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Teletrabalho Eficaz: avaliação do desenho instrucional em treinamentos

Effective Teleworking: evaluation of instructional design in training

Teletrabajo Eficaz: evaluación del diseño instruccional en la formación

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Resumo: O objetivo deste trabalho é avaliar a qualidade do Desenho Instrucional (DI) de um programa de treinamentos de habilidades de trabalho em equipes virtuais oferecido por uma organização brasileira do segmento financeiro. O programa foi desenvolvido para atender à demanda de trabalho virtual emergencial na pandemia de Covid-19 e possui 73 horas para adequação ergonômica, assertividade da comunicação e desenvolvimento de empatia, dentre outros. Os dados foram obtidos por meio de fontes primárias, a partir da análise dos conteúdos programáticos e do ambiente do treinamento virtual. Os conteúdos foram avaliados, com o suporte de um roteiro fundamentado nas teorias instrucionais. A análise da qualidade do DI foi realizada por 14 especialistas, com o apoio de um roteiro em três rodadas avaliativas e foi considerado o consenso entre os juízes especialistas. Os resultados mostraram que os conteúdos dos treinamentos foram voltados tanto para a equipe, quanto para o indivíduo e foram relevantes para preparar os trabalhadores a dar continuidade aos seus trabalhos a partir de casa. Entretanto, o DI dos treinamentos teve pouca proximidade com a teoria e os princípios instrucionais,

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o que pode comprometer o potencial para proporcionar a mudança de comportamento nos egressos e alcançar os desempenhos esperados. A partir dos resultados e da literatura de DI, foram apresentadas sugestões que podem orientar gestores e desenhistas instrucionais em futuros treinamentos.

KEYWORDS
Training evaluation.
Instructional design.
Telework.

Abstract: The objective of this work is to evaluate the Instructional Design (ID) quality of a training program for working skills in virtual teams offered by a Brazilian organization in the financial sector. The program was developed to meet the demand for emergency virtual work during the Covid-19 pandemic and has 73 hours for ergonomic adaptation, the assertiveness of communication, and the development of empathy, among others. The data was obtained through primary sources, based on the analysis of the programmatic contents and the virtual training environment. The contents were evaluated, with the support of a script based on instructional theories. The quality analysis was carried out by 14 specialists, with the support of a script in three evaluation rounds, seeking consensus among the specialist judges. The results showed that the training contents were aimed at both the team and the individual and were relevant to prepare workers to continue their work from home. However, the instructional design of the training needed more proximity to the theory and instructional principles, which may compromise the potential to provide behavior change in graduates and achieve the expected performance. The results and the instructional design literature presented suggestions to guide managers and instructional designers in future training.

PALABRAS CLAVE
Evaluación de la formación. Diseño instruccional. Teletrabajo.

Resumen: El objetivo de este trabajo es evaluar la calidad del diseño instruccional de una formación en habilidades de trabajo en equipos virtuales, ofrecido por una organización brasileña del sector financiero. El programa, que tiene una duración de 73 horas, fue desarrollado para atender a la demanda de trabajo virtual en la pandemia del Covid-19. Las temáticas incluidas fueron la adecuación ergonómica, la asertividad de la comunicación y el desarrollo de la empatía. Los datos se obtuvieron a través de fuentes primarias, a partir del análisis de los contenidos programáticos y del entorno virtual de formación. Se evaluaron los contenidos, con el apoyo de un guion basado en teorías instruccionales. El análisis de calidad del diseño instruccional fue realizado por 14 especialistas, bajo un guion, en tres rondas de evaluación, buscando el consenso entre los jueces especialistas. Los resultados mostraron que los contenidos de la formación estaban dirigidos tanto al equipo como al individuo y eran relevantes para capacitar a los trabajadores a seguir el desempeño de su trabajo desde casa. No obstante, el diseño instruccional de la formación tuvo poca proximidad con la teoría y los principios instruccionales, lo que puede comprometer el potencial para proporcionar un cambio de comportamiento en los egresados. A partir de los resultados y de la literatura científica, se presentaron algunas sugerencias para orientar a los gerentes y diseñadores instruccionales en futuras capacitaciones.

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Introduction

The Covid-19 pandemic has compelled individuals to social isolation as a measure to reduce the number of infections and deaths. In this context, organizations had to quickly fit into the new situation, and promote virtual work. Most workers and organizations were then experiencing teleworking for the first time, thus raising doubts and insecurities when faced with the challenge of sustaining efficiency in a new and adverse context (Wang et al., 2021).

At the same time, organizations have faced the challenge of providing basic support to teleworkers, including access to information, training, material support, among other critical aspects (Contreras, Baykal, & Abid, 2020). Of these, the most complex aspect is to build and provide training designed to meet the specific needs of the organization, and develop the workers' skills in a context of emergency.

Such an environment demands from workers and leaders an even broader set of skills. This set includes not only work-related technical skills such as autonomy and self-discipline (González-Anta et al., 2021; Wang et al., 2021), but also the ability to effectively accommodate work- and family-related responsibilities (Kilcullen, Feitosa, & Salas, 2021).

The integrated work of interdependent teleworkers sharing common objectives and goals, reporting to a leader and a virtual team, demands integrative skills from participants and leaders, and considerably differs from face-to-face teams (Bell & Kozlowski, 2002; Dulebohn & Hoch, 2017; Larson & DeChurch, 2020; Maduka et al., 2018; Schulze & Krumm, 2017). These skills should be developed and trained to tailor and prepare teleworkers to perform their tasks efficiently and effectively, optimizing resources and investments with training-oriented interventions (Ford, Baldwin, & Prasad, 2018; Mutha & Srivastava, 2021).

It is widely known that training results basically depend on variables related to Instructional Design (ID) (Fatima & Siddiqui, 2020; Kraiger & Ford, 2021; Lacerenza et al., 2017). However, there is still little research on this topic, and there are many questions about the effectiveness of these actions in achieving individual, team and organizational goals (Fatima & Siddiqui, 2020; Kraiger & Ford, 2021; Lacerenza et al., 2017; Omitido & Omitido, 2021).

Pre-Internet ID models remain as the most widely used (Thurber, 2021), with contents strongly geared toward traditional face-to-face teams. Virtual teams' work contexts should, thus, be considered when proposing training designs more responsive to the specificities of the context.

Despite the ID relevance, most of the previous research neglected the impact of design variables on learning and transfer (Bhatti & Kaur, 2010; Fatima & Siddiqui, 2020; Kraiger & Ford, 2021; Nikandrou, Brinia, & Bereri, 2009). Notably, few studies have looked at training held in technological environments or in the context of virtual work (Kraiger & Ford, 2021; Nasri & Iskandar, 2021; Thurber, 2021), supporting the need for additional studies. The analysis of training design in these contexts may contribute to theory in the field, as well as to managerial decision-making in organizations.

In this sense, this study aims at evaluating the ID quality of a virtual teamwork skills training program offered by a Brazilian organization in the financial sector. All training courses were online and targeted to prepare professionals for virtual work at the pandemic onset (April 2020).

Here, instructional quality is understood as the proximity between the attributes of the training evaluated and the principles and theories of instructional design highlighted in literature on the matter. Instructional principles are empirically supported propositions that drive the design and delivery of effective training (Kraiger

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and Ford, 2021).

This instructional quality evaluation sought evidence that training design could potentially provide learning and lead to behavior change for learners, and achieve the intended instructional objectives. Evaluation was focused on the categories of training content and instructional strategies, examples, exercises and evaluations, inspired by Omitido et al., (2006); Kraiger and Ford (2021) and Lacerenza et al., (2017).

This study makes theoretical, practical and social contributions for researchers, instructional designers, trainers and decision-makers in organizations with virtual teams. In terms of theoretical contributions, it presents an extensive overview of instructional theories and principles, with a solid basis for developing more effective training. It also contributes to shortening the gap in empirical studies on DI.

When it comes to meaningful contributions, it offers guidance on how ID may be effectively applied in training for virtual teams. It also provides a useful roadmap suited to the construction of these programs, which facilitates the implementation of quality training.

As far as social contributions are concerned, it provides essential input for professionals in the field of training, helping them to make decisions about the training design to develop virtual teams. It also emphasizes the importance of the content covered, the variability of strategies, and the training reliability in relation to real work situations. Contributions range from theoretical deepening to workable guidelines for the field of virtual team training.

According to Mihhailova (2009), this conceptual diversity varies according to the level of flexibility. The author points out that the term "telework" has broadened its meaning, getting closer to the term "virtual work", and the latter should be preferred considering its progress toward greater use of Information and Communication Technologies (ICTs) (Mihhailova, 2009). In this paper the authors have chosen to use both the terms "telework" and "virtual work" when referring to individual work carried out away from the premises of the respective organization.

The structures of virtual groups and teams should also be differentiated. Virtual groups exist when there are several independent teleworkers reporting to the same manager (Ebrahim, 2015). A virtual team is when teleworkers perform interdependent tasks, share responsibilities, authority, leadership and decision-making, as well as results and rewards (Bell & Kozlowski, 2002; Ebrahim, 2015; Larson & DeChurch, 2020; Maduka et al., 2018; Mutha & Srivastava, 2021).

In this paper, the theoretical framework underpinning the analysis and discussion is divided into two parts: 1) Training Objectives, Learning, Content and Method; and 2) Strategies, Examples, Exercises and Evaluations. The division was based on works in the field of Training, Development and Education (TD&E) (Omitido et al., 2006; Kraiger and Ford, 2021; Lacerenza et al. 2017), and adapted considering the correlation between the themes approached by the theory and the instructional principles.

Theoretical elements of the research

Firstly, it should be noted that the concept of virtual work is diverse and still lacks consensus among researchers.

Objectives, Learning, Content and Method

Training planning, according to instructional theory, begins with the

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definition of instructional objectives based on the Training Needs Analysis (TNA) identified by the area of people management (Omitido & Omitido, 2021). Achieving these objectives depends, among other factors, on the content and the methods and strategies set up anchored in the principles of Instructional Design (ID) and Instructional Transaction Theory (ITT) (Fatima & Siddiqui, 2020; Nasri & Iskandar, 2021).

Instructional design (ID) refers to the planning of training, and reflects a link between form and function in order to fulfill instructional objectives and the performance expected from the proposed actions (Baldwin & Ford, 1988; Kraiger & Ford, 2021; Fatima & Siddiki, 2020). Effective ID aims at assisting learners to encode, retain and retrieve content. Accordingly, it should engage and drive the learner's attention to the material, drawing connections between the content presented and the learners' previous knowledge, maintaining physical, functional, psychological and social compliance with the work environment (Kraiger & Ford, 2021).

Adherence to these principles in the training courses ID promotes in learners greater capacity to generalize and transfer the skills acquired to the way they perform their activities (Kraiger & Ford, 2021). It thus provides the organization with greater application and return on investment in training.

The instructional objectives will guide the entire ID process. Objectives should be clear and closely related to the activities to be carried out by learners, and the learner's personal and professional objectives should also be considered (Kraiger & Ford, 2021; Omitido & Omitido, 2021; Thurber, 2021). Objectives should consist of three components: performance (observable verb and object of action), condition (environmental variables that interfere with performance), and criterion (expected performance standard) (Omitido et al., 2006).

The definition of these instructional objectives will support the description of the learner's expected performance at the end of the instructional action, as well as the criteria for evaluating learning and the impact on behavior (Omitido et al., 2006). These evaluation measures should match the nature and levels of complexity of the instructional objectives and expected performance. The teaching and learning strategies used should favor the development of knowledge and skills according to the learning domains established in the instructional objectives (Omitido et al., 2006).

Learning domains play a key role in structuring training objectives. Learning taxonomies were defined by Bloom et al. (1956) and Anderson et al. (2001), who divided the domains into three categories: cognitive, affective and psychomotor. Each of these domains is subdivided into levels of complexity, with a hierarchy ranging from the simplest to the most complex.

The cognitive domain is subdivided into six levels: 1) knowledge, 2) comprehension, 3) application, 4) analysis, 5) synthesis, and 6) evaluation. The psychomotor or skill-based domain is divided into: 1) perception, 2) positioning, 3) accompanied execution, 4) mechanization, and 5) full mastering of movements. The affective domain, in turn, is divided into: 1) receptivity, 2) response, 3) appreciation, 4) organization, and 5) characterization (Bloom, et al., 1956; Anderson et al., 2001).

The ID should also focus on the learner or team to maximize the intended outcomes of learning and transfer (Kraiger & Ford, 2021; Nielsen & Shepherd, 2022; Thurber, 2021). Content should be relevant, applicable, clear, concise, and related to the participant's or team's previous experiences. It should also be organized in a meaningful way from basic to advanced content (Nasri & Iskandar, 2021; Thurber, 2021). Although studies highlight learning as a complex and individual process, there is evidence that well-designed instruction has the potential to

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engender positive results for all profiles of learners (Kraiger & Ford, 2021).

In addition to attention to learning throughout the training, transferring learning to the workplace should be carefully planned (Fatima & Siddiqui, 2020; Ford, Baldwin, & Prasad, 2018; Nielsen & Shepherd, 2022). Baldwin and Ford (1988) highlight three sets of inputs that may foster or inhibit the process of transfer of learning: training design, individuals-related aspects, and work environment-related aspects. Of these, only ID is more easily managed in training.

Transfer occurs when what has been learned in training is directly or indirectly applied to the work environment. ID should rely on strategies and methods capable of getting learners ready to generalize the knowledge and skills acquired in the intervention, and apply them at work (Baldwin & Ford, 1988; Bhatti, Kaur, & Battour, 2013; Ford et al., 2018). Despite enabling learning, chiefly cognitive methods focused exclusively on the transmission of content may not favor behavior change and, hence, compromise transfer (Lacerenza et al., 2017).

Strategies, examples, exercises and evaluations

The strategies used in training are pivotal for promoting learning and transfer to work. Among the ID factors that promote learning and transfer, a highlight is the adoption of an active learning method and variability of stimuli, with demonstration strategies with step-by-step instructions and specific examples from the work environment, a section of practice and repetition with the possibility of errors, constructive and constant feedback and learning support (Baldwin & Ford, 1988; Bhatti et al., 2013; Ford et al., 2018), 2013; Ford et al., 2018; Kraiger & Ford, 2021; Lacerenza et al., 2017; Nasri & Iskandar, 2021; Nielsen & Shepherd, 2022; Tairova &

Tazhina, 2021; Thurber, 2021).

When used in training, technology should be accessible and the participants' profile should be known in order to reach people of different cognitive styles (Khalil & Elkhider, 2016; Kraiger & Ford, 2021; Nielsen & Shepherd, 2022). This demands understanding which instructional principles may be best used in these technological media, and how they may be incorporated (Kraiger & Ford, 2021; Nasri & Iskandar, 2021; Thurber, 2021). Recent studies suggest that ID proved to be more relevant to transfer and performance than variables such as the individual's profile (e.g. motivation to learn and transfer), organizational support or the medium in which the training is delivered (Baldwin & Ford, 1988; Bhatti et al., 2013; Fatima & Siddiqui, 2020; Kraiger & Ford, 2021).

For leadership training, it should be considered that much of the leadership skills are not learned in the classroom, but in the workplace and, therefore, the training design should be closely related to the work environment and context (Singh & Widén, 2020).

A meta-analysis on the effects of leadership training, carried out by Lacerenza et al. (2017) with 335 studies and considering 15 variables, showed that the effects of training were by and large positive and significant. Results, however, were more expressive when the intervention was based on TNA, incorporated feedback, used various methods (especially practice), had sections spaced out over time, and was conducted in the workplace (face-to-face) rather than self-administered (Lacerenza et al., 2017).

These findings are relevant to the design of online training, which is widely used to deliver leadership training anchored in the benefits of greater accessibility, lower costs, and the possibility of self-administration. Attention should be paid to the need to approximate and tailor training content to the organizational reality, provide

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opportunities to practice the behaviors described in the instructional objectives, offer support for learning, insert instant and timely feedback, and interactivity in training, as the absence of these factors may reduce the positive transfer of learning to work (Bell et al., 2017; Kraiger & Ford, 2021; Lacerenza et al., 2017; Singh & Widén, 2020, Tairova & Tazhina, 2021).

Although interest in virtual leadership programs has increased, no meta-analytical comparison between online and face-to-face programs has been developed (Lacerenza et al., 2017), except for isolated empirical studies. In addition, many doubts still persist. What has been known for over 25 years is that the training media or channels alone do not make a difference to the intervention, i.e., instructional methods are equally effective regardless of the delivery medium (Kraiger & Ford, 2021).

This was observed in the work by Charoensap-Kelly et al. (2016) who evaluated social skills training in the online and face-to-face modalities, and identified that learners achieved similar scores on comprehension questions. Face-to-face participants reported significantly greater post-training behavioral change than their online counterparts, since group discussions and face-to-face exercises influenced their performance (Charoensap-Kelly et al., 2016).

The ID theory and empirically tested instructional principles provide a guiding framework for developing effective, engaging, consistent and reliable instruction (Khalil & Elkhider, 2016; Kraiger & Ford, 2021). According to literature, ID and enhanced instruction may effectively improve participants' learning, transfer, motivation, retention and success (Bhatti et al., 2013; Fatima & Siddiqui, 2020; Kraiger & Ford, 2021; Lacerenza et al., 2017; Trust & Pektas, 2018).

These results reinforce the relevance of studies on ID to provide support to managers, leaders and educators to build

training better suited to the individuals' and groups' development needs, aimed at achieving organizational results with greater optimization of the training-related resources. This increases the relevance of this study, considering its workable contribution providing subsidies for decision-making in organizations, and its theoretical-methodological contribution to literature in the area.

Methodological elements of the research

This paper uses a post-positivist perspective (Creswell and Creswell, 2021), as it involves empirical observation and measurement and the use of instructional theories and principles to identify the research problem, and the gaps identified in literature in the area. It adopted mixed research strategies blending grounded theory with an exploratory and sequential approach (Creswell and Creswell, 2021).

The ID of the training courses offered to workers of virtual teams in an organization were subjected to quality assessments. TD&E expert judges were in charge of evaluations performed in three sequential stages: 1) individually; 2) in small groups; 3) consensus in the research group. This evaluation process was supported by a roadmap based on instructional theories and principles.

The evaluation by judges aims at building consensus among evaluators aiming at the co-generation of the results, seeking internal validation, accuracy, neutral observation, triangulation of the analyses, objectivity, and reduction of investigator bias (Levitt et al., 2017). This paper relied on primary data sources obtained from training courses and judges' reviews.

The field of research is a Corporate University (UC) of a large Brazilian organization, chosen for accessibility and convenience, which promoted a virtual

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teamwork skills training program for teleworkers and leaders. The program was selected for being a pioneering initiative sponsored by a large Brazilian organization in the context of the Covid-19 pandemic in which the organization and its workers suddenly had to get adapted to virtual work. The institution offered the training program to around 41,000 teleworkers with no experience in virtual teamwork. The training program consisted of 26 actions, nine of which aimed at virtual team managers, and 17 at non-managerial teleworkers.

Training sessions totaled 73 hours of online, self-administered and voluntary intervention. The program was designed based on a TNA carried out in 2017, when the organization started a pilot project with 267 teleworkers.

The TNA was adjusted to suit the emergency program. Adjustments were one-off, and two weeks after the publication of the decree law that recognized the Covid-19 pandemic as a health emergency and established social isolation, the training courses were incorporated to and started on the Corporate University's platform. The training content aimed at developing work in a digital environment; results and time management; non-violent communication and empathy; information security; conflict management; emotional intelligence and personal relationships; and ergonomics.

Data collection and analysis procedures

To assess the program's ID quality a team of 14 TD&E specialists were granted two weeks to access the platform (with an access profile that allowed a course experience similar to that of the learners), take the online training, and evaluate the courses using the *Roteiro de Análise Instrucional* (Instructional Analysis Guide) developed by Omitido et al. (2006), adapted for this work. Each expert (judge) evaluated six or seven training courses. After the

individual evaluation, the judges met in subgroups of 3 or 4 participants and discussed the reviews of each item in the Roadmap to find consensus points in the subgroup's evaluations. Items without consensus in the subgroup were discussed in a research group.

Figure 1
Stages of evaluation of the training program by TD&E experts

3rd Evaluations without consensus were discussed in the research group

2nd Consensus of evaluations in subgroups

1st Individual evaluation (14 experts)
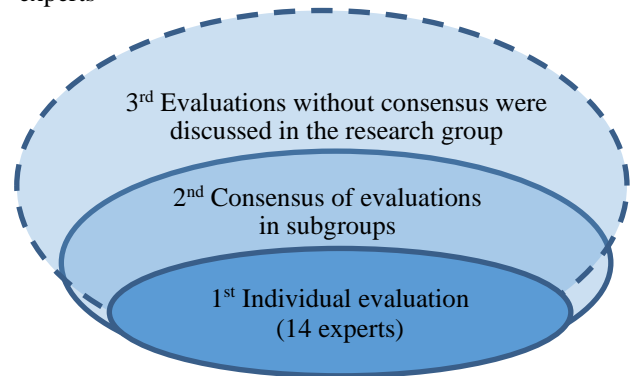
Source: Author's elaboration (2023).

The judges expert in ID were undergraduate and graduate students who made up a research group. Their evaluations and the group's search for consensus allowed for triangulation and greater security in the analyses, reliability and agreement between the judges, thus reducing the investigator's bias about the object under investigation (Creswell & Creswell, 2021).

All judges signed a confidentiality agreement which ensured that information would be used strictly for academic and scientific purposes. All the ethical principles required by the Research Ethics Committee (REC) that approved this research were observed.

The roadmap comprises 30 items, with five items on the type of learning, content, instructions, leadership level and training methods, based on the meta-analysis by Lacerenza et al. (2017) and additional 25 items adapted from the roadmap by Omitido et al. (2006). Items were organized into five categories: (1) Learning, Objectives, Content and Training Methods (five items); (2) Objectives and Expected Performance (seven

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items); (3) Instructional Strategies (four items); (4) Examples and Exercises (nine items); and (5) Evaluation (five items), as shown in Table 1.

Table 1
Items in the Qualitative Training Analysis Roadmap

Learning, Content and Method (Lacerenza et al., (2017)

Type of learning	Cognitive Affective Psychomotor
Content	Intrapersonal Interpersonal Leadership Businesses
Internal, external	Internal External Self-administered
Training Method	Information Demonstration Practice
Leadership Level	Medium (team) No leadership position

Objectives and Expected Performance (Omitido et al., 2006).

Nature of objectives		Cognitive Affective Psychomotor
Complexity level of expected objectives	Cognitive	Knowledge Comprehension Application Phenomenological Synthesis Evaluation
	Affective	Front Desk Response Valuation Organization Characterization
	Psychomotor	Perception Positioning Accompanied execution Mechanization Full mastering

Is the expected performance made explicit?

Nature of expected performance		Cognitive Affective Psychomotor
Complexity level of expected performance	Cognitive	Knowledge Comprehension Application Phenomenological Synthesis Evaluation
	Affective	Front Desk Response Valuation Organization Characterization
	Psychomotor	Perception Positioning Accompanied execution Mechanization Full mastering

Is the nature of the objectives compatible with the performance?
Is the complexity level of the instructional objectives compatible with performance?

Instructional strategies

Are the strategies appropriate to the nature of the objectives and performance?
Are the strategies appropriate to the level of complexity of the instructional objectives and expected performance?
Are the strategies used throughout the course diversified?
Are the learning resources appropriate to the work situation?

Examples and exercises

Are examples provided to illustrate the content?
Are the examples consistent with the content and the work context?
Do examples reach the level of complexity of the objectives and performance?
Are there exercises that encourage the practice of the content?
Are the exercises compatible with the nature and complexity of the objectives?
Are the exercises compatible with the nature and complexity of the performance?
Do the exercises simulate real work situations?
Do the exercises comprise situations other than those exemplified in the course?
Are the exercises followed by feedback?

Evaluation

Are there learning assessments?

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Are the learning assessments compatible with the objectives?
Is there feedback in the evaluations?
Is a final score required for completion?
Is there a reaction assessment?

Note. Items were evaluated as "Yes", "No" or "Not applicable".
Source: Author's elaboration (2023).

Presentation and discussion of results

The judges' evaluation considered the prevailing type of learning, bearing in mind that a training course may have elements from other domains, but some stand out. The result was that 100% of the program's training courses were considered to have a stronger focus on learning in the cognitive domain (Table 2).

Table 2
Analysis of training by type of learning, content and method

Prevailing Criterion		Non-managers		Managers	
		F (17)	%	F (9)	%
Learning	Cognitive	17	100	9	100
	Affective	6	35	6	67
	Psychomotor	1	6	0	0
Content	Intrapersonal	14	82	6	67
	Interpersonal	6	35	7	78
	Leadership	6	35	9	100
	Businesses	5	29	1	11
Method	Information	17	100	9	100
	Demonstration	7	41	2	22
	Practice	0	0	1	11

Note. F = frequency (number of training courses)
Source: Author's elaboration (2023).

The cognitive domain reflects a change in intellectual development, with little focus on practicing skills or changing behaviors which are considered fundamental in leadership training (Lacerenza et al., 2017; Singh & Widén, 2020). To a lesser extent (35% of training courses for non-managers and 67% for managers), content from the affective domain aimed at acquiring or changing the individual's internal states and changing behavior, was also observed. There was only one training course (6%) based on skills (psychomotor). This training approached ergonomics, and sought to instruct non-managerial workers on how to tailor the environment for virtual work performed externally to the organization's premises.

The approaches adopted in the training for non-managerial teleworkers were aimed at both technical knowledge about the specifics of virtual work, and reflection on changes in behavior and attitudes that influence work and the home-work routine.

The approach to training managers aimed at providing knowledge about the specificities of virtual work, cognitive and behavioral change in order to manage a virtual team in terms of developing communication, empathy, conflict management, and sharing. Literature on ID emphasizes that the chances of achieving effective transfer of training increase when the content comprises the learner's knowledge, skills and attitudes, including the three domains and several elements of ID (Ford et al., 2018; Lacerenza et al., 2017).

Intrapersonal content was emphasized in 82% of the training courses for non-managers (Table 2). These intrapersonal skills aim at preparing teleworkers for self-confidence, self-control, stability and resilience (Lacerenza et al., 2017). Less importance was attached to the other skills, namely, interpersonal (35%), leadership (35%) and business (29%).

Type of training content aimed at non-managers was diversified in compliance with the recommendations by literature on ID (Lacerenza et al., 2017). However, intrapersonal content was still emphasized focusing on the individual and independent teleworker, with no interpersonal relationship or sharing of objectives and tasks, contrary to what is emphasized for virtual teams to develop joint work skills such as sharing and

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collaboration, communication, trust, conflict management and empowerment (Bell & Kozlowski, 2002; Dulebohn & Hoch, 2017; Liao, 2017; Maduka et al., 2018; Schulze & Krumm, 2017).

The content of managers-focused training courses was also diversified, but content aimed at developing leadership prevailed, being found in 100% of the training courses. Leadership skills intend to build and maintain effective teams by attracting, retaining, motivating and developing staff who share values, and seeking to bring the organization closer to teleworkers.

Managers' interpersonal skills (78%) are intended to build and maintain relationships with the team, and involves empathy, conflict management, communication and trust - essential skills for managing virtual teams (Larson & DeChurch, 2020; Mutha & Srivastava, 2021). Managers' intrapersonal skills (67%), in turn, are aimed at the leader's personal development to build self-confidence, self-control, stability and resilience, as well as adapt to virtual work (Lacerenza et al., 2017, Maduka et al., 2018).

Lacerenza et al. (2017) found that intrapersonal, interpersonal and leadership content, although more difficult to be trained than business content, is more relevant for individual and organizational results. Business-oriented content was the least addressed in this program (29% non-managers and 11% managers). These skills are targeted to prepare individuals to improve their processes, planning, monitoring and strategies in a new and challenging context, i.e., working outside the office and without the constant physical presence of subordinates.

These contents do not seem to differ significantly in the context of virtual and face-to-face work. The study by Contreras et al. (2020) found that virtual work is more feasible and even more efficient in the traditional role of management focused on

activities such as planning, budgeting, control and administrative procedures, than in exercising effective leadership oriented to influencing those led through electronic means. Another possible explanation is that these potential shortcomings were not considered a priority in the emergency context of virtual work, in which other more relevant content and shortcomings emerged overlapping with the technical and business shortcomings.

The prevailing method was that of presenting content through information (100%), as shown in Table 2. Demonstration (41% non-managers and 22% managers) and practice (0% non-managers and 11% managers) were hardly used. Literature on ID highlights the relevance of diversifying training methods by incorporating information, demonstration and practice capable of providing more learning, transfer and results than single-method programs (Kraiger & Ford, 2021; Lacerenza et al., 2017; Nasri & Iskandar, 2021).

The nature of the instructional objectives was predominantly cognitive (94% for non-managers and 100% for managers). Objectives did not prioritize the affective (18% non-managers and 22% managers) and psychomotor (6% non-managers and 0% managers) domains, as shown in Table 3.

Table 3
Analysis of instructional objectives and expected performance

Instructional objectives and expected performance		Non-managers		Managers	
		F (17)	%	F (9)	%
Nature of objectives	Cognitive	16	94	9	100
	Affective	3	18	2	22
	Psychomotor	1	6	0	0
Complexity level of objectives	1st	11	65	4	44
	2nd	0	0	1	11
	3rd	4	2	4	44

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Category	Level	F	%	F	%
			4		
	4th	1	6	0	0
	5th	1	6	0	0
	6th	0	0	0	0
Expected Performance	Yes	13	76	5	56
	No	6	24	4	44
Nature of performance	Cognitive	10	59	5	56
	Affective	4	24	4	44
	Psychomotor	1	6	0	0
Complexity level of expected performance	1st	2	12	1	11
	2nd	1	6	0	0
	3rd	10	59	5	56
	4th	0	0	0	0
	5th	2	12	1	11
	6th	0	0	0	0

Note. F = frequency (number of training courses)
Source: Author's elaboration (2023).

Training objectives were focused on the three most basic levels of complexity of the cognitive learning taxonomies proposed by Bloom (1956) and Anderson (2001), for both non-managers (89%) and managers (100%). No objective was aimed at the more complex level of the cognitive domain. Only one training course (6%) sought full mastering of psychomotor movements (5th level).

Khalil and Elkhider (2016) point out that computer-based training is more geared toward low-level cognitive objectives. Learning more complex skills involving problem-solving strategies, discussions or cases has been given little emphasis in technology-based training.

The expected performance of the learner after completing the training was explained in 76% of the training courses for non-managers and 56% of the training courses for managers (Table 3). Presenting the objectives of the training and the expected performances instructs participants as to what is expected of them in the intervention, and what should be transferred to their work, so that their attention and efforts are directed toward results (Kraiger & Ford, 2021).

Expected performance in the cognitive domain prevailed (59% non-managers and 56% managers), as shown in Table 3. Despite this prevalence there was a significant percentage of expected performance in the affective domain, especially for managers (24% non-managers and 44% managers). The levels of complexity of the expected performance prevailed in the first three levels (77% non-managers and 67% managers) (Table 3).

The instructional strategies were considered to be suitable to the nature and complexity of the objectives and expected performance in 41% of the actions for non-managerial teleworkers and 33% of the actions for managers. The strategies were diversified in 47% of the training courses for non-managers and 56% for managers. There was low reliability of strategies in actions for non-managers (12%) and managers (11%) (Table 4).

Table 4
Evaluation of instructional strategies

Strategies	Non-managers		Managers	
	F (17)	%	F (9)	%
Suitability to the nature and complexity of objectives and performance.	7	41	3	33
Diversification of strategies.	8	47	5	56
Faithfulness to work.	2	12	1	11
Examples				
There are examples.	16	94	7	78
Coherence with work.	4	24	3	33
Reaching of the	10	59	6	67

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	Freq	%	Freq	%
complexity of objectives and performance.				
Exercises				
There are exercises.	9	53	5	56
Compatibility with the nature and complexity of the objectives.	9	53	5	56
Compatibility with the nature and complexity of the performance.	8	47	0	0
Simulate work.	2	12	0	0
Differ from examples.	6	35	1	11
There is feedback.	9	53	5	56
Evaluation				
There is cognitive evaluation.	5	29	1	11
Compatibility with objectives and performance.	3	18	0	0
There is a reaction assessment.	15	88	8	89

Note. Freq = frequency (number of training courses evaluated)

Source: Author's elaboration (2023).

Although training courses had affective content and prompted reflections aimed at changing behavior, the learning strategies were predominantly cognitive and intellectual and therefore insufficient for participants to effectively change their behavior in virtual work. Demonstration, simulation, practice, exercises, and group discussions are needed and should be more in line with learning and the transfer of affective content (Charoensap-Kelly et al., 2016, Kraiger and Ford, 2021).

The methods and techniques used in training should be consistent with the instructional objectives to enable the development of competencies and the achievement of expected performance at the end of each intervention, and to enable the transfer of knowledge and skills to the workplace (Khalil & Elkhider, 2016). These instructional strategies were assessed as poorly suited to the nature and complexity of the objectives and expected performance (41% non-managers and 33% managers).

There was relatively little diversification of the strategies used (47% non-managers and 56% managers). Training basically involved texts and video lessons. This may threaten the achievement of objectives and expected performance, as the multiple-strategies teaching and learning process increases the likelihood for learners to establish links between the content and their work practice (Kraiger & Ford, 2021). Diversification means that the gaps in one method are filled by another method (Kraiger & Ford, 2021).

Instructional theory suggests planning training based on more than one method to produce greater effects at the learning level; demonstration-practice for training transfer, and information-practice to produce effects at the level of organizational results (Lacerenza et al., 2017), with active practice-enabling methods being the most effective for both learning and transfer, and the most recommended for leadership training (Fatima & Siddiqui, 2020; Lacerenza et al., 2017; Nasri & Iskandar, 2021).

Examples were used in 94% of the actions for non-managers and 78% for managers. The coherence of examples with the content and work context was assessed as adequate in 24% (non-managers) and 33% (managers) of the courses. The examples reached the level of complexity of the objectives and expected performance in 59% (non-managers) and 67% (managers) (Table 4).

Examples were widely used in the training courses evaluated; however, they were neither very coherent with the participants' work context, nor did they reach the same level of complexity as the instructional objectives and expected performance. The ID theory recommends greater exemplification and demonstration of theoretical content to enable practicing the content learned in training (Baldwin & Ford, 1988; Kraiger & Ford, 2021; Nasri & Iskandar, 2021).

Exercises were used in 53% of the

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training sessions for non-managers and 56% for managers, and were considered compatible with the complexity of the objectives. However, compatibility with expected performance was 47% (non-managers) and 0% (managers). Exercises were faithful to the real work situation in 12% (non-managers) and 0% (managers), and exercises were different from the examples used during training in 35% (non-managers) and 11% (managers) of the training courses. All exercises had single-source feedback from the computer's automatic response.

It can be inferred that they were little explored and that exercises to fix the theoretical content presented prevailed, aiming only at testing the knowledge acquired, valuing apprehension and repetition. In addition, exercises were little compatible with the complexity of the expected performance.

Exercises were also considered to be unfaithful to the real work situation, with low level of complexity, and diverging from the examples used during training. Exercises lead to learning and enable transfer (Ford et al., 2018; Kraiger & Ford, 2021) and should therefore be emphasized and worked on.

In the training courses evaluated, although some exercises were in the form of situations, more case studies are suggested with dilemmas and reflective questions that induce the participant to question and put in practice what has been learned. Individual and group workable exercises of discussions, presentations, among others, compatible with the level of complexity of the expected performance, should be inserted.

All exercises had single-source feedback from the computer's automatic response to right or wrong answers. Responses failed to indicate what the mistake in the sentence was, depending on participants' understanding about their mistake. Constructive feedback is relevant to enhance content mastering (Kraiger & Ford, 2021; Tairova & Tazhina, 2021). In online

training, it should be provided in a timely and personalized manner, highlighting positive points and suggesting improvements.

Instructors are not exclusively responsible for feedback; other duly instructed participants could and should also give it. In this sense, Trust and Pektas (2018) developed a guide with examples to instruct how peers could provide feedback in online training, considering its relevant role in enhancing learning and participation and promoting greater interaction between participants. Considering that the only interaction identified in the online training courses evaluated was the learner's interaction with the material, using resources such as forums, social networks and chats may increase learner engagement and motivation.

In addition, training peers to provide feedback may be an excellent development and learning opportunity for virtual teams when it comes to communication and trust skills (Schulze & Krumm, 2017). Feedback on work provided by the leader and peers seems to be more relevant in virtual teams where the time between communications should be shortened to avoid misunderstandings and potential conflicts, since technology-based communication damages a considerable part of non-verbal communication (Feitosa & Salas, 2020; Maduka et al., 2018).

Learning evaluations were applied in 29% of the training courses for non-managerial teleworkers, and in 11% of those for managers. Evaluations were compatible with the instructional objectives and expected performance in 18% (non-managers) and 0% (managers). Learning evaluation was little used and, when it was present, it was little compatible with the instructional objectives and expected performance. Learning evaluations are important for assessing the learners' learning, and making adjustments to training (Abbad et al., 2006).

In contrast, the reaction evaluation

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was used by the majority of training courses (88% of non-managers and 89% of managers), as shown in Table 4. Reactions are important in a training evaluation, as they indicate the learner's satisfaction with the intervention, and serve as indicators of the learner's motivation (Lacerenza et al., 2017). In this study, however, the item for reaction evaluation only indicated whether or not it was carried out; so, neither its content nor the instruments applied were evaluated.

Based on the results and discussions developed in this study, suggestions and theoretical and managerial ID guidelines for training leaders and participants in virtual teams are briefly presented. These notes can be found in Table 5.

Table 5
Theoretical and managerial ID notes for virtual team training

Learning, Objectives, Content and Method	References
Content should be relevant, applicable, organized in a meaningful way, starting from basic to advanced content in a clear and concise way, and related to the experiences of the participant or team.	Kraiger and Ford, (2021); Nasri & Iskandar (2021); Thurber (2021).
The type of content should be diversified with intrapersonal, interpersonal, leadership, and business content. Content should cover the student's knowledge, skills and attitudes.	Lacerenza et al., (2017); Ford et al., (2018); Singh and Widén (2020).
Emphasis should be placed on interpersonal skills such as communication, trust, sharing, collaboration, conflict management, and empowerment.	Dulebohn and Hoch (2017); Liao (2017); Maduka et al., (2018); Schulze and Krumm (2017).
The expected performance should be made explicit to guide participants as to what is expected of them in the training and transfer to work. Performance should be consistent with the instructional objectives.	Kraiger and Ford (2021); Khalil and Elkhider (2016); Omitido and Omitido (2021).

Strategies, examples and exercises

Strategies should be aligned with the objectives and expected performance, and these strategies should be diversified to achieve learning at the cognitive level, behavior change and transfer to work.	Khalil and Elkhider (2016); Kraiger and Ford (2021); Fatima and Siddiqui (2020); Lacerenza et al., (2017); Nasri and Iskandar (2021).
To promote learning and transfer, training should be directly related to the job, with demonstration strategies and step-by-step instructions and examples from the work environment, with a wide range of situations; practice and repetition section spaced over time and openness to errors, in addition to constructive and constant feedback; active learning method (focused on the learner), and variability of stimuli.	Baldwin and Ford, (1988); Charoensap-Kelly et al., (2016); Ford et al., (2018); Kraiger and Ford (2021); Lacerenza et al., (2017); Nasri and Iskandar (2021); Nielsen & Shepherd, (2022); Singh and Widén, 2020); Tairova & Tazhina, (2021); Thurber (2021).
For online training it is suggested to allow students to create their own scenarios and examples, promote discussions in chats and forums, peer feedback, use realistic films, video lessons and case studies to enhance interaction.	D'Aquila et al., (2019); Kraiger and Ford (2021); Singh and Widén (2020); Trust and Pektas (2018).

Source: Author's elaboration (2023).

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The guidelines presented in Table 5 instruct the ID of training programs aimed at leaders and members of virtual teams, highlighting the relevance of content and instructional strategies in the virtual work environment. These theoretical and practical guidelines may help training professionals propose effective programs that promote learning, behavior change, and the effective transfer of skills to the context of virtual teams, significantly contributing to organizational success.

Final Remarks

The ID quality of a virtual teamwork skills training program offered by a Brazilian organization was assessed, and it was observed that content was relevant to the adaptation of teleworkers and team managers to home-based work. Considering the relevance of the topic, the emergence of the moment and the training of the participants, training sessions were a learning opportunity. However, according to instructional theories and principles, the potential for delivering results may have been jeopardized.

The training courses evaluated mainly focused on the participants' cognitive learning, and methods were information-driven. To effectively change behavior, as required by the context, training courses should focus more on learning in the three domains (cognitive, affective and psychomotor) in an integrated way, aiming not only at making participants aware of the specifics of the moment, but also to effectively change their behavior to adapt to their reality.

The expected performance had levels of complexity above the levels offered by the instructional objectives, and involved domains not worked on in the training, with strategies incompatible with achieving the objective or performance. Here, it is recommended to adjust expectations in relation to the objectives and expected performance, and to include strategies that favor the achievement and development of the necessary skills in the organizational environment.

The content of the training courses evaluated, aimed at teleworkers in virtual teams, tended toward an individualized configuration with intrapersonal content aimed at self-management, with little focus on the individual as a member of a virtual team who should share tasks and information, cooperate with peers and communicate using technology. There is a need to include content that develops collective thinking, communication, trust and sharing.

Considering the above mentioned, this paper contributes relevant information on training design, which has still been little studied in the Brazilian context. It contributes to shortening the gap in empirical studies on ID and on which characteristics and methods favor the achievement of expected performance, and reinforces the role of content validity, variability of strategies, and the reliability of training with real work situations. Finally, it contributes to people managers and instructional designers who need to pay attention to the training requirements for their workers.

The limitations of this work include the lack of information obtained from the training participants or their sectors to verify the potential impacts of training on the work, the team and the organization. This paper focused on the analysis of training courses and the judgment by experts, so that comparing the analysis of DI with data on learning levels and impact on work would be very useful for confirming the effect of ID on performance. This is a suggestion for further works.

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