

Gender Differences and Readiness Towards Knowledge Sharing among Remote Working IT Sector Employees

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Abstract: The COVID-19 pandemic exerted a significant impact on various spheres of the functioning of an individual, including the area of professional functioning. One of these changes was the spread of remote working, which in turn led to the greater interest in this form of work and the search for effective solutions that support labour efficiency in these particular conditions. An important problem of remote working that is associated with the restriction of face to face communication, is the sharing of knowledge amongst the employees. The aim of the paper was to analyse the differences in the readiness to share knowledge in conditions of remote working in the IT sector between women and men depending on the chosen demographic factors and factors relating to work. The study included 112 employees from the IT industry who worked remotely at the moment of conducting the research. A self-designed survey was availed of in the research which encompassed the following: demographic data (sex type and age of those analysed, being in a relationship, number of children), variables associated with work (position held in the firm, job seniority, number of hours of remote work), while also questions relating to sharing knowledge with co-workers. In the analysed group of employees of the IT sector working remotely, a greater readiness to share knowledge was noted amongst men as compared to women. Furthermore, as the effect of intragroup comparisons, the following was noted: older women were more willing to share knowledge than younger women, raising three or more children, while also more than women who do not have children, whereas women in relationships were more willing to share knowledge than single women. In turn, in the group of men the differences were only evident in the sphere of job seniority. Longer job seniority turned out to be favourable towards the readiness to share knowledge. The research findings significantly broaden knowledge in the sphere of the individual factors influencing the effective organization of the process of knowledge management, while particularly knowledge sharing in conditions of remote working. This knowledge may be particularly useful for managers of the IT sector.

Keywords: Knowledge sharing, Gender differences, Remote work

1. Introduction

The COVID 19 pandemic virus strongly disrupted the socio-economic life of humanity worldwide. The consequences of this situation was the implementation of changes to various areas of functioning, including the professional area. Remote working started to gradually spread as the recommended form of employment even in sectors where it had not been utilized prior to this. Prior to the pandemic, it was a form of work that was rather sporadically encountered. In accordance with the data from the 2018 European Labour Force Survey approximately 10% of employees and 30% of self-employed used to work from home at least sometimes, whereas during the pandemic it spread on a wide scale - the Eurofound (2020) survey suggests that 48% of employees worked remotely at least some time in 2020 (Bertoni, 2021). Remote working during the pandemic constituted significant solutions that created the possibility of retaining employment and maintaining safe conditions for health, while simultaneously reducing the fear, as well as facilitating both family and professional commitments. One of the serious problems connected with working in remote conditions is the limitation of direct communication, or the so-called *face to face* communication. This further implies difficulties in other areas of cooperation, among others, in the sphere of knowledge sharing (KS). KS signifies the provision of information associated with the task or *know-how* in order to help others and to cooperate with others in terms of resolving problems, developing new ideas, or implementing the policies of procedures (Wang, Noe, 2010). The significance of KS for the organizational performance is leading to greater levels of interest in this process, while also the enhancement of this process, e.g. in the IT sector knowledge transfer is strengthened by extending the individual beyond the formal communication channels, such as: computer networks, electronic bulletin boards, etc. (Zheng, 2017). Apart from this type of enhancements, it is necessary to remember about the various circumstances that have an impact on the quality of KS and which are associated with technological factors, organizational factors, while also individual factors (Paroutis, Al Saleh, 2009). In this paper, an attempt has been undertaken to verify the significance of the chosen conditions of KS by way of responding to the following question: Do differences exist in terms of the readiness to share knowledge between women and men depending on the chosen demographic factors and factors associated with work?

2. Literature Review and Research Background

KS constitutes a serious challenge for enterprises functioning in times of economies based on knowledge, while also in a time affected by the COVID-19 pandemic. Unfortunately, there is still a prevalence in certain organizations of the tendency to accumulate knowledge than to share it (Ismail, Yusof, 2009). With relation to this, it is absolutely vital to improve the process of KS by means of technological solutions, but also the appropriately designed models that would take account of the various conditions of effective KS. This is particularly significant in the IT sector, which is one of the sectors where the management of information to a significant degree translates to the performance of the enterprises at hand (Wang, Chang, 2005). In spite of the fact that there is a lot of research on the conditions of KS, it would seem that relatively little attention is devoted to the demographic variables, particularly associated with gender types. In this paper, attention has been focused on analysing the significance of these actual variables in terms of the readiness towards KS amongst a group of employees of the IT sector working remotely.

Sex types condition certain differentiation which may be expressed in, among other areas, the area of social behaviour of women and men (Wojciszke, 2012). The findings of the meta-analysis of research indicates, among other things, the fact that women have a greater tendency to confide, particularly in other women with whom they have close relations, while also being better experts in the sphere of controlling the course of social interactions, as well as easing social conflicts more effectively and are more conformist in the case of pressure exerted in a small familiar group. Moreover, women are more prone to anxiety and depression as opposed to men, while also more emotionally sensitive. In turn, men indicate a decisively greater tendency towards aggression and risky behaviour. In the context of organizational behaviour, men distinguish such features as: individualism, competitiveness, as well as self-promotion (Miller, Karakovsky, 2005). In turn, women with regard to their greater emotional and social competences are more likely to support the work of other employees, while also cooperate and build a community culture within the organization (Miao, Humphrey, Qian, 2016; Al. Noor, Ishtiaq Uddin, Shamaly, 2011). The differences listed may also justify different approaches to sharing knowledge by women and men. In the case of women, support and close social relationships with co-workers represent the benefits of sharing knowledge (Lin, 2006). Hence, women may display the tendency to search for and share knowledge in a way that is more direct than men (Miller, Karakowsky, 2005). In turn, men may be more engaged in KS with the aid of the latest technological solutions in this sphere (Taylor, 2004).

The conclusions from research relating to gender differences in the sphere of the readiness towards KS are not unequivocal. Some research indicates that gender type does not have a significant impact on KS (Chowdhury, 2005; Mogotsi, Boom, Fletcher, 2011; Ojha, 2005; Razmerita, Kirchner, Nielsen, 2016; Watson, Hewett, 2006), while other research confirms the differences in this area (Abukhait, Bani-Melhem, Zeffane, 2019; Boateng, Dzandu, Agyemang, 2015; Grubić-Nešić, Matić, Mitrović, 2015; Miller, Karakovsky, 2005; Lawal, Oriogu, Ogbuiyi, 2017; Lin, 2006; Pangil, Nasrudin, 2008; Tan, Trang, 2017; Taylor, 2004). The research of Lin (2006) indicated that women are more willing to share knowledge as they are more sensitive to instrumental ties and have the need to overcome traditional professional challenges. Likewise, in the research of Grubić-Nešić et al. (2015) in various Central European organizations women have acquired higher levels of indicators both in the sphere of the intention to share explicit knowledge, as well as the scale of explicit knowledge sharing behaviour. In turn, Boateng et al. (2015) proved that male teachers share knowledge to a greater degree than their female colleagues. Similarly, research findings with the participation of employees in some telecommunication companies (Tan, Trang, 2017), while also the participation of employees from the service sector (Abukhait, Bani-Melhem, Zeffane, 2019) indicate that males tend to share more of their knowledge than females.

Perhaps in the clarification of the differences in the sphere of the research findings relating to the relation of KS with gender type, a significant role is played by other variables, such as, among others, the way of sharing knowledge, or the type of sector and the significance of the behaviour associated with KS. Hence, this research tests the differences in terms of the level of readiness towards KS amongst women and men as employees of the IT sector. By taking the afore-mentioned arguments into consideration, the following research question has been formulated:

Does a difference exist in terms of the readiness to share knowledge between men and women as employees of the IT sector working remotely?

Becoming familiar with these differences among the Polish employees of the IT sector working remotely also justifies the lack of similar empirical work, at least to the knowledge of the author at hand, while conducting such research would be with the participation of such analysed groups. Thus, the findings would constitute an important supplementation of research gaps in this sphere.

3. Methodology

3.1 Participants

The research was conducted amongst the employees of one of the firms from the IT sector with its headquarters located in central Poland. The criteria of selection for the research was the prerequisite of remote work as the prevalent form of work at the moment of conducting the research. Of the employees that fulfilled the criteria of selection, consent to take part in the research was expressed by 131 people. The employees analysed received research questionnaires in a sealed envelope, which, when subsequently completed was passed on to a person designated to cooperate in the research. Ultimately, the research group enumerated 112 people (19 people failed to return the completed questionnaires): 39 women, 73 men aged between 26 and 47 ($M=33,82$; $SD=6,95$). A detailed characteristic description of the analysed group is presented in Table 1.

Table 1: Characteristics of the Study Group

		N	%
Employees	females	39	34.8
	males	73	65.2
Education	tertiary	78	69.6
	secondary	34	30.4
Workplace	IT application specialist	38	33.9
	service support specialist	16	14.3
	designer and computer systems analyst	26	23.2
	programming specialist	32	28.6
		M	SD
Age (years)		33.82	6.95
Average remote working time per week after the pandemic (h)		17.35	5.29

3.2 Measures

In the research a self-designed survey was availed of which takes account of the following data: sex type and the age of the person analysed, while also education, being in a relationship, number of children, as well as the position held in the firm, the number of weekly remote work hours following the pandemic, while also job seniority in the analysed firm. Likewise, the survey also encompassed a question relating to knowledge sharing as follows: *How often do you pass on your specialized knowledge to other employees (apart from situations of passing on knowledge that is the direct result of orders from a superior)?* The aforesaid question was answered by those analysed on a five-degree scale as follows: 1-never, 2-rarely, 3-sometimes, 4-often, 5-very often.

3.3 Data Analysis

Due to the fact that the assumptions of the normality of the distribution were not fulfilled, while also due to the unequal distribution of the numbers of the sub-groups compared for statistical analysis, non-parametric tests were availed of for the independent groups. For the purpose of evaluating the differences of two independent samples, the Mann–Whitney test was applied, whereas for the purpose of evaluating the differences between multiple independent groups, the Kruskal-Wallis test was availed of. The level of statistical significance was accepted as $p<0,05$. The calculations were performed by the statistical program of STATISTICA 13.3 by the Statsoft company.

4. Results

The findings in terms of the comparison of readiness towards KS among the analysed women and men revealed a statistical significant difference ($U=325,00$; $p=0,000$). The average values of the declared readiness towards KS turned out to be significantly higher amongst men in comparison with women. The detailed findings of the testing are presented in Table 2.

Table 2: Comparison of Differences Between Findings for Women and Men in the Sphere of Readiness to Share Knowledge

Women				Men				
	M	Me	SD	M	Me	SD	U	p
KS	2.79	3.00	1.00	4.42	3.00	0.74	325.00	0,000

M- average, Me – median, SD – standard deviation, U – value of Mann-Whitney test.

The intragroup comparison which was also conducted revealed significant statistical differences in the sphere of the readiness towards KS between older women (≥ 35 years) and younger women (< 35 years) – the indicators of KS amongst older women turned out to be significantly higher than in the case of younger women ($U=86,00$; $p=0,007$). The statistically significant difference in the group of women also related to the following variables: being in a relationship ($U=83,00$; $p=0,038$), while also the number of children ($H=18,09$; $p=0,001$). Women who are in a relationship declared a higher level of readiness towards KS than single women. In turn, in the sphere of the varying number of children, the post-hoc tests applied revealed the difference between the group of women who have three children or more and the group of women without any children ($p=0,003$). The indicators for women with more children were higher than women without any children. The detailed findings of testing are presented in Table 3.

Table 3: Intra-Group Comparison of Differences of Findings for Women in the Sphere of KS By Taking Account of the Analysed Variables

		N	M	Me	SD	U	p
Age	< 35 years	24	2.42	2.50	0.65	86.00	0.007
	≥ 35 years	15	3.40	4.00	1.18		
Being in a relationship	single	10	2.20	2.00	0.79	83.00	0.038
	in a relationship	29	3.00	3.00	1.00		
			M	Me	SD	H	p
Number of children	0	18	2.33	2.00	0.68	18.09	0.001
	1	6	3.33	3.00	0.51		
	2	9	3.00	3.00	1.00		
	≥ 3	6	4.40	4.00	0.55		
Work position	IT application specialist	13	2.38	2.00	0.77	6.31	0.098
	service support specialist	7	2.57	2.00	1.13		
	programming specialist	7	3.57	3.00	1.13		
	designer and computer systems analyst	12	2.92	3.00	0.90		
Job seniority	≤ 5 years	23	2.83	3.00	1.03	0.23	0.889
	5-10 years	14	2.71	3.00	0.99		
	> 10 years	2	3.00	3.00	1.41		

M- average, Me – median, SD – standard deviation, U – value of Mann-Whitney test, H – Kruskal-Wallis statistical test, p – level of significance

In effect, the intragroup comparisons in a group of men with significant statistical differences ($H=1,13$; $p=0,047$) in terms of the readiness towards KS were only revealed in the sphere of the varying job seniority. The post-hoc tests conducted revealed that men whose job seniority amounted to less than 5 years differed in the area of the readiness towards KS from the group of men who had worked between 5 and 10 years ($p=0,007$), while also the group of men with job seniority of over 10 years ($p=0.032$). The indicators of the readiness towards KS turned out to be higher than in a group of men working in the analysed firm over 5 years with relation to men with job seniority of up to 5 years. The detailed findings of testing are presented in Table 4.

Table 4: Comparison of Differences of Findings for men in the Sphere of KS by Taking Account of the Analysed Variables

		N	M	Me	SD	U	p
Age	< 35 years	43	4.42	5.00	0.76	643.00	0.986
	≥ 35 years	30	4.43	5.00	0.73		
Being in a relationship	single	26	4.46	5.00	0.65	610.00	0.995
	in a relationship	47	4.40	5.00	0.80		
			M	Me	SD	H	p
Number of children	0	26	4.46	4.00	0.65	8.87	0.061
	1	25	4.64	4.00	0.64		
	2	19	4.26	4.00	0.87		
	3	3	3.63	3.00	0.58		
Work position	IT application specialist	25	4.20	4.00	0.82	13.06	0.064
	service support specialist	9	3.89	4.00	0.781		
	programming specialist	25	4.64	5.00	0.64		
	designer and computer systems analyst	14	4.78	5.00	0.42		
Job seniority	≤ 5 years	32	2.71	5.00	0.59	1.13	0.047
	5-10 years	33	4.54	5.00	0.62		
	> 10 years	8	4.37	4.00	0.52		

M- average, Me – median, SD – standard deviation, U – value of Mann-Whitney test, H – statistics of Kruskal-Wallis test, p – level of significance.

5. Discussion

In this research, it has been proven that men as employees of the IT sector display greater levels of readiness towards KS than women as employees of the same sector. The acquired findings are in concurrence with some research projects that confirm the greater readiness towards KS among men (Abukhait, Bani-Melhem, Zeffane, 2019; Boateng, Dzandu, Agyemang, 2015; Tan, Trang, 2017). Nevertheless, the research conducted precisely within a group of Polish employees in the IT sector fills an important research gap in this field. This is of particular significance in the perspective of the widespread nature of remote work and the constant need to enhance this form of organizing work. In order to clarify the difference acquired, it is possible to refer to several arguments. Despite the fact that men are characterized by relatively greater tendencies towards competitive behaviour (Wojciszke, 2012), they can however display greater readiness towards KS in cases whereby they see clear benefits arising from such behaviour, such as, e.g. enhancement of work performance (Lin, 2006). Moreover, the specifics of the sector and the associated virtual space may be of significance for the findings acquired, in which, in the majority of cases it leads to knowledge sharing between the employees under analysis. Generally speaking, men are more connected with technologies and are more associated with them, whereas women would seem to have less experience in terms of availing of technologies (Liu, 2010). Research suggests that this dependency may also refer to the workplace (Van Slyke, Comunale, Belanger, 2002). In his research, Taylor (2004) claimed that the male employees analysed declared to have a higher level of availing of emails, data mining, knowledge repository, while also yellow page components of the knowledge management system by comparison with women. The results in this field are however unequivocal (Gefen, Straub, 1997). Furthermore, what is important is the fact that Panteli, Stack and Ramsay (1999) indicate that women are insufficiently represented in all the areas of the IT sector and refer to research in which they confirm that the IT environment is dominated by men. Albeit the participation of women in the IT sector is systematically growing, it is still a sector that for the most part employs men. According to data from Eurostat in Poland in 2020, women constituted 15% of all IT specialists, while in turn, in terms of the EU as a whole, this figure is 18.5% (Piekarska, 2022). The percentage indicators of the participation of women and men in the herein research confirm the afore-mentioned trend (34.8% women and 65.2% men). This signifies the fact that women participating in the

research described constituted a minority group, while this awareness may translate to employee relations and behaviour associated with cooperation, including the readiness towards KS. As emphasized by Ojha (2005), the team members who acknowledge themselves to be the minority with regard to their sex type, marital status or level of education are less willing to share knowledge with the remaining members of the team.

Additionally, the comparisons conducted revealed that in the group of the analysed women who were older (≥ 35 years), or were in relationships, while also having three or more children declared greater readiness towards KS with relation to younger women (< 35 years), single women and those not having children. This would seem to be a justified description of the dependencies in the mutual ties. The conclusion indicating that older women as employees of the IT sector are more willing to share knowledge than younger female colleagues is confirmed by certain empirical evidence (Burmeister, Fasbender, Deller, 2018; Dunham, Burt, 2011). Younger people may probably be more reluctant to share knowledge due to the fact that there is a lack of sufficient motivation or abilities in this sphere. In the case of women, experiences of life may have an impact on the increase in soft competences associated with cooperation and mutual activities. Importantly, these competences may also rise with regard to motherhood and taking care of offspring. A significant factor that is stimulated by the experience of motherhood and which has a relation with KS is that of empathy. Empathy is a precursor of trust and a factor that is favourable towards the exchange of knowledge (Gurgul, Enkel; 2004). Research conducted by means of the method of illustrating the brain structures made it visible that mothers have a stronger reaction of empathy than women who are not mothers, while the researchers came to the conclusion that motherhood may have an impact on the general affective social perception (Plank et al., 2021). Furthermore, thanks to the relations with a child, a woman develops the feeling of responsibility and competences (Włodarczyk, 2012), which in turn, may translate to the motivation and readiness to adopt KS. In the herein research, the statistically significant difference was only illustrated among women who had three or more children as opposed to women who had no children, probably due to the fact that the experience of motherhood in terms of raising greater numbers of children multiplied the afore-mentioned features in women to such a point that it stimulates the readiness towards KS more than in the case of women who have only one child or two children, or none at all. These dependencies may have a relation with the difference in the sphere of KS between single women and women in relationships (in the herein research, out of 10 single women 9 had no offspring). Moreover, as illustrated by the researchers, single women are more focused on their careers, professional achievements and the pursuit of independence (Jones, Zhang, Chia, 2012; Suk Ha et al., 2018). By way of consequence, they may also be more geared towards rivalry in the workplace, while simultaneously less prone to behaviour associated with KS.

As a result of the intragroup comparisons in the group of men analysed, the statistically significant difference was only revealed in the sphere of job seniority, which signifies that the men under analysis who had worked longer than 5 years declared a greater tendency towards KS than men working in the analysed firm less than 5 years. It is possible that longer work experience is favourable towards the feeling of certainty and stability in terms of employment, which may limit the impact of the tendency of rivalry and simultaneously be favourable in terms of the readiness towards KS. The relationship between KS and job security has been confirmed by some research projects (Bartol et al., 2009; Doulani, Mohammadi, Bradar, 2020; Mehri, 2016), while it may be explained by, among other things, referring to the theories of the hierarchy of needs of Maslow, according to which the fulfilment of needs of the lower level (security) facilitates the fulfilment of needs of the higher level (KS) (Maslow, 2013). Furthermore, together with job seniority, professional competences grow, including those that relate to interactions and cooperation in a team, while also knowledge exchange, which is of significance particularly when knowledge exchange occurs in remote conditions. As concluded by Oye et al. (2011), work experience has a strong impact on knowledge sharing in the workplace. Importantly, in the group of men under analysis no difference was revealed in terms of KS in the sphere of age. Thus, this variable may not have such power to determine as the varying job seniority, while moreover it is not identified with it, which in turn signifies that in the analysed group there were men over the age of 35 who had worked in the analysed firm shorter than 5 years. It is also worth emphasizing that in the herein research the difference in terms of the job seniority only related to one man. Perhaps the job seniority of the analysed women who constitute a relatively smaller group in the IT sector does not have the same impact as men in terms of their feeling of job security. Furthermore, no differences were observed among the analysed men in the sphere of KS with regard to the following: the number of children, being in a relationship and job position. It is possible that the variables associated with parenthood and the creation of partnership relations are of greater significance in the case of women. In turn, in the case of the variable of the job position, differences were not noted in any of the groups analysed. This suggests that this factor is of no significance in the context of KS in the group of employees of the IT sector working remotely. A generalization of this conclusion would however require further detailed research.

6. Conclusions

The aim of the herein research was to provide an answer to the following research question put forward in this paper: Does a difference exist in terms of the readiness to share knowledge between men and women as employees of the IT sector working remotely? The research findings acquired from a group of employees of the IT sector working remotely indicates the existence of differences between women and men in the sphere of KS. The analysed men declare greater readiness towards KS than the analysed women. Furthermore, greater readiness in the sphere of KS was declared by older women (≥ 35), those in relationships and those having three or more children, while also men who had worked in the analysed firm for over 5 years. These conclusions are of significant importance in the context of the organization of work, particularly in conditions of remote working. In spite of the fact that this form of work in the IT sector was a practice that was frequently encountered prior to COVID-19, its specifics and the current requirements of the labour market force, while also constant enhancements of the solutions applied to streamline work and increase organizational performance.

The conclusions from the research imply significant practical recommendations for the managers of the IT sector:

- It is important for them to be aware of the significance of the demographic and individual variables associated with work for the course of the process of KS.
- The evaluation of the adjustment of employees (by taking account of the demographic features and variables associated with work), while also the evaluation of the appropriate use of their potential for the effectiveness of the course of KS should be conducted at the stage of recruitment.
- In the context of the readiness towards KS, particular attention should be paid to the motivation of women in this sphere, considering the afore-mentioned fact that they usually constitute a relatively smaller representative group in the environment of IT employees.

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