Help-seeking practices and behaviours in organizations and AI-driven chatbot: a scoping review

FILOMENA PAGNOZZI

University of Sannio

fipagnozzi@unisannio.it

MAARTEN RENKEMA

University of Twente

m.renkema@utwente.nl

GILDA ANTONELLI

G. D'Annunzio University

gilda.antonelli@unich.it

Abstract

We present a scoping review that considers 25 papers and explores the growing phenomenon of the use of chatbots, in the context of help-seeking dynamics among workers facing work-related challenges. This phenomenon is significant from both social and technological perspectives, as it raises essential questions about the evolving role of technology in shaping the way individuals seek help in a changing work environment. Our study aims to examine how technology, such as chatbots, shape employees help-seeking practices and behaviors, using a Socio-Technical System approach (STS). Our analysis reveals that help-seeking comes mainly from the "social subsystem". In fact, it starts with individual needs and willingness to seek help, influenced by personal and group characteristics. The work environment and context also significantly influence employees' help-seeking behaviors. However, technology developments, new ways of work, and organizational transformations are redefining help-seeking processes, requiring the development of new processes, for which leaders play a crucial role. The integration of chatbots into this landscape introduces challenges and opportunities, impacting not only individuals but also organizational structure. Based on the reviewed papers we present directions for future research on AI-driven chatbots and help-seeking.

1. Introduction

Help-seeking practices and behaviours, introduced by Lee in 1997, have gained increasing attention across academic fields. In simple terms, "help-seeking" refers to when workers look for support or guidance to address their needs, challenges, or problems within their organizations (Hargadon and Bechky, 2006; Cleavenger et al., 2007; Bamberger, 2009). It can

also be driven by the collective effort to solve specific issues (Mueller and Kamdar, 2011; Van der Rijt et al., 2013). Seeking help is crucial for building relationships and connecting those who need assistance with those who can provide it, whether they are colleagues or managers. This phenomenon is significant because it serves as a useful process for carrying out tasks effectively. Moreover, it is almost natural for individuals to seek help when facing challenges or complex tasks, as it enables them to acquire the necessary knowledge and skills to address situations appropriately and contribute to the overall success of the organization.

However, the increasing pervasiveness of technology in organizations is leading to reflection on how help-seeking processes can be influenced by technological elements, opening up new perspectives. Nowadays, technology permeates many aspects of our lives and is increasingly infiltrating organizations, assuming a predominant role. Technology, in terms of artificial intelligence, robotics, and automation exerts a significant impact on labor relations, business strategies, governance structures, and organizational culture (Frey & Osborne, 2017; Lebovitz et al., 2022; Rubery et al., 2018; Verhoef et al., 2021). Moreover, technological advances affect inter-organizational practices, such as power dynamics, labor markets, as well as education and training systems (De Bernardi et al., 2020; Kraus et al., 2023; Rialti et al., 2022; Zhiyong et al., 2023). In addition, technology enables organizations to better adapt to new ways of working (job, hybrid, virtual flexible working), as well as provides employees with the tools to be able to perform their work in different conditions and ways (Cuel et al., 2022; Tursunbayeva et al., 2022).

Our research is based on a simple idea: when employees encounter specific problems, they naturally seek solutions, whether they get help from a person or a technological tool. Notably, existing academic literature suggests that chatbots are already being used as personal assistants (Meyer von Wolff et al., 2020), hinting at the potential for employees to turn to chatbots for help, which could influence how they seek help from their colleagues (Retkowsky et al., 2024). This observation leads us to investigate the increasing role of chatbots in the process of seeking help in the complex world of work environments. The integration of chatbots into organizations for help-seeking introduces various challenges and opportunities not only for each employee but also for organization practices, strategies and policies, such as improving employees' training on digital skills and interaction with chatbots and working on a work environment and an organizational culture oriented to innovation and technology.

Considering that help-seeking practices in organizations depend on different factors, such as individual characteristics and skills, work environment, organizational structure but also on technical aspects, such as practices, decisions, policies, we decide to analyze this phenomenon through an innovative perspective using the Socio-Technical System (STS) approach, originally proposed by Trist & Bamforth in 1951. STS is a widely used perspective to analyze new ways of working (remote, hybrid) and the huge improvement in the flourishing of technology working tools; as well as in general to explain transformations in organizations (Pasmore et al., 2019). The STS aims to understand the correlation between a system's social and technological aspects and how they influence each other. In the context of our study, we believe that the organization should consider how the technical aspects can shape the arrangements, behaviors, and goals of an organization and can influence the social aspects in acting specific practice as help-seeking.

Given the limited but growing number of publications on this subject, we conducted a scoping review to analyze how the use of innovative technological tools, such as chatbots, influences organizational processes and the social aspects (people and organizational

structure) in the dynamics of workers help-seeking when they encounter challenges in their work context. A scoping review is particularly useful in this context for examining emerging evidence when it is still unclear what other, more specific questions can be posed and valuably addressed by a more precise systematic review. This methodology allows us to map the existing body of knowledge, identify key concepts, and uncover gaps in the literature. This process is crucial in new and rapidly developing fields like chatbot integration in help-seeking practices, as it helps to establish a foundational understanding and guides the formulation of more specific research questions for future systematic reviews. By doing so, a scoping review not only provides a comprehensive overview of the current state of research but also sets the stage for more detailed investigations as the field evolves (Munn et al., 2018).

Our scoping review, adopting the Socio-Technical perspective, underscores the importance of considering both the social and technical aspects when examining help-seeking practices in organizations. This study fills a knowledge gap by exploring the relationship between technology, particularly chatbots, and help-seeking behaviors, offering valuable insights into how technology shapes help-seeking dynamics. Additionally, it is intriguing to consider the reciprocal relationship between help-seeking practices and the utilization of AI-chatbots. Not only does the availability of AI-chatbots influence how employees seek help, but the existing forms and patterns of help-seeking (or lack thereof) also shape the adoption and utilization of AI-chatbots. This reciprocal interaction between help-seeking behaviors and the use of AI-chatbots highlights the intricate interplay between technology and human behavior within organizational contexts.

Based on our scoping review, we propose future research directions. To delve deeper, future research should explore worker acceptance and use practices of chatbots, examining their perceptions, comfort levels, and potential resistance. Additionally, we address that it is becoming crucial to assess the impact of chatbots on organizational culture, work efficiency, and productivity. Exploring the role of leaders in chatbot adoption, including effective leadership models, also represents a promising avenue for further research. Furthermore, investigating how the features and dynamics of organizational culture, work processes, and leadership styles shape the use of AI-driven chatbots is imperative. Understanding these interconnections can provide a comprehensive picture of the factors influencing the adoption and integration of AI-driven chatbots within organizational contexts.

The paper is organized as follows: the next paragraph describes the theoretical background and the Socio-Technical system perspective, after which the Scoping Review methodology used is defined. Then results and discussion related to STS subsystems are explained. Finally, in the conclusion paragraph, we discuss theoretical contributions, theoretical and managerial implications, and future research directions.

2. Theoretical background

2.1. Help-seeking practices and behaviours

Help-seeking at work was introduced in the literature around the late 1900s (Lee, 1997). In the past, the concept of help-seeking at work has been defined in various ways. Most definitions, of course, start from a need or a difficulty of the worker, who, for that reason, asks for support, assistance, and help from another within the organization (Hargadon and Bechky,

2006; Cleavenger et al., 2007; Bamberger, 2009). Indeed, these definitions show that help-seeking is an interpersonal process, involving at least two parties: the person seeking help and the person who giving help, who is the potential helper. Other definitions focus on the aim of help-seeking, which is problem-solving (Mueller and Kamdar, 2011; Van der Rijt et al., 2013). More recently, Liu et al. (2022) conceived of help-seeking as an individual's effort to solicit the assistance of others. Lim et al. (2020) and Sherf et al. (2023) defined help-seeking at work as seeking assistance from others to solve task-related or personal problems that are related to one's job performance. In a systematic literature review conducted on the topic, it emerged that in the existing academic literature on help-seeking, the most recurring themes concern the individual dimension of each person and, therefore, their own personal characteristics; the organizational dimension and, therefore, teamwork; and, finally, the work environment, i.e., all those factors that influence in terms of the surrounding environment the behaviors of individuals (Pagnozzi and Antonelli, 2021).

2.2. Help-seeking and AI-driven chatbots

The issue that is increasingly emerging is that for help-seeking practices, organizations need to pay their attention no longer only to the social aspects but to the technical aspects that, inevitably, change the arrangements, behaviors, and purposes of an organization. This shifting prompted us to conduct the present study using the Socio-technical System approach, which incorporates both aspects. Nowadays, technology is everywhere, deeply ingrained in all aspects of our lives, and it is rapidly becoming even more central within organizations, playing a more dominant role (Young et al., 2024). One of the most recent breakthroughs in terms of technologies is Artificial Intelligence (AI), which has important implications for the management, control, safety, and deployment of work tasks in organizations (Haefner et al., 2021; Howard, 2019). It is defined as "the ability of a system to correctly interpret external data, to learn from that data, and to use that learning to achieve specific goals and tasks through flexible adaptation" (Kaplan and Haenlein, 2019b: 16).

Also, the practice of help-seeking has been influenced by technological innovation based on AI and, especially, chatbots which add a new way of seeking help in organizations, not considering the interpersonal process between two humans. Chatbots represent an example of a "generative AI" tool, "a class of machine learning technologies that can generate new content—such as text, images, music, or video—by analyzing patterns in existing data" (Brynjolfsson and Raymond, 2023, p. 5). The basic idea of our research is that the employee is faced with a well-defined and specific problem and tries to solve it by asking for support (Froehlich et al., 2017), whether human or not. Chatbots (also known as chat robots) are computer programs based on natural language that aims to imitate written or oral human conversation (Thomaz et al., 2020). Chatbots are also known as smart bots, interactive agents, digital assistants, or artificial conversation entities (Adamopoulou and Moussiades, 2020). Chatbots can simulate human conversations and entertain users. In addition, they are useful in applications such as education, information retrieval, business and e-commerce (Shawar and Atwell, 2007). Many chatbots are often used in organizations for customer satisfaction or customer service. For example, among the most popular, there are chatbots such as Natomi, Ada, which are used to offer some self-service solutions for customers to improve their satisfaction; other chatbots, such as Zendesk, Zowie, which are used by companies that already have a service center and can automate customer service. In this way, they are able to extract

relevant information directly from the corporate knowledge base and use it to answer customer questions in an optimized manner. Additionally, there are instances where employees choose to utilize chatbots or digital assistants that are accessible for free, even if they are not officially provided by the organization. Sometimes, employees even use these chatbots clandestinely, hiding their usage from their supervisors and/or organization. They may do so to augment their productivity or access tools that are not sanctioned by company policies, preferring to keep their use of such resources discreet to avoid potential repercussions or scrutiny (Christian, 2023). Examples include tools like ChatGPT, Google Bard, and Bing, which individuals may employ for various purposes such as writing or brainstorming activities, informal tasks like drafting blog posts or generating ideas, seeking public domain information, or even strategic assistance with content planning. Additionally, virtual assistants like Apple's Siri and Amazon's Alexa can perform tasks ranging from setting reminders and controlling smart home devices to providing weather updates and playing music. In the realm of social media, bots like Facebook Messenger's chatbot and Twitter's direct messaging bot help businesses engage with customers through automated replies and personalized interactions. Similarly, Slack bots and Microsoft Teams bots enhance workplace productivity by scheduling meetings, managing tasks, and facilitating team communication. These are just a few examples of existing chatbots, but there are now so many that are often created and customized specifically by organizations to provide customer service, customer satisfaction, and sales. Some studies show that chatbots, mainly when customized by organizations based on specific tasks to be performed and specific goals, improve service and sometimes productivity (Brynjolfsson and Raymond, 2023; Noy and Zhang, 2023). In particular, chatbots aimed at supporting writing activities, reduce work time and allow for improved idea generation and cooperation. In fact, it is smarter and faster to ask for the input on an idea and work on that to develop a project or an initiative, whether at the individual or group level (Acemoglu and Restrepo, 2018; Autor, 2015; Noy and Zhang, 2023). The academic literature even shows that chatbots are used also as personal assistants (Meyer von Wolff et al., 2020; Gkinko and Elbanna, 2023a).

Several studies have been proposed on chatbots and their functionalities, and they are tools that often provide support in case of difficulties. Using chatbots allows for an immediate response to a problem, such as technical support, customer service, appointment scheduling, texts' editing, 24/7. (Taecharungroj, 2023). For this reason, it is relevant to analyze the use of chatbots, rather than other technologies, for employees' requests for help and support – and how this might change help-seeking practices.

This also implies that the use of chatbots in help-seeking practices impacts people because workers must acquire new skills and competencies to use these technological tools; but, above all, on organizational structure, organizational culture, and work environment.

2.3.   *Socio-Technical systems*

Considering the above, with the introduction of these new technological tools within the organization and, therefore, the need to develop the skills and knowledge necessary to use them, it is possible to define the organization as a set of elements that characterize both the social (relationships, people, structure) and technical (processes, tasks, skills, technologies) subsystems.

The Socio-technical System (STS), originally introduced by Trist and Bamforth in 1951, seeks to explore how the social and technological components of a system interact and impact each other. This model helps to explain how the interaction between social and technical factors promotes successful performance in organizations (Trist, 1981) and is thereby valuable to study how these factors impact help-seeking practices and behaviours. The two distinct subsets, social and technical, are made of four distinct elements that are interconnected. The social subsystem encompasses human elements such as attitudes, motivations, skills, and organizational aspects like structure and roles. The technical subsystem includes organizational variables related to business processes—activities and tasks that transform inputs into outputs—and technological tools. Our primary focus was on help-seeking behaviors, which are largely tied to the social subsystem. However, we also recognized the crucial role of the technical subsystem, particularly chatbots. These technological tools have multifaceted functionalities and can significantly reshape organizational support dynamics, making their analysis particularly relevant (as illustrated in Figure 1).

Figure 1. Socio-Technical-System framework of AI-based chatbots and help-seeking. Adapted from Cuel et al., 2022.
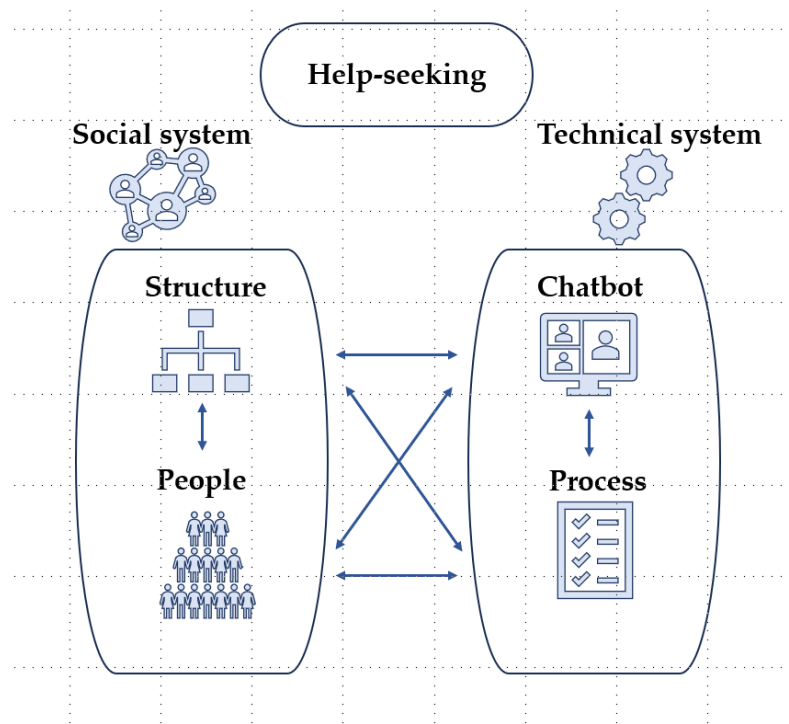
Interestingly, all these elements are related to each other. Among them all, in the context of help-seeking practices the factor that is still little studied is that of technology (Pagnozzi and Antonelli, 2021). The goal of introducing technical elements is to meet human needs and goals. In addition, the design, use and evolution of such technological components are also conditioned by social aspects, including user preferences, organizational structures, and power dynamics. Indeed, the adoption of technological tools is not simply a technical issue but also involves the organizational dimension of the organization (Mumford, 2006). In practice, this implies the need to make changes to various aspects of the organization itself, including processes, activities, and behaviours, and, as a result, involves both people and organizational structure.

3. Methodology

To answer our research question, we performed a scoping review - a quasi-systematic exploratory review - following the five key stages of Arksey and O'Malley's methodological framework (2005). Unlike systematic reviews, scoping reviews are often used to explore emerging issues that are poorly understood in situations where research is still at an early stage or when relevant knowledge is developing, sometimes outside the academic context (refs). In fact, scoping reviews thus focus on broader research questions, rather than narrow questions, and seek to provide an overview of the literature, rather than critically assessing the methodological quality of individual studies (Holeman, Cookson, and Pagliari, 2016).

The use of innovative technological tools such as chatbots for help-seeking at work is a topic that has not yet been deeply analyzed in the academic literature or, at least, studied according to different understandings and points of view. It is an emerging topic, and for that reason, it is appropriate to take this broad approach and focus on a limited academic research literature.

To construct the scoping review, we flowed the process below:

Stage 1: Identifying the research question

Considering the above, our study aims to examine the influence of technology, particularly chatbots, on employees' help-seeking practices and behaviors in light of Socio-technical System approach.

Stage 2: Identifying relevant studies

To conduct our literature search, we first created draft keywords "help-seeking" OR "request for help" OR "seek for help" AND "employees" OR "human resources" AND "chatbot" OR "artificial intelligence tool" OR "AI tool" OR "chatgpt" considering keywords from the systematic literature review conducted only on help-seeking practices (Pagnozzi and Antonelli, 2021) and adding some keywords ("chatbot" OR "artificial intelligence tool" OR "AI tool" OR "chatgpt") that refer to these newly available technological tools.

Next, we first analyzed the prevalence of each of these keyword combinations in online searches, using the free Google Trends tool, as proposed by Nuti et al., 2014. Specifically, we searched on 09/28/2023 by cross-referencing the keywords in groups (first those that emerged from the systematic literature review and then the others) in order to obtain insights into users' Internet search behaviours related to that topic. In addition, we used Google Trends to analyze in which countries the search terms are most frequently used.

Then, using the same keywords, on 10/03/2023 we performed preliminary searches using two Databases (Scopus and Web of Science). We used Scopus and Web of Science as databases for our scoping review due to their comprehensive coverage of scholarly literature across various disciplines, ensuring a thorough examination of relevant studies for our research objectives (Salisbury, 2009). Specifically, in Scopus using the following filters "All fields" and in the Subject area "Social Sciences, Business, Management and Administration" we detected 8 papers; and in Web of Science using filters "Title, Topic" and in Web of Science category "Social Sciences Interdisciplinary, Management" 97 papers.

Stage 3: Study selection

Then, we read the titles and abstracts of all found papers and, in the end, considered 20 papers for the final analysis.

In detail, some papers were not considered for document type (10) because they were meeting abstracts, notes, or corrections; others because they dealt with the concept of help-seeking in terms of supporting young people with work-related problems, mental health problems, or finding the most suitable course of study (28); others because help-seeking was understood in terms of requests for help in cases of domestic or workplace violence (7); others where it dealt with sexual problems in private life (7); others where it talked about support for homosexuals and transgender people (5); and others to support for health and mental health problems of people in general (28).
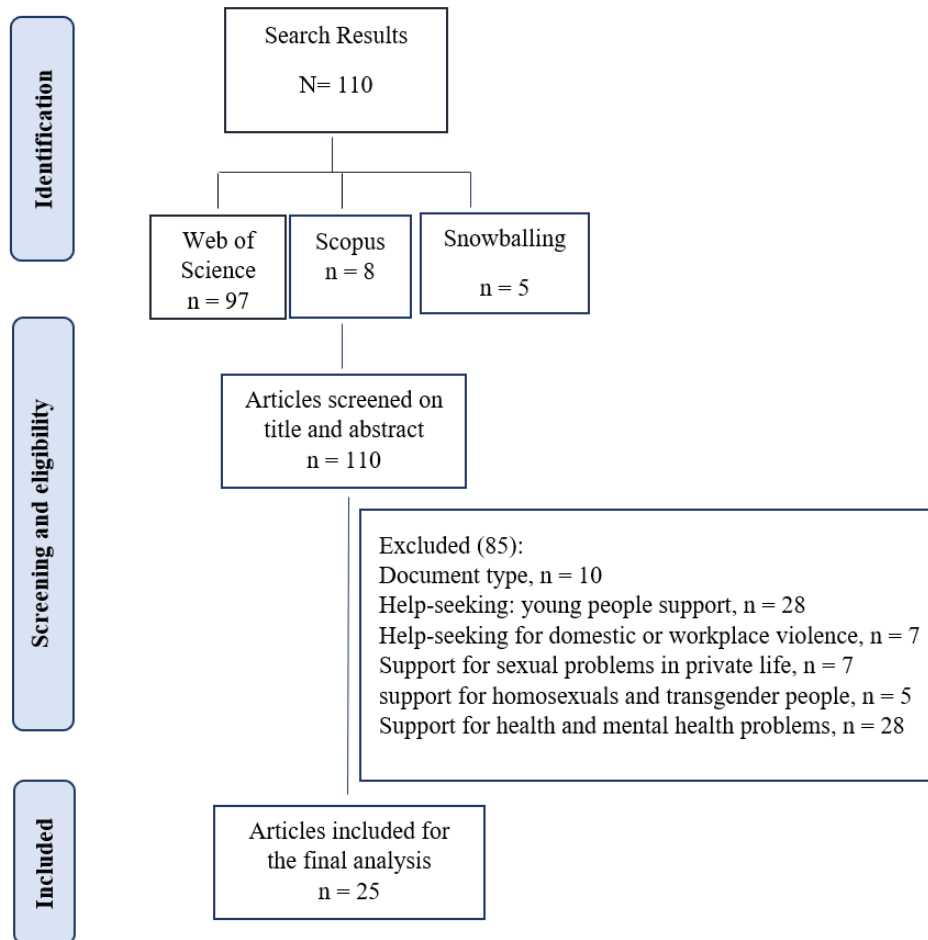
As a last step, we used the snowballing technique from the selected paper references to verify the inclusiveness of our research and to ensure greater scientific rigour and we added five papers to our analysis.

The papers considered for the final analysis were analyzed considering the two subsystems of the Socio-Technical system perspective. So, they were analyzed by considering help-seeking practices and behaviors concerning the social subsystem ("people" and "organizational structure") and the technical subsystem (technology, particularly "chatbots" in our analysis, and "processes").

Stage 4: Charting the data

We created a flow chart Prisma to clarify our research process (Figure 2). The screenings were completed by all the authors separately to ensure the reliability of the analysis.

Figure 2. The PRISMA flow-chart

Identification

```
        Search Results
          N= 110
```

| Web of Science n = 97 | Scopus n = 8 | Snowballing n = 5 |

Screening and eligibility

```
   Articles screened on
     title and abstract
        n = 110
```

```
Excluded (85):
Document type, n = 10
Help-seeking: young people support, n = 28
Help-seeking for domestic or workplace violence, n = 7
Support for sexual problems in private life, n = 7
support for homosexuals and transgender people, n = 5
Support for health and mental health problems, n = 28
```

Included

```
   Articles included for
    the final analysis
        n = 25
```

Source: Authors representation.

*Stage 5: Collating, summarising and reporting the results*

The PRISMA flow diagram was used to show the number of sources of evidence screened, evaluated for eligibility, and included in our scoping review. Initially, we scrutinized the literature to identify trends in help-seeking behaviors within workplace settings and the utilization of AI tools in academic research and online search endeavors. Through graphical representations and tabular formats, we delineated the distribution of identified articles across publication years and the types of pathogens studied, facilitating a comprehensive overview of research focus areas and temporal trends. Subsequently, a data-charting form was employed to systematically organize and present the synthesized results through STS approach lens, ensuring clarity and coherence in presenting the outcomes aligned with our review's objectives. Finally, we engaged in a thorough discussion of the relevance of our findings, considering their implications for research, policy formulation, and practical applications. This iterative process enabled us to derive nuanced insights and formulate informed recommendations pertinent to help-seeking behaviors and the integration of AI tools across diverse professional and academic contexts.

4. Results

4.1. Help-seeking at work and the use of AI tools in online search

As a first step, we conducted a search of keywords in Google Trends from 2004 to the present (Figure 3). What emerged is particularly interesting because all keywords related strictly to the process of help-seeking at work have always been under-researched; however, at the same time, words related to the human relationship and, therefore, "employees" and "human resources" are very recurrent. Keywords related to the use of new technologies and, therefore, Artificial intelligence tools have had increasing attention. Specifically, when we examine the usage of the terms "chatbot" and "chatgpt," which are highly accessible and widely recognized, a clear trend emerges. Since 2016, people have increasingly been conducting searches related to these terms, with a notable surge in interest by mid-2022. Furthermore, the term "AI tool" has also garnered significant attention around the same time, starting in mid-2022. In fact, this shows that while the concept of help-seeking in organizations may not be officially recognized as an institutionalized phenomenon, the attention placed on the more 'social' aspects tied to employees and human resources underscores its significance. Research frequently delves into both the social and human aspects, particularly within organizations adapting to the integration of technology, which is progressively taking on a more dominant role.

Figure 3. Keywords utilization in Google Trends.
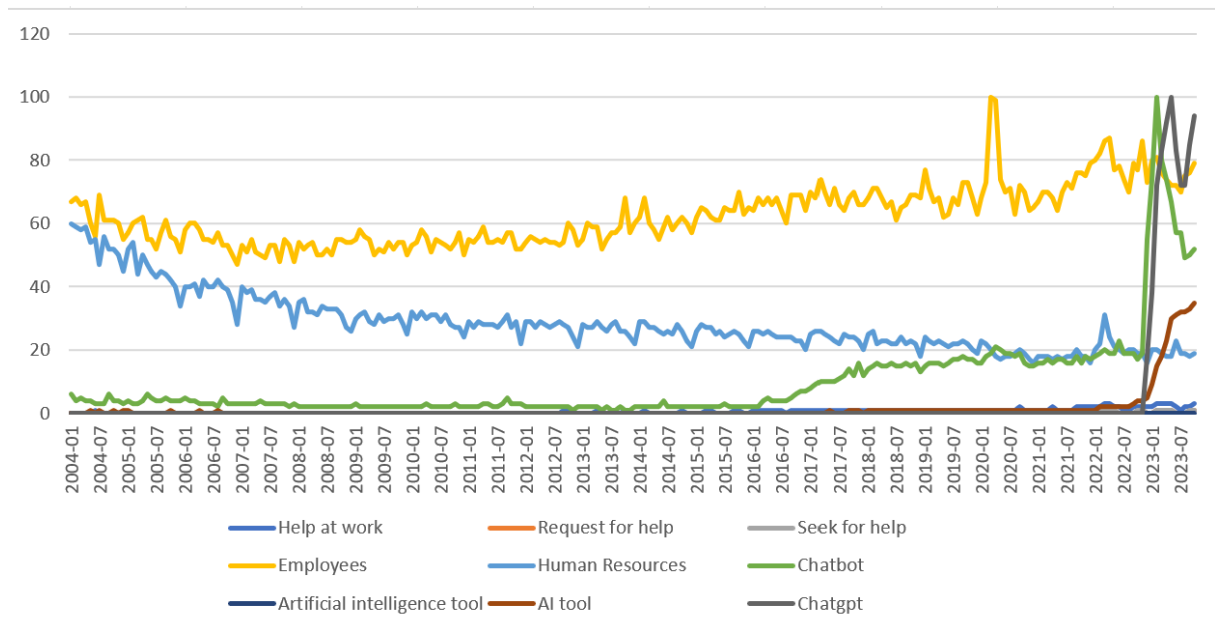
It is also possible in Google Trends to analyze where, globally, these terms are most frequently searched. As shown in Figure 4, words such as "Human Resources," "Employees," "Chatbot," "Chatgpt," and "AI tool" have been most searched since 2004 in Canada, the United States, Australia, the United Kingdom, Malaysia, Philippines, and South Africa.

Figure 4. Countries' keywords utilization in Google Trends.

4.2. Help-seeking at work and the use of AI tools in academic research

Considering the 25 papers in our final analysis, we constructed a word map of the keywords proposed by the authors. In Figure 5 it is possible to visualize the most frequent words related to the process of help-seeking at work, that consider only the social aspect and, therefore, people's behaviours, relationships, and competencies. Thus, among the most frequent words, "help-seeking," "social", "behaviour," and "help" immediately stand out. Among words that do not refer to the social aspects -i.e., structure and people – it is possible to see only "artificial intelligence", "chatbot", and "computer-mediated".

Figure 5. Papers' keywords word map.

Source: Authors representation

In addition, considering the 25 papers analyzed, there is a growing interest over time in the topic, which increased in the pandemic years and the years after. A quantitative methodology

(experiments or surveys) is used in most of the papers; some studies are qualitative (interviews), and only few use the mixed method (Figure 6).

Figure 6. Publication year and methodology of analyzed articles.
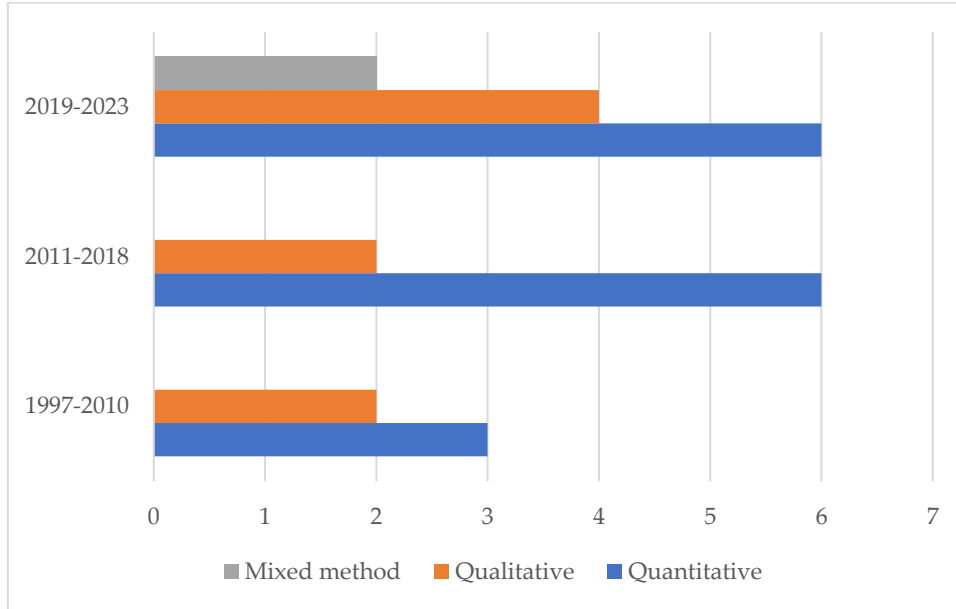
Considering the research area of the papers, most of them stand at the crossroads of different research areas together, i.e., Psychology, Social Sciences, Management, Computer Science. Other research areas that emerged are "Management, Business & Economics", "Social Sciences and Interdisciplinary" and "Education and Educational Research" (Figure 7).

Figure 7. Main research areas of the academic articles.
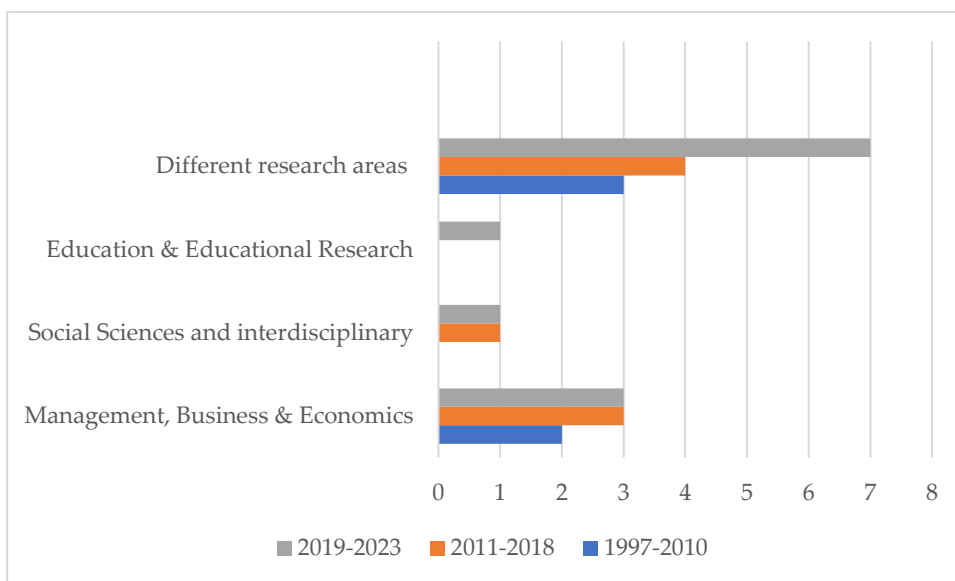
Finally, looking at the SJR, that is the value indicating citation potential, 8 of the 25 papers have been published in a journal with below-average citation potential; while the others have been published in highly cited journals and have, therefore, a rather significant weight in the academic literature itself.

4.3.   *The STS for help-seeking practices and behaviours using chatbots*

We decided to analyze the documents using the Socio-technical System perspective. Considering the social and technical subsystems, we tried to study their relationships, highlighting how in organizations, help-seeking practices and behaviors tended to concern the social subsystem and, therefore, people or organizational structure; but, at the same time, how relevant and necessary the technical subsystem is to consider. Based on Figure 1 we conducted a detailed analysis of the documents based on the two subsystems (Figure 8). It emerged that in a few cases, the role of the technical subsystem and, therefore, processes and technology, particularly chatbots, emerged. Numerous studies have highlighted that help-seeking, primarily defined as the act of requesting assistance to solve issues, is influenced by sociodemographic factors and social interactions, which revolve around individual support and the relationships formed within organizational settings (Hong et al., 2023; Koydemir-Ozden and Erel, 2010; Putnik et al., 2011; Sherf et al., 2023). From the papers considered, it is evident that help-seeking practices and behaviours depend mainly on social factors, that are the individual's characteristics and work environment factors (Figure 8).

Figure 8. STS and analyzed papers.
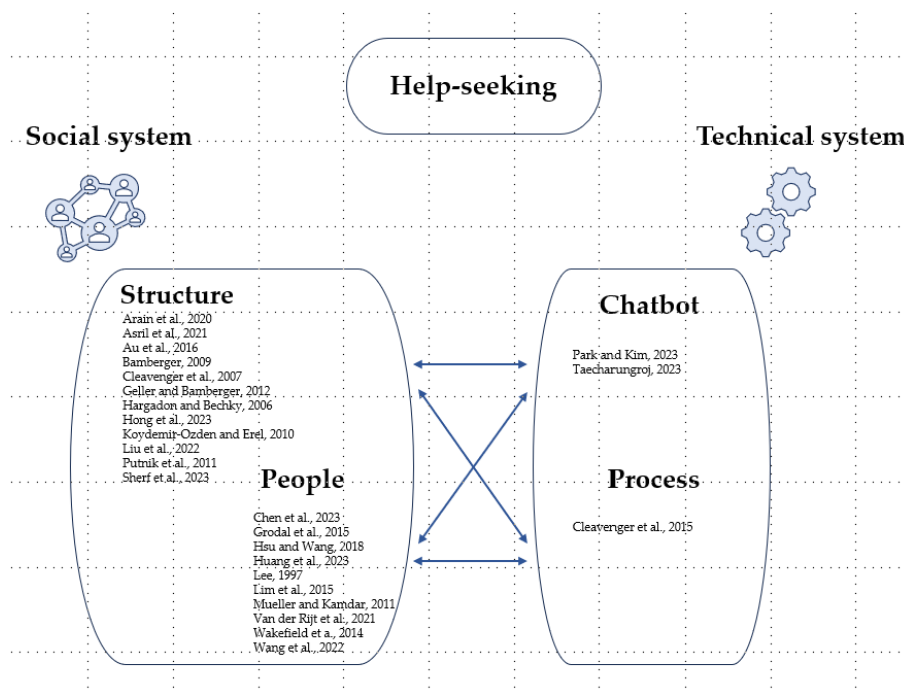
Source: Authors representation.

The likelihood of seeking support when facing challenges depends on a person's inclination to ask others for help, their willingness to address problems, implement creative solutions, and enhance their creativity (Huang et al., 2023; Lee, 1997; Mueller and Kamdar, 2011; Wang

et al., 2022). Furthermore, the willingness to seek help is influenced by one's connection to a particular group or team and the sense of belonging within that group (*people*). When individuals feel more engaged with a group, they tend to express themselves more openly and actively seek collaboration and confrontation to discover innovative solutions (Wakefield et al., 2014; van der Rijt et al., 2013). The behaviours related to seeking help by employees are also influenced by their work environment and the overall context in which they operate (*structure*), which plays a significant role (Arain et al., 2020; Asril et al., 2021; Au et al., 2016; Bamberger, 2009; Geller and Bamberger, 2012). Leaders hold a pivotal role in this regard, as they should establish tailored approaches to supervision that do not overly burden or stifle their employees (Arain et al., 2020). They need to nurture employees' autonomy and enhance their performance, as emphasized by Geller and Bamberger (2012). Additionally, leaders must endeavour to foster a sense of inclusion and belonging for every member of the organization, thus creating a positive atmosphere built on trust and mutual exchange in all circumstances, as emphasized by Bamberger (2009).

Most of the examined papers focus on studying help-seeking by analyzing the variables within the social subsystem. However, considering the technical subsystem (chatbots and processes), despite the few emerged articles, they demonstrate that chatbots, as well as processes, tasks, and activities, significantly influence help-seeking behaviors and practices. This is especially evident in the evolving communication processes within organizations, with a growing emphasis on computer-mediated communication and how technology and its applications are increasingly becoming integral to organizational practices, reshaping norms and processes (Cleavenger and Munyon, 2015).

Furthermore, despite only a handful of studies discussing the potential benefits of artificial intelligence tools, such as chatbots, in promoting specific practices and behaviors within organizations, they are becoming increasingly important. This is true both as customized tools promoted by organizations and as tools autonomously used by employees. This is primarily attributed to the various features they offer and their ability to deliver quick results (Park and Kim, 2023; Taecharungroj, 2023).

Yet, our analysis reveals a lack of research exploring the connection between help-seeking and the technical subsystem. This is why our study prioritizes the technical subsystem, delving into how its components may shape employees' help-seeking behaviors.

As can be seen in Figure 8, in the academic literature the practices and behaviors of help-seeking in organizations have been studied through social variables. It is interesting to note that the introduction of chatbots has occurred in the last year (2023) and that there are not many studies on processes, norms regarding help-seeking. In fact, what we want to highlight through our study is that, in light of the model used, whether organizations increasingly incentivize the use of chatbots, or workers freely or autonomously choose to use them, it is necessary to create new work practices and processes.

5. Discussion

Our scoping review aimed to investigate a growing phenomenon in the literature, which is the utilization of innovative technological tools, such as chatbots, in the context of workers seeking help when facing difficulties in their work environments. This phenomenon holds significant importance from both a social and technological perspective, as it raises

fundamental questions regarding *how* technology is shaping to seek support within an evolving work landscape.

In general, help-seeking practices and behaviors are fundamental because they allow individuals to leverage collective knowledge and resources, fostering collaboration and problem-solving. Moreover, they promote personal and professional growth by facilitating the acquisition of new skills and perspectives.

As emerged in results section, in academic literature, help-seeking practices in organizations have been predominantly examined through social variables, with limited focus on processes and norms changes due to new technologies implementation. These processes, in turn, will bring about changes in organizations and affect both organizational structures, thus culture, and people. If, until now, help-seeking practices and behaviors were first influenced by individual characteristics and social variables that constitute the organizational structure; with this new vision it is the implementation of technology that requires new processes and practices to be adopted that influence the social subsystem. For example, because people need to learn how to use the new tools, the organization will provide training and, therefore, help-seeking practices and behaviors will no longer be influenced by people's individual characteristics, but by their ability to use the tools at hand. Consequently, this will influence the training processes and, therefore, the organization structure and organization culture.

Therefore, the emergence of technology, the virtualization of work, and organizational changes are leading to a transformation within organizations, impacting the ways in which help is sought. This shift prompts critical questions about the nature of these interactions and the role of technology in this process. A key aspect is the adaptation of individuals to new work methods, which require digital skills, greater autonomy, and a sense of responsibility in managing one's own tasks. Leadership within organizations plays a pivotal role in fostering a culture that encourages the adoption of innovative tools to support work, requiring the creation of an environment conducive to innovation and technology adoption (Iannotta et al., 2020).

The integration of technology into organizations is a central issue. These technologies are not mere tools but have a profound impact on work activities, collaboration, and knowledge sharing (Cleavenger et al., 2015; Lindley and Wilkin, 2023). In the context of Socio-technical Systems (STS), when organizations adopt chatbots as a part of the help-seeking process, the influence is not limited to individual workers, but it extends to the broader organizational structure. Specifically, chatbots have the potential to play a vital role in the help-seeking process, particularly in addressing common inquiries and providing support. Their use primarily affects the practical aspects of workers' tasks, such as document creation, problem-solving, and even document improvement (Taecharungroj, 2023). However, transitioning to the use of chatbots requires workers to acquire technological skills, such as learning how to use such tools, learning how to enter correct prompts, and learning how to use them correctly without abuse and ethically without entering sensitive data. In this regard, organizations and leaders must commit to providing training and facilitating the adoption of new practices and attitudes. This means spreading new practices and establishing new processes in organizations that influence and change people and the organizational structure.

The decision to opt for chatbots over human colleagues also has repercussions on organizational culture and the work environment. To ensure that chatbots are as effective as other technological solutions, organizations need to foster a culture that encourages

innovation and technology adoption. This cultural transformation should be supported by a work environment that promotes the utilization of these new technological possibilities. Furthermore, in this regard, particular attention should be given to the concept of trust. As stated by Gkinko and Elbanna (2023b), one of the main priorities in the adoption and implementation of AI, including AI chatbots, is to integrate this technology into the work environment, convincing users of the essential utility of these new systems and encouraging their use. In this regard, trust in artificial intelligence technology is a fundamental element in the human-machine relationship (Glikson and Woolley, 2020; Hoff and Bashir, 2015; Lee and See, 2004). Scholars have emphasized that trust not only facilitates the adoption of AI applications but also influences user behaviors and interaction (Liu and Weistroffer, 2022), enabling prolonged use and continuous improvement of the applications (Lewandowski et al., 2021; Stoeckli et al., 2020). Consequently, it has been agreed that the success in adopting and diffusing AI-based chatbots in the workplace depends on users' trust (Seeger, Pfeiffer, and Heinzl, 2017).

The evolution of help-seeking practices within work environments through the implementation of chatbots is a captivating phenomenon that raises significant questions, both from social and technological perspectives. This transformation requires not only the acquisition of technical skills by workers (the "people" social subsystem in the STS); but also, a cultural change within organizations (the "organizational structure" social subsystem in the STS). Considering both the acquisition of technical skills and the cultural changes within the organization, and the individual psychological aspects related to the introduction of chatbots could provide a more comprehensive understanding of technology implementation, in particular chatbots, can change help-seeking practices and behaviours.

This holistic approach recognizes that successful adoption of AI chatbots in the workplace involves not only mastering technical functionalities but also navigating shifts in organizational culture and addressing individual concerns and attitudes towards new technology. This prepares us for a future in which technology plays a central role in facilitating and enhancing collaboration and support within the workplace.

6.   Conclusions

In the changing context of organizations, incorporating chatbots as tools for help-seeking presents a range of challenges and prospects that demand focused consideration from both companies and researchers. Our scoping review, conducted within the framework of the Socio-Technical system perspective, offers important theoretical implications. It highlights the dynamic interplay between the social and technical subsystems within organizations, emphasizing the need to consider both facets when examining help-seeking practices. By acknowledging the significance of both the individual's characteristics and the organizational structure in the context of technology adoption, this study contributes to a more comprehensive understanding of *how* technology influences help-seeking practices and behaviours in the workplace, in particular how technology influences work processes, which in turn influence people and organizational structure.

This study contributes to the existing body of knowledge by focusing on the underexplored relationship between technology and help-seeking behaviours within organizations. By emphasizing the impact of the technical subsystem, this research provides valuable insights

into the ways in which technology, such as chatbots, shapes and influences the dynamics of support-seeking. Additionally, our review underscores the need to adopt a holistic Socio-Technical system perspective to gain a deeper understanding of this phenomenon.

This study also revealed some relevant managerial implications: in an increasingly technology-driven world, organizations need to invest in training their employees. This involves targeted training programs to improve digital skills and the ability to interact effectively with chatbots. Digital literacy has become a crucial skill in any work environment. The goal is to ensure that employees are able to take full advantage of the potential of chatbots to solve problems and improve their productivity. In addition, leaders within organizations must play a key role in encouraging technological innovation and fostering the adoption of chatbots. Organizational culture must be geared toward openness to new technologies and innovation. Leaders must create a work environment in which employees feel comfortable using these technologies, trust these tools and are encouraged to do so. This requires a cultural change that starts at the top and spreads throughout the organization. In terms of organizational change, the introduction of chatbots will require an appropriate change management plan. This process involves careful planning and management of the transition. Organizations must ensure that employees accept, trust and are able to use chatbots effectively. Closely related to the concept of human-machine trust is another element to consider and analyze: automated leadership. In the case of seeking help, a worker might feel more comfortable asking for assistance from a leader represented by a machine rather than a person. Several studies demonstrate that workers often refrain from seeking help from their superiors out of fear of appearing incompetent or due to the shame of making mistakes (Antonelli et al., 2021; Lee, 1997). Several of the issues above can be solved if automated leadership is promoted, and if the idea that leadership can be played by machines or chatbots is accepted. The results of a study proposed by Höddinghaus et al. (2021) on workers' perceptions regarding the differences between human and automated leadership, showed that participants perceived automated leadership agents as having more integrity and transparency compared to human leadership agents. This finding aligns with some studies which suggest that with the use of AI, the role of line managers often changes, shifting from operational performance control towards that of coach and people manager (Drent et al., 2022).

Future research could explore the intersection of help-seeking behavior, chatbot technology, and automated leadership. Specifically, studies could investigate how employees perceive and interact with chatbot leaders in scenarios where assistance or guidance is needed. This research could delve into whether chatbot leaders facilitate more open and comfortable environments for help-seeking compared to human leaders, potentially mitigating fears of incompetence or shame in seeking assistance. Additionally, examining the effectiveness of automated leadership in providing support and guidance in various work contexts could shed light on the potential benefits and limitations of integrating chatbots into leadership roles. Overall, future studies in this area could contribute to a deeper understanding of how emerging technologies influence organizational dynamics and employee behaviors related to seeking help and guidance. Furthermore, future research could significantly improve our understanding of workers' acceptance of chatbots by delving into their perceptions of the effectiveness of these tools, their comfort level in interacting with them, their level of trust in these tools, as well as any potential resistance or concerns they may have. In addition, there is an urgent need for more comprehensive evaluations to measure the impact of chatbots on crucial aspects such as organizational culture, work efficiency and overall productivity.

Moreover, exploring the role of leadership in facilitating the adoption of chatbots and identifying the most effective leadership models for fostering the integration of innovative technologies into work environments would provide valuable insights. In addition, investigating whether companies are aware of how these tools are being used and whether they can adapt their existing structures or processes accordingly is a useful undertaking. Understanding these dynamics could not only maximize the benefits of chatbots, but also address potential challenges that may arise from their implementation.

Keywords

help-seeking; request for help; human resources; chatbot; artificial intelligence tool

Reference list

*In the references list below, asterisk-marked citations denote papers included in the sample used for the scoping review (Appendix 1).

Acemoglu, D., and Restrepo, P. (2018), "The race between man and machine: Implications of technology for growth, factor shares, and employment", *American economic review*, 108(6): 1488-1542.

Adamopoulou, E., and Moussiades, L. (2020), "An overview of chatbot technology". In *IFIP international conference on artificial intelligence applications and innovations*, pp. 373-383, Springer, Cham.

Antonelli. G, Tursunbayeva. A, and Simonetti, B. (2021), "The influence of organisational tenure, team diversity of educational background and level on the decision-making process of pre-startups". *British Academy of Management 2021 Conference*, ISBN: 978-0-9956413-4-1

Arain, G. A., Bukhari, S., Khan, A. K., and Hameed, I. (2020), "The impact of abusive supervision on employees' feedback avoidance and subsequent help-seeking behaviour: A moderated mediation model", *Journal of Management and Organization*, 26(5): 850-865*

Arksey, H., and O'Malley, L. (2005), "Scoping studies: Towards a methodological framework". *International Journal of Social Research Methodology*, 8(1): 19–32. https://doi.org/10.1080/1364557032000119616.

Asril, N. M., Maharani, E. A., Tirtayani, L. A., and Suwandi, E. (2021), "Predicting help seeking behavior related to COVID-19 among Indonesian adults", *The Journal of Behavioral Science*, 16(1): 28-44*

Au, K., Chiang, F. F., Birtch, T. A., and Kwan, H. K. (2016), "Entrepreneurial financing in new business ventures: A help-seeking behavior perspective", *International Entrepreneurship and Management Journal*, 12: 199-213*

Autor, D. H. (2015), "Why are there still so many jobs? The history and future of workplace automation", *Journal of economic perspectives*, 29(3): 3-30.

Bamberger, P. (2009), "Employee help-seeking: Antecedents, consequences and new insights for future research", *In Research in personnel and human resources management* (28), pp.49-98, Emerald Group Publishing Limited*

Brynjolfsson, E., Li, D., and Raymond, L. R. (2023), "Generative AI at work" (No. w31161). *National Bureau of Economic Research.*

Chen, K., Chen, G., Wu, Q., Liu, W., and Zhao, H. (2023), "Help-seeking at work: an integrative review, organizing framework and agenda for future research", *Nankai Business Review International**

Christian, A. (2023), "The employees secretly using AI at work", *BCC*, available at *https://www.bbc.com/worklife/article/20231017-the-employees-secretly-using-ai-at-work*

Cleavenger, D., Gardner, W. L., and Mhatre, K. (2007), "Help-seeking: Testing the effects of task interdependence and normativeness on employees' propensity to seek help", *Journal of Business and Psychology*, 21: 331-359*

Cleavenger, D. J., and Munyon, T. P. (2015), "Overcoming the help-seeker's dilemma: How computer-mediated systems encourage employee help-seeking initiation", *Organization Studies*, 36(2): 221-240*

Cuel, R., Cacciatore, E., Ravarini, A., and Varriale, L. (2021), "Do organizations need a head of remote work?", in Conference of the Italian Chapter of AIS (pp. 274-286). Cham: Springer International Publishing

De Bernardi, P., Bertello, A., Venuti, F., and Foscolo, E. (2020), "How to avoid the tragedy of alternative food networks (AFNs)? The impact of social capital and transparency on AFN performance", *British Food Journal*, 122(7): 2171-2186.

Drent, E., Renkema, M., and Bos-Nehles, A. (2022),. "Reconceptualizing the HRM role of the line manager in the age of artificial intelligence". In *Research Handbook on Line Managers* (pp. 367-387). Edward Elgar Publishing.

Frey, C. B., and Osborne, M. A. (2017), "The future of employment: How susceptible are jobs to computerisation?", *Technological forecasting and social change*, 114: 254-280.

Geller, D., and Bamberger, P. A. (2012), "The impact of help seeking on individual task performance: The moderating effect of help seekers' logics of action", *Journal of Applied Psychology*, 97(2): 487*

Gkinko, L., and Elbanna, A. (2023a), "The appropriation of conversational AI in the workplace: a taxonomy of AI chatbot users". *International Journal of Information Management*, 69: 102568

Gkinko, L., and Elbanna, A. (2023b), "Designing trust: The formation of employees' trust in conversational AI in the digital workplace". *Journal of Business Research*, 158: 113707.

Glikson, E., and Woolley, A. W. (2020), "Human trust in artificial intelligence: Review of empirical research". *Academy of Management Annals*, 14(2): 627-660.

Grodal, S., Nelson, A. J., and Siino, R. M. (2015), "Help-seeking and help-giving as an organizational routine: Continual engagement in innovative work", *Academy of Management Journal*, 58(1): 136-168*

Habeeb, C., Warner, S., and Walsh, D. (2022)," Managing mental health: Athlete help-seeking", *Sport Management Review*, 25(5): 871-891*

Haefner, N., Wincent, J., Parida, V., and Gassmann, O. (2021), "Artificial intelligence and innovation management: A review, framework, and research agenda", *Technological Forecasting and Social Change*, 162, 120392.

Hargadon, A.B. and Bechky, B.A. (2006), "When collections of creatives become creative collectives: a field study of problem-solving at work", *Organization Science*, 17(4): 484-500*

Höddinghaus, M., Sondern, D., and Hertel, G. (2021), "The automation of leadership functions: Would people trust decision algorithms?". *Computers in Human Behavior*, 116: 106635.

Hoff, K. A., and Bashir, M. (2015), "Trust in automation: Integrating empirical evidence on factors that influence trust". *Human factors*, 57(3): 407-434.

Holeman, I., Cookson, T. P., and Pagliari, C. (2016), "Digital technology for health sector governance in low and middle-income countries: A scoping review", *Journal of Global Health*, 6(2), https://doi.org/10.7189/jogh.06.020408.

Hong, W., Zhang, L., and Gajendran, R. S. (2023), "Relative status and dyadic help seeking and giving: The roles of past helping history and power distance value", *Human Relations*, 00187267231152055*

Howard, J. (2019), "Artificial intelligence: Implications for the future of work", *American journal of industrial medicine*, 62(11): 917-926.

Hsu, W. C., and Wang, C. Y. (2018), "Age and Gender's Interactive Effects on Adult Learners' Help-Seeking Behavior", *Revista de cercetare și intervenție socială*, 60: 94-108*

Huang, X., Ruiz-Segura, A., Tan, C., Wang, T., Sharma, R., and Lajoie, S. P. (2023), "Social presence in technology-rich learning environments: how real we are feeling connected and how does it matter for learning?", *Information and Learning Sciences**

Lee, J. D., and See, K. A. (2004), "Trust in automation: Designing for appropriate reliance". *Human factors*, 46(1): 50-80.

Lewandowski, T., Delling, J., Grotherr, C., and Böhmann, T. (2021), "State-of-the-Art Analysis of Adopting AI-based Conversational Agents in Organizations: A Systematic Literature Review". *PACIS*, 167.

Liu, D., and Weistroffer, H. R. (2022), "Statistically significant! But is trust of practical significance?". *Journal of Computer Information Systems*, 62(2): 247-258.

Iannotta, M., Meret, C., and Marchetti, G. (2020), "Defining leadership in smart working contexts: a concept synthesis". *Frontiers in Psychology*, 11, 556933.

Kaplan, A., and Haenlein, M. (2019), "Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence". *Business horizons*, 62(1): 15-25.

Koydemir-Özden, S., and Erel, Ö. (2010), "Psychological help-seeking: Role of socio-demographic variables, previous help-seeking experience and presence of a problem", *Procedia-Social and Behavioral Sciences*, 5: 688-693*

Kraus, S., Ferraris, A., and Bertello, A. (2023), "The future of work: How innovation and digitalization re-shape the workplace*", Journal of Innovation and Knowledge*, 8(4): 100438.

Kulkarni, M. (2012), "Contextual factors and help seeking behaviors of people with disabilities", *Human Resource Development Review*, 11(1): 77-96*

Lebovitz, S., Lifshitz-Assaf, H., and Levina, N. (2022), "To engage or not to engage with AI for critical judgments: How professionals deal with opacity when using AI for medical diagnosis", Organization Science, 33(1): 126-148.

Lee, F. (1997), "When the Going Gets Tough, Do the Tough Ask for Help? Help-seeking and Power Motivation in Organisations", *Organisational Behavior and Human Decision Processes, 72(3):* 336–363.* https://doi.org/10.1006/obhd.1997.2746

Lim, J.H., Tai, K., Bamberger, P.A. and Morrison, E.W. (2020), "Soliciting resources from others: an integrative review", *Academy of Management Annals*, 14(1): 122-159*

Lindley, S. E., and Wilkins, D. J. (2023), "Building Knowledge through Action: Considerations for Machine Learning in the Workplace." *ACM Transactions on Computer-Human Interaction*, 30(5): 1-51.

Liu, Y., Chen, F. X., Chiang, J. T. J., Wang, Z., and Liu, H. (2022), "Asking how to fish vs. asking for fish: Antecedents and outcomes of different types of help-seeking at work", *Personnel Psychology*, 75(3): 557-587*

Mueller, J. S., and Kamdar, D. (2011)," Why Seeking Help From Teammates Is a Blessing and a Curse: A Theory of Help-seeking and Individual Creativity in Team Contexts", *Journal of Applied Psychology, 96(2):* 263–276*. https://doi.org/10.1037/a0021574

Mumford, E. (2006), "The story of socio-technical design: Reflections on its successes, failures and potential", *Information systems journal*, 16(4): 317-342.

Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., and Aromataris, E. (2018),. "Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach". *BMC medical research methodology*, 18: 1-7.

Noy, S., and Zhang, W. (2023), "Experimental evidence on the productivity effects of generative artificial intelligence". Available at SSRN 4375283.

Nuti, S. V., Wayda, B., Ranasinghe, I., Wang, S., Dreyer, R. P., Chen, S. I., et al. (2014), "The use of google trends in health care research: A systematic review", *PloS One*, 9(10), e109583. https://doi.org/10.1371/journal.pone.0109583.

Pagnozzi, F., and Antonelli, G. (2022), "Help-seeking practices in Organization", in *Leading digital Transformation, European Academy of Management*. ISBN: 978-2- 9602195-4-8, ZHAW School of Management and Law, Winterthur, Switzerland, 15-17 June 2022

Park, D. Y., and Kim, H. (2023), "Determinants of intentions to use digital mental healthcare content among university students, faculty, and staff: motivation, perceived usefulness, perceived ease of use, and parasocial interaction with AI Chatbot", *Sustainability*, 15(1): 872*

Pasmore, W., Winby, S., Mohrman, S. A., and Vanasse, R. (2019), "Reflections: sociotechnical systems design and organization change", *Journal of Change Management*, 19(2): 67-85.

Putnik, K., de Jong, A., and Verdonk, P. (2011), "Road to help-seeking among (dedicated) human service professionals with burnout", *Patient education and counseling*, 83(1): 49-54*

Retkowsky, J., Hafermalz, E., and Huysman, M. (2024),. "Managing a ChatGPT-empowered workforce: Understanding its affordances and side effects". *Business Horizons*

Rialti, R., Marrucci, A., Zollo, L., and Ciappei, C. (2022), "Digital technologies, sustainable open innovation and shared value creation: evidence from an Italian agritech business", *British Food Journal*, 124(6): 1838-1856.

Rubery, J., Grimshaw, D., Keizer, A., and Johnson, M. (2018), "Challenges and contradictions in the 'normalising' of precarious work", *Work, Employment and Society*, 32(3): 509-527.

Salisbury, L. (2009). "Web of Science and Scopus: A comparative review of content and searching capabilities". *The Charleston Advisor*, 11(1): 5-18

Savage, H., Murray, J., Hatch, S. L., Hotopf, M., Evans-Lacko, S., and Brown, J. S. (2016), "Exploring professional help-seeking for mental disorders", *Qualitative Health Research*, 26(12): 1662-1673*

Seeger, A. M., Pfeiffer, J., and Heinzl, A. (2017), "When do we need a human? Anthropomorphic design and trustworthiness of conversational agents". *SIGHCI*

Shawar, B. A., and Atwell, E. (2007), "Chatbots: are they really useful?", Journal for Language Technology and Computational Linguistics, 22(1): 29-49.

Sherf, E.N., Croitoru, N. and McElroy, T.A. (2023), "Reinforcement sensitivity theory view of seeking behaviors at work: a meta-analysis", *Personnel Psychology*.* doi: 10.1111/peps.12579.

Stoeckli, E., Dremel, C., Uebernickel, F., and Brenner, W. (2020), "How affordances of chatbots cross the chasm between social and traditional enterprise systems". *Electronic Markets*, 30: 369-403.

Taecharungroj, V. (2023), "What Can ChatGPT Do?" Analyzing Early Reactions to the Innovative AI Chatbot on Twitter", *Big Data and Cognitive Computing, 7*(1): 35*

Thomaz, F., Salge, C., Karahanna, E. and Hulland, J. (2020), "Learning from the dark web: leveraging conversational agents in the era of hyper-privacy to enhance marketing". *Journal of the Academy of Marketing Science*, 48 (1): 43-63.

Trist, E. L., and Bamforth, K. W. (1951), "Some social and psychological consequences of the longwall method of coal-getting: An examination of the psychological situation and defences of a work group in relation to the social structure and technological content of the work system", Human relations, 4(1): 3-38.

Trist, E. L. (1981), *The evolution of socio-technical systems*, (2), Toronto: Ontario Quality of Working Life Centre

Tursunbayeva, A., Di Lauro, S., and Antonelli, G. (2022), "Remote work at the time of COVID-19 pandemic and beyond: A scoping review" *HR Analytics and Digital HR Practices: Digitalization post COVID-19*, 127-169.

Van der Rijt, J., Van den Bossche, P., and van de Wiel, M.W.J. (2013), "Asking for Help: A Relational Perspective on Help-seeking in the Workplace", *Vocations and Learning*, 6: 259–279 https://doi.org/10.1007/s12186-012-9095-8*

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., and Haenlein, M. (2021), "Digital transformation: A multidisciplinary reflection and research agenda", *Journal of business research*, 122: 889-901.

Wakefield, J. R., Hopkins, N., and Greenwood, R. M. (2014), "Help-seeking helps: Help-seeking and group image", *Small Group Research*, 45(1): 89-113*

Wang, H., Rispens, S., and Demerouti, E. (2022), "Boosting creativity in functional diverse work groups: The importance of help-seeking behavior and openness to experience", *European Journal of Work and Organizational Psychology*, 31(5): 768-780*

Xiong, Y., and Yang, L. (2021), "Asian international students' help-seeking intentions and behavior in American Postsecondary Institutions", *International Journal of Intercultural Relations*, 80: 170-185*

Young, J., Jawara, L. M., Nguyen, D. N., Daly, B., Huh-Yoo, J., and Razi, A. (2024),. "The Role of AI in Peer Support for Young People: A Study of Preferences for Human-and AI-Generated Responses." In *Proceedings of the CHI Conference on Human Factors in Computing Systems*, 1-18

Zhiyong, Z., Yongbin, X., & Jiaying, C. (2023), "Digital economy, industrial structure upgrading and green innovation efficiency of family enterprises", *International Entrepreneurship and Management Journal*, 1-25.

Appendix 1. Classification of studies included in the scoping review

#	Authors	Title	Year	Research area	Journal	SJR rating	Study design	Framework/s	STS Subsystem
1	Arain, GA; Bukhari, S; Khan, AK; Hameed, I	The impact of abusive supervision on employees' feedback avoidance and subsequent help-seeking behaviour: A moderated mediation model	2020	MB&E	Journal of Management and Organizations	0,677	Quant.	Conservative Resource theory	Social subsystem
2	Asril, NM; Maharani, EA; Tirtayani, LA; Suwandi, E	Predicting Help Seeking Behavior related to COVID-19 among Indonesian Adults	2021	SC&I	Journal of Behavioral Science	1,156	Quant.	-	Social subsystem
3	Au, K; Chiang, FFT; Birtch, TA; Kwan, HK	Entrepreneurial financing in new business ventures: a help-seeking behavior perspective	2016	MB&E	International Entrepreneurship and Management Journal	1,524	Quant.	Latané and Darley model for helping behaviours	Social subsystem
4	Bamberger, P.	Employee help-seeking: antecedents, consequences and new insights for future research	2009	MB&E	Research in personnel and human resources management	1,283	Qual.	-	Social subsystem
5	Chen, KY; Chen, GQ; Wu, Q; Liu, W; Zhao, HQ	Help-seeking at work: an integrative review, organizing framework and agenda for future research	2023	MB&E	Nankai business review international	0,321	Qual.	-	Social subsystem
6	Cleavenger, DJ.; Munyon, TP.	Overcoming the Help-Seeker's Dilemma: How Computer-Mediated Systems Encourage	2015	MB&E	Organization studies	4,537	Quant.	Self-presentation theory	Technical subsystem

#	Authors	Title	Year	RA	Journal	Citations	Method	Theory	Subsystem
7	Cleavenger, D., Gardner, W. L., and Mhatre, K.	Employee Help-Seeking Initiation Help-seeking: Testing the effects of task interdependence and normativeness on employees' propensity to seek help	2007	Different RA	Journal of Business and Psychology	2,517	Quant.	Self-presentation theory	Social subsystem
8	Geller, D; Bamberger, PA	The Impact of Help Seeking on Individual Task Performance: The Moderating Effect of Help Seekers' Logics of Action	2012	Different RA	Journal of Applied Psychology	6,13	Quant.	Achievement-goal theory and the social psychological literature	Social subsystem
9	Grodal, S; Nelson, AJ; Siino, RM	Help-seeking and help-giving as an organizational routine: continual engagement in innovative work	2015	BM&E	Academy of Management Journal	10,91	Qual.	-	Social subsystem
10	Hargadon, AB; Bechky, BA	When collections of creatives become creative collectives: A field study of problem solving at work	2006	BM&E	Organization Science	6,541	Qual.	-	Social subsystem
11	Hong, WK; Zhang, L; Gajendran, RS	Relative status and dyadic help seeking and giving: The roles of past helping history and power distance value	2023	Different RA	Human Relations	3,508	Quant.	-	Social subsystem
12	Hsu, WC; Wang, CY	Age and Gender's Interactive Effects on Adult Learners' Help-Seeking Behavior	2018	SC & I	Revista De Cercetare Si Interventie Sociala	0,165	Quant.	-	Social subsystem
13	Huang, X., Ruiz-Segura, A., Tan, C., ...Sharma, R., Lajoie, S.P.	Social presence in technology-rich learning environments: how real we are feeling connected and how does it matter for learning?	2023	Different RA	Information and Learning Science	0,976	Qual.	-	Social subsystem
14	Koydemir-Ozden, S; Erel, O	Psychological help-seeking: role of socio-demographic variables, previous help-seeking experience and presence of a problem	2010	Different RA	WCPCG 2010 (Conference)	-	Quant.	-	Social subsystem
15	Lee, F	When the going gets tough, do the tough ask for help? Help seeking and power motivation in organizations	1997	Different RA	Organizational Behavior and Human Decision Processes	3,408	Quant.	-	Social subsystem

16	Lim, JH; Tai, K; Bamberger, PA; Morrison, EW	SOLICITING RESOURCES FROM OTHERS: AN INTEGRATIVE REVIEW	2020	BM&E	Academy of Management Annals	15,633	Qual.	Conservation of resources (COR) theory	Social subsystem
17	Liu, YH; Chen, FX; Chiang, JTJ; Wang, Z; Liu, HY	Asking how to fish vs. asking for fish: Antecedents and outcomes of different types of help-seeking at work	2022	Different RA	Personnel Psychology	3,749	Mixed	-	Social subsystem
18	Mueller, JS; Kamdar, D	Why Seeking Help From Teammates Is a Blessing and a Curse: A Theory of Help Seeking and Individual Creativity in Team Contexts	2011	Different RA	Journal Of Applied Psychology	6,13	Quant.	-	Social subsystem
19	Park, D.Y., Kim, H.	Determinants of Intentions to Use Digital Mental Healthcare Content among University Students, Faculty, and Staff: Motivation, Perceived Usefulness, Perceived Ease of Use, and Parasocial Interaction with AI Chatbot	2023	Different RA	Sustainability (Switzerland), 15(1), 872	0,664	Quant.	Gratification theory	Technical subsystem
20	Putnik, K; de Jong, A; Verdonk, P	Road to help-seeking among (dedicated) human service professionals with burnout	2011	Different RA	Patient Education and Counseling	1	Qual.	Grounded theory	Social subsystem
21	Sherf, EN; Croitoru, N; McElroy, T	A reinforcement sensitivity theory view of seeking behaviors at work: A meta-analysis	2023	Different RA	Personnel Psychology	3,749	Mixed	-	Social subsystem
22	Taecharungroj, V.	"What Can ChatGPT Do?" Analyzing Early Reactions to the Innovative AI Chatbot on Twitter	2023	Different RA	Big Data and Cognitive Computing	0,681	Qual.	Latent Dirichlet allocation (LDA)	Technical subsystem
23	van der Rijt, J; Van den Bossche, P; van de Wiel, MWJ; De Maeyer, S; Gijselaers, WH; Segers, MSR	Asking for Help: A Relational Perspective on Help Seeking in the Workplace	2021	Edu	Vocations And Learning	0,817	Quant.	-	Social subsystem
24	Wakefield, JRH; Hopkins, N; Greenwood, RM	Help-Seeking Helps: Help-Seeking and Group Image	2014	Different RA	Small Group Research	1,128	Quant.	-	Social subsystem

| 25 | Wang, HT; Rispens, S; Demerouti, E | Boosting creativity in functional diverse work groups: The importance of help-seeking behavior and openness to experience | 2022 | Different RA | European Journal of Work And Organizational Psychology | 1,966 | Quant. | - | Social subsystem |

Quant= quantitative; Qual.= qualitative; MB&E= Management, Business & Economics; SC&I= Social Sciences and Interdisciplinary; Different RA= Different research areas; Edu= Education & Educational Research