The role of work and individual characteristics on the knowledge transfer and subsequent performance after training in a highly uncertain context

Abstract

Purpose: The present study aimed to understand the training transfer to an extreme working context, through the analysis of variables related to the training design (e.g., leader's and colleague's support), the individual's characteristics (e.g., adaptability), and the work environment (e.g., the opportunity to transfer the acquired knowledge). Specifically, we intended to (1) analyze the mediating role of motivation to transfer in the relationship between the perceived support from the supervisor and colleagues and performance, and (2) between adaptability and performance in an extreme context.

Design/methodology/approach: To do so, training about the new safety rules regarding the pandemic crisis of COVID-19 was implemented in a healthcare institution. It consisted of three sessions (each with one hour of training) regarding procedures, rules, and safety norms. Overall, 291 healthcare workers participated in the study and answered an online questionnaire one week after the training completion.

Findings: The results showed that the motivation to transfer had a significant indirect effect on the relationship between colleagues' and supervisors' support and performance and between adaptability and performance. Additionally, complementary analyzes showed that the mediations depended on the levels of self-efficacy, in such a way that the indirect relationships were stronger when self-efficacy was higher. Thus, adaptability and support, both from colleagues and the supervisor, are determining factors for knowledge transfer and resultant performance in extreme contexts, such as the COVID-19 pandemic crisis.

Practical implications: These findings provide support of the role of employee's motivation to transfer as a mechanism connecting both perceived support and adaptability to performance outcomes, under extreme working contexts.

Originality/value: This study, conducted in the middle of the COVID-19 pandemic context - an extreme and uncertain working context – shows the relevance of both job and individual factors to predict employees' adaptability to such contexts.

Keywords: On-the-job training, learning transfer; adaptability; LTSI; motivation to transfer; performance; extreme contexts.

Introduction

Knowledge is a fundamental tool in the world of work that on one hand allows employees to find solutions to work-related daily challenges, and on the other hand, constitutes a competitiveness factor for organizations. As a tool, it must be dynamic and framed into the reality of each employee's function. Hence, training is a major solution to assure the adequacy and the actualization of the knowledge for employees to perform their tasks.

The adequacy of training in the work context is a challenge that involves three actors: the trainee, the trainer, and the organization. Its purpose is to promote the employees' personal and professional development and, ultimately, to contribute to their performance (Velada & Caetano, 2007).

Thinking about training is realizing the constant world transformation (Zeng et al., 2021) and its frequently triggered extreme contexts. Extreme contexts are those associated with crises, threats, turmoil, and uncertainty (Hällgren et al., 2018), such as the COVID-19 pandemic crisis. In such contexts, training is beneficial as a strategy to learn and deal with it. For instance, when the pandemic began, healthcare employees

had to learn how to deal with it, regarding medical treatments and safety procedures and subsequent new health-related rules. All these events raise relevant questions regarding how employees and organizations may respond effectively to them. Indeed, extreme contexts provide a unique environment to understand how employees adapt to such settings (Eberly et al., 2017). For example, extreme contexts, such as the COVID-19 pandemic crisis, brought to the table the discussion about training as a way to combat it (WHO, 2020).

The interaction between an extreme context – as it was COVID-19 – and healthcare workers - can demonstrate the best and worst of human and organizational behavior (Hällgren et al., 2018), and may provide insights into organizational processes of adaptation (following an extreme event), and factors that limit such adaptation (where organizations and employees fail to respond). As such, organizations have sought to respond to this challenge, aligning their strategy with the guidelines of the General Health Direction (GHD), with the production of different documents, with special emphasis on the COVID-19 contingency plan. However, guidelines to reduce the contamination of COVID-19 in society emerged without prior notice and their effectiveness was influenced by massive contamination. Based on this, between the urgency of action, uncertainty, fear, and the absence of knowledge, training in a real extreme work context was implemented in different healthcare organizations that shared the same problem and context, the outbreak of COVID-19, among users and healthcare employees.

On-the-job training allows the articulation of the training and the production process, resulting in a higher degree of knowledge learning and its transfer to work, which is also responsible for behavioral changes (Zeng et al., 2021). The training design, the individual characteristics, and the work environment are dimensions pointed

out by Holton (1996) as determinants in the success of the training transfer. Despite numerous empirical demonstrations of the suitability of the Holton model (Antunes et al., 2018; Chatterjee et al., 2018), its suitability during and after moments of crisis, such as COVID-19, is still non-existent.

The present study aimed to develop knowledge about training transfer in an extreme context characterized by high levels of uncertainty and complexity, such as the COVID-19 crisis (Junça-Silva & Silva, 2022). Specifically, we intended to (1) identify the factors that could promote the knowledge transfer to work, (2) and those that stimulate the adaptability of employees to the extreme context. We also aimed to analyze the mediating role of motivation to transfer knowledge in the relationship between (1) the supervisor's and colleagues' support, and performance (2) and adaptability and performance under this context. This study focused on healthcare organizations that are, by nature, promoters of training employees in their mission of caring for the more vulnerable, mostly with cognitive and functional dependencies.

Theoretical background

On-the-job training

Training is of high importance, particularly at a time when labor relations are unstable and uncertain, as it allows individuals to develop the necessary strength to perform their duties (Ahadi & Jacobs, 2017). Training encompasses a set of planned experiences that allow learning and updated knowledge (Costa et al., 2018). It is an organized, directed, and challenging response to job demands, which guarantees solutions based on knowing how to be and how to do it. Organizations seek, through training, to improve creativity, interdisciplinarity, and knowledge transfer among professionals (Shin et al., 2020).

This phenomenon of learning transfer reflects the architecture of the work to be carried out, the tools, how and where to do it, and can find solutions in training models such as on-the-job training (Caetano, 2008). This training model intends to change behaviors, attitudes, and skills through experiences and knowledge sharing, favoring outputs, which translates into a range of interventions aimed at the success of personal and organizational goals. Showing how to do it, explaining why, and adjusting language and content are factors that motivate employees to change their behavior and lead to their success in pursuing goals (Pastore & Pompili, 2020). Based on this, training is understood as directed communication focused on what is necessary to know as a means to develop skills, change behaviors and increase performance (Vasudevan, 2014).

On-the-job training is valued for its flexibility, regarding space, time, employees, and trainer availability (Pastore & Pompili, 2020). This has four factors that guide its success: (1) training: explaining the concepts of work, giving clues to its integration and relevance; (2) description of activities: explaining causes, consequences, and results. It is important to detail how, why, where when, and with whom to do it. This information guides the execution of activities, demonstrating and allowing the trainee to replicate them; (3) trainee performance: the planned activities are carried out under the supervision of the trainer, allowing the trainee's performance to be assessed; (4) systematic follow-up allows the trainee to consolidate learning.

Several authors have defended the existence of a symbiosis between training, performance, and competitiveness, as a result of the focus on valuing human capital, reflecting a concern for continuous learning (Hatch & Dyer, 2004). The idea of continuum reinforces the training process as a dynamic approach, suitable for each situation, employee, and organization, with a common denominator – the goal of better performance (Caetano, 2008). When training is carried out in the workplace it provides

a more complete and comprehensive view of the employees about their work (Shah et al., 2014).

In this way, it can be said that on-the-job training incorporates a set of advantages for all actors involved. Kyunga (2021) suggested that workplace training is positive for organizational innovation, and, in turn, improves productivity and job satisfaction. On-the-job training is an important step to ensure conditions for an adequate and quick response to different situations that generate anxiety, fear, and uncertainty, such as the COVID-19 pandemic crisis (Liang et al., 2020). These solutions can find an answer in the knowledge and acquisition of technical skills, developed in on-the-job training, which organizations offer to their employees. Their qualifications add knowledge, the ability to do, and individual and collective skills in a dynamic perspective, to be mobilized internally according to the situations.

On-the-job training may be structured or non-structured. The internal mobilization of employees for other functions, and the admission of new ones are processes that often resort to unstructured on-the-job training (Noe, 2006). When organizations resort to this training, they are focused on the present, and not on the future, that is, they are concerned with providing the integration of the new employee, and not with medium or long-term performance, at the risk of creating gaps that can compromise the group (Kiwanuka, et al, 2020). This kind of training has been found to have some gaps (e.g., criteria) that lead to inefficient results (e.g., Rothwell & Kazanas, 2004). However, it is frequently used because it is a more economical, immediate, and practical solution (Nguyen et al. 2021).

On the opposite, structured training aims to respond to the challenge of making organizations more efficient by aligning individual and organizational needs (Barron et al., 1989). The involvement of everyone in the identification and resolution makes the

organization more efficient in the pursuit of goals (Hidayat & Budiatma, 2018). In this way, planning training ensures strategic development with everyone's contribution. Employees see themselves as part of the organization when they are involved in projects, such as on-the-job training.

On-the-job structured training is an opportunity to develop skills, reveal concern on the part of the organization, contribute to increased motivation, and consolidate commitment to the organization and peers (Nguyen, et al, 2021). Therefore, structured training brings competitive advantages to the organization and its employees (Toscano & Ferreira, 2011) as it fits into active learning methods, which are characterized by actively involving trainees in the process, allowing the development of specific skills. Lewis (2005) showed that active methods are crucial for the transfer of skills and behaviors developed in training.

Learning transfer

Training will only make some difference in personal, professional, and organizational growth if the acquired knowledge is transferred to the workplace and allows for improved performance. Although on-the-job training is the one that allows the application and retention of knowledge in real-time the frequency of training *per se* do not guarantee the transfer of skills, (Tho, 2017).

Burke and Hutchins (2007) stated that knowledge transfer is characterized by the applicability of knowledge, skills, techniques, and behaviors acquired in training, to the work context, during a specific period. This transfer should reflect behavioral changes acquired during training (Velada, 2007). Whenever training promotes changes in behavior, attitudes, and knowledge, there is an effective learning transfer thereby contributing to professional and organizational growth. In this way, the learning transfer

is related to the degree to which employees effectively apply in their work what they have learned in the training (Grohmann & Kauffeld, 2013; Yusof, 2012).

Learning transfer is a multidimensional concept that requires looking at it from different perspectives, because conceiving it only as the mere applicability of knowledge is a limited view, and ignores the influences of the environment, training, and trainees, in the processes of learning. It is through this transfer that employees develop themselves.

Bates et al. (2000) highlighted the concept of transfer as the measure through which the knowledge acquired in training is transferred to the workplace, suggesting that transfer can be assessed (Bates et al., 2000). This assessment presupposes an understanding of all those involved and a thorough analysis of the transfer. Wexley and Latham (2002) and Cheng and Hampson (2008) suggested that transfer analysis should be classified into three dimensions: positive, negative, and neutral. The transfer is positive when the training produces an increase in the employees' performance. In contrast, when there is a decline in performance, the transfer is assumed to be negative. On the other hand, maintenance of performance reflects a null or neutral transfer. This relationship between learning and performance reflects the effectiveness of learning transfer (Gessler & Hinriches, 2015).

Learning and its transfer depend on the training itself and the context (Gessler & Hinriches, 2015). Hence, three factors influence learning transfer: the work context, the training, and the employees. Thus, the learning transfer should be considered as a process of knowledge transformation related to the context (of learning and work) and the resources derived from it (Gessler & Hinriches, 2015).

In the literature, two lines of investigation have sought to explain the success of learning transfer: one oriented towards results (e.g., Kirkpatrick, 1996) and another

towards processes (Holton et al., 2000). For instance, in a well-known results-based model, Kirkpatrick (1996) proposed four dimensions to assess the process of learning transfer. The goal was to measure the reaction of employees to training, their learning process, their behavior, and the training results (Kirkpatrick, 1996).

On the other hand, the process approaches seek to explain the process, aligning three factors: training, trainee, and organization. The general idea is that many factors interfere with the transfer process, which is not always linear. For instance, Baldwin and Ford (1988) proposed a model that integrates other elements that explain the learning transfer. This model takes a dynamic view of the process, identifying the characteristics of employees, training targets (their personality and motivation), the work environment (permissive or obstructive to apply learning and retention), and training design.

Another model was developed by Chen and Ho (2001), and highlighted the importance, in the transfer process, of the motivation that precedes training, learning, performance, and the consequences of the transfer. Accordingly, the transfer only occurs if the trainees have the motivation to learn and to transfer what they learned.

The learning transfer system inventory (LTSI) was developed by Holton, Bates, Seyler, and Carvalho (1996), and later updated by Holton, Bates, and Ruona, 2000. For the authors, training only led to increased performance when learning was transferred to work. Accordingly, the model proposed three dimensions of learning transfer: training design, trainees' characteristics, and the work environment, operationalized as learning, individual and organizational performance. Accordingly, the instrument measures 16 dimensions likely to influence training transfer; 11 specific factors, which relate to the specific training course the trainee was attending (e.g., motivation to transfer), and five general factors, which are likely to influence any training program conducted (e.g., transfer effort-performance expectations) (see Table 1).

The mediating role of motivation to transfer

In Holton's model (1996, 2005) the motivation to transfer has a direct influence on the training transfer. According to Holton et al. (2005), motivation to transfer is the direction, intensity, and persistence of effort toward utilizing in a work setting skills and knowledge learned.

Considering that all trainees have different levels of motivation, it is that degree of motivation that will determine the knowledge transfer to work. Although the influence of motivation to transfer the contents learned in training seems evident, there are still few studies that empirically demonstrate this relationship (Axtell et al., 1997).

On the other hand, the literature has demonstrated the role of social support (leaders and colleagues) in transferring knowledge to work (e.g., Tafvelin & Stenling, 2021). Support from the supervisor – that is, the extent to which supervisors-managers support and reinforce the use of training on the job (Holton et al., 2005) - and colleagues – the extent to which peers reinforce and support the use of learning on the job can be found in behaviors of appreciation, encouragement, feedback, empowerment, recognition, and patience with colleagues that try to apply the training on the job (Bates et al., 2012). It is expected that this type of support will be more relevant in work contexts that organize human resources by teams, reflecting an interdependence between colleagues and direct managers (Bates et al., 2000). For example, Iqbal and Dastgeer (2017) showed that motivation to transfer was a mediator in the relationship between self-efficacy and learning transfer. Similarly, Brinkerhoff and Montesino (1995) showed that support from the leader increased the transference of knowledge learned in the context of training. Also, Facteau et al. (1995) highlighted the role of supervisors' support on motivation for transferring learning to work. Grossman and Salas, 2011, and Martins et al., in 2019, showed that support from supervisors and

colleagues were positive predictors of motivation to transfer learning to work. On the other hand, Seyler et al. (1998) showed that colleagues' support influenced motivation to transfer more than the supervisor's support. A meta-analysis carried out by Reinhold, Gegenfurtner, and Lewalter, in 2018, showed that colleagues' support was the strongest predictor for transferring learning to work. Therefore, based on the literature, we expected that (Figure 1):

H1. Motivation to transfer knowledge mediates the relationship between a supervisor's perceived support and performance in extreme contexts.

H2. Motivation to transfer knowledge mediates the relationship between perceived peer support and performance in extreme contexts.

On the other hand, in the literature, individual characteristics appear to play a significant role in learning transfer and also in performance after training (e.g., Zeng et al., 2021). For instance, trainees' adaptability has often been positively associated with learning transfer (Ratique et al., 2018).

Adaptability or the individual's ability to manage their thoughts, emotions, and behaviors in response to new, uncertain, and changing situations (Martin et al., 2012) helps them deal with these changes, novelties, and uncertainties in the work context (Collie et al., 2020). The uncertainty triggered by extreme contexts and hard times has been a constant for healthcare professionals. Therefore, adaptability can be a key feature to encourage learning after on-the-job training, and consequently performance, in this type of employee. For example, Tannenbaum and Yukl (1992) showed the existence of a positive relationship between adaptability and learning transfer to work. For the authors, one of the essential premises for trainees to feel motivated to transfer training to work is based on their ability to adapt. Clark et al. (1993) also showed that employees with greater motivation to transfer learning tend to be more adaptable and, therefore,

perform better. Froehlich and Gegenfurtner, in 2019, showed that the motivation to transfer mediates the relationship between adaptability and learning transfer. That is, the greater the adaptability, the greater the motivation to transfer learning, which contributes to organizational competitiveness (Acton & Golden, 2002; Karia & Ahmad, 2000). Thus, based on the literature, the following hypothesis was defined:

H3. The motivation to transfer knowledge mediates the relationship between adaptability and performance in extreme contexts.

--FIGURE 1--

Method

Research setting

The study was conducted in a healthcare institution, an IPSS, located in Portalegre, an inland city in Portugal. The District of Portalegre is considered a Low-Density territory (CIC, 2021), characterized by a high rate of aging, recorded in the 2021 census (Pordata, 2021), and is reflected by the strong presence of Private Institutions of Social Solidarity, to take care of this aging population.

Participants

From the universe of IPSS employees, a non-probabilistic, convenience sample was selected, according to the criterion of having had training in the work context alluding to COVID-19, to apply the LTSI. The sample was collected without any type of restriction in terms of age, gender, or function performed in the healthcare institution.

The sample consisted of 291 participants aged between 20 and 66. Most of them were employees in the 50-59 age group (31.1%), followed by the 30-39 age group (25.65%). Most participants were female (85%). In the professional category of the participants, most of them were health technicians (53%), followed by doctors (36.5%), and then nurses (10.5%).

Recruitment and Training

The trainees, all of them healthcare professionals, were enrolled in a 3-hour COVID-19 safety plan training during the extreme context characterized by the pandemic. During the subject presentation (coinciding with the first session), the trainees were informed of the training objectives, schedule, and methodology to be followed. Participation was mandatory as this training was part of the safety rules and procedures imposed by the General Health Direction (GHD).

The training was performed in the first semester of 2020 by a healthcare senior professional (a Ph.D. in public health) with specific training in healthcare processes during adversity and crisis moments and consisted of three sessions of one hour each, for a total of three hours. The training followed hybrid learning, in which the first session was face-to-face, and the following ones occurred online to facilitate the professional's availability. Table 1 presents, in detail, the content of each session. For the sessions, the expositive and interrogative methodologies were used. The expositive methodology was used to give the trainees objective information regarding the imposed rules, procedures, and safety norms that have been imposed by the National GHD. Group work was also followed to stimulate interaction and experience sharing, and reflective exercises were included because the evidence showed that they can increase awareness about emotions (Ozcan et al., 2011). Before the sessions, documentation was provided, and questions were clarified.

--TABLE 1--

Instruments

Learning transfer. One week after the training, we used the LTSI (Holton et al., 2000) to collect data. We resorted to 13 factors from the LTSI because we wanted to explore in greater detail factors related to the climate and the motivation to transfer the

learning to the workplace. Hence, we used (1) training transfer climate (support from supervisor; supervisor sanctions; peer's support; positive personal outcomes; negative personal outcomes; feedback and coaching; openness to change); (2) motivation to transfer learning (motivation to transfer; self-efficacy; effort expectations to transfer - performance; performance expectations - results; personal ability to transfer; the opportunity to use) (see Table 2). The items were answered on a 5-point Likert scale, where "1" corresponded to "*completely disagree*" and "5" to "*completely agree*".

--TABLE 2—

Performance. To measure performance, we used the task performance scale from the Individual Work Performance Questionnaire (Koopmans et al., 2013). It consisted of 13 items (e.g.: "How do you rate the quality of your own work?") answered on a 5-point Likert scale (1-*insufficient*; 5-*very good*).

Adaptability. Adaptability was assessed with eight items by Koopmans et al. 2013. An item example is "I have demonstrated flexibility, even in times of crisis as is this COVID-19". For these items, participants rated their answers on a 5-point Likert scale (1-*seldom*; 5-*always*).

Procedure

The questionnaire was applied online, one week after the training, through google forms and sent to the professionals' email. Data confidentiality and anonymity were guaranteed to all of them (in the third training session) before they answered the questionnaire. The response rate was 100% as all professionals who attended the course answered the questionnaire.

Data analysis

First, the internal consistencies and descriptive analyzes of the variables under study were analyzed, as well as their correlations. Subsequently, to test the hypotheses,

mediation analyses were carried out, through model 4 of the PROCESS macro (Hayes, 2018), through which the bootstrapping method was used (5000 times) to obtain confidence intervals and verify the model significance.

Results

Descriptive statistics

Table 3 shows all the descriptive statistics, correlations, and Cronbach's alfas.

--TABLE 3 –

Exploratory analysis of the factors that contribute to the knowledge transfer to work

To analyze the factors that influenced knowledge transfer to work, a linear regression analysis was conducted. The results showed that the most significant predictors of transference were performance self-efficacy (B = .50, $t_{(1, 286)}$ = 9.91, p < .001) and the positive expectation that effort leads to increased performance (motivation) (B = .09, $t_{(1, 286)}$ = 2.640, p < .01). The model was statistically significant and explained 41% of the data (R^2 = .41, $F_{(1, 286)}$ = 76.44, p < .001). The factors of support from supervisor and peers, supervisors' sanctions, positive and negative outcomes, feedback and coaching, openness to change, personal capacity to transfer, and opportunities presented non-significant relations with knowledge transfer-

Exploratory analysis of the factors that stimulate the employees' adaptability to the pandemic situation

The results showed that the most significant predictors of adaptability were self-efficacy (B = .49, $t_{(1, 286)}$ = 7,194, p < .001), peer's support (B = -.15, $t_{(1, 286)}$ = -3,168, p < .001) and the opportunity to use the knowledge (B = .11, $t_{(1, 286)}$ = 2,366, p < .01). The model proved to be statistically significant and explained 39% of the data (R^2 = .39, $F_{(1, 286)}$ = 28,321, p < .05).

Hypotheses testing

To test the hypotheses, a mediation analysis (model 4) was conducted through PROCESS (Hayes, 2018).

Hypothesis 1. Hypothesis 1 expected that the relationship between the supervisor's support and performance would be mediated by the motivation to transfer. The results showed a significant indirect effect (.08, CI 95% [.04, .13]). Furthermore, the model explained 33% (R^2=.33) of the performance variance and was significant (p < .01). The relationship between supervisor's support and motivation to transfer (a; B = .25, p <.01), and the relationship between motivation to transfer and performance (b; B = .32, p < .00) were significant. Likewise, the total effect was significant (c; B = .22, p < .01). After the introduction of motivation to transfer, the effect of the supervisor's support on performance remained significant (c'; B = .14, p < .01) indicating a partial mediation. As such, hypothesis 1 was supported (see Figure 2).

--FIGURE 2--

Hypothesis 2. Hypothesis 2 expected that the relationship between peer support and performance would be mediated by the motivation to transfer. According to the results, the indirect effect of motivation to transfer was .11, with a 95% CI [.05, .18] indicating a significant indirect effect. Furthermore, the model explained 33% (R^2=.33, p < .01). The relationship between peer support and motivation to transfer (a; B = .35, p <.01), and the relationship between motivation to transfer and performance (b; B = .31, p < .01) were significant, as was the total effect (c; B = .20, p < .01). After the introduction of motivation to transfer, the effect of peer support on performance remained significant (c'; B = .09, p < .05), indicating a partial mediation. As such, hypothesis 2 was supported (Figure 3).

--FIGURE 3--

Hypothesis 3. Hypothesis 3 expected that the relationship between adaptability and performance would be mediated by the motivation to transfer. The results showed a significant indirect effect (.06, CI 95% [.02, .10]). Furthermore, the model explained 55% (R^2=.55, p< .01). The relationship between adaptability and motivation to transfer (a; B = .39, p <.01), and the relationship between motivation to transfer and performance (b; B = .14, p < . 01) were significant. The total effect (c; B = .65, p < .01) was also significant. After motivation to transfer entered the model, the effect of adaptability on performance remained significant (c'; B = .59, p < .01), indicating a partial mediation. As such, hypothesis 3 was supported (see Figure 4).

--FIGURE 4--

Additional analyses

Based on previous results, both from regressions and from mediations, a moderated mediation model was tested, using PROCESS model 7 (Hayes, 2018). This aimed to test whether the indirect effects would be conditional on the level of self-efficacy.

First, we tested the moderation of self-efficacy on the indirect effect of supervisors' support and performance via motivation to transfer. The results showed a significantly moderated mediation index (-.09, CI 95% -.14, -.04]. This significant interaction indicated that the indirect effect varied according to the different levels of the moderating variable, in this case, self-efficacy. A simple slope analysis recommended by Dawson and Ritcher (2006) was performed. It demonstrated that the indirect effect was significant for lower (B = .09, β = .03, p < .01, CI 95% [.03, .14]), or mean levels of self-efficacy (B = .03, β = .02, p < .05, CI 95% [.01, .06]). The indirect effect was no longer significant when self-efficacy showed higher levels (B = -.02, β = .01, p > .05, CI 95% [-.05, .00]) (see Figure 5).

--FIGURE 5--

Then, we tested the moderation of self-efficacy on the relationship between peer support and performance via motivation to transfer. The results evidenced a non-significant moderated mediation index (-.04, CI 95% [-.11, .01]).

At last, we tested the model with adaptability as the predictor. The results demonstrated a significantly moderated mediation index (-.03, CI 95% [-.08, -.01]). The significant interaction showed that the indirect effect varied according to the self-efficacy levels. A simple slope analysis demonstrated that the indirect effect was significant when self-efficacy was higher (B = -.01, β = .01, p < .05, CI 95% [-.03, -.01]). The indirect effect was no longer significant for lower (B = .02, β = .02, p > .05, CI 95% [-.01, .07]) or mean values of self-efficacy (B = .00, β = .01, p > .05, CI 95% [-.02, .03])(Figure 6).

--FIGURE 6—

Discussion

This study, conducted under an extreme context – the COVID-19 pandemic crisis - answers the call for studies on training under these contexts (Hällgren et al., 2018). Extreme contexts are triggered by crises, threats, and turmoil (e.g., Hällgren et al., 2018) and, as such are characterized by complexity and uncertainty as was the COVID-19 pandemic crisis, specifically for those who were in front of the line to combat the virus, the healthcare workers. Training in extreme contexts is different from regular training because it has a higher degree of uncertainty and ambiguity than regular settings. Indeed, training under extreme contexts is beneficial because it helps employees to understand new procedures and rules needed to deal with such settings.

This study explores the role of work (e.g., supervisor and peer support) and individual characteristics (e.g., adaptability) for learning transfer and subsequent

performance in an extreme context – the COVID-19 healthcare context. Thus, this study helps to understand the beneficial impact of training under an extreme context on performance, by exploring the role of external (i.e., leaders' and colleagues' support) and internal factors (adaptability) on motivation to transfer knowledge and as such on performance. Furthermore, it demonstrates the existence of a personal characteristic – self-efficacy- that may amplify this positive effect and as such highlights its importance for extreme contexts.

First, the results show that one of the explanatory factors of training transfer is the trainees' motivation to transfer. That is, the greater the motivation of individuals to apply knowledge, the greater the transference of this knowledge to work. Motivation is based on the idea of a positive expectation about the relationship between effort and performance (Garland, 1984; Lawler & Suttle, 1973) so the higher this expectation, the greater the individual's motivation to transfer knowledge, which in turn improves performance. The motivation to transfer learning reflects the willingness to apply the training content to the workplace (Zeng et al., 2021), and reflects the direction, intensity, and persistence of the effort to use it to perform the job (Holton et al., 2005; 2012). Seyler et al. (1998) showed that the motivation to transfer was defined as the intention to use the skills, acquired and developed in a training context, in the work environment. This result is consistent with other empirical demonstrations. For instance, Zafar et al. (2014) showed that motivation to transfer positively predicted the transfer of knowledge to work. Watson and Hewett (2006) also showed that the motivation to use knowledge and the opportunity for it positively influence the transfer of knowledge. In Holton's model (1996, 2005) the motivation to transfer has a direct influence on the training transfer. Considering that all trainees have different levels of motivation, it is their motivation that will determine the application, or not, of the training in their work.

Therefore, there is consensual support to suggest that the individual's motivation is a crucial factor for knowledge transfer after training even if employees are in extreme working settings.

Self-efficacy is also a factor that seems to have an influence both on knowledge transfer and on fostering adaptability to extreme situations, such as the pandemic COVID-19 situation. It refers to an individual's personal belief about their own abilities to perform his/her work effectively (Bandura et al., 1999). This has been associated with positive performance indicators (Bouffard-Bouchard, 1990). Several studies have also shown the predictive power of self-efficacy on adaptability and satisfaction (Duffy et al., 2015). Kozlowski et al. (1999) showed that self-efficacy was a relevant individual factor in goal achievement and adaptive performance. Bell and Kozlowski (2002) also showed a significant moderation effect of self-efficacy on the relationship between knowledge transfer and performance.

Finally, the opportunities to put into practice the knowledge acquired in training seems to be a relevant factor for the employee's adaptability. Endres (2018) highlighted the importance of management in creating opportunities to increase adaptability and improve performance.

The findings suggest that the relationship between the supervisor's support and performance is mediated by the motivation to transfer. The results show that as support from supervisors increases, the motivation to transfer also increases, leading to higher performance in an extreme working context. The results are in line with the literature. For instance, Iqbal and Dastgeer (2017) showed that the motivation to transfer mediated the relationship between self-efficacy, retention of training, and learning transfer. Brinkerhoff and Montesino (1995) also showed that the perceived support from supervisors allowed trainees to have a higher level of competencies used compared to

trainees who had no or less support. Facteau et al. (1995) found that encouragement and support from supervisors increased motivation to transfer. Grossman and Salas (2011) also showed that support from managers was a positive predictor of motivation to transfer knowledge to work. In a study carried out with 3600 individuals, Martins et al, (2019) evidenced that support from managers was positively related to the motivation to learning transfer.

Additionally, the findings show that when peer support is higher, motivation to transfer tends to increase which in turn leads to improved performance. The results are in line with the literature (Zeng et al., 2021). Peer support is related to the colleague's tendency to help the learning transfer to work (Seyler et al., 1998). Peer support is expected to be more relevant in work contexts that organize human resources into teams, reflecting an interdependence between colleagues (Bates et al., 2000). In this perspective, peer support is a positive influence that is operationalized in behaviors of appreciation, encouragement, expectation, and patience with colleagues who try to apply training at work. Peer support is thereby positively related to the training transfer (Seyler et al., 1998). The authors also showed that peer support influenced the motivation to transfer more than supervisor support, which is also demonstrated in this study. Likewise, Bell et al. (2017) showed that peer support can determine the learning transfer to the workplace, stating that the motivation to do it is positively affected by this support. Martins et al., (2019) also showed that peer support and motivation to transfer had a positive impact on trainees' performance. A meta-analysis carried out by Reinhold et al. (2018) showed that peer support was the strongest predictor of motivation to transfer learning to the workplace.

Theoretical implications

The results also show that adaptability influences performance through the employee's motivation to transfer the learned knowledge in an extreme working context. That is, when adaptability increases, motivation to transfer learning tends to be higher, and as a result, performance increases, even if there is an extreme working context. Tannenbaum and Yukl (1992) showed the existence of a positive relationship between the transfer of learning and adaptability. For the authors, one of the essential premises for trainees to feel motivated to transfer training content to work is their ability to adapt to new realities and circumstances. Thus, the greater the adaptability of employees, the greater the motivation to transfer learning. Clark, et al (1993) also demonstrated that more adaptable employees, tend to be more motivated to transfer learning and, therefore, perform better. Other studies demonstrated that the greater the employee's adaptability, the greater the motivation to transfer learning, which results in higher organizational competitiveness (Acton & Golden, 2002; Karia & Ahmad, 2000). These results not only emphasize the relevance of motivation to transfer what is learned in training but also highlight the role of individual characteristics, such as adaptability. Hence, adaptable individuals not only tend to be more motivated to learn but also have more willingness to use it in their working life, even in uncertain and complex circumstances.

Additionally, this study looked for an answer to understand under what conditions these relations occur. A set of complementary analyzes shows that self-efficacy is a condition through which the indirect effect of organizational (peers and supervisors' support) and individual characteristics (adaptability) influence performance via motivation to transfer knowledge. The relationship between the supervisor's support and performance via motivation to transfer depends on self-efficacy levels, in such a way that the relationship is stronger for lower levels of self-efficacy. That is, a

supervisor's support tends to increase performance through motivation to transfer, in particular for those with lower higher levels of self-efficacy. Hence, individuals who are less confident in themselves regarding performance, need more support from supervisors, than those who have higher levels of self-efficacy. For these, having higher support from the supervisor may indeed be counterproductive, as it is shown to decrease performance.

The opposite occurs with the relationship between adaptability and performance via motivation to transfer. That is, this relationship is stronger when self-efficacy is higher. Self-efficacy seems to be a relevant condition to raise not only the motivation to transfer knowledge but also the employee's performance. Self-efficacy, as a belief in the personal ability to perform tasks effectively (Bandura, 1977) allows a person to feel more comfortable implementing new knowledge, even in crises, such as the COVID-19 pandemic (Bahora et al., 2008).

Limitations and Future Research Directions

This study has some limitations. First, the small sample size and the use of a convenience sample may trigger some bias. Therefore, the results should be generalized with some caution to other healthcare institutions. On the other hand, the use of self-reported measures may have led to the common bias method, as well as biases arising from social desirability (Podsakoff et al., 2012). Finally, the use of a cross-sectional study limits the generalization of results, as well as the comparative analysis between performance indicators before and after training.

Future research should expand the findings obtained in this study. First, future research should use alternative study designs, such as experimental or quasi-experimental designs, resorting to a control group and pre-and post-test measurements. Second, because individual characteristics may play significant moderating roles in

these models, future studies should also consider the analysis of the role of other personalistic variables in these relationships, such as the big-5 or psychological capital. Third, future research should also consider explore the within-person fluctuations on motivation to transfer and how it impacts the trainee' performance and adaptability to extreme situations or contexts. Within-person fluctuations are important because they translate the differences that occur on a given state or behavior from day to day (Junça-Silva, 2022); as such, conducting a daily diary study would be helpful to better understand it.

Practical implications

Training is for healthcare institutions a privileged mechanism for adapting knowledge and skills, or improving existing ones, to respond to the needs of professionals. The practical contribution of this investigation highlights the role of each trainee's motivation to improve performance under extreme working contexts. Further, results emphasize the importance of training to improve effective responses of both workers and organizations in these contexts. Thus, healthcare institutions should consider regularly implementing training as a strategy to facilitate adaptability to extreme situations. As the results highlight training, even when there is high uncertainty, is beneficial for employees to understand and learn how to deal with new and uncertain situations. Indeed, training and the consequent learning transfer to work are of great importance for individual and organizational performance, increasing their ability to respond to uncertainty as has been seen in the COVID-19 pandemic.

Moreover, the organization has to be responsible for creating environments and mechanisms that support the transfer and applicability of learning in the workplace. For instance, it should be useful to enhance leaders and peer support to facilitate learning transfer. Plus, the use of real simulations (e.g., extreme situations) would promote

enhanced adaptability to these contexts and minimize experienced uncertainty. Trainees should feel that attendance and participation in training, in a real work context, have continuity and feedback from supervisors. This necessary symbiosis will allow for better training results in healthcare institutions.

On the other hand, the results show the role of adaptability and self-efficacy in the motivation to transfer and performance. Organizations should consider these indicators to create training focused on these characteristics. The aim is not only personal development but also professional one because when the organization has confident and adaptable employees, even in crises, it will be able to ensure its productivity.

Conclusion

The findings of this study show that the employee's motivation to transfer what is learned on training under an extreme context is a mechanism through which colleagues' and supervisors' support influence adaptability to the context and performance. Furthermore, these indirect effects are conditional on the levels of self-efficacy, in such a way that they are stronger when self-efficacy is higher. Thus, adaptability and support, both from colleagues and the supervisor, are determining factors for knowledge transfer and resultant performance in extreme contexts, such as the COVID-19 pandemic crisis.

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