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Review

On the Concept of Learning Transfer for Continuous and Online Training: A Literature Review

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Abstract: This work presents a bibliographic review of research related to the subject of learning transfer. Here, we seek to understand its concept, its dimensions, and the factors that influence its achievement. The review allowed us to verify empirical studies carried out that show which variables can facilitate or hinder transference, as well as the most suitable methodology to favor it and indicate considerations that should be taken into account in order to research learning transference in a continuous teacher training. The purpose of this review was to discuss the concept of learning transfer in order to propose a research on this subject in a context of continuous online training, once a lack of studies focused on this modality was detected. In order to analyze learning transfer in this context, we considered it necessary to confirm if the competences, skills, and knowledge acquired through e-learning could be applied in a pedagogical practice of participating teachers; this, in turn, would allow for the obtainment of guidelines for future educational strategies of continuous online training.

Keywords: learning transfer; conceptualization; variables; continuous training; online training

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1. Introduction

We live in a time of perennial change, known as liquid modernity [1], where distance learning evolves along with the development of new information and communication technologies (ICT), in a world full of knowledge that is ostensibly accessible from anywhere.

This openness to change and the encouragement of lifelong learning should be the aim of in-service teacher education, which means encouraging participants to apply their new knowledge, skills, and competences developed in training courses in their own contexts, both at work, in their studies, and in their personal lives.

However, designing appropriate teacher training experiences for our times is a challenging task, especially in distance education, as it is necessary to take into account conceptions of society and technology, and to harmonize them with the needs of every single student. In addition, this must also make it possible to reflect on practice in order to improve it and project it into the future.

However, this expansion of online experiences has not been accompanied by the development of research on how the learning achieved in e-learning contexts is transferred to teaching practice; therefore, it is important to propose studies related to learning transfer. In this context, the purpose of this paper is to discuss the concept of learning transfer in lifelong learning contexts and in an online modality, with the aim of operationalizing it for its application in research.

2. Materials and Methods

This paper is part of a first phase of a more extensive research project aimed at determining what kind of methodological practices in distance learning are conducive to a greater learning transfer digital competences in the context of continuing teacher training.

Within the first phase dedicated to the construction of a theoretical background, a documentary analysis was carried out to collect, study, and analyze the very concept of learning transfer in distance learning. Specifically, the documentary analysis that we propose is operationalized according to the recommendations described by Bisquerra [2], which can be summarized as follows: the tracing and keeping inventory of available documents; classifying the identified documents; selecting the most relevant documents for research; and critically reading the content.

This search for theoretical essays and empirical studies related to learning transfer was carried out in electronic databases, i.e., SCOPUS, ERIC, and Dialnet, using the terms "learning transfer" and "training transfer" (with their corresponding versions in Spanish). The ERIC database was chosen due to the characteristic of the repository focused on research from the field of education and area of interest of the article. The SCOPUS database was chosen for its recognized content of quality scientific articles. Lastly, the Dialnet was chosen for being a portal that provided access to documents published in Spain, which is the location of our research.

As shown in Figure 1, we applied a selection criteria for the works found using the aforementioned terms. We chose to use only open access scientific articles related to the area of social sciences. The selection criteria was based on those texts that, in their metadata, identified the concept of learning transfer and the theoretical models therein applied. We thus considered this the most referenced subject among the general field of transfer from their models and variables (4). The two most referenced studies regarding the transfer models in the educational field were also identified (2). When we limited ourselves to an educational context, the literature reviews related to learning transfer in higher education (6).

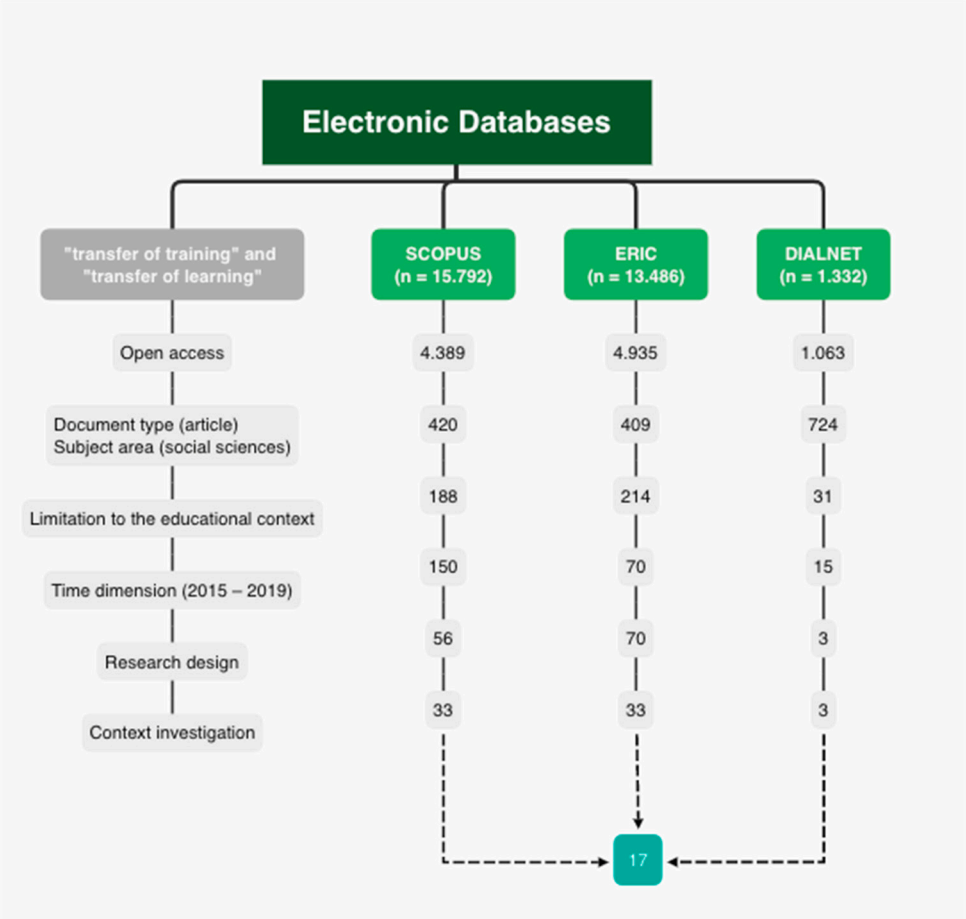

Figure 1. Creation process of the document database.

We selected documents published between 2015 and 2019. Limiting our review to items published in the last five years was determined adequate because we sought to extract the most current documents vis-à-vis the addressed research problems. Among them, we identified empirical studies concerning transfer determinants in a Spanish context of continuing education (2). We also identified the field of training in online professional development in a Spanish context (2), as well as in online continuing teacher education (1). We then noted the scarcity of research in the context of online continuing teacher education, especially in a Spanish context.

We determined the documentary base (Table 1) by selecting texts identified as relevant and highly referenced (i.e., grey literature). This included work by Baldwin and Ford [3], a meta-analysis by Blume et al. [4], and research by De Rijdt et al. [5] and Feixas et al. [6].

Table 1. Documentary basis for this analysis.

Paper	Typology	Ambit/Level
Baldwin and Ford [3]	Systematic review	General
Holton, Reid and Ruona [7]	Empirical	General
Burke and Hutchins [8]	Systematic review	General
Blume, Ford, Baldwin, and Huang [4]	Meta-analysis	General
Salmerón [9]	Systematic review	Formal education/Higher education
Fandos-Garrido, Renta, González, and Soto [10]	Empirical	Vocational education/Continuous training
Ortega [11]	Theoretical	Teacher training/Continuous training
Feixas, Durán, Fernández, García, Márquez, Pineda, Quesada, Sabaté, Tomàs, Zellweger, and Lagos [6]	Empirical	Teacher training/Higher education
De Rijdt, Stes, van der Vleuten, and Dochy [5]	Systematic review	Teacher training/Higher education
Feixas, Lagos, Fernández, and Sabaté [12]	Systematic review	Teacher training/Higher education
Cano [13]	Systematic review	Teacher training/Higher education
Ornelas, Cordero and Cano [14]	Systematic review	Teacher training/Higher education
Cano [15]	Systematic review	Teacher training/Higher education
Tomás-Folch and Duran-Bellonch [16]	Empirical	Teacher training/Higher education
Quesada-Pallarés, Espona-Bracons, Ciraso-Calí, and Pineda-Herrero [17]	Empirical	On-line Vocational Education/Continuous training
Pineda Herrero, Espona Barcons, Ciraso-Calí, Quesada Pallarès, and Valdivia-Vizarreta [18]	Empirical	On-line Vocational Education/Continuous training
Testers, Gegenfurtner, van Geel, and Brand-Gruwel [19]	Empirical	On-line Vocational Education/Higher Education

The descriptive approach we took to the other documents is shown in Table 1, wherein we summarize their main characteristics.

Our general objective was to identify transfer models and their variables, as well as the factors and methodologies that favored transfer, specifically in an online training context. Some research questions arose that still need to be dealt with, i.e., what are the factors that favor transfer? What are the possible factors that influence transfer during online training? What are the possible methodologies most suitable for dealing with these factors in continuous and online training? This conceptualization was based on the analysis of the search for answers to these questions.

As a result of this process, we present a brief theoretical note based on the analyzed studies that summarize the three sections considered relevant for more extensive research. At this point, we deemed it necessary to better understand the concept of learning transfer, to review the already known models of the process and its variables, as well as to identify the already existing studies on the factors that favor transfer in the context of e-learning training and to identify the most appropriate methodological strategies to deal with these factors in continuing and online training.

3. About Learning Transfer

Based on Baldwin and Ford [2], different authors define transfer as the learning degree to which learners successfully and continuously apply knowledge, skills, and attitudes

acquired in a training action [4–6,12,14]. In other words, the study of transfer aims to find out to what extent training encourages learning that can be applied effectively and continuously in a work context.

More specifically, Ornelas et al. [14] presented different concepts of transfer: (1) The use of learning in a context other than an acquisition context; (2) the influence of prior learning on subsequent learning achievements; (3) the application—effective and continuous—on the job of learning in a training experience; or (4) the changes and transformations that occur in a subject thanks to his or her participation in a training program (p. 61).

With its roots in the field of psychology and Thorndike's studies, the theory of learning transfer is understood as the transference of skills and knowledge acquired in one situation and applied within a new context or a known situation but with different content [15]. In our field, pedagogy and learning theories consider transference a key concept because most education and training aims at transfer; the ultimate goals of training and educational practice are not achieved without it [20].

In recent years, research related to transfer studies has been more related to the evaluation of programs developed in the field of business training [10]. In this sense, for Feixas et al. [12], in the context of higher education, transfer research is still in development given that "studies on the transfer of teacher training, in general, and in the university environment, in particular, are very new" (p. 96).

Feixas et al. [6] also stated that finding a precise conceptualization of transfer is difficult because it has a technical character that is related to the development of competences and skills, as well as an ability to identify the needs of teachers so that, within their reality, practice is really changed and contextualized. In either case, researchers have described learning transfer in terms of inputs and outputs. Input factors are those related to individual characteristics, training design features, and work environment. Output factors are learning outcomes and retention [10].

The two conditions necessary for transfer are generalization (i.e., the effective application of learning in contexts or situations other than the scenario in which it was acquired) and maintenance (i.e., the change resulting from the learning experience that persists over time) [4,5]. For Cano [13], the generalization of transfer occurs from the reflection of practice, when reality is problematized and the solution is adapted to each context.

In this sense, for David [21], input and output factors have direct and indirect effects on transfer conditions (as shown in Figure 2). The characteristics of the individual, training design, and work environment would, in this hierarchical order, directly influence learning outcomes and retention, just as retention and learning would directly influence the generation and maintenance of transfer. In turn, personal and work environment factors would also directly influence the conditions for transfer, regardless of the learning and retention of the training content that is achieved by a trainee during their training stage [21].

On the other hand, design factors directly influence learning and learning, in turn, influences transfer. Thus, the influence on transfer is indirect, as clarified by Cano [15]. However, this fact does not make them less important, since a well-designed training action ensures the quality of the training, the transfer, and the meeting of the diagnosed needs, which are the most plausible training interventions.

Initially, Baldwin and Ford [3] included eight variables that they considered influential during transfer. Variables related to learner characteristics, such as general ability or aptitude, personality, and motivation; training design; use of learning principles; sequencing and content; and work environment, support from superiors/peers, and opportunities to use learning.

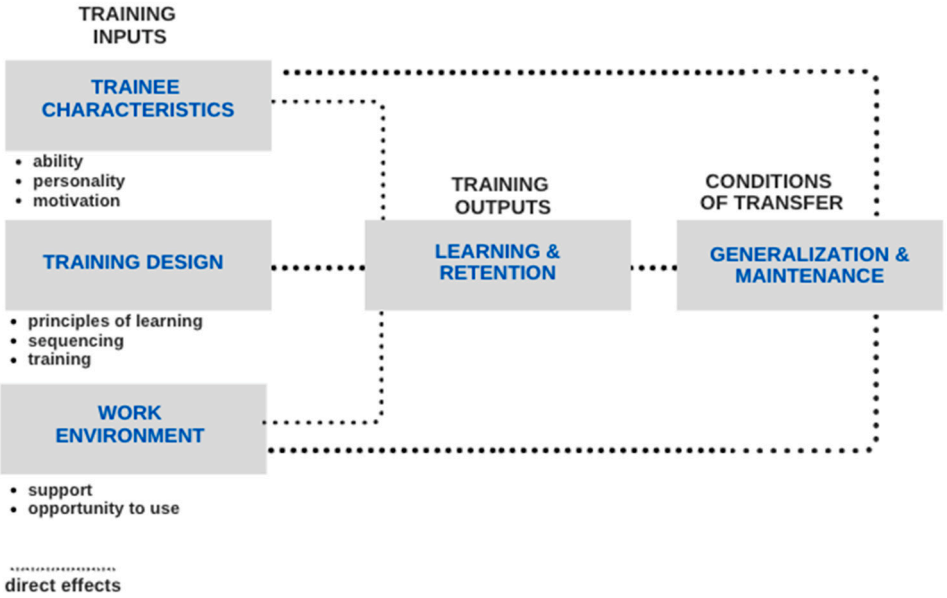

Figure 2. Transfer process model based on Baldwin and Ford [3]; adapted from Ornelas et al. [14].

Another indicator of transfer achievement relates to adaptability [14], i.e., the degree to which students can adapt their own knowledge training new situations. In other words, it is expected that the skills taught in training are not reproduced without alteration in the work context, but are demonstrated through strategic behavior. Adaptability also means using the knowledge that functions as guiding principles to solve situations or problems that arise in new contexts in a way that is not mechanical or stereotyped.

For Feixas et al. [12], transfer is situated at the moment of transition from the formative situation of individual learning to the real situation of relevant application. However, for this application to be concrete, there are some conditioning elements that influence the degree of application and, consequently, the success of the training.

The degree of learning refers to the extension of knowledge, the acquisition of new competences, and the development of new conceptions of teachers through training. However, this process does not mean that what was learned will necessarily be applied just by participating in the training.

According to Ornelas et al. [14], in transfer studies, the researcher should look for evidence that students are able to use their acquired knowledge as guiding principles for their performance, as well as apply the new skills in a flexible way, adapting them to a variety of situations.

Despite its publication date, the concept of transfer and the mention of the initial model developed by Baldwin and Ford [3] was identified in most of the works we analyzed [4–6,12,14,19]. Although the evolution of transfer as a concept has been progressive, the theoretical basis of the concept is the same. It has been revised, expanded, and adapted to research circumstances and contexts.

3.1. Transferential Models and Their Constituent Elements

From the conceptualization of the term, it is important to consider the most recent advances of the definition, i.e., on the dimensions, influential factors, and theoretical models (specifically with regard to their relationship with the transfer variables, resulting from current research and contexts).

The origin of transfer lies in the evaluation process. Training evaluation models consist of numerous variables that help us understand the effects of training. The measurement of these variables, which can help or hinder the implementation of what has been learned in a real situation, defines what transfer evaluation is all about.

One of the most influential proposals in the evaluation of training programs is Kirkpatrick's model, which has four evaluation levels: reaction, learning, transfer, and impact [16]. With more and more studies dedicated to transfer, the theoretical model developed by Baldwin and Ford [2] has emerged, which, as mentioned above, continues to be a reference in empirical studies on transfer [3–5,11,13,18]. From these studies, both in business and education, it is possible to identify three groups of factors that stimulate or inhibit the learning transfer process: the design of training, aspects of the individual, and organizational environment (Figure 1).

Based on these factors, different models have been subsequently developed and are discussed below in chronological order of evolution. For example, Holton, Bates, and Ruona [7] validated an instrument to measure transfer factors, which emphasized motivational and environmental elements when addressing so-called secondary influences, such as self-confidence and motivation to learn and transfer.

On the other hand, Burke and Hutchins [8] proposed another business model, although they also considered the role of learner characteristics in transfer to be important, as well as the variable related to the support of work colleagues or superiors. They also found the possibility of applying knowledge as another key element in the transfer process.

More specifically, these authors argue that the transfer process does not occur at a specific point in time (e.g., only at the end of the training), but is rather built from its design and implementation to its completion and beyond the completion date. For Gessler and Hinrichs [22], the learning transfer is a lifelong learning context and does not occur after the training or after some time has elapsed, but in parallel with the training. For Testers et al. [19], their results confirm that learning transfer does not only occur after an intervention but that it is a longitudinal process affected by various aspects known as moderators [5], which may even influence the trainees' prior intention to transfer new learning.

In the context of teacher training, the Ingvarson model highlights aspects related to design and coincides with a study by De Rijdt, Stes, van der Vleuten, and Dochy [5], who took up personal aspects as fundamental for transference, such as metacognition (i.e., the ability of students to regulate their learning strategies in order to achieve higher performance [7]).

Both Holton, Bates, and Ruona [7] and De Rijdt, Stes, van der Vleuten, and Dochy [5] point out that the design, learner, and work environment variables are mediated by another set of variables known as moderators, which can be characterized as the methodological decisions designed by transfer researchers [5,14].

Specifically, in the context of the transfer of Spanish university teaching staff, Feixas et al. [6] developed a Teacher Education Transfer Factors Questionnaire, which highlights the factors of the design of the training and learning undertaken, as well as institutional recognition as the most determining aspects for the transfer process.

Another meta-analytical study in this area insisted on the importance of participant characteristics such as self-efficacy [5,8] and motivation [3,6,7]. Ford and Weissbein [4] also reinforced the idea of metacognition, which is considered decisive and must be stimulated in the training.

A summary of the main models and variables is presented in Table 2 below.

From the characterization and contextualization of the existing models, it is also important to point out considerations of each factor in order to consider the learning transfer in a teacher training context.

Regarding individual factors known as personality traits, personal skills, and particular motivation, studies have pointed to the personal organization as relevant. In other words, transfer depends in part on confidence and motivation to apply new skills, overcome difficulties, and make the necessary efforts to achieve the expected results. Thus, teachers must set priorities and allocate time/energy to carry out changes that will make it possible to transfer new learning into practice.

Table 2. Summary of models and key elements of the transfer process.

Models and Factors	Related to Design	Relating to Learner Characteristics	Related to the Work Environment
General scope Baldwin and Ford (1988)	• Learning principles • Sequencing • Learning content	• Capacity or aptitude • Personality • Motivation	• Support • Opportunities for use
Holton, Bates, and Ruona (2000)	• Designing the transfer process	• Personal capacity to transfer • Motivation to transfer • Transfer effort/action • Performance results • Self-confidence in ability to perform in the workplace • Readiness to learn	• Support from super-visor and peers • Teaching culture of the work team • Resistance to change
Burke and Hutchins (2008)	• Training objectives • Relevance of content • Practice and feedback • Behavioral modelling • Error-based examples	• Cognitive ability • Self-efficacy • Pre-training motivation • Anxiety or negative affectivity • Openness to experience • Perceived usefulness • Career plan • Organizational commitment	• Transfer climate • Support from the supervisor • Peer support • Opportunity to apply what has been learned
Teacher training Ingvarson, Meiers, and Beavis (2005)	• School support • Program structure • Duration of the program • Follow-up and feedback • Active methodologies	• Metacognition	
De Rijdt, Stes, van der Vleuten, and Dochy (2013)	• Needs analysis • Learning objectives • Self-management strategies • Technological support • Nature or content of the program • Duration of training • Learning climate	• Metacognition • Self-efficacy • Motivation • Personality • Locus of control • Perceived usefulness • Experience	• Support • Transfer climate • Opportunity for implementation • Strategic linkage • Accountability
Feixas et al. (2013)	• Design of the training and the learning undertaken	• Personal work organization	• Support from the head teacher • Possibilities for change • Environmental resources • Institutional recognition • Teaching culture of the staff • Student feedback

Source: Adapted from Ornelas et al. [14].

Training design and related to learning materials, needs analysis, and learning goals offer some of the most influential factors in transfer [4]. It is therefore essential to consider the learners' profile so that the content can be adapted to their contexts and so that they

can reflect on their teaching practice, as well follow-up activities. In other words, training must be designed for innovation in a personalized way, all the while collaborating with new values in teaching.

Finally, with regard to organizational variables, when related to the work environment, the predisposition to change felt by teachers in their work environment, either through the support received via student feedback or available resources, there is a differential approach for transfer [6]. Here, we also highlight technologies that can be used to create spaces that allow teachers to share their experiences and work, encouraging them to reflect as a group.

3.2. Learning Transfer during Online Training

In an online education context, despite the increasing number of case studies investigating these training and pointing to their success, there are still few studies that have determined the factors responsible for the achievement of transfer during e-learning training experiences [17].

Empirical research in an e-learning context affirms that these transfer-related variables indicated above can be affected by specific conditions of distance learning, such as peer support [19,23].

Some authors have already proposed the application and adaptation of Kirkpatrick's model in e-learning training in a business context, through techniques such as interviews, surveys, work samples, satisfaction scales, or simulations [17]. The most important thing, in this case, is to assess the reaction or satisfaction in the participants (as this may represent the only type of feedback that participants will offer to the training designers) and work organization.

The same factors considered as emotional aspects noted in face-to-face training as determinants for transfer are understood in the same way in online training [17]. The same study found that distance learning required more self-management and self-regulation than face-to-face training. However, when learners are motivated and self-regulated beforehand, they also carry out the transfer process to others [19,23].

Another important personal factor in the online mode is prior experience or training [22], which when positive can be a motivating factor that contributes to more effective learning and a greater intention to change the work context.

Studies also indicate that job-related factors are more significant in face-to-face trainings compared to online training, since the profile of the participant in online training is more varied, with different professional needs. Because they generally form in groups with a greater number of participants per training activity, they increase the possibility of obtaining a heterogeneous group. Then, as the design is not very individualized, it is also more difficult to have a design specifically oriented to the needs of the job, and to have a work environment that supports the application of the transfer.

Based on the analysis of e-learning studies and previous models [3,5–8], for a study of transfer in an online teacher education context, some consistent factors emerge: training and learning design, needs analysis, experience, self-management, motivation, feedback, personal work organization, environmental resources, and institutional recognition. These are the variables we refer to when analyzing the learning transfer in our research context.

3.3. Methodologies Favoring Transferability

Following the contextualization of models and this brief consideration of their factors in online training transfer, we address other contextual and methodological elements that can favor transfer. For example, teaching methods are also important because they directly influence the acquisition of competences and their subsequent application, with a learner-centered approach being a factor that enhances transfer [10]. Then, the possibility of applying the competences developed in training, through a variety of tasks and carried out autonomously, provides improvement when learning and enables better adaptation in a work context.

On the other hand, Ortega [11] reminds us that the responsibility for transference does not lie solely with the trainee, who must autonomously transform the training experience according to his or her interests and needs. It is important to consider the teaching staff as managers of their own changes and protagonists of their learning, and not only to deliver the current contents in a theoretical way in the training without considering the reality and context in which these contents are applied. Transfer should be encouraged through reflection on what is being done, how, and for what purpose, with a critical view of what is being proposed in a context other than a learning context.

On the other hand, due to the difficulty of achieving transfer in highly variable contexts, it is important to seek forms of dialogue between teachers and students that promote transfer, since a constructive dialogue between teachers and students may be more important than the individual cognitive commitment of students [23].

Activities for learners to apply what they have learned in the classroom to other contexts should also be varied. One of the studies reviewed points to four activities to facilitate learning transfer: case analysis or comparison; group work; work with global tasks; and activities to motivate autonomy [9].

Theoretical reviews on these factors point to some aspects that can also facilitate learning transfer, such as introducing practice elements in training sessions [13–15], i.e., when training conditions are similar to the conditions of practice, the high amount of practice in the task represents a high probability of transfer.

On the other hand, in a study related to learning strategies in an online corporate context, a positive relationship of learning and transfer with self-regulation, cognitive, and behavioral strategies was found [23]. In other words, anxiety, concentration, attention, and motivation of the learner enable better control of distance learning.

In the same study, learners who had the best results were those who related new knowledge to possible applications, connected the course material to their previous knowledge, and identified work situations to apply the lessons learned. For these authors, learners also need to be informed in advance about which learning strategies are most appropriate and can achieve positive results in the online learning process.

In another recent study on transfer in the online modality, it was pointed out that, since course designers have no way of influencing the conditions of the organization to which the participants belong, it would be interesting to at least integrate discussions on the subject into the training [19]. This could prompt reflection on these factors, which are not yet developed in a work context, thus indicating what kind of support is expected, as well as increasing the confidence of the learners to transfer the new knowledge.

The previous work on transfer can then help program designers improve training based on the analysis of evidence of transfer achieved with participants. The fact of obtaining this information on the conditions and contexts of the participants for transfer, in addition to adjusting to the needs and realities of the students, makes them protagonists of the training when they allow the contribution of previous students from an evaluation to help design new training strategies.

Empirical research seeking to identify the most influential factors indicates that, when designing training courses, more attention is often paid to the quality of the content than to the possibilities for subsequent application, which hinders transfer [6,16]. Ideally, training should be based on the previous knowledge of the teacher, who attends the training. Teacher's understand the possibility of practical application or knowing how to demonstrate a transfer. Another factor, but one that can be an obstacle to the transfer of teacher training, is a lack of motivation once the training process is over [16] and the lack of follow-up after the training, which could help with transfer. In this sense, follow-up activities such as peer tutorials and reflection forums could help teachers overcome difficulties in implementing what they learned. Technologies should also remain available in online training to facilitate this process.

However, the development of tools and learning modalities through e-learning is growing in the contexts of training actions, but these are not accompanied by pedagog-

ical proposals [18]. There is a preponderance of assessments in e-learning focused on technologies, but there is a lack of research from a pedagogical approach to learning.

Thus, actions to improve the transfer of online training should be more oriented towards meeting the needs of the workplace and linking the training more closely to the participants' work reality [17]. This can be generated by detecting specific needs and a more precise training design according to the identified participant profiles, providing a more flexible training with a more generic part that adapts to each recognized profile.

In relation to the aspects that can collaborate, the participants' belief in committing themselves to teaching and the capacity to carry out the transfer are mentioned. Self-efficacy is highlighted as an element that helps to achieve change, thus reinforcing the idea that an emotional dimension must be addressed in training [13–15].

In this sense, it also highlights that motivation and confidence should be worked on in line with more technical learning objectives. Even in cases of university teacher training, motivation is essential for teaching innovation and for the teacher to consider themselves as an agent of change.

4. Discussion and Conclusions

Herein, we defined learning transfer as the degree to which one learns in an online teacher training program and how one can thus effectively and continuously apply what they learned in a work context, especially considering the aspects referring to the design of this training, students characteristics, and their work context.

Based on the analysis of the factors and methodologies that most favor the transfer process, we proposed a set of variables that may be relevant for the transfer of continuous online teacher training: training and learning design, needs analysis, experience, self-management, motivation, feedback, personal work organization, opportunity for use, environmental resources, and institutional recognition.

Based on the three sections presented as a synthesis of the information obtained from the review carried out, a conceptual map was drawn (Figure 3) to identify the factors that most influence the transfer of online learning and the methodological strategies that help to address the factors that favor this process, as well as the relationship between them. Thus, we answered the questions initially posed for this work.

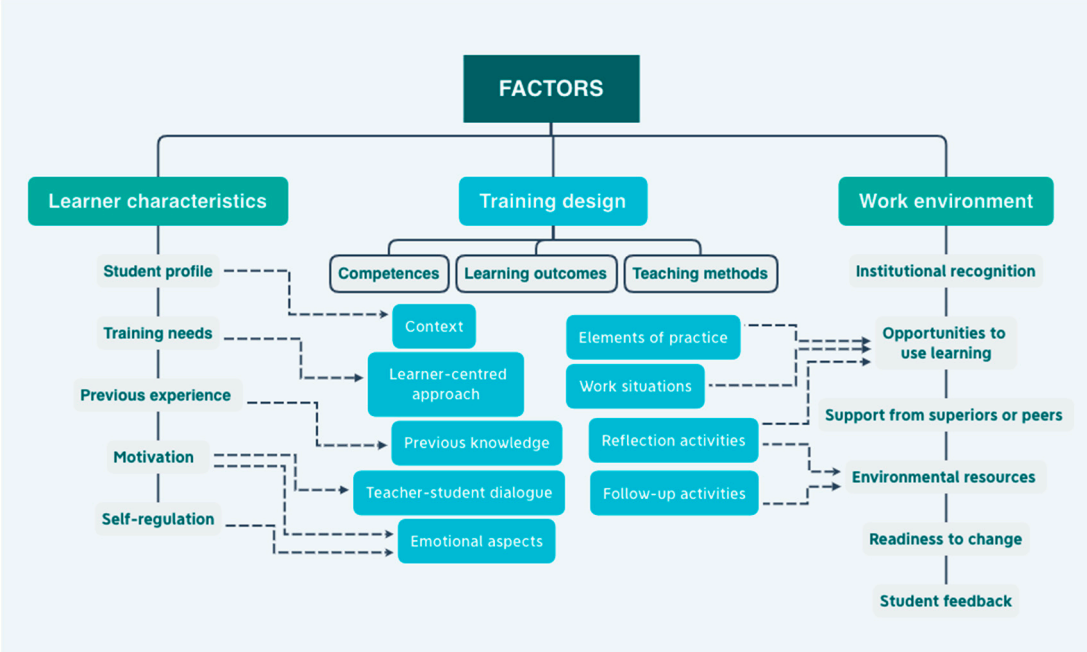

Figure 3. Map of factors and their relationships.

As for the methodologies that most favor transfer in online training, the dialogue between teachers and students [24] and a variety of stimuli and tasks, with a high number of practical and contextualized activities [15], were considered appropriate. The possibility of actions that relate new knowledge and its possible applications, as well as the connection of previous knowledge with new knowledge, identifies situations where learning can be applied. We explored the use of available technological resources in online training to propose follow-up and reflection activities, helping students overcome difficulties in implementing what they learned.

On the other hand, teaching methods directly influenced the acquisition of competences and their subsequent application; therefore, a learner-centered approach improved transfer [10], as well as an orientation towards reflection on one's own practice. It is important to bear in mind that, in continuous online training, the process of learning transfer does not occur only at the end of the training, but in parallel with the training and even prior to the intention to transfer the new learning, which corroborates with the method of analysis of the activities at the beginning and throughout the course.

We also emphasized the relevance of designing activities that address emotional aspects, which enhance motivation, self-regulation [19,23], and value students' efforts. By giving students feedback on their teaching practices, we can improve their confidence for transference.

In the map, it is possible to observe that the most appropriate course for transfer from its instructional design should address the objectives of both the learners and the institutions to which they belong, thus providing more authentic and personalized learning paths.

It is clear that the prior influence of emotional aspects or positive learning outcomes can contribute to transference, just as there are extraneous factors that can hinder transference, such as some elements of the participants' work reality. However, from this comes the importance of further research into the factors and strategies most conducive to addressing the elements of course design, so that these can enable a quality learning experience for users that are more meaningful to their work context, thus also improving the transfer process. At a time when virtual courses are popular and necessary, it is essential to know more about the learning transfer process in this modality, and how its data can be used to continuously improve course resources, as proposed in our research.

Thinking about the variables of training and learning design, we intended to analyze a portfolio developed by students in an online course, which consisted of the description of the learning evidences considered most significant and representative of their training process. These samples of learning and reflections showed the contents, methodologies, skills, knowledge, and abilities developed by students, as well as the shortcomings and difficulties detected in the course.

Factors related to personal aspects were as significant in face-to-face training as in online training, such as self-management and self-regulation [17]. In line with the learning objectives, it is important to work on the motivation and confidence of participants. Therefore, variables such as needs analysis, expectations, previous experiences, self-management, motivation, and personal work organization should also be assessed in online training by analyzing portfolios and other initial activities developed by learners, which can be called starting points. These activities can be useful not only to teachers but also to students themselves.

Another action to be considered from a methodological point of view is the integration of discussions that address the organization to which participants belong, since issues related to the work environment can then be reflected after training [19]. Therefore, we envisaged the application of an open-ended questionnaire that delved into learning applications in a pedagogical practice of students, as well as variables related to environmental resources and institutional recognition.

The nature of the information regarding transfer in most evaluation studies is perceptual, based on accounts of personal experiences that represent new knowledge or skills acquired in the training actions and practical learning applications [10,21].

The study proposed here followed a qualitative methodology based on the use of content analysis [25], which was carried out via deductive categories, i.e., predetermined and derived from the analyzed studies. The analysis procedure was based on a grounded theory model [26] that considered the reality and experience of subjects for a complete interpretation of the studied phenomenon.

In conclusion, we provide an integrative review of the concept, factors, and methodological strategies, resulting from other studies, especially in online training, thus presenting some orientations and trends for future educational research in this field, as in the case of our broader research, which focuses on the characterization of transference vis-à-vis digital competence learning in online lifelong learning learners from their training experiences. This is particularly relevant because we also found a notable lack of studies that specifically addressed learning transfer and its variables in this modality, especially in the current educational scenario.

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