 2013). In this regard, possible effects of gender stereotypes are reduced.

1.3. Impact of a manager`s age on the communication within organizations

The scale of personal differences fluctuates over the life continuum and may be reduced with time (Powell, 2019). Consequently, manager communi-

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cation skills may vary depending on age. The well-known Super's Life-Career Theory (Strauser, 2014) proposes career stages including exploration (15-24), establishment (25-44), maintenance (45-65), and decline (65 and above). During the exploratory stage, individuals probe various roles, tasks, environments and actively acquire work skills. Managers at the age of 20-30 have less experience in supervising others comparatively to managers of elder age; they make their first steps and are prone to making mistakes. At the establishment stage, managers set roles including work ones, and at the age of 45-65 individuals sustain the achieved positions and develop them. The decline stage includes preparation for retirement, reducing the number of roles and (Strauser, 2014), considering options for leaving a job, moving to a part-time job or keeping the current track (Armitage et al., 2019).

Younger employees lack the required skills of leading organizational communications that they acquire further through their job interactions (Akkermans et al., 2015). Longitudinal research (Graham et al., 2020) testify young people and middle adults have a higher level of extraversion and openness in comparison with elder individuals. The mentioned personal qualities diminish with age and demonstrate a significant decrease in older periods of life (Graham et al., 2020; Marsh et al., 2013). In contrast, the theory of gains and losses argues at the elder age verbal comprehension and extension of vocabulary take place along with worsening of abstract reasoning, attention, processing of new information, and work memory (Bal et al., 2015). Each stage reflects acquisition and development, or reduction of roles and skills. Furnham et al. (2012) define a weak correlation between age and extraversion, feelings, emotions, warmth, and a bit stronger correlation is identified with agreeableness. Negative experiences of organizational communications including age bias and age stereotypes have their implications on elder communicators in the form of confidence loss and communication quality decrease (McCann et al., 2017).

1.4. Influence of managerial level on organizational communication

Along with emotional intelligence, interpersonal skills, and adaptability, communication skills are incorporated in human skills as important for all managerial levels. However, numerous studies demonstrate that the higher the organizational level, the better the communication skills people need (Adams-Dunford et al., 2019; Khorvash & Afghari, 2016; Mumford et al., 2007; Szostek, 2021). Managers spend from 60 to 90% of their time on oral communication; chief executives spend 48% of their time in meetings and calls, and 39% emailing their subordinates (Mintzberg, 2011). The Mumford et al.'s (2007) Leadership skills strataplex postulates the higher the organizational level, the better skills managers possess: communication skills are highly needed by managers of all levels and their significance relatively increases at higher organizational levels. Helfat and Martin (2014) and Kor and Mesko (2013) argue communication is a subpart of managerial capabilities most required by top managers. Tonidandel et al. (2012) identified a strong relationship between human skills and managers' effectiveness and found out that human skills somehow increase along the organizational hierarchy.

At higher managerial levels, leaders demonstrate practices that are more advanced. CEOs better motivate and inspire their staff for changing environments (Lauring et al., 2017). Anzengruber et al. (2017) attest managers of all three levels equally require communication competence, while executives need to combine advanced communication practices with a focus on change. Bamel et al. (2016) reveal a moderate relationship between managers' flexibility in communications and managerial levels: an insignificant correlation exists between first-line managers and middle managers, whereas a significant correlation is observed between first-line and senior managers, as well as middle and senior managers correspondingly. Consequently, top managers' communication is more oriented at flexibility and adaptability, and executives possess better communication skills compared to middle-level managers, whereas the latter have better skills than the first-line supervisors show.

1.5. Relationship between industry and managerial communications

Industries are classified as male-dominated, female-dominated or neutral (Sweida & Woods, 2015). Despite countries and cultural differences,

economic sectors involving intensive physical work are traditionally associated with males (Wilén & Heinecken, 2018), whereas industries connected with beauty, cosmetics, and care are related to females. Gender stereotypes contribute to traditional labor segregation: men and women are inclined to build a career in the industries congruent with gender role expectations about females as caregivers and males as economic producers (Eagly & Sczesny, 2019). Trade, service, and administration are mostly neutral industries, excluding top management attached to men (Ringblom & Johansson, 2019). Both men and women are prejudiced in industries with intensive labor of their counterparts, while females face difficulties in making a managerial career (Lipovka & Buzady, 2020). In male-dominated industries, women may tune their actual communication practices to the stereotypical demands of enterprises with enormous male representation (Martin & Phillips, 2017).

The meta-analysis of gender differences in leadership identified that women are more effective in women-intensive fields such as education, social services, while men are more effective in male-intensive fields such as military Sczesny et al. (2019). However, in business settings representatives of both genders equally effective. The study of leaders and their teams demonstrated that the evaluation of women was higher than that of men in gender-neutral industries and male-intensive industries ratings of women and men were almost equal (Cabrera et al., 2009).

Analysis of literature on previous research has demonstrated a deficiency in the comparative influence of individual and organizational factors on managerial communications (Tonidandel et al., 2012). Notwithstanding numerous researches on managerial communications, there is a lack of field research on real leaders' interpersonal interactions in work environments. Few studies are devoted to a complex analysis of managers' age, gender, industry, and managerial level on organizational communications (Szostek, 2021).

Based on the literature review the aim is to identify the comparative significance of the relationships between communication practices and managers' gender, management level, age, and industry in private companies operating in the energy, education, trade, service, extraction, construction, and production sectors. Within the framework of the set aim, four research hypotheses are elaborated:

H1: Gender has a moderate influence on communication.

H2: Managerial level has a significant effect on communication.

H3: Age has a significant effect on communication.

H4: Industry affects communication insignificantly.

2. METHODOLOGY

Given the applied nature of management where the involvement of real supervisors is most favorable for research (Powell, 2019), it was decided to implement an organizational study. The multi-choice closed questionnaire was based on the requirements for managerial communications of contemporary leaders (Appelbaum et al., 2013a; Bamel et al., 2016; Baron et al., 2018; Levasseur, 2013). 224 respondents (mean age 37.1, with a range of 20-70; 47% male, 53% female) from large, medium, and small private Kazakhstan companies constituted the respondent pool. Respondents were chosen on a random basis, 65% of questionnaires were sent by e-mail and 35% were passed as a hard copy.

224 managers (57% male, 43% female) from women-intensive (education, service), men-intensive (energy, extraction, construction, production), and gender-neutral industries (trade) were assessed (RK Committee on Statistics, 2020). The age distribution was uneven owing to slow career progress at early stages and the average retirement period: 15 managers were at the age of 20-30, 56 managers – 31-40, 113 managers – 41-50, 28 managers – 51-60, and 12 managers – 61-70. The distribution of supervisors along managerial levels was the following: 73 – top, 107 – middle, and 44 – first-line managers.

Levels of communication were classified as high, medium, low and represented a dependent variable. Three versions of answers were offered to every question with relative weights of 2, 1, or 0

http://dx.doi.org/10.21511/ppm.19(2).2021.14

scores. Gender, managerial level, age, and industry implied independent variables. The study utilizes methods of dispersion analysis and correlation coefficients for further data processing and examination.

To test the reliability of the chosen instrument, Cronbach α and Composite Reliability with the minimum acceptable value of 0.7 were calculated (Sekaran & Bougie, 2013). Additionally, for checking the scale validity the Average Variance Extracted and Factor Loadings were utilized with the minimum threshold of 0.5 for these scales (Sekaran & Bougie, 2013). The items aimed to measure certain managerial communication practices and values of the calculated indicators are reflected in Table 1.

Following Table 1, the implemented calculations certify the designed items meet the requirements set for scale values. Hence, the research results can be considered reliable and valid.

Initially, a comparison of the values of regression coefficients of respondent's gender and manager's gender was undertaken to measure the possible gender bias in evaluation of managers. For testing the proposed hypotheses, the analysis of multiple regression models with a dummy variable was applied. Mathematic equations and multiple correlation coefficients were calculated to further define relationships between managers' ages, management levels, industries, and managerial communications:

$$ComPrac = b_1 X_{first} + b_2 X_{middle} + b_3 X_{top} + W, \quad (1)$$

$$Y = 9.33 X_{first} + 9.36 X_{middle} + 10.04 X_{top} + W, \quad (2)$$

where *ComPrac* – level of communication practices, X_{first} – first-line managers, X_{middle} – middle managers, X_{top} – top managers, W – random value.

$$ComPrac = 8.3 X_{20-30} + 9.71 X_{31-40} + \\ + 10.58 X_{41-50} + 8.99 X_{51-60} + 7.88 X_{61-70} + I, \quad (3)$$

where $X_{20\text{-}30}$ – managers at age of 20-30, $X_{31\text{-}40}$ – managers at age of 31-40, $X_{41\text{-}50}$ – managers at age of 41-50, $X_{51\text{-}60}$ – managers at age of 51-60, $X_{61\text{-}70}$ – managers at age of 61-70, I – random value.

$$ComPrac = 10.94 X_{ed} + 9.71 X_{en} + \\ 10.58 X_{tr} + 8.99 X_{srv} + 8.88 X_{ext,con,pr} + U, \quad (4)$$

where X_{ed} – managers in education, X_{en} – managers in energy, X_{tr} – managers in trade, X_{srv} – managers in service, $X_{ext,\ con,pr}$ – managers in extraction, construction, and production, U – random value.

3. RESULTS

Measurement of the possible gender bias has shown its insignificance: the value of the multiple R ($R^2 = 0.11$) indicated rather a weak relationship between manager's gender, and the respondent's gender and manager's level of communications practices. Therefore, subordinates provided gender unbiased evaluations of their supervisors and the study findings were not distorted.

As the result of testing *H1. Gender has a moderate influence on communication,* the multiple R ($R^2 = 0.1535$) showed a weak relationship between the manager's gender and the level of communication practices. Therefore, the hypothesis was not confirmed. The possible explanation of this inconsistency may lie in women's minor position engendering a stereotype threat of utilizing a feminine

Table 1. Reliability and validity

#	Variable	Cronbach α	Composite Reliability	Factor Loading	Average Variance Extracted
1	The adaptability of managers' communication styles depending on a situation	0.94	0.94	0.86	0.8
2	Oral communication skills			0.88	
3	Written communication skills			0.92	
4	Listening to subordinates' concerns			0.94	
5	Approachability of managers			0.93	
6	Proper instructing and advising			0.90	
7	Verifying the accuracy of message understanding			0.84	

Table 2. Dispersion analysis of the equation (2) parameters

ANOVA	df	SS	MS	F	Significance F	
Regression	3	21039.583	4207.917	553.003	0.000	
Residual	221	1666.417	7.609			
Total	224	22706.000				
Managerial level	**Coefficients**	**Standard Error**	***t*-Stat**	***P*-value**	**Lower 95%**	**Upper 95%**
First-line managers	9.327	0.561	16.625	0.000	8.221	10.433
Middle managers	9.358	0.381	24.456	0.000	8.567	10.069
Top managers	10.040	0.365	27.510	0.000	9.321	10.760

style and forced women's reorientation for more masculine conduct (von Hippel et al., 2011). A similarity of women and men managerial communications may be rooted in behavior restrictions set by organizations towards their managers (Eagly & Sczesny, 2019). Consequently, people tune their communication practices in line with business and organizational requirements that may mitigate possible differences between women and men.

In general, respondents evaluated men and women oral and written communication skills and adaptability of a communication style equally well. However, some insignificant gender differences in managerial communications were identified: female supervisors were assessed slightly higher for listening to subordinates, approachability, giving instructions and advice, as well as verifying the accuracy of message understanding.

The method of multiple regressions identified that managerial level demonstrated a considerable relationship with manager's communication practices (R^2=0.9640). Consequently, the proposed *H2. Managerial level has a significant effect on communication* was fully attested. The degree of divergence between managers by gender (R^2 = 0.1535) was rather lower than by managerial level (R^2=0.9640): the difference was identified between top, middle, and first-line managers' communication practices. The regression statistics of equation (2) showed that the multiple coefficients of correlation were equal to $R_{Y...Xtop}$ = 0.96, R^2 = 0.94, $F_{actual} > F_{tabular}$, α = 0.05. Additionally, top managers' communication practices were higher evaluated comparatively to other-level managers, whereas middle managers' communication practices were insignificantly higher appraised than of first-line managers ($b_1 < b_2 < b_3$). The calculated coefficient of the Student's t-test and the confidence interval were correct. The dispersion analysis of the equation (2) parameters is displayed in Table 2.

For better visualization, a distribution of first-line, middle, and top managers along the levels of communication practices is presented in Figure 1. The division was based on the statistical data of the conducted research.

Following Figure 1, low communication (least effective) was practiced by 20% of the first-line managers, 15% of the middle managers, and 10% of the top managers. High-level (most effective) communication was practiced by 31% of the top, 25% of the middle, and 23% of the first-line man-

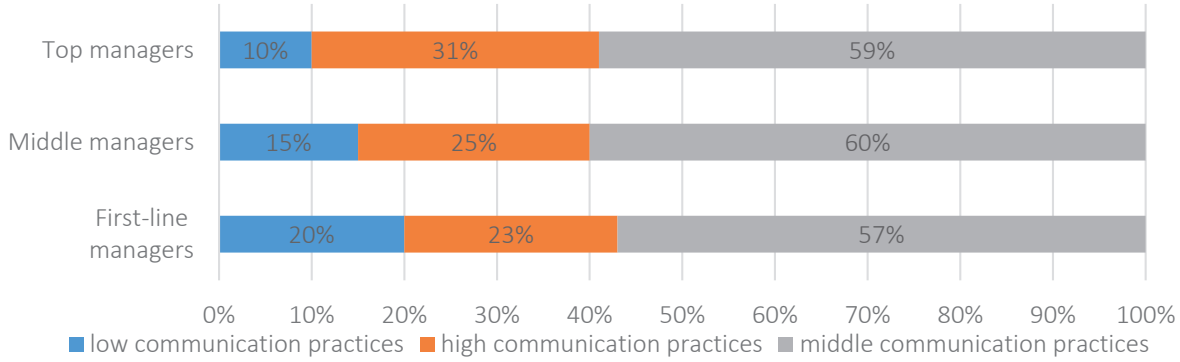

Figure 1. Distribution of managers within the levels of communication practices

http://dx.doi.org/10.21511/ppm.19(2).2021.14

agers. The least discrepancy was observed at the level of middle communication practices, where the difference constituted only 1% between the top and middle managers and 3% between the middle and first-line managers. Hence, top managers showed the highest evaluation of communication practices, middle managers – medium evaluation, and first-line managers the lowest evaluation respectively.

Obviously, top managers engage better communications due to a long professional experience comparatively with other managers. In addition, the process of candidate selection for top positions is associated with finding managers with the best skills. Positive evaluation of top managers might be also substantiated by their better abilities to adapt communication styles depending on a situation that is rooted in their key change-agent role in organizations (Anzengruber et al., 2017).

H3. Age has a significant effect on communication was tested utilizing the analysis of multiple regression models with a dummy variable. The multiple R (R^2 =0.9637) demonstrated a significant relationship between the manager age and the level of communication practices and, thus, supported the *H3.* To detect the age of managers who possess the best managerial communications, equation (3) was written and further dispersion analysis was conducted. Table 3 displays the dispersion analysis of equation (3).

The data analysis showed that managers at the age from 31 to 60 applied communication practices at the highest level. The best performers out of this group were managers from 41 to 50 (b_3=10.58) followed by supervisors at age of 31-40 (b_2=9.71) and 51-60 (b_4=8.99). The lowest level of communication practices was observed among the group of 61-70 (b_5=7.88), followed by the group of 20-30 (b_1=8.30). Two groups with the lowest evaluations often face considerable employment difficulties in the labor market. Education and work style obtained in previous times, low flexibility, and declining mental abilities are considered as employment obstacles for elder workers, while the youngest group is characterized as inexperienced (Smirnova & Tatibekov, 2013).

To test *H4. Industry affects communication insignificantly;* the applied method of multiple regressions was used to calculate R^2=0.9653 that refuted the hypothesized inconsiderable influence of managerial level on communication. The multiple regression equation (4) was written to identify how industries are related to the levels of communication. Table 4 presents the dispersion analysis of equation (4).

The dispersion analysis showed $R_{Y...Xext,\ con,pr}$= 0.97, R^2= 0.93, the equation was statistically significant by Fisher as $F_{actual} > F_{tab}$, and the regression coefficients were statistically significant by Student's *t*-test. The equation demonstrated that managers in education, trade, and energy practiced communications at a higher level out of all studied supervisors. The significant fluctuations in numbers of women and men managers represented in different industries made it impossible to make a reliable mathematical analysis of the relationship between gender, industry, and level of communication. However, the statistical analysis revealed that women were assessed higher in education, energy, and service, while men – in extraction, construction, production, and trade.

Table 3. Dispersion analysis of the equation (3) parameters

ANOVA	Df	SS	MS	F	Significance F	
Regression	5	21085.850	4217.170	570.040	0.000	
Residual	219	1620.150	7.390			
Total	224	22706.000				
Age	**Coefficients**	**Standard Error**	***t*-Stat**	***P*-value**	**Lower 95%**	**Upper 95%**
20-30	8.300	0.700	13.290	0.00	7.950	10.720
31-40	9.710	0.360	27.612	0.00	9.310	10.750
41-50	10.580	0.260	37.730	0.00	9.150	10.980
51-60	8.990	0.510	20.150	0.00	9.340	11.370
61-70	7.880	0.790	9.024	0.00	5.530	8.890

Table 4. Dispersion analysis of the equation (4) parameters

ANOVA	df	SS	MS	F	Significance F	
Regression	5	21155.310	3022.190	422.920	0.000	
Residual	219	1550.690	7.150			
Total	224	22706.000				
Industry	**Coefficients**	**Standard Error**	***t*-Stat**	***P*-value**	**Lower 95%**	**Upper 95%**
Education	10.940	0.440	24.740	0.00	10.070	11.820
Energy	9.710	0.440	22.030	0.00	8.840	10.580
Trade	10.580	0.640	16.570	0.00	9.320	11.830
Service	8.990	0.420	21.160	0.00	8.150	9.830
Extraction, construction production	8.880	0.660	13.500	0.00	7.580	10.180

Finally, verification of four proposed hypotheses justified *H2* and *H3* and rejected *H1* and *H4*. Comparative estimation of the regression equations of four independent variables is depicted in Table 5.

Taking into account the comparative weights of regression coefficients of the examined independent variables (gender, age, industry, and managerial level) allowed identifying what factors were more influential on managerial communication. The study findings present a comparative effect of individual and organizational factors on managerial communication. Three out of the studied factors: managerial level, age, and industry have an almost equal and strong relationship with managerial communication. The relationship between the communication and gender was the least significant out of all factors, above 6 times less than the correlation with other independent variables.

The critical result is the identification of wider variations of managerial communication within one characteristic than variations between different characteristics. Therefore, the study shows women and men do not significantly differ in their communication practices but managers of the same gender vary considerably if they are of different ages, work in dissimilar industries or occupy different managerial levels in the organizational hierarchy. Thus, managerial level, age, and industry can be reliable predictors of how well a manager practices communication. The findings reveal the complexity of variables able to improve or worsen the effectiveness of managerial communication and bring to the forefront a comprehensive approach to an understanding of how individual and organizational factors may impact managerial communication.

4. DISCUSSION

The present study reveals an insignificant influence of gender on managerial communication that supports the previous research identifying insignificant variations between women's and men's communications (Bamel et al., 2016; Furnham et al., 2012; Shadare, 2011; Tonidandel et al., 2012), particularly under organizational settings (Roebuck et al., 2016; Sczesny et al., 2019). In the meantime, the above-mentioned finding contradicts other research results (Appelbaum et al., 2013a; Gartzia & van Engen, 2012; Radu et al., 2017) that is mightily caused by the variations in the applied study designs.

The research detects a strong relationship between managerial level and communication skills: the higher the managerial level, the better managerial

Table 5. Estimation of regression equations of the independent variables

Indicators	Independent variables			
	Gender	Managerial level	Age	Industry
Multiple *R*	0.1535	0.964	0.9637	0.9653
R-square	0.0236	0.9371	0.9286	0.9317
Regression	2	3	5	5
Residual	223	221	219	219
Total	224	224	224	224

http://dx.doi.org/10.21511/ppm.19(2).2021.14

practices managers perform. The findings of the considerable relationship of managerial level and communication practices support the preceding studies (Adams-Dunford et al., 2019; Khorvash & Afghari, 2016; Mumford et al., 2007; Tonidandel et al., 2012). The result regarding the influence of age on communication is in agreement with Graham et al. (2020), Marsh et al. (2013), and partially coincides with Bal et al. (2015) and Furnham et al. (2012). However, a possible age bias (Jyrkinen & McKie, 2012) should not be excluded as it was not measured in the present study.

The gained results, which showed that women have better communications in education, service, and energy while men in extraction, construction, production, and trade, partially agree with previous studies (Sczesny et al., 2019). Better evaluations of women in energy may be substantiated by the fact that the majority of respondents in this field were officers related to business settings in which women and men are equally effective (Sczesny et al., 2019) and to the fact that women adapt their communication practices to the demands of male-intensive sectors (Martin & Phillips, 2017).

Notwithstanding subordinate evaluations are considered equally reliable with other types, the given study is limited by the only type of evaluators – subordinates (Hoyt & Burnette, 2013). It is required to further examine managers' communication practices with the attraction of other evaluators. Another limitation is that the study focused on one country. Study of the same individual and organizational factors in other countries and cultures may disclose wider perspectives of the examined topic.

CONCLUSION

The study is aimed at revealing the comparative influence of gender, age, managerial level, and industry factors on managerial communications. The findings postulate the effectiveness of communication practices does not considerably depend on the gender factor, whereas significantly varies in age, managerial level, and industry. The research proves high effectiveness of managerial communication in the middle age, weak at early career period, and its decrease in the retirement period. The study results show men lead communications in extraction, construction, production, and trade better compared to women, while the latter practice better communications in education, service, and energy. This study also detects top managers lead communication best out of all managers, whereas middle-level managers insignificantly outperform first-line supervisors.

The paper develops the existing academic research with a comprehensive view of how the communication practices of a real manager are affected by the individual characteristics and the organization's specificity. Variations in managerial communications dependent on one factor should not be considered apart from other factors since a manager is a person with a range of biological and social characteristics working under certain organizational conditions, and the scale of individual differences fluctuates over a lifetime and might reduce with time (Powell, 2019). Emphasizing one factor with ignorance of others in research might lead to overstating of its role in management and increase the likelihood of stereotypes. Therefore, in management studies it is recommended to consider managerial communication in a complex of individual and organizational factors to raise research quality and reduce possible prejudice. The present findings must contribute to lowering gender stereotypes in staff employment and advancement and attract executives and HR managers to introducing diversity management in their companies.

AUTHOR CONTRIBUTIONS

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