

THE INTERDISCIPLINARY FUNCTION OF TRAINING: A SCOPING REVIEW ON TRAINING CULTURE

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Abstract

Originating in the field of sport, “training” has evolved into a context shifting concept relevant across multiple disciplines and fields of practice. From a sociological systems theory perspective, this article analyzes training as a semantic concept that shapes communication in various social domains such as sport, medicine, and administration. Within these domains, however, the concept of training is recontextualised in distinct ways. The present study examines training and training culture across diverse fields and academic disciplines. Using a scoping review approach, we identified 67 scholarly publications addressing the notion of “training culture”. Through thematic analysis of these publications, we explored similarities and differences in how training culture is conceptualized and what social function it fulfills. Our findings suggest that training culture can be understood as an expression of a shared functional capacity. Across different organizational contexts, such as sport, medicine, business, and education, training consistently appears as a communicative form that stabilizes performance orientation and developmental aims. Nevertheless, the specific functional contributions of training vary across contexts.

Keywords

training culture, system theory, interdisciplinarity, training pedagogy, organizational change

Introduction

Training is a multidisciplinary concept. Like related terms such as coaching, practice, workout and instruction, the notion of training is used across multiple fields of practice and research disciplines. Surgeons, for instance, train surgical procedures (Hargreaves, 1996; Mitchell & Arora, 2012), the military trains to combat terrorism, while terrorist networks develop their own training strategies (Körner & Staller, 2018), companies cultivate distinct practices and learning cultures (Polo et al., 2018), and the training of neuronal networks in adaptive artificial intelligence has become a topic of worldwide attention (Duncan et al., 2023).

Originating in sport, training has evolved a context-shifting concept whose meaning extends far beyond its initial domain. The notion of *concept creep* originally describes the semantic expansion of psychological concepts (Haslam, 2016; Haslam et al., 2021), yet the same logic can be applied to understand how training has diffused across societal and academic contexts. The conceptual expansion of training can thus be understood as a socio-cultural shift: its meaning stretches beyond its original context, adapting to and shaping different fields of action. From a systems-theoretical perspective (Luhmann, 2010), this semantic expansion is accompanied by a re-specification of meaning within each system’s own logic. Athletes,

healthcare professionals, and business organizations, for example, make sense of “training” in fundamentally different ways.

We therefore regard training as a semantic construct that evolves in relation to social structures and is subject to continuous recontextualization. Our analysis suggests that the meaning and operationalization of “training” differ across contexts, yet the concept retains cross-disciplinary relevance. Moreover, training is not a culturally neutral phenomenon but is embedded within distinct socio-cultural frameworks of meaning. To better understand how training is embedded and practiced across these frameworks, recent research increasingly focuses on *training culture*. The keyword “training culture” yields numerous search results (e.g., Web of Science: 56; JSTOR: 412; ERIC: 163; ScienceDirect: 341 in November 2023) across domains such as sports, business and medicine. However, despite this multidisciplinaryity, training culture has rarely been examined from a social and cultural science perspective and with an explicitly interdisciplinary outlook. To date, there is no interdisciplinary and systematic analysis of training culture across different fields of interests.

Both training and training culture reflect conceptual and practical concerns within disciplines such as medicine, organizational studies, and sport science. Yet, structured, cross-disciplinary insights remain scarce. The present study therefore investigates the cross-contextuality and multidisciplinaryity of training culture through a scoping review methodology (Munn et al., 2018; Sabiston et al., 2022; Tricco et al., 2018). In what follows, the terms “interdisciplinary” and “multidisciplinary” are used with distinct meanings: “multidisciplinary” refers to the juxtaposition of disciplinary perspectives without methodological or theoretical integration, whereas “interdisciplinary” denotes an integrative approach that combines methods, theories, and concepts across fields to develop a shared framework (Choi & Pak, 2006). While the present review adopts a multidisciplinary scope by incorporating research from various disciplines, its ultimate aim is to inform the development of a genuinely interdisciplinary understanding of training culture.

We begin by outlining the conceptual expansion of training as a “creeping concept” in modern society. Although related terms such as exercise or instruction overlap in meaning, our analysis focuses specifically on “training”. We then present the rationale and procedures of our scoping review, followed by the research objectives and questions, results and discussion. We discuss these results to answer the research questions and to further outline future perspectives for interdisciplinary approaches in training pedagogy. The final section highlights key limitations of the study and implications for future research.

Concept Creep of Training in Modern Society

The Expansion of Training

Training is a pervasive concept that spans diverse areas of contemporary society. Etymologically, the term training from Latin “*trahere*” (to pull, to draw) originally referred to pulling or drawing objects, later to the dressage of horses, and eventually to human instruction, drill, or exercise. Over time, its semantic evolution has been shaped primarily by its athletic usage, particularly in the sense of performance-oriented exercise, which lead to its institutionalization within sport science (Fröhlich & Ludwig, 2023). Yet today, the term extends far beyond the sporting domain, permeating discourses in medicine (Hargreaves, 1996), policing (Koerner & Staller, 2021), business (Polo & Cervai, 2018) and other organizational contexts.

The growing ubiquity and persistence of “training” across these contexts raise questions about its significance for modern society. Drawing on sociological systems theory (Luhmann, 2015; Stichweh, 2000), we conceptualize training as a communicative semantics that evolves

in relation to social structures. Its analysis thus enables both context-specific and cross-contextual insights into how social systems construct meaning.

Training as Semantics

The concept of training structures communication in different social contexts. Although its attributed meaning may appear similar across settings, “training” is re-contextualized according to each field’s practices and logic. Training in a hospital, for instance, differs markedly from training for a military operation or within a corporate administration. In Luhmann’s terminology, “semantics” denotes generalized patterns of meaning that transcend individual events and situations (Luhmann, 2010). In this sense, training represents a pervasive semantics: it informs communication in sport as well as in medicine, yet its concrete meaning emerges only within specific communicative contexts. Following systems theory (Luhmann, 1987), such contexts can be understood as autopoietic social systems. The autopoiesis of sport is sustained through communications of athletic performance (Stichweh, 1990), whereas medicine as social system reproduces itself through communications concerning salutogenesis and pathogenesis. Training serves as a meaningful semantics in both systems, transcending particular interactions while simultaneously being redefined according to system-specific relevance.

The evolution and persistence of training as a stabilized semantics within the autopoiesis of social systems (Luhmann, 2010) can be analyzed along two dimensions: temporally, through its historical stability in shaping communicative practices, particularly in sport; and socially, through its expansion into other functional domains of modern society. Similar dynamics have been described in psychology as concept creep, in which categories originating in specialized psychological discourses expand into everyday communication (Haslam, 2016).

The sociocultural evolution of semantics, however, is reciprocally related to social structures (Stichweh, 2024). Semantic change both reflects and anticipates structural change, allowing analyses of semantics to yield insights into contemporary social structures. As Stichweh notes, semantics relate to social structures in anticipative, reconstructive or constitutive ways (Stichweh, 2000). For instance, communicative practices surrounding training in sport not only justify but also constitute the social system of training sciences. Thus, while social structures shape the evolution of semantics, semantics in turn may influence changes in social structures. This reciprocal relationship prompts the question: what does the expansion of “training” reveal about the evolving structure of modern society.

The “Problem” of Training

The evolution of a semantic form depends on its plausibility, its ability to circulate across social contexts without requiring explicit justification (Luhmann, 2010). A higher level of evidentiality is achieved when a semantics is not only generally plausible but when alternative meanings appear less convincing (Luhmann, 2010). That said, “training” can be regarded as a socially plausible semantics, as evidenced by its broad diffusion across modern society. Yet this expansion has rarely been analyzed from a sociocultural point of view. Although training appears across various social domains, its semantic trajectory within these fields remains largely unexamined.

As noted, training is actualized differently for surgeons in an operating theatre than for administrators in a hospital’s management department, involving distinct rationales and practices. Hence, comparative analyses based on uniform definitions of “training” risk overlooking system-specific nuances. The meaning of training is inherently contextual.

Functional analysis within systems theory (Luhmann, 1987) focuses not on what a phenomenon is, but on what problem it helps to solve within a given social system.

Accordingly, the question is not “what is training?” but rather “what function does training fulfill?”, for instance, in surgery, military operation, corporate development, or personal fitness. This is an empirical question that must be examined across contexts.

The embedding of training within diverse contexts is not only a matter of scientific observation but also an object of reflection for practitioners in sport, business, medicine, and more. The concept of training culture addresses this perspective, asking how training is understood, embedded and enacted within specific organizational environments (Polo & Cervai, 2018). Considering “culture” as an observational concept (Luhmann, 2015), then the discussion of “training culture” constitutes a second order observation (Baraldi et al., 1998; Luhmann, 1987) – that is, an observation of how social systems themselves observe training. What meanings and values are attributed to “training” in this hospital, in that corporation, or in those gyms?

As a result, our analysis focuses on training culture as an entry point into this broader sociocultural field. We investigate how academic discourses across multiple disciplines observe and attribute meaning to training, thereby tracing its role as a semantic bridge between different social systems.

Methodology

Rationale

The term “training culture” broadly refers to the socio-cultural embedding of training, encompassing the practices, meanings, and values associated within specific contexts. Despite the conceptual breadth and practical relevance of this notion, interdisciplinary perspectives remain scarce. A more integrative approach could help to systematically connect implicit forms of training pedagogy across different fields and disciplines. Accordingly, this study aims to map and analyze how training culture is conceptualized, defined, and thematized within current academic discourse.

Research Scope & Question

The original research objective was to identify the concepts, methods, theories, and results related to training culture across disciplines, as outlined in the research protocol (Bonn & Koerner, 2024). However, the initial review revealed substantial heterogeneity in how the term is used and engaged. While some publications merely mention training culture in passing, others devote entire articles to its clarification. To accommodate this diversity, we adopted a more inductive approach towards the meaning of “training culture” within academic literature. The research questions were:

RQ1. How is “training culture” understood and contextualized to related topics, methodologies and fields of interests in research?

RQ2. What kind of solution do training and training culture offer for different fields of interest and from an interdisciplinary perspective?

While RQ1 aligns directly with the scoping review methodology and its descriptive results, RQ2 provides a broader analytical frame for discussing these findings against the backdrop of concept creep and socio-cultural expansion of “training”. The reporting follows the PRISMA Extension for Scoping Reviews (Tricco et al., 2018).

Research

The study consisted of four main phases: 1. literature research, 2. selection of relevant publications based on eligibility criteria, 3. extraction of relevant data and 4. thematic analysis.

An initial exploratory search in November 2023 informed the development of a multilingual search strategy incorporating synonyms and related expressions for “training” in

English, German, and Spanish. The final search string focused on combinations of training (and synonyms) with culture, using the truncation symbol (*) to include morphological variations. Although our primary interest lay in “training culture” as semantic construct, we included synonyms and similar terms to capture publications that may not use the term explicitly in their titles or keywords but refer to it within abstracts or text bodies. The final search string was as follows: “training culture*” OR “cultura* de entrenamiento*” OR “cultura* de entreno*” OR “trainingskultur*” OR “coaching culture*” OR “coachingkultur*” OR “exercise culture*” OR “cultura* de ejercicio*” OR “cultura* de ejercitación” OR “übungskultur*” OR “workout culture*” OR “drill culture*” OR “instruction culture*” OR “cultura* de instrucción” OR “Instruktionskultur” OR “practice culture*” OR “cultura* de práctica*” OR “übungskultur*”.

Given the presumed multidisciplinary nature of training culture, we selected a broad range of databases to reflect diverse disciplinary perspectives, including medicine (PubMed), psychology (PsycINFO) or education (e.g., ERIC). The included data bases use bibliometric indexing: Web of Knowledge, Pro Quest, Wiley Online Library, PubMed, PsycINFO, ERIC, BASE, EBSCOhost (including International Bibliography of Theatre & Dance with Full Text, SPORTDiscus with Full Text).

Duplicate records were identified and removed. Additional relevant publications were added through reference tracking during the analysis phase.

The keyword-based search was conducted between 11 July 2024 and 15 July 2024. All retrieved references were exported from the respective databases and imported into Zotero for screening and eligibility assessment. The initial search yielded 5.260 results. These were subsequently filtered in multiple stages based on our predefined eligibility criteria. While the initial scope included training culture and related expressions (e.g. coaching or exercise), the final inclusion phase was restricted to publications explicitly employing the term “training culture”.

Inclusion criteria	Exclusion criteria
First phase: Publications present an explicit focus on training culture (analogue: similar terms) at least once. Second phase: Publications present an explicit focus on training culture using the term “training culture”.	Publications do not explicitly name “training culture” as term or concept; publications focus on training of culture rather than “training culture”. Video and audio files were excluded from analysis.

Table 1. Inclusion and exclusion criteria for the screening process¹

Based on these criteria, we screened the publications as depicted in the flow chart (**figure 1**).

¹ In a first step, two persons practiced the screening of the results to ensure consistency in the analysis and inclusion of publications. This screening exercise was based on a set of 100 records analyzed by two persons screening the title and abstract. Deviations were discussed and used to refine the data selection form.

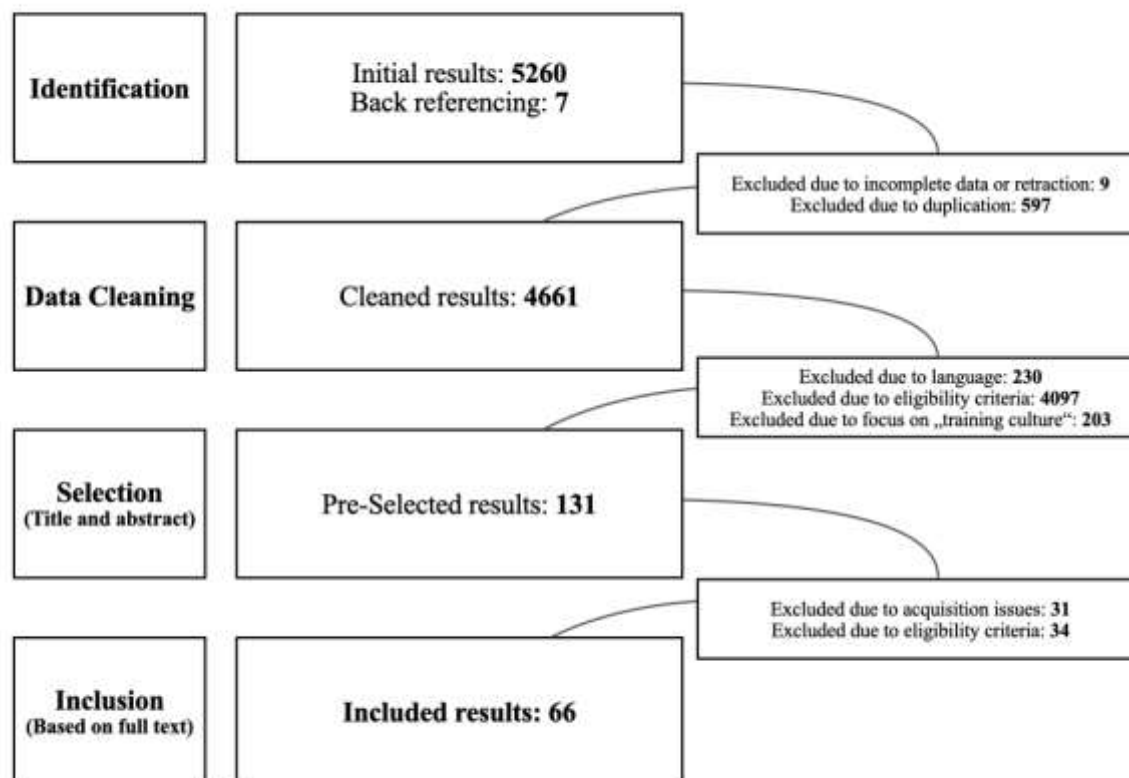


Figure 1. Flowchart of screening and selection procedure (c.f., Liberati et al. 2009)

In total, 61 publications met the eligibility criteria and were included in the final analysis and reporting.

Analysis

Metadata from the included publications were exported in Microsoft Excel, including authors, year of publications, title and type of publication. Based on keywords and/or abstract, we also noted the relevant fields of interest (e.g. financial sector, corporate organizations, sport). Furthermore, we extracted the research questions of each publication and identified their methodological approach (e.g., theoretical/conceptual or empirical approach, method of data collection etc.). The extraction of these formal aspects provided initial insights into the quantitative distribution of methodological approaches across the field.

The core of the analysis, however, relied on a qualitative, reflexive thematic analysis (Braun & Clarke, 2006, 2020). Given our research aims, this approach was well suited to examining how training culture is conceptualized within the academic literature. Since the objective was to develop a thematic overview across disciplinary boundaries, the analysis followed a material-driven logic, identifying recurring conceptual elements within the data corpus. We adhered to the six steps of thematic analysis outlined by Braun & Clarke (2006), beginning with familiarizing with the data and concluding with the production of the final report. Consistent with our eligibility criteria, coding focused on those parts of each publication that explicitly mentioned “training culture”. Where relevant, the immediate context of these passages was also considered, up to the level of the respective (sub-) chapter.

Coding was initially conducted by one author using an inductive, material-driven approach. Following the first cycle of coding, the full data set of codes was discussed by both authors. Subsequently, the coding was refined to achieve a more standardized level of abstraction. This abstraction necessarily reduced some contextual detail; however, as our study seeks for an overview of the multidisciplinary concept of training culture such details lie beyond the scope of the present study, which aims to map the broader, multidisciplinary semantics of training pedagogy. These nuances should be addressed in further studies or targeted systematic reviews.

Based on these refined codes, theme construction was carried out by one author and reviewed by both. Theme development was guided by the research question. To meet the objective of mapping training culture across academic disciplines, the analysis distinguished between lower order themes, which collate codes into material-proximate categories, and higher order themes, which integrate these categories into more abstract, overarching thematic structures.

Results

A total of 61 studies were included into the analysis (for full list see **Appendix**), representing theoretical / conceptual and empirical studies and reports. The empirical studies employed a variety of methods, including questionnaires, interviews, observations, and anthropometric measurements. Publication years ranged from 1977 to 2024 (figure 2).

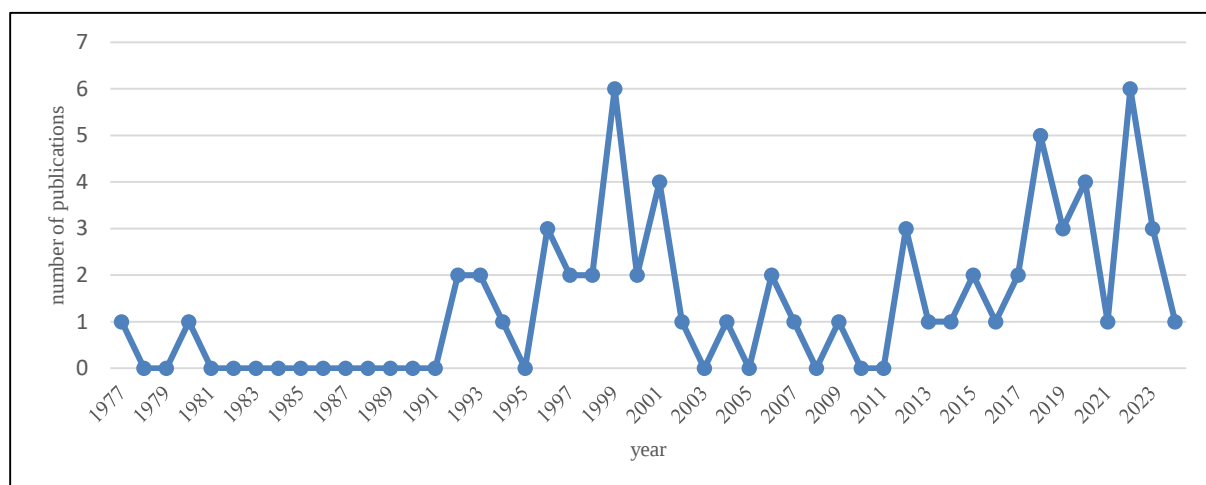


Figure 2. Number of publications about “training culture” per year

The fields of interest represented in the reviewed studies are highly diverse: Based on titles, abstracts and keywords, they include sport, therapy, workplace, organizational contexts, enterprises, labor and business sectors, education, vocational education and training, medicine, catering sector, industry, translation and academics law, tourism, hotel, psychology, dog training, care, public administration, residencies, police academy, firefighting, technical university services (see the **Appendix**).

The thematic analysis of these 67 publications focused explicitly on passages addressing the concept of training culture. In total, 12 higher-order themes were developed, capturing the central ways in which “training culture” is conceptualized and contextualized across the literature. **Table 2** presents these higher-order themes and subordinated lower-order themes.

Higher Order Themes	Lower Order Themes
Training culture is related to beneficial outcomes	• Positive outcomes in general • Training culture potentially is important for organizational change, development and success • Training culture potentially fosters performance, skill, development, motivation, satisfaction and well-being of individuals • Training culture potentially fosters coping with competition, challenges and weaknesses • Training culture is important for organizational change, development and success • Training culture influences results of, participation in and provision of training
Definitions of training cultures	• Contrasting training culture models • Importance of defining training culture in organization • Training culture as attributed meaning and values of learning and training • Training culture as set of behaviours (and more) • Training culture is related to (lifelong) learning culture • Training culture as perceived benefits of training • Difficulties in definitions and conceptual distinctions • Training culture spans different social levels (individual to team/meso to organization) • Training culture as institutionalization of training climate and arrangement • Training culture as part of organizational culture • Training culture as “contextual feature” for situations • Operationalization of training culture for empiric analysis (e.g., TC Scale) • Miscellaneous aspects of defining and determining training culture
Implementation and intentional change of training cultures	• Resistances and resilience against training culture change due to existing training culture • Expectations, understandings, assumptions can limit training culture change • External and internal pressures affect training culture including economic and temporal resources • Decisive roles and individuals for training culture change • Dependency on trainers in small training cultures • Development and implementation of training culture as national policy and task • Description of implementation / established training culture
Requirements for (positive) training cultures	• Alignment of training culture with existing strategies • Commitment and (perceived) benefits as requirement for training culture • Alignment of training culture with existing industry norms • Technology, access to information and collaboration for training culture • Research-based training cultures • Miscellaneous mechanics/aspects for positive training culture
Differences in training cultures	• Differences in training culture between different nations/countries • Differences in training culture between departments and/or organizations • Differences in training culture between actors in organizations • Differences in training culture between students with different origins

	• (No) gender differences in training culture • Differences between individuals in training culture
Context relativity of training cultures	• Need of adaption between national/home and foreign training cultures • Training culture is related to the respective context • Need differences between different contexts
Training culture shifts	• Societal and technological change impact training culture changes • Shifting in training cultures • Organizational changes influence training culture changes
Problems in training cultures	• Negative perception of certain training culture • Lack of training culture and difficulties in small businesses • Lack of participation and attributed relevance of training • Lack of training culture in general • Miscellaneous problems in training cultures
Training Culture as objective	• Training culture as part of accreditations • Training culture as part of professionalization objective • Initiatives to promote training culture • Training culture as governmental/national objective
Training culture as need	• Need for training culture and/or its change in organizations • Need for institutionalizing and integrated approach to training culture • Need for training as (transformative) value
Research gaps	• Training culture as research gap • Training culture in its organizational/local context as research gap
Miscellaneous	

Table 2. Higher order themes and lower order themes as result of thematic analysis on “training culture”

Definitions of training culture vary considerably across the literature. Some authors distinguish contrasting forms, such as communitarian vs. individualistic training culture (Johnson et al., 2014), while others link the concept to broader themes like lifelong learning (Kearns & Papadopoulos, 2000; Robinson & Arthy, 1999). In many cases, training culture is defined in terms of the meanings and values attributed to learning and training (Alfandi, 2020; Polo et al., 2018a), the perceived benefits of training (Gibb, 1999), or the behaviors associated with training (Gautam, 2018). Additional definitions describe training culture as a process of institutionalization (Muzaffar, 2016) or as a “contextual feature” shaping concrete situations (Pike, 2012) at multiple social levels (Polo & Cervai, 2018). Some publications focus particularly on operationalizing training culture for empirical research, for instance through the Training Culture Scale (Polo et al., 2018a; Polo et al., 2018b).

Across the analyzed publications, training cultures are shown to vary significantly between organizations, between departments within organizations (Hager et al., 1996; Polo & Cervai, 2018), actors within the same organizations (Polo, 2020; Polo & Cervai, 2018), and even between individuals, influenced for instance by their origin (Deem & Brehony, 2000; Vogelsang & Pilz, 2021). The literature consistently stresses the contextual relativity of training cultures: they emerge within specific environments and require context sensitivity as well as national or organizational adaptation when analyzed or implemented. Moreover, training cultures change over time, with shifts commonly attributed to societal and technological transformations as well as organizational restructuring (Goodger & Goodger, 1977; Goodger, 1980; Kearns & Papadopoulos, 2000).

The corpus frequently connects training culture to potential beneficial outcomes at both organizational (e.g., development, success) (Gautam, 2018; Kim & Turner, 2022; Robinson &

Arthy, 1999) and individual levels (e.g., wellbeing, satisfaction) (Kaslow et al., 2012). Training culture is described as influencing the results, participation, and provision of training. Consequently, many publications present training culture as a transformational necessity and central objective, particularly in organizational and governmental contexts (Collins & Smith, 2004; Fomba, 2009; Gibb, 1997). Descriptions of (potential) implementation form another recurring theme. The literature emphasizes the crucial role of individuals (Ball & Freeland, 2001) and highlights the influence of external and internal pressures, such as financial constraints or limited time resources (Pike, 2012). Several studies also identify resistance to changes and problematic expectations or understandings among organizational members (Collins & Smith, 2004; Cushion, 2022).

Successful implementation or modification of training culture depends on fulfilling certain requirements. For instance, new training cultures must align with existing strategies in industry and organizations (Smith, 1999), and they require mechanisms that support information access, technological integration and collaboration (Kearns & Papadopoulos, 2000; Kim & Turner, 2022). Positive transformation depends on commitment and benefits from research-based insights (Falk et al., 1999). The literature also identifies several problems within training cultures. These include, for instance, the complete absence of a training culture or negative perceptions within certain contexts (Cushion, 2022; Pike, 2012). In addition, authors point to notable research gaps, including a lack of studies on training culture in general (Polo et al., 2018b) and sufficient analysis of training cultures within specific contexts (Deem & Brehony, 2000; Pilz et al., 2023).

Discussion

RQ1) How is “training culture” understood and contextualized in connection to related topics, methodologies and fields of interest in research?

Research on training culture primarily examines the meanings, values, and behaviors associated with training in different organizational settings, as well as the ways in which these practices become institutionalized. Although the term training is strongly associated with sport, the publications included in this review show that training culture is discussed across a wide range of contexts, including medicine, education, law, tourism, care work, industry and organizational environments more broadly. Despite this diversity, content-related similarities recur across fields and are reflected in the themes constructed in this review. Overall, training culture emerges as a genuinely multidisciplinary research subject, linking questions across fields through the lens of training’s perceived value, function, and impact.

The theoretical and methodological approaches used to investigate training culture are similarly diverse, ranging from conceptual works, reports and empirical studies with different methods of data collection and analyses. Some definitional anchors appear more frequently, such as understandings of training culture as ‘attributed meaning’ and the use of the Training Culture Scale (Polo et al., 2018a; 2018b). However, systematic cross-field comparisons are largely absent. This lack of integration may reflect the general need for further research in this area in general (Polo et al., 2018b), but it also highlights the contextuality of training cultures (Hargreaves, 1996; Pike, 2012), which are deeply shaped by their organizational environments.

Publications across fields emphasize that training cultures evolve within specific organizational and societal conditions, and may shift in response to these conditions over time. This calls for more detailed, context-sensitive analysis, as illustrated by studies focusing on particular organizations or sectors (Polo & Cervai, 2018). Despite their contextual variation, research overlap across fields, especially in relation to the value and provision of training, leadership, collaboration, and organizational learning. Thus, while further insights require

sensitivity to the context, related research in other disciplines may also offer productive perspectives.

In summary, research on training culture is closely tied to identifying problems and developing solutions for the improvement of training culture, either in general or for specific contexts. Intentional transformations of training cultures, however, face constraints such as temporal and financial limitations (Kearns & Papadopoulos, 2000; Pike, 2012), as well as resistance or inertia arising from existing organizational strategies, expectations, and shared understandings. Against this backdrop, questions of similarity or diversity among training cultures, and their implications for the conceptualization of the term, become highly relevant. These issues require further investigation on the social interactions and interpretative frameworks through which training, its outcomes, and its problems are understood within concrete contexts. Research on innovation and organizational change may provide additional insights, particularly regarding resistance and adoption processes (e.g., Hauschildt, 1999; Salomo & Gemünden, 2015).

RQ2) What kind of solution do training and training culture offer for different fields of interest and from an interdisciplinary perspective?

As the previous findings indicate, research on training culture is deeply concerned with the intentional development of training culture, particularly with regards to organizational structures, role expectations, and interaction patterns. Although training culture is typically examined as a subculture within broader organizational environments, its positive development depends on the actions of individuals (Ball & Freeland, 2001) as well as on changes in organizational concepts, strategies and structures (Fretz, 1992). Training cultures evolve automatically, but goal-oriented training cultures do not necessarily emerge, as highlighted by studies focusing on problems and dysfunctional patterns (Cushion, 2022; Temporado, 2012). In this sense, the semantic use of training culture underscores the observation of training as a matter of attributed meaning and understandings, for instance, in studies examining participants' perception of training values (Polo et al., 2018b).

From the perspective of functional analysis (Luhmann, 1964), the semantics of training culture and the persistence of related communications can be understood as offering a solution – but to what problem? Functional analysis assumes that social phenomena address problems that they themselves produce and process, thereby reproducing communication. For the functional analysis of training culture in academic publications, two levels of observation can be distinguished:

First, training culture is relevant in different contexts mentioned in the analysis such as medicine, enterprises or vocational and educational training, catering and more. Regarding the communicative practice of these fields, training and training culture are associated with a range of challenges and opportunities. This is particularly evident in the themes “Training culture is related to beneficial outcomes”, “Training culture as objective” and “Training culture as need”. Considering these analytic categories, the semantics of training culture relates to the problem of organizational change and development. The precise nature of this functional relationship varies by context. For instance, in some fields training culture is linked to coping with technological and societal change and their impact on organizations (Kearns & Papadopoulos, 2000); in others, it is connected to competition (Gautam, 2018) or accreditation requirements (Collins & Smith, 2004). Although united by the same semantics, the function of training culture differs depending on the organizational environment and practical fields. Regarding the broader perspective, training culture appears to operate as communicative mechanism for handling organizational uncertainties and challenges – both in terms of organizational adaptation and through the enhancement of individual performance and interaction.

Second, because this scoping review focuses on academic publications in particular, the function of “training culture” within science itself must also be considered. Scientific communication aims to produce reliable knowledge that can be used in other social systems (Luhmann, 1981). Consecutively, the analyzed literature reflects this orientation by connecting its findings to practical context, offering guidance on how to develop, implement, or modify training cultures.

Beside this overview, the results also display a particular interest in the relationship between training culture and organizational culture, leadership, collaboration, strategic alignment, technological integration, and management – raising further interdisciplinary questions.

From a systems theoretical perspective, the diversity of context-specific meanings documented in this review can be understood as expressing a shared functional capacity. Across the specific organizational environments in sport, medicine, business, education and other fields, training consistently appears as a communicative form of oriented toward stabilizing performance and facilitating development (see results, themes “Training culture is related to beneficial outcomes” and “Training culture as objective”). Training culture, in this sense, addresses central challenges of modern organizations: ensuring performance and quality standards, managing uncertainty associated with technological or societal change, integrating heterogeneous actors, and legitimizing organizational objectives.

In this sense, “training culture” can be understood as a semantic link between individual performance and organizational reproduction. Its function lies in translating demands for change into a communicatively connectable forms that remain plausible across different systemic contexts, while at the same time stabilizing existing structures.

However, our findings indicate that the specific functional contribution of “training culture” is not identical across all contexts. Instead, it varies according to the respective system logics and organizational environments (see results, themes “Differences in training cultures” and “Context relativity of training cultures”). In the sporting domain, training culture is often directed towards performance enhancement, competitiveness, and the optimization of individual skills (Foyster et al., 2022), whereas in medicine the emphasis lies on safeguarding quality standards, ensuring patient safety, and maintaining standardization (Hargreaves, 1996; Heist et al., 2019). In business organizations, training culture is more frequently associated with innovation capacity, competitive strength, and employee retention (Gautam, 2018; Polo & Cervai, 2018). Its intra-organizational function also varies: in some contexts, training primarily serves to integrate heterogeneous groups of actors and foster shared orientations, while in others it is used chiefly as a mechanism for selection and legitimation. Such functional differences demonstrate that, although training culture constitutes an overarching communicative structure, its respective function must be reconstructed in a context-specific manner.

To sum up, training and its socio-cultural embedding constitute a significant topic across diverse fields of research and practice. In most contexts, training culture is functionally associated with organizational development and success, though what counts as development or success varies considerably (e.g., employer satisfaction, skill development, coping with challenges etc.). Further case studies may deepen our understanding of the relationship between training culture as semantics and the concrete social structure in which it is embedded. An interdisciplinary sociocultural research agenda on the meaning and practice of training promises to generate context-spanning insights into the cultural significance – and thus the functional of training in contemporary society.

Limitations and Perspectives

This paper is limited primarily by the necessarily superficial level of analysis applied to the training culture literature. While this approach aligns with the objective of scoping the concept of training culture across multidisciplinary academic publications, it does not allow for in-depth examinations of specific fields or cases. A related limitation concerns the indexing quality of some publications; several records lacked essential information due to database export issues. Future studies should therefore focus on the intersection of overall theoretical models and comparative, context-specific analyses. For instance, research on professional decision-making in training design offers a promising avenue for connection insights across disciplines and fields of practice.

A further limitation stems from the selection procedure: this scoping review included only publications addressing training culture. Consequently, numerous publications addressing training and culture more generally were excluded, as were works on related concepts such as coaching culture, exercise culture, practice culture. This reflects both, a pragmatic decision to keep the corpus manageable, and a conceptual decision to sharpen the analytical focus. However, publications on these related concepts may offer important insights. Future transdisciplinary research could integrate such concepts through comparative analyses, though this will require careful attention to definitional clarity and conceptual demarcation.

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- Vogelsang, B., & Pilz, M. (2021). Conditional Factors for Training Activities in Chinese, Indian and Mexican Subsidiaries of German Companies. *European Journal of Training and Development*, 45, 419–435.

Appendix

Brief list of publications included in the thematic analysis based on the scoping review

Type	Year	Author	Title
journalArticle	2022	Cushion, C.	Changing Police Personal Safety Training Using Scenario-Based-Training: A Critical Analysis of the 'Dilemmas of Practice' Impacting Change
journalArticle	2022	Albliwi, S. A.; Alhashimy, W. K.; Binkhamis, M.	Impacts of Training and Quality Culture on the Satisfaction of Patients and Administrative Staff: A Study in Saudi Arabia Public Hospitals
journalArticle	2015	Koski, L.; Bäcklund, P.	On the Fringe: The Positions of Dogs in Finnish Dog Training Culture
journalArticle	2009	Fomba, E.M.	Reinforcing experiential learning with training culture as an innovative governance strategy in informal microfinance institutions
journalArticle	2004	Collins, L. A.; Smith, A. J.	Understanding the new Investors in People standard - lessons from experience
journalArticle	1996	Hargreaves, D. H.	A training culture in surgery
journalArticle	2019	McCallum, M.; MacDonald, S.; McKay, J.	GP speciality training in areas of deprivation: factors influencing engagement. A qualitative study.
journalArticle	2019	Heist, B. S.; Torok, H. M.	Contrasting Residency Training in Japan and the United States From Perspectives of Japanese Physicians Trained in Both Systems.
journalArticle	2022	Foyster, J. M.; Rebar, A.; Guy, J. H.; Stanton, R.	"If they can do it, I can do it": experiences of older women who engage in powerlifting training.
journalArticle	2020	Heist, B. S.; Torok, H. M.	Japanese International Medical Graduates and the United States clinical training experience: Challenges abroad and methods to overcome them.
journalArticle	2014	Johnson, W. B.; Barnett, J. E.; Elman, N. S.; Forrest, L.; Schwartz-Mette, R.; Kaslow, N. J.	Preparing trainees for lifelong competence: Creating a communitarian training culture.
journalArticle	2018	Kaslow, N. J.; Bangasser, D. A.; Grus, C. L.; McCutcheon, S. R.; Fowler, G. A.	Facilitating pipeline progress from doctoral degree to first job.
journalArticle	2012	Kaslow, N. J.; Falender, C. A.; Grus, C. L.	Valuing and practicing competency-based supervision: A transformational leadership perspective.
journalArticle	2018	Polo, F.; Cervai, S.; Kantola, J.	Training Culture: A New Conceptualization to Capture Values and Meanings of Training in Organizations
journalArticle	2023	Sujarwo; Nopembri, S.; Kriswanto, E. S.; Shun, J. M. T.; Priyambada, G.; Mahardhika, N. A.	Cultural Differences and Coaching Styles of Physical Education Teachers in Hong Kong and Indonesia
journalArticle	2015	Wallenburg, I.; Pols, J.; de Bont, A.	"You Need to Bond with the Ones You Train": Mixing Epistemic Cultures in Medical Residency Training
journalArticle	2021	Vogelsang, B.; Pilz, M.	Conditional Factors for Training Activities in Chinese, Indian and Mexican Subsidiaries of German Companies
report	2000	Kearns, P.; Papadopoulos, G.	Building a Learning and Training Culture: The Experience of Five OECD Countries.
journalArticle	1994	Brown, A.; Evans, K.	Changing the Training Culture: Lessons from Anglo-German Comparisons of Vocational Education and Training.
report	2001	Goldsmith, S.	Curriculum Development and Discursive Practices: Building a Training Culture around Dual Diagnosis.
journalArticle	1997	Noble, C.	The Management of Training in Multinational Corporations: Comparative Case Studies.
journalArticle	2000	Deem, R.; Brehony, K. J.	Doctoral Students' Access to Research Cultures--Are Some More Unequal than Others?

journalArticle	1992	Hardy, K. V.; Laszloffy, T. A.	Training Racially Sensitive Family Therapists: Context, Content, and Contact.
report	1992	Fretz, B.	Workplace Literacy: The Effects of an In-house Program on the Organization.
report	1998	Australian National Training Authority, Brisbane	Australia's Vocational Education & Training System. Annual National Report. Volume 1: National Overview [and] Volume 2: Commonwealth, State & Territory Achievements.
report	2001	Clements, A.; Speers, G.	Development of an Industry Training Strategy for the Abattoir Industry in New South Wales.
journalArticle	1993	Wilson, D. N.	The Effectiveness of Training Boards in Canada. Training Discussion Papers No. 109.
report	1998	Australian National Training Authority, Brisbane	Australian National Training Authority. Annual Performance Report 1997-1998.
journalArticle	1997	Gibb, J.	VET and Small Business. Review of Research.
report	2001	Kenny, M.; Shaw, R.	How Can We Work Sectorally in a Province? Building Links between the Nova Scotia Community College and the Nova Scotia Industry Sector Councils. An Association of Canadian Community Colleges Sponsored Sectoral Case Study.
report	2001	Ball, K.; Freeland, B.	Factors Affecting the Provision of Entry-Level Training by Enterprises. Australian Apprenticeships.
report	1996	Hager, P.; McIntyre, J.; Moy, J.; Comyn, P.; Stone, J.; Schwenke, C.; Gonczi, A.	Workplace Keys. Piloting the Key Competencies in Workplace Training.
report	2002	Rademacher, I.	Working with Value: Industry-Specific Approaches to Workforce Development. A Synthesis of Findings.
conferencePaper	1999	Robinson, C.; Arthy, K.	Lifelong Learning: Developing a Training Culture. Papers Presented at the Concurrent Sessions on Research into a Training Culture at the Conference, "Creating Our Future: A New Training Culture for Australia" (Brisbane, Australia, August 1998).
journalArticle		GEN	Corporate Training Culture in the Companies Listed on the MICEX Russian Stock Exchange
journalArticle	2016	Muzaffar, B.	The Development and Validation of a Scale to Measure Training Culture: The TC Scale
conferencePaper	1993	Everingham-Stone, M. M.	Computing training culture crash
journalArticle	1980	Goodger, J. M.	Organisational and Cultural Change in Post-War British Judo
journalArticle	2007	Gray, K.; Miller, D.; Scott, K.-	Training the Trainer
journalArticle	2006	Kearns, J.	Curriculum Renewal in Translator Training: Vocational Challenges in Academic Environments with Reference to Needs and Situation Analysis and Skills Transferability from the Contemporary Experience of Polish Translator Training Culture ...
conferencePaper	2018	Polo, F.; Cervai, S.	The role of training in organizations : a comparative case study of employees and management perspectives
journalArticle	2020	Alfandi, A. M.-	Hotel-Related Factors and Employee Performance "The Case of Jordanian Four Star Hotels"
journalArticle	2022	Avinashi, A.; Shah, M.	Investigating The Mediating Role Of Training Motivation On Training Effectiveness, With Respect To Training Culture And Supervisor Support
journalArticle	1996	Hales, C.; Tamangani, Z.; Walker, A.	NVQs in small businesses: factors influencing adoption
journalArticle	2017	Iqbal, M.; Khan, A.	Examining the ICT skills of university librarians in a developing country: a study from the University of the Punjab, Lahore, Pakistan.
journalArticle	2018	Vasquez-Torres, M.	Factorial analysis of the elements that compose the training in the small and medium enterprises of the Industrial sector
journalArticle	2006	Haven-Tang, C.	Learning Provision, the Labour Market and Skills Needs of the Tourism and Related Sectors in Wales

thesis	2020	Polo, F.	Valorizing human capital for dynamic organizations through the triad of training-competency modeling-participation ; Dynaamisten organisaatioiden inhimillisen pääoman hyödyntäminen harjoittelun, osaamisen mallintamisen ja osallistumisen kautta
journalArticle	2020	Christensen, M. K. Krogh; Sørensen, J. K.; Jensen, R. D.; Gjedde Brøndt, S.; Norberg, K.; O'Neill, L. D.; Mortensen, L. S.; Charles, P.	How to play the game of medical education: Sociocultural analyses of educational difficulties among medical residents
thesis	2024	Demidoff, M.	Strength and Speed Profile of a Finnish Under-19 Futsal National Team Player
thesis	2022	Alzaabi, A. A. Y. A.	The effect of e-learning training program on organizational performance through underlying mechanism of capacity building, job performance and job satisfaction of Dubai Police Force
journalArticle	2013	Khan, A.; Rafiq, M.	Designing Effective In-service Training for Librarians in Pakistan
thesis	2012	Pike, L. A.	Not just ticking the box: an investigation into safeguarding adults training transfer in Cornwall, UK
journalArticle	2017	Grycan, J.	Fundamental Stage of Development in Table Tennis (Polish Experience).
journalArticle	2022	Anker-Petersen, C.; Thorborg, K.	Injury Prevention in Women's Gymnastics -- A Need for New Routines.
journalArticle	1977	Goodyear, B.C.; Goodyear, J.M.	Judo in the light of theory and sociological research. / Le judo a la lumiere de la theorie et de la recherche sociologique.
journalArticle	2023	Pilz, M.; Fuchs, M.; Li, J.; Finken, L.; Westermeyer, J.	Similar or Different Training Cultures? German and Chinese Companies in Their Home and Host Countries
journalArticle	2019	Granado, C.	Understanding the trainers' view of the effectiveness of continuing professional training: the case of public servants training
journalArticle	2012	Temporado, A. H.	The influence of U.S. Army fire service organizational culture on firefighter safety
bookSection	2020	Kringen, A.L.	Females and the Police Academy
journalArticle	2018	Gautam, P. K.	Training Culture and Employees Performance in Nepali Banking Industry
bookSection	2022	Kim, H. C.; Turner, A.	Establishing a Positive Training Culture
bookSection	1999	Robinson, C.	Promoting a training culture in industry
bookSection	1999	Gibb, J.	The relevance of a training culture to small business in Australia
bookSection	1999	McDonald, R.	Research and a training culture: implications for large and small businesses
bookSection	1999	Smith, A.	The elements of a training culture
bookSection	1999	Falk, I., Sefton, R., Billett, S.	What does research tell us about developing a training culture?