

SKILLS FOR TELEWORK: LEARNING DEMANDS

Juliana Legentil¹

Lara Barros Martins²

Gardênia da Silva Abbad¹

Luciana Mourão³

Matheus Damascena¹

Lisa Miranda¹

¹University of Brasília (UnB), Brasília – DF, Brazil

²Universidad Loyola Andalucía – Seville, Spain

³State University of Rio de Janeiro (UERJ), Rio de Janeiro – RJ, Brazil

Mandatory telework introduced requirements for performing activities remotely. Some were different from those required for voluntary telework. Being full-time at home brought substantial changes to the workers' lives who were not adapted to this modality of work. This study aimed to identify the skills deemed necessary for teleworking. It was based on the perspective of 2,409 professionals working in 95 Brazilian public institutions. The results were divided into two central categories: hard skills and soft skills. Some of the features pointed out by the participants that needed to be improved were: being able to master the technological tools used to communicate remotely; productivity management; and time management. When gaps in expressing such skills are identified, relevant educational actions can be promoted. In addition, it is possible to leverage the benefits and reduce the risks associated with telework.

Keywords: learning needs, hard skills, soft skills, public sector, mandatory telework.



HABILIDADES PARA O TELETRABALHO: DEMANDAS DE APRENDIZAGEM

O teletrabalho compulsório introduziu condições para desempenhar as atividades remotamente, algumas diferentes daquelas exigidas no teletrabalho voluntário. Estar em tempo integral em casa trouxe mudanças substanciais aos trabalhadores não adaptados à modalidade. Este estudo teve como objetivo mapear as habilidades percebidas como necessárias para a atuação em teletrabalho durante a pandemia a partir da perspectiva de 2.409 profissionais de 95 organizações públicas brasileiras. Os resultados apontaram duas categorias centrais: *hard skills* e *soft skills*. Dentre as necessidades de aperfeiçoamento da capacidade de trabalhar remotamente, estão: o domínio de ferramentas tecnológicas para viabilizar as comunicações remotas; a gestão da produtividade; e a gestão do tempo. Os relatos dos participantes indicam que a atuação em teletrabalho requer desenvolver e consolidar habilidades diferenciadas. Ao se identificar lacunas na expressão de tais habilidades, ações educacionais pertinentes capazes de saná-las poderão ser promovidas. Além disso, é possível alavancar os benefícios e reduzir os riscos associados ao teletrabalho.

Palavras-chave: necessidades de aprendizagem, *hard skills*, *soft skills*, setor público, teletrabalho compulsório.

HABILIDADES PARA EL TELETRABAJO: DEMANDAS DE APRENDIZAJE

El teletrabajo obligatorio introdujo condiciones para realizar actividades a distancia, algunas diferentes a las exigidas en el teletrabajo voluntario. Estar en casa a tiempo completo ha provocado cambios sustanciales a los trabajadores no adaptados a la modalidad. Este estudio tuvo como objetivo identificar las habilidades percibidas como necesarias para el teletrabajo durante la pandemia, desde la perspectiva de 2.409 profesionales de 95 organizaciones públicas brasileiras. Los resultados apuntaron a dos categorías centrales: habilidades duras y habilidades blandas. Entre las necesidades para mejorar la capacidad de teletrabajar se encuentran: el dominio de las herramientas tecnológicas; la gestión de la productividad; y la gestión del tiempo. Los informes de los participantes indican que el teletrabajo requiere desarrollar y consolidar habilidades diferenciadas. Al identificar estas deficiencias en la ejecución de tales habilidades, se pueden promover acciones educativas pertinentes capaces de eliminarlas. Además, es posible aumentar los beneficios y reducir los riesgos asociados al teletrabajo.

Palabras clave: necesidades de aprendizaje, habilidades duras, habilidades blandas, sector público, teletrabajo obligatorio.

1. INTRODUCTION

At the beginning of 2020, COVID-19 forced many countries worldwide to enforce quarantines and lockdowns to prevent the spreading of the virus and reduce the rate of deaths. As a result of these actions, people's lives, workplaces of different industries, and organizational processes changed massively (Anderson; Kelliher, 2020; Fraij, 2021). During these atypical times, private homes suddenly became work environments and often did not have the necessary infrastructure (psychosocial, institutional, and technical). In parallel, the loss of support networks (e.g., schools, family members, and domestic helpers) required an increase in multitasking actions, resulting in even more strenuous working hours (Lu; Zhuang, 2023).

Those who started working remotely were required to show a set of technical and behavioral skills needed to perform technology-mediated remote work and reconcile family and work (Giauque et al., 2022; Tolentino et al., 2023). Given the urgent need to adopt telework, these skills were developed mainly through trial and error or using informal strategies to learn and face imposed adversities. In addition, when attendance and punctuality cannot be controlled, workers feel more pressured to perform well. Due to social distancing, the demand levels can be higher than before the beginning of the mandatory telework (Sandall; Mourão, 2020).

Yet, autonomous learning actions are not always sufficient. Investments are necessary to promote systematic training and skill development events to support consolidating technological and socio-emotional skills necessary for effectively performing in telework. Therefore, exploratory and descriptive studies are justified in a pandemic that brought irreversible changes to the professional world. Impacts on the layout and the characteristics of virtual work, as well as on the well-being of teleworkers, are expected (Boulet; Parent-Lamarche, 2022; González-Anta et al., 2021; Wang et al., 2021). In this sense, research needs to identify proper ways to encourage and manage teleworkers' training and skill development actions, stressing practical, psychological, and management-related aspects of sustainable virtual teams (Bartsch et al., 2021; González-Anta et al., 2021; Stoker et al., 2021).

The reality of the pandemic permeated all research about work and reinforced the need for more studies examining whether social distancing and telework affect productivity, creativity, and innovation at work (Anderson; Kelliher, 2020; Kniffin et al., 2021). Systematic investigations on the well-being of teleworkers indicate that researchers have not yet been dedicated to establishing and assessing quantitatively, and even less qualitatively, the necessary skills to perform effectively in this scenario (Charalampous et al., 2019). Organizational leaders and policymakers could use such findings to create new ways to leverage benefits and reduce risks associated with telework (Choi, 2018; Giauque et al., 2022). For this purpose, recognizing distinctions between the public and private sectors (Mele et al., 2023) can mitigate the risk of mistakenly adopting people management theories and practices in public administration (Bergue, 2020). While the public sector must be guided by the interests of society, prioritizing

principles such as legality, impersonality, and efficiency (Costa, 2010), the private sector aims at profit and the defense of individual interests.

A large systematic review on teleworking in public organizations worldwide (Mele et al., 2023) concluded that two key characteristics distinguish the public and private sectors regarding teleworking: the standards that regulate people management and the use of information and communication technologies. These findings expand the potential contribution of this study, as demonstrated in subsequent sessions. Therefore, this study aimed to identify learning demands referred to by public servants, in the initial months of the COVID-19 pandemic breakout, for working remotely. The identification of the skills perceived as necessary for teleworking in a crisis might help deal with the challenges of the increasing adoption of flexible modalities in public organizations.

Voluntary telework vs. Mandatory telework

The main distinction between voluntary and mandatory teleworking is based on the condition for entering the modality (Mele et al., 2023), i.e., by choice – considering the employees' will – or imposition, which affects its effects. On one hand, in voluntary telework, the premise is that the teleworker chooses the modality spontaneously or agrees, in advance, with the condition established by the organization. In Brazil, the regulations for integral and partial (hybrid) teleworking in the Executive and Judiciary branches require mutual agreement between the public agent and their manager. It is guaranteed the possibility of returning to in-person work, regardless of institutional interest, under “normal” conditions (Conselho Nacional de Justiça, 2022; Ministério da Gestão e da Inovação em Serviços Públicos, 2023). In the private sector, regulated by the Brazilian Consolidation of Labors Law, this alternative to returning to face-to-face work may not exist, since there are organizations that provide for activities to be carried out exclusively through teleworking and not necessarily from home. On the other hand, mandatory telework requires the performance of tasks from home, exceptionally and in a coercive way (Mele et al., 2023), as in the case that happened during the pandemic. Thus, the applicability of the emerging knowledge about voluntary remote work was questioned (Anderson; Kelliher, 2020; Kniffin et al., 2021; Wang et al., 2021), as mandatory telework massively changes the context and practices of family and work routines.

Voluntary telework is a flexible production format, an alternative to the work performed in the employer's workplace (Golden; Gajendran, 2018), that has been adopted since before the pandemic. Specialized literature points out its main benefits: a) to workers: increased satisfaction and quality of life, reduced stress related to daily commuting, greater flexibility, and autonomy over working hours, fewer distractions compared to in-office work, and reduced work-family conflicts; b) to organizations: lower infrastructure and travel costs, acquisition of qualified personnel interested in more flexible work and capable of greater productivity and quality; c)

to the society: reduction of air and noise pollution and decrease in traffic jams and accidents (Beham et al., 2015; Green; Roberts, 2010; Madlock, 2012).

Despite these benefits, telework also presents potential risks: reduced interpersonal contact, increased sense of social isolation, and distance from the organizational culture (Choi, 2018; Green; Roberts, 2010; Madlock, 2012; Stoker et al., 2021). Since employees are more strongly affected by disruptions through social stressors (for instance, social isolation) (van Zoonen; ter Hoeven, 2021), managers play a fundamental role in providing social support and reducing risks related to the well-being of teleworkers, once dealing with this general distress cannot be trained.

Some advantages and positive experiences (i.e., flexibility and autonomy that facilitates work-family reconciliation) reported in typical telework situations started to become challenges, given conditions such as the lack of support from schools and the necessity to share spaces at home for both working and studying. Another challenge is online communication, something considered ineffective for teams separated by long distances. This happens partly due to a lack of advanced technological skills, which undermines currently established communications through the increasing use of messaging and video calls, even in hybrid (Bloom et al., 2022). Furthermore, self-discipline seems to be a pivotal skill in working virtually, impacting motivation to work, effectiveness, and well-being. Teleworkers were less resistant to being monitored and submitted to controls during the pandemic, as these mechanisms helped them deal with procrastination and work demands (Wang et al., 2021). Therefore, mandatory telework differs from voluntary telework and should be analyzed according to its specific characteristics (Anderson; Kelliher, 2020; Wang et al., 2021).

The sudden transition to telework can be costly and exhausting for companies, resulting in fewer training programs, even though the pandemic requires professionals to adapt to different methods of working (Fraij, 2021; González-Anta et al., 2021). Identifying the skills for remote working can subsidize the design of training programs for this specific context.

Telework training needs

Work-related skill gaps can result in performance problems. These are also associated with low motivation levels and inadequate working conditions. In this context, people need to learn new skills. A systematic survey of core key competencies for teleworking at home helps propose educational actions capable of reducing these difficulties and developing competencies for performing well in this modality (Laker; Powell, 2011) regarding cognitive or behavioral skills.

To ensure that mapped demands correspond to work behaviors, the workers themselves must be part of the process. Thus, they are a relevant source of information about what they think they need to develop or strengthen in terms of necessary competencies to perform their tasks. In this sense, assessing the teleworkers' training needs is essential (Beauregard et al., 2019; Snelgrove, 2021).

Furthermore, it is necessary to consider the contemporary training motivation theory presented by Chung et al. (2021), which is based on an updated meta-analytic review of 167 independent studies. The results support a partially mediated training motivation model with diverse parameters: openness to new experiences, extroversion, friendliness and being goal-oriented, intentions towards rotation, and job satisfaction. Considering these findings, training needs related to remote work should encompass soft skills, as learning outcomes highly depend on them.

Consequently, some teleworkers' learning demands coincide with those reported before the pandemic, both for those who were voluntarily working remotely pre-pandemic and those who only had in-loco work experience, adopting a 'same skills, different environment' mindset when transferred to a remote work environment (Henke et al., 2022): showing social and affective skills (or soft skills) that help someone communicate using technologies, seeking psychosocial support from coworkers, controlling work hours and rest, and reconciling work and home activities. Others are more instrumental (hard skills) and support the execution of tasks, such as having full proficiency with digital resources and tools (Abbad; Legentil, 2020; Henke et al., 2022).

Leaders and individual contributors agree that some key skills are still to be developed for remote work: technology literacy; maintaining rapport, communicating, and managing virtually; time management; and self-management (Henke et al., 2022). About the last one, taking independent action and self-manage working-from-home performance requires the use of self-control strategies, such as modifying somatic conditions and autonomous motivation that were significantly associated with job performance (Troll et al., 2021).

Given the above, surveying employees for preferences and skills regarding telework can lead to a successful experience in this modality (Beauregard et al., 2019). In that regard, there might be some differences in skills and behaviors between two main categories performing remotely: managers and their subordinates. Previous literature (Bloom et al., 2022) indicates that managers of remote workers are especially concerned about employee's underperformance in hybrid work-from-home, even though there are results that point out a 4% increase in per-minute productivity for home-working on individual tasks (Bloom et al., 2015). Non-managers, instead, are more willing to work from home on eligible days and predict positive impacts on productivity and a reduction in attrition (Bloom et al., 2022). Regarding the differences in responsibilities between categories, it is expected to find different learning demands to work remotely.

2. METHODOLOGY

We chose a qualitative approach for this study, given the possibility of understanding and exploring the meaning that participants give to the investigated reality (Creswell; Creswell, 2021), in this case, without precedents. Furthermore, qualitative studies remain under-

represented within management research but are essential for providing alternative perspectives and knowledge of management and organizations (Lanka et al., 2021).

Differently from informal training needs analysis based exclusively on required training from a managerial perspective (managers request courses chosen from a list of contents/themes, not competencies to be developed), we opted to hear individuals and their own needs (Abbad; Mourão, 2012), since the pandemic context introduced very specific conditions and requirements for performing activities remotely. Either way, at that point, it would not have been appropriate to directly assess their level of agreement on how important and how much they mastered a list of skills pre-established on a questionnaire, which is the common procedure when we already know the skills needed to efficiently perform in each work position.

For our current research, we were presented with the opportunity to access a large number of workers from the public sector who became remote workers instantly as the pandemic forced imminent lockdowns. The high amount and quality of the answers obtained show they had much to say and express right away in such a difficult moment. It's also important to highlight that the qualitative approach did not limit their voices and that's the reason we included all reports for analysis, not quantifying them, but assessing their utter richness by identifying their skills as they adapted to telework during the initial three months of the pandemic.

During this very critical period, when telework was mandatory due to social distancing as a protective measure, we assume a qualitative approach allows us to better capture and elucidate the learning demands first and most urgent faced by teleworkers in an unprecedented scenario, that introduced challenges even for those previously engaged in remote work. The skills perceived as necessary for teleworking in a crisis will be later discussed comparing results in both voluntary and mandatory telework, and contrasting managers from non-managers.

Participants

A total of 2,409 teleworking professionals, of which 722 were public managers and 1,687 non-managers, participated in the study. They were all chosen non-randomly for convenience and accessibility. Participants, both non-managers (NM) and managers (M), were linked to 95 public sector organizations and identified themselves respectively as females (NM: 61.2%; M: 51%); in the age range of 38 to 57 years old (NM: 35%; M: 38.9%), married (NM: 63.1%; M: 70.8%) and with some level of specialization in postgraduate degrees (NM:56.1%; M:67%). Of these, 62% had experience with remote work before the COVID-19 pandemic.

We opted for separating managers' from non-managers' responses based on intrinsic differences in roles played and responsibilities between these categories, affecting considerably not only their experiences and perceptions (Carvalho et al., 2022) but also what is required from them in terms of competencies since managers must not only accomplish their tasks but also guide a dispersed team (Henke et al., 2022; Kniffin et al., 2020; Sandall; Mourão, 2020).

Furthermore, experiencing telework and restrictions imposed by the pandemic at the same time may have introduced additional challenges for both managers and employees.

Instruments

To address learning demands related to telework, open-ended questions were asked: a) for managers: "Do you feel the need to improve your management skills for remote work? If so, what knowledge and skills would you like to develop?"; and b) for non-managers: "Do you feel the need to improve your ability to work remotely? If so, what knowledge and skills would you like to develop?".

Data collection procedures and ethical considerations

Upon authorization of the Human Resources areas of the respective 95 Brazilian public organizations, namely 93 organs of the District Executive Branch, and two federal institutions, the Union Public Prosecution Service and the Federal Judiciary Branch, the links to the electronic survey were sent by email to the participants, from April to June 2020. A prior informed consent term ensured the confidentiality of individual responses and the freedom to stop participating at any time without any consequences. The grouped results were made available to the organizations' personnel management teams to preserve the respondents' opinions and identity.

Data analysis procedures

Two data files were created, one for managers and another for non-managers. All the answers obtained were included. Six researchers exhaustively read and re-read each corpus at this stage and chose a thematic categorical content analysis (Bardin, 2016). The categorization process started with differentiating the content generated by managers and non-managers. Then, this content was sorted according to the semantic criterion.

Due to the large corpus size (9,456 words mentioned by managers and 21,312 by non-managers), NVivo was used for the analysis and understanding of the generated content, resulting in two major categories: hard skills and soft skills learning needs. In a later stage, four other researchers worked on the analysis of subcategories of the two previously identified ones. After sorting these elements out, the contents that prevailed were put into newly created subcategories.

After defining the subcategories, six other independent researchers, all specialists in personnel management, were part of the final judge validation stage of the soft skills category since excerpts with ambiguous content were identified. These judges received information about the execution of the research, as well as the constitutive definitions of each content subcategory so that they could freely indicate in which subcategory each answer or testimony excerpt should

be located. Judges could also use the observations field to propose new subcategories, express disagreements, and provide comments.

After obtaining the Cohen's Kappa coefficients (Fleiss; Cohen, 1973) in Stage 1, calculated using SPSS version 26, we decided to improve managers' constitutive definitions of soft skills. So, another round of evaluation was carried out by three new independent researchers with the same profile. For the strength of agreement between judges, Landis and Koch's (1977) parameters were used: poor/no agreement (< .00); weak (.00-.20); reasonable (.21-.40); moderate (.41-.60); substantial (.61-.80) and almost perfect (.81-1.00). After completing the content analyses, which were improved by verifying the agreement between evaluators (Stage 2), the outcome showed that managers' final utilization rate of the corpus was 99.8% and 99.9% for non-managers. These indicators showed that the evaluation was quite robust.

3. RESULTS

Table 1 shows the strength of agreement between independent evaluators of soft skills subcategories. According to the adopted criteria, the results are very good, especially for the managers' corpus.

Table 1 – Kappa coefficients for soft skills

Stage	Corpus	No. of the sample	Evaluator	Kappa	Strength of Agreement (Landis and Koch, 1977)
1	Non-managers	1687	A-B	.829	Almost Perfect
		1687	A-C	.642	Substantial
		1687	B-C	.640	Substantial
1	Managers	722	D-E	.492	Moderate
		722	D-F	.595	Moderate
		722	E-F	.478	Moderate
2	Managers	722	G-H	.935	Almost Perfect
		722	G-I	.905	Almost Perfect
		722	H-I	.878	Almost Perfect

Source: elaborated by the authors.

Box 1 illustrates the two categories that emerged from the participants' reports, hard skills and soft skills, as well as the subcategories based on recurrent needs evoked by the groups. Analysis of these reports made it possible to identify nuances that differentiate the groups on the specificities of their learning demands. For this reason, we chose to use constitutive definitions that preserved the distinctions reported by managers and non-managers in their reports.

Box 1 – Categories and subcategories according to managers and non-managers

Non-aprioristic constitutive definition	
<p>1. Hard skills: A group of cognitive-behavioral elements that managers and non-managers want to know about and/or deploy in remote work so that work activities can be performed.</p>	
<p>1.1 Using digital technologies in remote work M: It refers to skills in resource management and digital tools that support managing people and teams working remotely.</p>	<p>NM: It refers to the ability to use equipment, resources, and synchronous (videoconferences) and asynchronous communication tools; as well as the ability to access information systems necessary to working remotely.</p>
<p>1.2 Productivity management M: It refers to the ability to manage other people's virtual work using digital technologies. These skills are described as goal setting, planning, distributing tasks, and creating indicators for fairly measuring results.</p>	<p>NM: It refers to self-management skills in remote working via digital technologies. These skills are described as the following demands: planning, organizing, carrying out tasks, and productivity self-monitoring.</p>
<p>1.3 Role-specific M: It refers to skills related to activities developed by your team to better manage the work.</p>	<p>NM: It refers to skills directly related to the roles the professionals occupy and that did not emerge because of mandatory telework.</p>
Non-aprioristic constitutive definition	
<p>2. Soft skills: A group of critical socio-emotional elements for interpersonal relationships that evolved when distanced, with coworkers, and in person, with those they live with. These skills help to balance work and family and the hours people dedicate to work and rest/leisure.</p>	
<p>2.1 Self-discipline, concentration and communication</p>	<p>NM: It refers to the ability to concentrate/focus on tasks; the self-discipline to establish routines and carry out work activities within the agreed deadline, time management, and communication in an assertive way.</p>
<p>2.2 Reconciliation of work/non-work activities</p>	<p>NM: It refers to the ability to balance both work activities, and personal and family demands.</p>
<p>2.3 Team management M: It refers to socio-affective skills necessary to manage people, communicate, motivate the team, promote integration among peers, and offer psychological support, given the situation with the pandemic and the mandatory remote work.</p>	
<p>2.4 Time management M: It refers to organizational and work/non-work reconciliation skills; dealing with distractions and managing work, family, rest, and other aspects of personal life.</p>	
<p>2.5 Emotional regulation M: It refers to the ability to deal with emotions and feelings.</p>	<p>NM: It refers to skills related to controlling emotions and searching for social support, given the pandemic situation and the mandatory remote work.</p>

Note. M (Managers); NM (Non-managers).

Source: Elaborated by the authors.

Table 2 shows the number of participants with learning demands in remote work. It is worth noting that the quantitative values are not mutually exclusive since the participants could freely report their needs. In certain situations, the content was classified as more than one category or subcategory. The need to develop hard skills is reported by 73.82% of managers and 77.3% of non-managers. Among these, using digital technologies in remote work stands out (56.93% of managers; 64.26% of non-managers). As for the development of soft skills, managers have more learning demands than non-managers (37.95%, compared to 25.55%, respectively). The former presented that team management-related demands were predominant (29.5%), while the latter showed that content related to self-discipline, concentration, and communication was dominant (20.57%).

Table 2 – Learning demands of managers and non-managers

Training and Learning Needs	Managers		Non-Managers	
	N	%	N	%
1. Hard skills	533	73.82%	1,304	77.30%
1.1 Use of digital technologies in remote work	411	56.93%	1,084	64.26%
1.2 Productivity management	94	13.02%	53	3.14%
1.3 Role-specific	5	0.69%	24	1.42%
2. Soft Skills	274	37.95%	431	25.55%
2.1 Self-discipline, concentration, and communication	-	-	347	20.57%
2.2 Reconciliation of work/non-work activities	-	-	81	4.80%
2.3 Team management	213	29.50%	-	-
2.4 Time management	83	11.50%	-	-
2.5 Emotional regulation	12	1.66%	27	1.60%

Source: Elaborated by the authors.

Regarding the use of digital technologies in remote work hard skill: it appears that managers largely feel the need to develop skills for using tools that can support remote team management, while non-managers primarily mention their work, as reported below (our translation):

Improving is always important, regardless of context, but when it comes to telework, I see the need to be proficient with digital communication and management tools [...] (28 to 37 years old manager, married, team of 1 to 10 people, positive experience with telework before the pandemic).

Be more proficient with the software/tools I need to use because I didn't have this knowledge before teleworking (48 to 57 years old non-manager, single, no previous experience with telework).

The differentiation also happens in the **productivity management** subcategory, as managers point out the need to develop skills related to goal setting, distributing tasks fairly, and monitoring results. In contrast, non-managers need to plan and organize their work to produce what is expected of them.

How to set goals and manage people better, ensuring everyone is treated equally and have the same amount of work (38 to 47 years old manager, married, team of 11 to 25 people, no previous experience with telework).

Better organize my goals to maintain a satisfactory level of productivity (28 to 37 years old non-manager, single, positive experience with remote work before the pandemic).

As for the **role-specific** hard skills, reports mention the need to develop technical skills related to people's roles. Some non-managers understand that physical distance inhibits the exchange of knowledge between colleagues.

Improving technical knowledge about the activity, information about the administrative management of the [team], other general knowledge about the management role (28 to 37 years old manager, married, team of 1 to 10 people, no previous experience with telework).

It is not as easy to exchange knowledge with office colleagues while working at home. I think that more virtual courses could be offered (civil, commercial, procedural law, etc.) to fill this gap, perhaps (38 to 47 years old non-manager, married, master's graduate, no previous experience with telework).

The differences that arose were more striking when it comes to soft skills, resulting in more heterogeneous subcategories. Non-managers mention learning demands related to self-discipline to work, concentrate on the tasks, and communicate with peers and managers.

Greater ability to concentrate; optimize working hours to better carry out activities. (28 to 37 years old non-manager, single, no previous experience with telework).

When reporting needs related to **reconciling work and non-work activities**, non-managers indicate that they need to develop skills to balance work and personal demands, especially family care.

I would like to receive training and support to learn how to take care of my food, organize my home, teach my children, work, and do personal care (28 to 37 years old non-manager, married, no previous experience with telework).

With exclusive reports from managers included, the **team management** subcategory refers to the socio-affective skills related to managing and motivate the team and keep it integrated despite the pandemic.

[...] the ability bring reassurance to the team, to make them carry out tasks considering the context (38 to 47 years old manager, married, team of 1 to 10 people, with no previous experience with telework).

Given the perception that work demands are increasing, the **time management** subcategory gathered excerpts where managers addressed the need to develop the ability to disconnect from work. As a result, elements arose, revealing the feeling of burnout and the need to preserve the right to rest.

I need to develop the ability to know how to disconnect sometimes because teleworking requires full-time dedication (38 to 47 years old manager, married, team of 1 to 10 people, positive experience with telework before the pandemic).

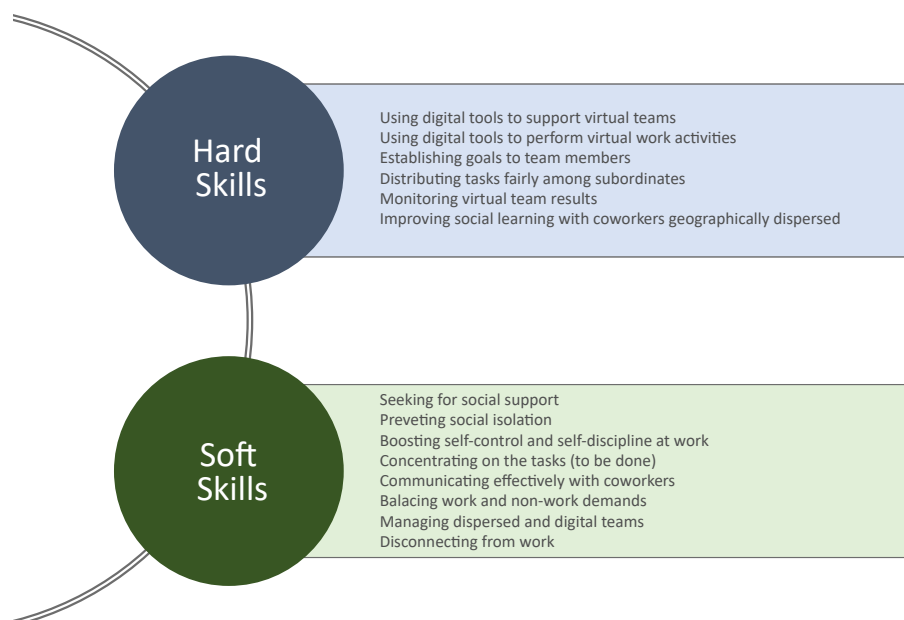
The **emotional regulation** subcategory aggregates statements from managers and non-managers about the skills you need to deal with circumstances that require, for example, patience and self-control towards anxiety. The necessity to develop the ability to seek social support among non-managers was also registered.

I think we can always improve. The pandemic restricts our freedom with the confinement, so I believe that the greatest challenge is to develop patience [...] (38 to 47 years old manager, single, team of 11 to 25 people, positive experience with telework before the pandemic).

Yes, I seek to develop self-control. This is a new possibility, so I get a little anxious and more demanding than necessary to have all the documents in order and to show that I am really working hard. But after a few readings, I feel calmer (28 to 37 years old, non-manager, single, no previous experience with telework).

Aiming at the practical applications of identifying the skills deemed necessary for teleworking, we transformed the learning demands into learning objectives (Figure 1). Learning objectives describe observed behaviors to be developed through the implementation of appropriate interventions training programs. In a nutshell, teleworkers should be able of:

Figure 1– Hard and soft skills required to telework



Source: Elaborated by the authors.

4. DISCUSSION

The results indicate that **using digital technologies** is a skill that needs further development for remote work. This is because, to telework, all work activities must be done using technology, including synchronous or asynchronous communication (Snelgrove, 2021). Even before the sudden migration to telework during the pandemic, studies showed that the lack of this hard skill in workers' repertoire was a barrier to implementing this modality (Neirotti et al., 2012; Rajan, 2000). Even though most of the participants of this study had previous experience with remote work (62%), above 70% of managers and non-managers reported a lack of the most basic technological skills to use collaborative work tools and participate in virtual meetings.

Likewise in hybrid, whereby employees work some days at home and others in-loco, findings suggest an increase in electronic communication (messaging and video calls), even when all employees are in the office (Bloom et al., 2022), indicating that these abilities are increasingly demanded in flexible formats of work. By raising technology-related training needs and investing in offering development actions with technological support in advance, the adverse effects of "technostress" can be neutralized (Bregenzer; Jimenez, 2021; Vaziri et al., 2020).

In addition, mandatory telework generated, among managers, issues related to setting goals, distributing tasks, and monitoring deliveries. This **productivity management** learning demand suggests that abruptly migrating from direct performance monitoring to a results-oriented management modality tested the abilities of some of the managers. Different countries indicate that the traditional style of management, command, and control is not entirely feasible regarding telework and this would explain this considerable resistance to the modality, as managers fear losing control (Messenger et al., 2017).

Furthermore, the results suggest that managing virtual teams requires different behaviors and attitudes. In addition to being able to establish relationships of trust with their subordinates, the manager needs to know very well the tasks, the workflow, the workload, and the time required for the completion of each task. In remote work, this **role-specific** knowledge creates the ideal conditions for distributing tasks fairly, establishing feasible, flexible goals, and redesigning the work. Therefore, managers must be willing to adopt new ways to motivate and monitor their team with four essential pillars for teleworkers: trust, performance management, communication, and training (Beauregard et al., 2019; Choi, 2018).

On the other hand, non-managers showed interest in learning self-management techniques, which shows that telework, because of the planning, organization, and productivity self-monitoring skills involved, caused the redesign of the characteristics of the tasks. These demands probably emerged from the context of telework, which abruptly changed the level of autonomy of the worker, making mutual adjustments and direct face-to-face contact with colleagues and managers impossible. The high level of autonomy, although challenging when it comes to telework, results in positive effects, such as reducing work-family conflict, turnover,

and stress. It also improves job satisfaction and performance (Gajendran; Harrison, 2007).

To overcome the challenges presented, teleworkers had to use self-regulatory resources involving motivation and **discipline** (Wang et al., 2021). Effective self-management of tasks, goals, and objectives leads to avoiding procrastination that can happen due to personal characteristics, distractions at home, or directing attention and energy towards extra-professional activities (Vitak et al., 2011). Since telework restricts the advantages of being close to colleagues, it requires an extra effort.

Based on research findings from telecommuters, the effective utilization of **communication tools** is crucial for comprehending agreements, sharing project progress, and requesting/receiving support. These findings align with existing recognition in specialized literature regarding the role of communication tools in telecommuting (Sandall; Mourão, 2020; Stoker et al., 2021).

Just as necessary as self-discipline to carry out tasks is the ability to disconnect from the work routine in a scenario where the limits are unclear. Even when the work forcibly breaches these frontiers, evidence shows that using a specific room for this purpose helps distancing yourself psychologically from work (Allen et al., 2021). Receiving training that teaches how to correctly self-manage work and to establish limits between work and non-work activities is essential. For Dolce et al. (2020), positive perceptions related to properly balancing professional and personal life precede the skills needed to balance these areas. Still, the guidelines that rule the use of digital technologies need to be discussed within the organizations, given the impact they have on the right to be disconnected from work.

The blurring of work and family relationships, the overlapping demands, and the lack of physical distance from (the place of) work impacted the performance and well-being of teleworkers during the pandemic (Martins et al., 2020; Wang et al., 2021). Bregenzer and Jimenez (2021) noted that the inability to self-manage work time and personal life was related to more significant amounts of stress, indicating that the expectation of having to be constantly available for work can lead to difficulties in disconnecting from work.

Therefore, offering support on balancing work and life through management programs, organizational support policies, and the development of skills can help prevent illness and harm to health. Providing training about planning, organizing, and managing time is necessary but not sufficient. People should be trained to identify and remove potential environmental risks of stress and exhaustion, which can affect their performance and health, and to put into practice protection strategies (communication, coping) that facilitate work-family reconciliation (Mendonça; Matos, 2015).

Aside from the skills workers can develop, public policies must ensure that flexible arrangements promote work-family balance and contribute to addressing gender issues (Chung; Booker, 2023), once mainly women undertake multitasking to balance family and professional responsibilities (Lu; Zhuang, 2023), which in turn aggravates emotional well-being and reduces

job satisfaction. In the first half of the health crisis, women showed higher levels of depression and anxiety, compared to men (Mendonça et al., 2022).

Time management seems to be especially important in a scenario where workers live with family members, as indicated by data from research on telecommuters. Their work activities compete with food preparation, house cleaning, and monitoring children's school activities based on remote education. Many non-managers mention an overwhelming amount of extra time dedicated to performing professional activities and the trouble dealing with noise, interference, and interruptions in the residential environment and the environments used to work remotely. Distractions and interruptions in the office were replaced by those at home and acted as potential sources of conflict (Aderaldo et al., 2017). The lack of time delimitation for the workday, mixed with overworking and role accumulation (many families did not hire education and domestic service providers), makes people feel like they work all day long, especially women (Medeiros; Pinheiro, 2018).

In the present study, telecommuters emphasized that to manage remote teams, managers would benefit from being more resourceful concerning socio-affective skills, particularly in scenarios where providing psychological support to team members is anticipated. In this regard, the data from this empirical research confirms a gap already evidenced in the literature (Bartsch et al., 2021). Therefore, little is known about what skills are required of leaders and their teams during an emergency, although it is already known that the leader plays a fundamental role in this context (Giauque et al., 2022; Peña-Jimenez et al., 2021).

The specialized literature supports the results exposing the managers' needs, as González-Anta et al. (2021) tested the effectiveness of management training on affective skills for emotional regulation. The intervention was responsible for increasing the use of resources and strategies for sharing, interacting, and managing affective experiences during virtual teamwork, thus enhancing the engagement and well-being of the members.

As offers of training for developing complex skills were not common in the pandemic, it is necessary to highlight the destructive behavior of leaders of remote workers. This was investigated by Dolce et al. (2020). The increase in more complex cognitive demands and the usage of technologies outside the hours usually dedicated to working are negatively related to recovery strategies, which reduce the risk of emotional exhaustion. According to the authors, the physical distance inherent to remote work does not protect workers from abusive or unethical monitoring and excessive or unattainable requests. It further hinders the search for social support. Thus, the need for the development of leadership and the offers of organizational support must be tackled (Vilarinho et al., 2021), or the working conditions of workers could be compromised, given the reduced well-being of all actors involved.

Social distancing, which is necessary to combat the pandemic, needs to be considered a stressor component. The results indicate that both managers and non-managers feel the need

to develop skills related to **emotional regulation**. Negative emotional states, such as anxiety, emotional exhaustion, and impotence, are consistent with findings from other researchers. Morosanova, Bondarenko, and Kondratyuk (2021) found that these psychological states strengthen the difficulties of managing your own life and increase the feeling of uncertainty. They state that, as a coping strategy, it is essential to balance activities. This could positively contribute to achieving "small victories" and reducing stress.

In line with empirical studies involving telecommuters, it becomes apparent that individuals typically demonstrate enhanced proficiency in task management when they develop self-regulatory skills. This functions as a method to alleviate mental exhaustion and reduce errors. Strategic task planning and adjustment of work setups are recognized as effective approaches to facilitate the accomplishment of crucial tasks during obligatory remote work. Consistent with specialized literature, it is recommended that telecommuters be granted flexibility in their scheduling, allowing them to identify periods of peak productivity and optimize the coordination of their work hours with their personal routines and the schedules of those around them (Boulet; Parent-Lamarche, 2022; Giauque et al., 2022; Sandall; Mourão, 2020).

5. CONCLUSION

This study contributed to telework research by identifying which skills managers and non-managers perceived as necessary for performing in a remote work context forced by COVID-19. Elements that distinguish the needs of these professionals as "hard skills" and "soft skills" emerged from the reports, signaling that development actions aimed at remedying these performance gaps must be customized considering the nature of the skills (cognitive vs. affective); otherwise, they will not help in achieving the expected result.

Continued effort and investment are required in changing misconceived practices in the training field, such as organizations offering theoretical courses to people who need to develop practical abilities (Abbad; Mourão, 2012). The identified skills cannot be taught through conventional training, i.e., online short-term and self-instructional training based on written materials, during working hours. On the contrary, more comprehensive strategies will be needed to develop both cognitive skills, such as time management (since 'time' here does not refer to organizing and prioritizing activities, but to the specific ability to disconnect from work when the limits between work and non-work are increasingly subtle); and affective or social (intra and interpersonal skills) demands, for instance, providing emotional support to coworkers. Long-term interventions along with relevant instructional procedures (e.g., simulations, group dynamics, debates, behavioral modeling, experiential learning), different from those eminently cognitive and traditionally applied, must be adopted to develop attitudinal and behavioral skills. Apart from public policies towards conciliating work-family, for example, telework also has a gender bias: mastering the skill of balancing work and non-work might be particularly important

for female workers, who assume unequally household chores and home care responsibilities (Pérez-Nebra et al., 2022). Thus, not only the micro but also the macro social contexts must be discussed.

Investing in developing the identified skills can improve work experiences even after we overcome the pandemic. Such training will need to include learning goals both to equip teleworkers (technical training to develop practical knowledge for using web tools) and to support interpersonal relationships that exist with the help of technology (socio-affective training to develop communication skills; for example: assertive vs. aggressive or passive; feedback). The organization must be responsible for developing these skills. They must promote learning and practical application opportunities by offering effective training and development programs.

From these recent experiences in a very specific context and circumstances, we learned people are not fully prepared to work mediated by technologies. This knowledge might help future practice, being suitable for many organizations that have been told to invest in training those emerging skills (nowadays, critical ones), but they did not or did it the wrong way. These pointed critical competencies for working virtually may be very similar in organizations in many countries, which increases the generalization of the results.

New generations of workers crave more flexible and hybrid formats of work; besides, many are eligible for the modality. Also, one of the lessons learned during this period of a health crisis is that there is still a gap between practice (declarative knowledge or verbal repertoire/discourse) and research evidence. In this sense, this study contributes by providing specific information about the learning demands and objectives, reaffirming the training needs through a concrete experience during the pandemic.

Regarding the limitations of this research, the study was carried out in 95 Brazilian public organizations, and, despite its large sample, it should not be extrapolated. As this represents a cross-sectional time frame, it is impossible to state whether the learning demands remain or have been met. Practitioners and organizations should adopt a more prospective view of training needs, predicting future learning needs in telework to: a) offer appropriate training so individuals can develop skills, both adding knowledge and improving their behavioral repertoire; b) achieve strategic objectives and organizational results.

Finally, it is important to consider that the field research presented in this article was conducted in Brazilian public organizations, which introduces elements that must be considered. This sector presents some specificities, such as worker stability, forms of work control, human resource management policies, and other legal aspects relevant to the public service. These peculiarities of this work context make it very distinct from other contexts upon which part of the theoretical references rely. Thus, while many results have corroborated previous findings in the literature, it is necessary to consider that there may be dissonance between the context of this research and other studies found in the literature on telework.

On one hand, these differences require the results and their discussion to be interpreted with caution. On the other hand, the large sample size of this study and the fact that data collection was conducted entirely with public servants make the findings reported here very promising in terms of contributions to Brazilian public organizations. These contributions span both the theoretical-conceptual and pragmatic-organizational realms. Despite these identified contributions in this study, reconciling them with its limitations suggests a robust research agenda that can be outlined.

Therefore, we propose carrying out, in different organizations (public and private), longitudinal studies that identify which learning needs arise in the various stages of maturity of the remote experience possible. In addition, it seems this is the right moment to gather studies that assess the impact of training promoted by organizations that have invested in overcoming learning gaps related to remote work. We also advocate for conducting studies on telework in diverse contexts, particularly in public, private, and third-sector organizations, to pinpoint the skill-learning demands for telework in each of these settings, considering their specificities. This would enable the identification of specific skill-learning requirements for telecommuting within each context, thus facilitating a more nuanced understanding of the phenomenon.

Finally, research on telework shows a lack of deeper investigation into the set of skills that managers and non-managers need to develop and the contexts in which these demands are most noticeable. Thus, we expect that, to some extent, researchers, managers, and those interested in the subject will find in this study a basis to support the creation of an evolving experience in the professional world: telework.

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Juliana Legentil

<https://orcid.org/0000-0002-9512-983X>

Doctoral student and Master in Business Administration, University of Brasília (UnB). Member of the E-labor Research Group.

julianalegentil@gmail.com

Lara Barros Martins

<https://orcid.org/0000-0002-3175-6324>

PhD in Psychology, University of São Paulo (USP) and University of Seville (US), with a post-doctoral, University of Seville. Professor and researcher at the Department of Psychology at Universidad Loyola Andalucía (Seville, Spain).

lbarros@uloyola.es

Gardênia da Silva Abbad

<https://orcid.org/0000-0003-0807-3549>

PhD in Psychology, University of Brasília (UnB). Professor of the Postgraduate Program in Social and Work Psychology and the Postgraduate Program in Administration at the University of Brasília (UnB). Full Professor, E-labor Research Group and Impact Group.

gardenia.abbad@gmail.com

Luciana Mourão

<https://orcid.org/0000-0002-8230-3763>

PhD in Psychology, University of Brasília (UnB), with a post-doctoral, University Institute of Lisbon. Professor at Salgado de Oliveira University and visiting professor, University of the State of Rio de Janeiro (UERJ).

mourao.luciana@gmail.com

Matheus Damascena

<https://orcid.org/0000-0001-5239-4644>

Master in Social, Work, and Organizational Psychology, University of Brasília (UnB).

matheusddamascena@gmail.com

Lisa Miranda

<https://orcid.org/0000-0002-7029-4994>

Master in Social, Work, and Organizational Psychology, University of Brasília (UnB).

lisa.fdmiranda@gmail.com