Training Transfer Research

A Manager’s Guide and Bibliography

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Preface

In organisational contexts, positive transfer of training is generally regarded as the paramount concern of training efforts – but it has proven to be a formidable challenge. Indeed, there is a widely recognised ‘transfer problem’ whereby researchers and practitioners consistently conclude that the return on many training investments is low and organisational investments in training are too often wasted due to poor transfer. This is of particular concern in today’s rapidly changing business climate where organisational success often depends on the speed with which people can learn and apply new ideas and information.

Of course, questions concerning transfer are not new and, in fact, were among the very first issues considered by early psychologists. Yet, despite a long research history the literature on transfer of training has remained fragmented and characterized by a variety of ‘mixed’ findings. With that in mind, Ramon Wenzel and John Cordery have done a great service in researching and crafting this document. It is an exhaustive piece of scholarship that aggregates all of the important research and writing on transfer in one place. But the value goes beyond a simple aggregation and summary – they further offer their own critical review and synthesis and it is a sterling piece of scholarship as well. I plan to keep a copy of their work handy for my own reference.

If you are new to the transfer of training arena, I would say this would be a fine place to start. If you are an old hand, I think you will find new insights and a synthesis of the literature that you have not heretofore encountered. Kudos to Wenzel and Cordery for a timely and important contribution to the science of training transfer. I commend their work to you.

Timothy T. Baldwin
Bloomington, Indiana
September 2014
Introduction

There are many criteria against which the success of training and development activities can be judged. One of the most important, however, is training transfer. Ultimately, the success of any given training and/or development program is reflected in whether or not what is learned gets applied on the job. Organisations, and indeed trainees themselves, invest large amounts of time, effort and resources in work-related training, and they generally expect to see this manifested in some way back in the work setting, for example through changes to how work is conducted. However, many organisations and their people views the likelihood of transfer of training more in hope than expectation. Estimates of how much learning typically survives the transfer back to the place of work vary widely, but there is widespread agreement that too much is typically lost in translation. Although the potential benefit of work-related training to individuals, organisations and society at large is incontestable, the reality is that much of that potential is being dissipated. This undermines the rationale for investing time and money in training and professional development activities. It also appears that work organisations, training providers, and learners blame each other for the lack of positive transfer instead of each embracing their unique role in maximising the desired impact of training.

However, on the positive side, there is a rapidly growing body of scientific research into training which, in turn, is producing a wealth of valuable information regarding the factors that contribute to (or sometimes inhibit) successful training transfer. Over recent decades in particular, a growing consensus has emerged amongst scholars regarding the right and wrong ways to design, deliver, and implement a training program (Salas, Tannenbaum, Kraiger, & Smith-Jentsch, 2012). While empirical evidence suggests that some of the factors affecting training effectiveness are very hard to change, other factors are highly malleable, and thus susceptible to managerial decisions, policies and practices, and deliberate interventions.

Meanwhile, technological, social, and economic developments are rapidly changing the world in which we live and work. New digital technologies are fundamentally transforming the nature of work, the workforce in developed countries such as Australia is rapidly aging, and global competition is intensifying. These seismic shifts are affecting all industry sectors in Australia, and are requiring increased investment in building new knowledge, skills, and abilities. It is timely therefore for both scholars and managers to renew their efforts to ensure that organisations know how to maximise the degree to which valuable new knowledge and skill produced through training passes back over the organisational boundary and makes a difference at work. This short monograph aims to promote an evidence-based approach to such efforts, providing a reference work for those seeking to maximise the utility of their training and development investments. We hope that this will assist scholars, practitioners, and policy makers in their endeavours to make training more successful.
A Brief Overview of Training Transfer Research

There has been tremendous growth in training research over the last forty years, and the training field has grown exponentially in the past decade (for comprehensive and historic reviews see Baldwin, Ford, & Blume, 2009; Cheng & Hampson, 2008; Leberman, McDonald, & Doyle, 2006). The rise in scholarly interest in training and development in work organisations is reflected by new conceptualisations (Segers & Gegenfurtner, 2013a) and regular reviews of the training literature (Aguinis & Kraiger, 2009; Baldwin & Ford, 1988; Burke & Hutchins, 2007; Campbell, 1971; Cheng & Ho, 2001; Ford & Weissbein, 1997; Grossman & Salas, 2011; Kozlowski & Salas, 2009; Latham, 1988; Salas & Cannon-Bowers, 2001; Salas, Tannenbaum, et al., 2012; Salas, Weaver, & Shuffler, 2012; Tannenbaum & Yukl, 1992; Wexley, 1984). A significant part of this literature is devoted to research and theory relating to the transfer of training.

For the purposes of this monograph, we define the transfer of training (training transfer is used synonymously) as the extent to which knowledge, skills, and abilities acquired in a training setting result in sustained change in the way work is performed. According to Blume, Ford, Baldwin, & Huang (2010: 1067-1068), transfer has historically been seen to involve two main processes:

(a) Generalization — the extent to which the knowledge and skill acquired in a learning setting are applied to different settings, people, and/or situations from those trained; and

(b) Maintenance — the extent to which changes that result from a learning experience persist over time.

In other words, training transfer is more than what was learned during training; it is the evidence that competencies trained are used on the job for which they were intended. Employees undertaking professional training should think, feel, and/or act differently at work.

For organisations this transfer of training is thus a crucial leverage point by which development activities will affect relevant outcomes. Accordingly, resources devoted to developing a person’s competencies are largely wasted to the extent that this person doesn’t subsequently make use of those competencies in the course of performing their work (Latham, 2007). There have been various attempts to estimate how much, on average, gets transferred from training to the workplace. The figure of 10% as an average transfer rate, originally a speculation by Georgenson (1982), has become the “sticky idea” (Ford, Yelon, & Billington, 2011) in the scholarly and practitioner literature, albeit not based on any scientific evidence (Saks, 2001). Wexley and Latham (2001) and Saks (2001) respectively estimated that 40 and 62 per cent of content is transferred immediately after a training intervention, while 25 - 44 per cent remains transferred after six months, falling to 15 - 34 per cent after one year. Although these estimates suggest that average transfer rates are variable, and not as weak as has been traditionally thought, they
nevertheless reinforce the commonly held belief that much training fails to result in full and sustained transfer of new competencies to the workplace.

The apparent problem of poor training transfer has motivated many researchers over the years to investigate factors that support or hinder the effective transfer of knowledge, skills and abilities acquired through training and development activities. This has resulted in a number of conceptual models of the transfer process that have been extensively used by both practitioners and researchers.

**Conceptual Models**

Baldwin and Ford’s (1988) model of the processes underlying transfer is the earliest, and arguably most influential, conceptual framework dealing with training transfer. Developed as a simple framework to guide future research, this model (see Figure 1) incorporates three main elements: A) Training inputs, including trainee characteristics, training design, and work environment; B) Training outputs, defined as the amount of original learning which occurs during the training program and the retention of that material after the program is completed; and C) Conditions of transfer, which account for the generalisation of knowledge and skills acquired in training to the job context and the maintenance of that learning over time on the job. The various direct and indirect effects between these factors and elements highlight the fact that the transfer of training is a complex multi-faceted phenomenon.
Baldwin & Ford’s model has spawned a large volume of research over the ensuing 25 years (see Blume, et al., 2010 for a comprehensive review). There have also been a number of variants produced of this basic tripartite framework, and some of these are now briefly described.

Expanding Baldwin & Ford’s approach, Broad and Newstrom (1992) argued that it was also necessary to explicitly consider the role of (a) key stakeholders and (b) time in affecting training transfer. Three key time periods were identified: pre-training, training, and post-training. Key stakeholders included executives, supervisors, performers, performance consultants, evaluators, performance partners, co-workers, subject matter experts, etc. (Broad, 2005). By incorporating time and stakeholder elements, Broad & Newstrom (1992) laid the foundation for the more systemic view that characterizes subsequent models of training transfer.

Focusing on the individual in the transfer process, Russ-Eft (2002) presented a training transfer typology focusing on situational elements that directly affect the trainee, rather than on a trainee’s dispositional and personality characteristics. In this typology, elements are categorised along the time-dimension into pre-training elements, in-training elements, and post-training. This stage view is flanked by situational elements of the transfer environment (i.e., work environment), which are likely to affect an individual throughout the entirety of a given learning experience.
Table 1. A transfer typology (Russ-Eft, 2002)

<table>
<thead>
<tr>
<th>Pre-training Elements</th>
<th>In-training Elements</th>
<th>Post-training Elements</th>
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</thead>
<tbody>
<tr>
<td>Realistic training previews</td>
<td>Advance organizers</td>
<td>Relapse prevention</td>
</tr>
<tr>
<td>Voluntary versus involuntary</td>
<td>Guided discovery</td>
<td>Self-management</td>
</tr>
<tr>
<td>Persuasive message linking mastery and job survival</td>
<td>Error-based learning versus distal</td>
<td>Goal setting: proximal</td>
</tr>
<tr>
<td></td>
<td>Metacognitive instruction</td>
<td>Training in self-talk</td>
</tr>
<tr>
<td></td>
<td>Learner control</td>
<td>Visualization</td>
</tr>
<tr>
<td></td>
<td>Mastery orientation versus performance orientation</td>
<td>Post-training follow-up</td>
</tr>
<tr>
<td></td>
<td>Coaching/feedback/scaffolding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Practice:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>behavioural practice versus symbolic practice; spaced practice; variable examples/practice; random practice; overlearning</td>
<td></td>
</tr>
</tbody>
</table>

Situational Elements / Transfer Context

Supervisor and peer support/sanction; Workload; Opportunity to use

Kontogiorghes (2004) argued that most factors addressed by earlier conceptual transfer frameworks focus too narrowly on trainee characteristics and attributes that are directly related to the training context or training-related outcomes. Such approaches, he argued, treat training as a non-systemic phenomenon, operating independently of other variables that affect work performance. Highlighting the central role of motivational processes in effective transfer, Kontogiorghes (2004) described traditional approaches to thinking about training transfer (e.g. Baldwin & Ford, 1988) in Figure 3 as follows:
Kontoghiorghes (2004) argued that such traditional models are overly simplistic; ignoring the extent to which such processes are embedded in, and dependent on an organisational context. He advocated a more systemic approach, asserting that organisational factors that directly or indirectly influence performance, and likely a trainee’s belief that training can actually result in enhanced performance, had been given insufficient attention by researchers in the training transfer area. Consequently, he conceptualized the transfer process one in which the core motivational processes which determine individual learning and transfer both influence and are influenced by a range of organisational and job design factors that serve to shape overall performance (see Figure 4). That is, the transfer of training should not be seen as an isolated concept but as an integral part of work.
A systemic approach to training transfer also characterizes Holton, Bates, & Ruona’s (2000) Learning Transfer System Inventory (LTSI). The LTSI is a measurement framework that comprises 16 factors grouped into motivational, environmental, and ability elements as well as secondary influences that jointly affect learning, individual performance, and organisational results. The LTSI is intended as a diagnostic tool, administered post-training to assess individual trainees’ perceptions and the transfer environment (Holton, et al., 2000), and its underlying conceptual rationale is outlined in Figure 5 below.
Over the last decade, two further attempts have been made to synthesise extant knowledge and integrate the elements of these earlier models of transfer. The first, by Holton & Baldwin (2003), sought to integrate the three models generated by Baldwin and Ford (1988), Broad and Newstrom (1992), and Holton, et al. (2000). The authors reconceptualised Baldwin and Ford’s original ‘trainee’ category to also include teams of learners. Adopting a systems perspective, they further recognise “that the learner or team is both an input to the process […] and a unit in the model that may be shaped by interventions” (Holton III & Baldwin, 2003, p. 9).

Illustrated as a process (Figure 6), Holton & Baldwin’s (2003) framework expands the time dimension into five time periods. Time 1 represents the point at which the learner enters the learning environment, encapsulating the four input variables identified by Holton et al. (2000): ability, motivation, individual differences, and prior experience. Times 2, 3, and 4 are analogous to the before, during and after stages of training, respectively, and thought to be most susceptible to influence by the organisation, the learning event and process, and the learner(s) themselves. Ultimately, this leads to time point 5, which represents transfer at work or performance outcomes, distinguishing between near transfer (i.e. short term results) and far transfer (i.e. longer-term results and generalisation to new situations). The framework is helpful for understanding training transfer as a process in which the learner(s) are the central feature undergoing the learning experience and being affected by a range of factors.
These same basic elements provide the essential core of a second recent model, developed by Burke & Hutchins (2008). This model (Figure 7) presents a systems view in which work design and job content, training content, and organisation size and structure all affect training transfer and ultimately job performance. The model depicts five major influences on learning, transfer, and subsequent performance, adding trainer characteristics and training evaluation to the original three training inputs (learner characteristic, design and delivery, and work environment) suggested by Baldwin and Ford (1988).

To reflect the notion that transfer strategies can work across all phases, temporal dimensions in the proposed model now include a “not time bound” category alongside the before, during, and after phases introduced by Broad and Newstrom (1992). Lastly, the model identifies five key stakeholders, adding a learner’s peers and limiting those listed in Broad (2005) to a more manageable set: peers, trainer, trainee, supervisor, and the organisation. The resulting model may be considered the most comprehensive representation of transfer processes and associated influences and outcomes to date.
Finally, these conceptual developments brought about a large number of more specific constructs that have been researched. Through an extensive literature review De Rijdt and colleagues (2013) compiled and annotated these variables influencing the transfer of training. While their summary does not give an indication about the strength of the influence, it organises and concisely explains the conceptual meaning of those factors. In table 2 they distinguish three groups of influencing variables: learner characteristics, intervention design, and work environment. In table 3 they summarise and annotate moderating effects (i.e. conditions) that can affect the strength of a relationship between a given influencing variable (listed in table 2) and training transfer.

To make an accurate assessment of training initiatives and facilitate subsequent transfer it remains to be reviewed what works for whom and under what conditions. In the next section, we thus summarise the main findings of empirical research into the antecedents of effective training transfer.
Table 2. Variables Influencing Transfer (De Rijdt et al., 2013)

<table>
<thead>
<tr>
<th>Influencing variables</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Learner characteristics</td>
<td>General mental ability. Judgements individuals make about their competency to perform defined tasks.</td>
</tr>
<tr>
<td>Cognitive ability (1. Cognitive ability)</td>
<td>The intensity and persistence of efforts that learners apply in a learning-oriented improvement activity as measured before the intervention.</td>
</tr>
<tr>
<td>Self-efficacy (2. Self-efficacy)</td>
<td>The intensity and persistence of efforts that learners apply in a learning-oriented improvement activity. The learner’s intended efforts to utilise skills and knowledge learned in a staff development setting to a real world work situation.</td>
</tr>
<tr>
<td>Extrinsic versus intrinsic motivation (5. Motivation)</td>
<td>Conscientiousness (4. Personality)</td>
</tr>
<tr>
<td>Openness to experience (4. Personality)</td>
<td>Intellectual curiosity</td>
</tr>
<tr>
<td>Extraversion (4. Personality)</td>
<td>Being highly social.</td>
</tr>
<tr>
<td>Perceived utility (5. Perceived utility)</td>
<td>Perceived value associated with staff development interventions.</td>
</tr>
<tr>
<td>Career planning (6. Career (job variables))</td>
<td>The extent to which employees create and update specific plans for achieving their goals.</td>
</tr>
<tr>
<td>Organisational commitment (6. Career (job variables))</td>
<td>The degree to which an employee identifies with the job and actively participates in the organisation.</td>
</tr>
<tr>
<td>Emotional versus internal locus of control (7. LOC)</td>
<td>The extent to which individuals believe that they can control events that affect them.</td>
</tr>
</tbody>
</table>

Table 3. Moderators in the relationship between Influencing variables and transfer (De Rijdt et al., 2013)

<table>
<thead>
<tr>
<th>Moderators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time lag versus no time lag between the end of the intervention and the transfer measure</td>
<td>Transfer measure can be taken immediately after the staff development intervention or after some time lag.</td>
</tr>
<tr>
<td>Self measure of transfer versus other measure of transfer</td>
<td>The source of transfer rating: self measure of transfer versus other measure of transfer.</td>
</tr>
<tr>
<td>Use measure of transfer versus effectiveness measure of transfer</td>
<td>Transfer can be measured as the use of what is learned or as the effectiveness of the learner in applying the knowledge and skills.</td>
</tr>
<tr>
<td>Open skill versus closed skill</td>
<td>Closed skills are skills that trainees have to adopt in essentially the same form as they are presented in training. The trainee has to imitate the trained behaviour. Open skills means that the trainee has to be creative with the new information, skills and beliefs in order to fit their personal needs.</td>
</tr>
<tr>
<td>Lab context versus field context</td>
<td>The study is using a lab context versus field context.</td>
</tr>
<tr>
<td>Publication source</td>
<td>The study is published or unpublished.</td>
</tr>
</tbody>
</table>
Empirical Evidence

Stimulated by the conceptual work reviewed earlier, many empirical studies have sought to assess the individual, situational and contextual influences on training transfer effectiveness. A recent meta-analysis by Blume, et al. (2010), which identified 89 studies in which predictor variables were linked to training transfer outcomes, provides the most comprehensive and rigorous summation of these empirical findings in respect of the variables linked to transfer effectiveness.

Although Blume et al.’s meta-analysis is not the only recent review of the transfer literature (see also the recent qualitative review by Grossman & Salas, 2011), it is the only one that systematically weighs up the actual evidence for the validity of the sorts of predictors of transfer effectiveness that have been identified within conceptual models of the process. A brief summary of the findings of this meta-analysis is presented below, categorised in terms of the contributions made to effective training transfer by characteristics of the learning experience, the work environment, and of the individual being trained.

**Learning experience.** Blume et al. (2010) do not focus directly on whether the design of training (e.g., content, pedagogy) predicts transfer. Instead, they examine how the proximal outcomes achieved by training design, that is to say (1) learning outcomes, (2) training reactions, (3) learning objectives, and (4) transfer-oriented training interventions affect subsequent transfer.

**Learning outcomes.** Levels of post-training knowledge achieved by trainees and post-training self-efficacy (confidence in one’s mastery of the training material) were found to have small to moderate associations with subsequent transfer, with mean population correlations of 0.24 and 0.20 respectively.

**Training reactions.** Utility reactions (i.e., perceptions of how useful the training might be) were found to have a moderate influence on transfer outcomes (0.17). Affective reactions to the training (e.g., how satisfied people were with the training they received) were only weakly related to transfer effectiveness.

**Learning objectives.** Blume et al. (2010) also observed a ‘pattern’ in their results that suggested that the relationship between predictors and training transfer was stronger when the content of the training focused on ‘open’ rather than ‘closed’ skills. They state: “Training objectives tied to learning specific skills that are to be produced identically in the transfer environment as in the learning context are labelled closed skills, whereas training objectives tied to learning principles are labeled open skills (Yelon & Ford, 1999). Yelon and Ford (1999) noted that with closed skills, trainees are to respond in one particular way on the job according to a set of rules implemented in a precise fashion. With highly variable open skills, there is not a single correct way to act but rather freedom to perform.” (p. 1072).

**Training interventions.** The meta-analysis also examined the effects of interventions/treatments designed to enhance future transfer, and applied at different stages of the learning experience. Interventions examined were optimistic previews, goal setting and relapse prevention. With the exception of optimistic previews of training (0.20), the impact of such interventions on transfer outcomes was negligible.

**Work environment.** The meta-analytic results reveal that support (e.g., supportive behaviour towards the trainee by supervisors and peers) is a moderately strong and consistent predictor of transfer.
effectiveness, as is transfer climate. However, organisational constraints (e.g., lack of autonomy and other situational constraints) were found to have a minimal relationship with transfer outcomes.

**Trainee characteristics.** For factors that reside with the individual trainee, Blume et al. (2010) identified a number of factors that were associated with increased transfer effectiveness. They concluded that: “cognitive ability (.37), conscientiousness (.28), and voluntary participation (.34) had moderate relationships with training transfer. [...] Neuroticism (.19), pretraining self-efficacy (.22), and motivation (.23), had small to moderate relationships with transfer. Small correlations were found between training transfer and Big Five personality dimensions agreeableness (−.03), extraversion (.04), and openness to experience (.08). In addition, small correlations were found between training transfer and trainees’ age (.04), education (.07), male gender (.12), experience (.09), external locus of control (−.06), and job involvement (.04). Small correlations were also found for learning goal orientation (.14), prove-performance goal orientation (.03), and avoid-performance goal orientation (−.12).” (p. 1079).

Based on their meta-analytic study, Blume, et al. (2010) raise a number of critical observations regarding the body of empirical research that has been conducted in this domain. First, they argue that the advancement of knowledge in this area has been impeded by the prevalence of studies where data on the antecedents and outcomes of training transfer are gathered using self-report measures obtained from the same source at the same time. Such studies tend to distort (and often inflate) associations between predictor and outcome variables.

Second, they call for greater precision in how transfer is conceptualized and measured, suggesting that it matters both how and when it is measured. For example, measures of training use behave differently to measures of training effectiveness. Finally, reflecting their findings in respect of the transfer of open vs. closed skills, they argue that there is a need for researchers to be more specific in respect of the nature and objectives of the training in question.

In terms of their relationship to the conceptual frameworks discussed previously, the empirical research findings confirm the salience of the three categories of inputs originally identified over two decades ago by Baldwin & Ford (1988) as predictors of training transfer: work environment, trainee characteristics, and training design. A recent qualitative review by Grossman & Salas (2012) confirms many of the conclusions made by Blume, et al. (2010). Table 4 highlights points of similarity (and difference) between the two recent reviews.
Table 4. Overview of review evidence on factors influencing transfer (Wenzel, 2014)

<table>
<thead>
<tr>
<th>Factors identified through meta-analysis</th>
<th>Factors identified through qualitative review</th>
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</table>

**Characteristics of the learning experience**  
(i.e. the setting and events that constitute the learning experience)

- optimistic preview (.20)
- goal-setting (.08)
- behavioural modelling
- error management
- realistic training environment

**Characteristics of the trainee**  
(i.e. the protagonist expected to learn and apply new competencies)

- utility reactions (.46*)
- job involvement (.38*)
- cognitive ability (.37)
- voluntary participation (.34)
- motivation (.29)
- conscientiousness (.28)
- post-training knowledge (.24)
- pre-training self-efficacy (.22)
- post-training self-efficacy (.20)
- neuroticism (-.19)
- learning goal orientation (.16),
- gender (male; .12)
- avoid-performance goal orientation (-.12)
- locus of control (-.12)
- pre-training self-efficacy
- post-training self-efficacy

**Characteristics of the work environment**  
(i.e. the setting and events in which the trained competencies shall be used)

- supervisor support (.31)
- transfer climate (.27)
- peer support (.14)
- supervisor support
- transfer climate
- peer support
- opportunity to perform
- follow-up

*Note. Factors with meta-analytic effect sizes of <.1 have not been listed.  
Figures in brackets represent meta-analytic mean population correlation (corrected for unreliability in predictor and criterion).  
* denotes values that are substantially inflated through same-source and same-measurement-context (Blume et al., 2010)
An Annotated Bibliography

This annotated bibliography highlights key elements of the research literature relevant to the transfer of training. It is mostly intended for those directly and indirectly responsible for training and developing people so they can meet current and future demands at work. This includes training providers, trainers, and human resource managers. However, we also believe that it may prove useful for line managers, and supervisors. Ultimately, the annotated bibliography may also be useful to the person being trained, as s/he seeks to apply new knowledge, skills, and abilities on the job. Finally, this work may also provide a helpful starting point for students and researchers interested in training transfer, and training effectiveness more generally.

Based on the premise that the transfer of training is a necessary condition for training to be effective, we searched and screened for literature comprising the words “transfer” as well as “training”. We also searched the literature for related key terms and constructs, consulted the key journals, followed the reference sections of the literature we read, identified renowned scholars, took recommendations from colleagues, and consulted with experts in the field.

There is a burgeoning volume of literature on the transfer of training. To illustrate, a recent review analysed the development of the scholarly training transfer literature and found that 178 publications appeared from 1980 to 1990, 205 from 1990 to 2000, and 278 from 2000 to 2010 (Segers & Gegenfurtner, 2013b). Similarly, we estimated the attention training transfer received over time by using the Google Ngram Viewer which charts the yearly count of selected words and phrases (n-grams) as they are found in over 5.2 million digitised books. The findings suggest that the transfer of training has been increasingly discussed over recent decades in scholarly and practitioner outlets. Clearly, training transfer has become and remains a growing area of intensive inquiry.

![Figure 8. An illustration of increasing attention of 'Training Transfer' based on Google Ngram](image)

15
Our annotated bibliography does not attempt to provide a comprehensive list of all research published in this area. Rather, we seek to provide an overview of those works that we consider seminal, critical, practical, summative, and/or current. The present selection of 100 publications is thus filtered through the lens of our own knowledge and interpretation of the field of training transfer.

As a result we may even exclude some of the ‘classic’ publications, because they have been incorporated into, and elaborated by, more recent work. We have also selected some publications that we believe have not received the attention that they deserve, or that identify important aspects of training transfer that are under-investigated. In this way, we hope to provide a useful source of evidence, ideas, trends, and suggestions that can inform, stimulate, and change how people go about managing and researching training transfer.

All research cited in this annotated bibliography is readily accessible through normal library sources and, often, via the Web. For instance, useful resources include Google Scholar and VOCEdplus. The former represents a powerful full text index of scholarly literature and the latter represents a free research database especially relating to skills development. Both may be useful as they can lead to free versions of discussed articles as well as they can direct to further literature across an array of topics and publishing formats.

**Assumptions and Definitions**

Our selection and annotations are based on a few criteria, assumptions, and definitions. First, *training and professional development* are terms we use interchangeably, and this also covers more specific labels such as executive education or leadership development. This reflects the fact that it is often difficult, if not arbitrary, to determine whether a specific intervention or research study addresses a) training which traditionally seeks to build specific competencies for the job that an individual currently holds, b) development activities which typically aim to cultivate personal growth focusing on future responsibilities, or c) both.

Second, *training* refers to any deliberate and organised approach for affecting individuals’ competence in order to improve individual, team, and organisational effectiveness (Baldwin & Ford, 1988; Goldstein & Ford, 2002; Litwinska, 2006). ‘Deliberate’ signifies the intention to acquire new knowledge, skills, and abilities through a learning experience. ‘Organised’ implies a planned pattern or sequence with particular aims, involving a person, body, or institution which sets up the learning experience. Together, these inclusion criteria describe a vast range of formal learning activities, activities that may be provided in-house or by an external training provider, set up as an extensive program or a condensed burst, delivered in a classroom or online, lead to a recognised qualification or not. Of course, a number of activities whose main purpose is not learning may also produce learning. In fact, accidental, random, or informal learning experiences occur frequently and can be extremely valuable to individuals and organisation (Watkins & Marsick, 1992), but they are not our principal focus here.
Third, we distinguish between *transfer of training* and *transfer of learning*. While these terms are often used interchangeably in practice, others may associate them with distinct paradigms. Transfer of learning has its origin in the educational context and describes when previous learning supports new learning or even is a hindrance (e.g. Cree & Macaulay 2000; Thorndike, 1932). Although this literature on the science of human learning and instruction is relevant to training effectiveness, it is considered less important for the transfer of training to work. The lens we mainly adopt here assumes that trainees indeed understand the new competencies delivered through the training. What follows is thus less concerned with the pedagogy and delivery of training activities but rather reviews what can be done to facilitate the utilisation of what has been learned so it is applied, generalised and maintained at work.

Finally, from a human capital perspective, training transfer is – though crucial – only one element in overall training success. For work training to be ultimately considered effective, it must generate competencies that are strategically aligned with an organisation’s goals (Noe & Tews, 2012). In other words, training may be transferred but not effective if it is disconnected from organisational needs, or if the work organisation is dysfunctional in other areas (Aguinis & Kraiger, 2009). Very useful literature exists on these matters elsewhere and so the research selected here focuses on the transfer of training.

**Approach and Structure**

Given the boundaries outlined above we recognise that several factors that have been linked to training transfer will not be covered here, and so the interested reader may consult other resources that more specifically address, for instance, needs analysis, instructional design and delivery, and program evaluation. Yet, we considered it prudent to include some literature on these topics where it was felt that this would help to locate training transfer within an overall framework of training effectiveness.

To our minds, the transfer of training is best understood as a function of a system of influences. Those influences comprise stakeholders and processes nested in the work and learning environment, as well as in the learner him- or herself. Each of these elements is thought to carry a range of characteristics with interactions between them taking place before, on entry, during, on exit, and/or after a training activity.

On the basis of this systems perspective, and to help readers make sense of the information, we have therefore organised the annotated bibliography into six sections reflecting key influences within a system of training transfer. That being said, we recognise that a particular publication will often address multiple aspects and so arguing for an exclusive association with one section is not sensible. Still, by considering the central premise of a given publication we positioned it where we hope the reader will expect it so as to gain the most useful contextual and deep-level insights.

Also, for those seeking to rapidly become acquainted with the subject matter we identify 20 publications that we think together collectively cover some of the most important aspects relating to training transfer. We acknowledge that others might select a different set of publications; those that we consider in conjunction are flagged with an asterisk. Overall, we suggest absorbing all six sections for an
interconnected view that more closely reflects the reality of what constitutes, challenges, and facilitates training transfer.

We begin with the end in mind; Section 1) Training (Transfer) Outcomes and Evaluation contains work about the ultimate impact of training, how to conceptualise these outcomes, and how to measure and evaluate them. In Section 2) The Nature of Training Transfer we annotate key work that theorises and models the phenomenon of training transfer so as to understand and integrate the key components, processes, and their relationships. Subsequent sections are based on the main constituents of training which involve Sections 3) The Trainee, 4) The Work Context, and 5) The Training Experience. To assist with sense making, where possible, we have attempted to order the publications within these sections in accordance with the sequence of before, during, and after training. Finally, Section 6) What Works in Practice annotates some literature that may be considered most comprehensive and/or pragmatic when seeking to facilitate the transfer of training.
Training (Transfer) Outcomes and Evaluation


This comprehensive and scholarly review adopts a multilevel, multidisciplinary, and global perspective on work training. The authors outline evidence on the impact of training and conclude that, by and large, training generates important benefits for individuals, teams, organisations, and society. However, certain boundary conditions for training effectiveness and efficiency are identified, and so the review also covers selected literature on how to maximise the benefits of training. A plethora of training literature that was published during the first decade of the new millennium is reviewed, organised around training stages of needs assessment, pre-training states, training design and delivery, training evaluation, and the transfer of training. A number of directions for future research are outlined, though the discussion on the practical implications is negligible. Overall, this major review represents a timely introduction to the role, benefits, and key challenges associated with work training.


This meta-analytic study assesses the empirical evidence linking training design and evaluation features to the effectiveness of training in organisations. From 162 studies it was estimated that in comparison with no-training or pre-training states, training had an overall positive effect on job-related behaviours or performance (mean effect size or $d = 0.62$). Moreover, the analysis of 397 independent data points suggests that the training method used, the skill or task characteristic addressed, and the choice of training evaluation criteria also affect the observed effectiveness of training programs. Contrary to theory, the degree of implementation of training needs assessment was not found to affect training effectiveness, though the authors considered this to be the result of very few available data points and caution against false interpretation. The paper offers and discusses more specific relationships, and so both researchers and practitioners may find the information presented valuable for making informed choices and decisions in the design, implementation, and evaluation of organisational training programs.


This paper addresses specifically the effects of training on organisational-level outcomes. Findings from a meta-analysis of 67 studies suggest that training is positively related to human resource outcomes and
organisational performance. The authors further infer that a) training is only very weakly related to financial outcomes; b) the relationship between training and firm performance is mediated by employee attitudes and human capital; c) training is more strongly related to organisational outcomes when it is matched with key contextual factors such as organisation capital intensity and business strategy; and d) training is related to organisational outcomes, independent of other human resource practices and processes. With respect to the relationship between training and organisational-level outcomes, this paper also offers 1) theoretical models explaining the relationship; 2) three perspectives of strategic human resource management and their implications; 3) descriptions for measuring training and outcome; 4) a review of extant research studies; and 5) a critique and recommendations for future research. In sum, this paper goes beyond the more common individual-level perspective and integrates evidence and theory in support of training’s role in enhancing organisational effectiveness.


In this paper the authors amalgamate two independent but related streams of training research: a) micro-training research which explains and predicts individuals’ training transfer performance, and b) macro-training research which examines the relationship between training efforts and organisational performance. Specifically, this study investigates the relationship between transfer of training and firm performance to test whether the former is indeed a key driver of the latter. It was found that organisations that use training to a greater extent report higher perceived organisational performance. Most importantly, those organisations reporting a higher rate of transfer of training also report higher firm performance. Additionally, training transfer mediated the relationship between training methods and firm performance. Specifically, on-the-job training was identified as the strongest predictor of training transfer, and on-the-job training and computer-based training predicted perceived organisational performance. In sum, this study bridges the micro-macro training research gap. The section reviewing the two research levels may be helpful to better understand training effectiveness more generally. Foremost evidence is presented that supports that the transfer of training is indeed a necessary condition for training to impact organisational outcomes. As the study is based on single-source, perceptual data only, this paper may be used to stimulate a more robust research design using objective data on training transfer and firm performance.

There is a commonly held belief that only a small amount of what is trained is subsequently transferred to the job. A figure often referred to suggests that only 10% of training transfers. The paper examines the origins of, and evidence for, this 'sticky idea' and points out five questionable assumptions. The paper also reviews another 'cautionary tale', namely that 62%, 44%, and 34% of a given training are transferred immediately after, six months after, and one year after the intervention. Overall the authors conclude a lack of empirical behavioural evidence supporting both these notions. While practitioners and researchers likely agree the transfer of training need to be improved, this paper requires them to be wary of and to question all-encompassing statements that represent conventional wisdom. To move closer to the true nature and magnitude, four practical strategies for planning, assessing, and reporting training transfer are proposed: 1) identify the factors likely to influence transfer; 2) define realistic transfer goals and create meaningful measures of performance; 3) determine the evidence that would convince you that an adequate amount of transfer is taking place; and 4) the report contains the complete transfer story. Taken together, this is a timely reading for everyone tasked to evaluate process, outcome, and impact of training and transfer.


Assessing training effectiveness requires accurate judgements about the extent of learning and transfer that has taken place, and so this paper investigated how ‘trustworthy’ such reports may be. The first study examined employees’ and supervisors’ estimations of training transfer, 6–12 weeks after employees attended training. The study compared supervisors’ and employees’ ratings of skills unrelated to training programs attended, and so determined the extent to which respondents report skill overgeneralization. It was found that subordinates, particularly those high on the personality traits of conscientiousness, agreeableness, and emotional stability, were more likely to report transfer in areas not covered in training. Contrariwise, when managers rated competencies, which are used in their subordinates’ day-to-day activities (more observable, visible, or transparent skills), training transfer estimates were more accurate. Also, those trainees who were in more transparent jobs – with more visible and observable sets of skills – were less likely to receive inflated transfer ratings from their managers. The second study determined that the traits of conscientiousness, insecurity and perfectionism lead raters to overgeneralise their self-ratings. Consequently, researchers need to be aware of the existence of biased estimates of transfer, and models need to be designed to capture for instance overgeneralization. The findings also call for renewed investigations into the potentially counterintuitive effects of personality on training effectiveness. From practical standpoint, when evaluating training transfer, employers and training providers need to be aware
of potential for biases in training transfer ratings, particularly for individuals with specific personality characteristics and for those who are in jobs with low skill visibility.


Determining the extent to which trainees have applied newly learned skills on the job is crucial. For practitioners it provides some of the most convincing evidence of training effectiveness in organisational settings. For scholars it is a necessity when seeking to establish robust relationships between training transfer and its antecedents, correlates and consequences. This meta-analytic study (107 studies) examines differences in training transfer effects across different rating sources. Given the widespread concerns about potential bias in different forms of ratings of training transfer this is an important aspect. At the same time, different rating sources may also have different perspectives on the effect of a training, and differences may also arise because of differences in the opportunities to observe transfer. The meta-analysis suggested that the effectiveness of training in achieving transfer to the job varies across different studies as a function of some study, training, and rater characteristics. This it is argued that ratings of job behaviour from different sources do not represent interchangeable measures of a single training transfer construct. Recommendations for the use of multiple rating sources in the evaluation of training transfer are discussed. In addition, given that the meta-analysis is based on studies of managerial training, this is a good reference for such research and publications relating to the development of managerial skills.


Kirkpatrick's four-level model of training evaluation was first developed in 1959 and, despite divergent opinions relating to its theoretical adequacy and practicality, the model is still considered something of a gold standard in the human resource development industry. This book is a compilation of 50 selected articles, many with a practitioner focus, that relate to measuring training effectiveness in four key areas: reaction, learning, behaviour, and results. The articles cover a myriad of rationales, perspectives, approaches, instruments, and results. Illustrative case studies are used to show how the approach may be used in a variety of programs and institutions. The author acknowledges that evaluating the return on training investment may be considered as an extension of the original model. While there are many and more recent publications on the same topic and model, this article compilation provides a comprehensive and informative source for understanding and making use of the four-level model.

This study represents a good example of training transfer research and training evaluation. Use is made of a longitudinal design that considers the different outcome levels proposed by Kirkpatrick. This article is unusually rich, very comprehensive across time, and with regards to measurement. The study examines not just post-training attainment scores but also changes in attainment, taking into account pre-training levels. Three issues are discussed: relationships between evaluation levels, individual and organisational predictors of each level of evaluation, and the differential prediction of attainment vs. change scores. For both practitioners and researchers this paper is a good source to follow when evaluating training.


Given the abundance of literature that prescribes methods for training evaluation, meaningfully assessing the rate of transfer and ultimate impact of training remain some of the field’s biggest challenges. This article presents a conceptual discussion of training evaluation and its challenges for researchers and practitioners today. It begins with an extensive review of the literature on the ‘classic’ Kirkpatrick model, focusing on the criticisms that this model (a) is incomplete and oversimplified, (b) has failed to produce evidence of a cause and effect relationship between its various levels, and (c) fails to demonstrate the progressive importance of each of the levels . The authors acknowledge such limitations, and argue there is the need to design new evaluation tools that align better with modern organisational realities. The paper also presents some practical advice about the use of existing evaluation techniques, and suggestions for researchers about providing better evaluation solutions.


This paper proposes a conceptually-based classification scheme of learning outcomes for use in evaluating training outcomes for individuals. The three major categories of learning outcome are: cognitive, skill based, and affective. For each of these three categories, the authors review relevant theory and research from a variety of disciplines to identify key outcome constructs. Cognitive learning outcomes include verbal knowledge, knowledge organisation, and cognitive strategies. Skill-based outcomes include compilation and automaticity. Affective outcomes include attitude change as well as motivational shifts in terms of mastery goals, self-efficacy, and goal direction. The paper describes measurement issues relevant to each of these learning outcomes and discusses methods for training evaluation. This universal
framework can be used to plan, assess, and report training transfer, and helps researchers and practitioners specify and measure the desired and real outcomes of a training intervention.


This chapter is a follow-up to the paper discussed above. On the basis of more recent research the authors seek to complement the original Kraiger, Ford & Salas (1993) framework of training outcomes. Specifically they focus on evaluation methodologies as they relate to 1) cognitive outcomes, involving mental models and metacognition; and 2) affective outcomes, involving goal orientation and attitude strength. The elaborate review that the authors provide of these constructs serves as a guide for constructing more specific training evaluations, as well as identifying particularly useful areas in which future research efforts could be directed.


The authors review the economic literature on the returns to training transfer, focusing on two questions: 1) How does economic literature deal with the transfer of training to the workplace?; 2) What is the scope for multi-disciplinary research projects on the transfer of training that link economic and educational perspectives? The discussion focuses on the economic returns in terms of value-added or productivity-related key performance indicators of firms. This results in an informative overview of the underlying theoretical paradigm in economics, and the challenges faced in empirical research. The paper is also a useful reference for empirical studies – for research and practice – measuring the productivity increase due to training transfer. Finally, despite substantial progress in the economic literature the authors contend that the underlying processes through which training generates higher productivity remain unclear. Consequently they argue that this dilemma offers opportunities for multi-disciplinary research projects on the transfer of training. Scholars may be stimulated by the discussion and varied literature cited to instigate renewed efforts for modelling and estimating the training-productivity connection.
The Nature of Training Transfer


This seminal paper was the first to provide an integrated model of the processes leading to the transfer of training. The authors review 63 empirical studies on this topic, identify fundamental issues, and present a heuristic model of the training transfer phenomenon that links three domains: 1) Training inputs, including trainee characteristics, training design, and work environment; 2) Training outputs, defined as the amount of original learning which occurs during the training program and the retention of that material after the program is completed; and 3) Conditions of transfer, which account for the generalisation of knowledge and skills acquired in training to the job context and the maintenance of that learning over time on the job. The various direct and indirect effects between these domains and elements are discussed. This paper is among the most commonly cited in relation to training effectiveness and the tripartite model has stimulated a number of subsequent theoretical refinements and re-conceptualisations. Consequently the article may be considered a useful ‘classic’ for both scholars and practitioners.


This review chapter serves as the sequel to the seminal review discussed above. Two decades later the authors take stock of the knowledge relating to training transfer and offer an updated agenda for moving forward. Specifically, a) 140 articles are reviewed with respect to the progress research and practice made; b) the increasing multi-dimensional nature of training transfer is discussed; and c) a renewed agenda for research into the transfer of training is proposed. The authors note that much progress has been made in examining transfer from a broader and more dynamic perspective, and so are optimistic about future research which they consider imperative to further the effectiveness of training. In conjunction with the earlier Baldwin & Ford (1988) article, this chapter is valuable for understanding how knowledge, research, and practice relating to training transfer has evolved, where the field is now, and what needs to be done to keep up with the changing reality of professional development and work. It also points to some practical approaches for facilitating training transfer.

This review explains and discusses a large range of factors thought to typically impact the transfer of training. The factors are organised into three primary categories: a) learner characteristics, including cognitive ability, self-efficacy, motivation, personality, perceived utility/value, career/job variables, and locus of control; b) intervention design and delivery, including needs analysis, learning goals, content relevance, instructional strategies and methods, self-management strategies, and technological support; and c) work environment influences incl. strategic link, transfer climate, supervisor/peer support perhaps, opportunity to perform, and accountability. For each category the authors provide a useful table that summarises whether a given factor displays a moderate or strong relationship with transfer or rather shows mixed support. The same tables are used to highlight which factors require urgent attention due to the inconsistency of findings or the lack of empirical research. Scholars can draw on this paper as a good reference to systematically identify research gaps. Practitioners may consult this paper to understand the role and reliability of the different factors that typically affect training transfer.


This paper offers the most recent and most comprehensive conceptual proposition regarding the transfer of training. The authors synthesise elements provided by previous models, draw on empirical research, and integrate findings from their own qualitative survey of training professionals. The resultant heuristic model describes a system in which work design and job content, training content, and organisation size and structure all affect training transfer and ultimately job performance. The model depicts five major influences on learning, transfer and subsequent performance: learner characteristic, design and delivery, work environment, trainer characteristics and training evaluation. To reflect the notion that transfer strategies must work across different phases, the model includes the temporal dimensions: before, during, and after training, as well as a ‘not time bound’ category. The model further identifies five key stakeholders: peers, trainer, trainee, supervisor, and the organisation. Overall this paper argues that support for transfer should be an iterative and pervasive process throughout the entire learning, application, and work process. Additionally, the qualitative research component of this paper offers an overview of most frequent best practices to support transfer. Together this makes this paper quite useful for practitioners in their efforts to enhance training effectiveness. Similarly, researchers are provided with a framework that while complex, represents a good initial source to develop transfer theory and studies.

This paper presents a multi-dimensional perspective on the transfer of training. The first dimension proposed concerns the adaptability of the trained task: a continuum from relatively closed tasks, where task steps are highly prescribed; to relatively open tasks, where the task steps can be adapted varying circumstances of the job. The second dimension proposed concerns the autonomy at work of the individual trained: a continuum from heavily supervised to highly independent work. Together these dimensions reflect the reality that training transfer must be understood in context, wherein the nature of the skill trained and features of the work environment differ. The authors combine the two dimensions into a 2x2 model from which they derive a range of managerial principles for facilitating training transfer. The discussion relating to open and closed tasks may be particularly informative for scholars seeking to conceptualise and measure actual training transfer.

The differences between hard and soft skills and their relative impact on training transfer.


This paper focuses on the nature of the skill being trained and how this affects transfer. It is asserted that most research and theorising assumes that the content of the training is irrelevant in determining subsequent levels of training transfer. The authors argue that a singular perspective in which all training is the same is misguided when seeking to research and facilitate transfer. This article discusses differences that are hypothesised to exist between what is traditionally referred to as hard- (technical) and soft- (intrapersonal and interpersonal) skills training - these differences are believed to impact the degree of training transfer achieved. For practitioners the discussion adds to the understanding of training transfer and additional ways of its facilitation. Scholars are asked to develop a more robust and comprehensive model of training transfer which considers the nature of the skill trained and transferred.


This is an empirical study based on the author’s earlier (less accessible) work that conceptualises training transfer as a process. It is argued that transfer proceeds gradually, commencing with the first attempts to try out the new skills, through integrating those skills into the learner’s work behaviour, to the stage where the skill use has become second nature, or to the stage where the learner abandons attempts to use the skills and transfer fails. This process-view has implications for measuring and evaluating transfer, as the point at which the measure of transfer is taken can influence the perception of how much of the training has transferred. This study assessed transfer in terms of initiation of transfer, frequency of transfer, and
overall transfer, all as potential consequences of motivation to transfer, action planning, and perceptions of manager support. Perceived manager support was found to have a significant positive effect on all stages of transfer. This article is helpful in highlighting the need to focus on different drivers of transfer at different stages in the transfer process.


This paper argues that ‘transfer’ is an inappropriate and too simplistic metaphor for thinking about learning new skills which subsequently and straightforwardly would need to be applied at work. The authors thus contest and integrate the transfer of learning and the transfer of training – viewed as an ongoing process than as a series of discrete events. A critical review is followed by proposing four conceptual lenses for understanding learning and, by implication, transfer: 1) the propositional learning lens, 2) the skill learning lens, 3) the learning through participation in human practices lens, 4) the learning as transformation or reconstruction lens. Other extant theorising may map onto the proposed lenses, yet the combination and comparison of possible explanations makes this article a valuable resource to reflect on how individuals may become competent at work through acquiring and processing new knowledge and skills.


Similar to the paper discussed above, this contribution to a special issue elaborates on what is meant by training transfer. The author refers to transfer as an adaptation process in which learners 1) interpret what they experience, 2) align and reconcile that interpretation with what they know, and 3) enact responses. This process thus amalgamates the learning of skills and application of skills. Given that much of today’s work on training focuses on cognition and the synthesis of knowledge, this view warrants more consideration. The arguments are based on a sociological perspective and epistemology. The authors discuss how societal and cultural factors act as mediators of the learning-application relationship and shape associated tasks, goals and solutions, taking into account individuals’ capacities and interest, as shaped by their life histories.

This longitudinal study examined the transfer of managerial training and its lagged effect on job performance. 69 managers, drawn from different industries, companies, and occupations, provided data immediately after training and then again one year later. The study found that motivation to transfer and organisational support significantly enhanced transfer of ‘open’ leadership skills, both in the short and long term. They also found that the leadership skills that were transferred immediately after training had a lagged effect on job performance one year later. Whilst scholars have often been pessimistic about the degree at which transfer and its effects decay over time, this study provides evidence that positive effects can indeed be found.


This qualitative study investigates the transfer process from the perspective of the individual trainee, years after training occurred. The researchers interviewed eight physicians to explore if, 2-10 years later, they had implemented what they were taught in a faculty development training program. Indeed, these autonomous professionals continued to apply the teaching concepts they once learned. Each, in a personal way, opted to make use of varied ideas, in different ways, and in several contexts. The physicians applied ideas using intellectual skills such as planning and analysing, and continued their applications because they perceived supportive work conditions and positive consequences. The authors reason that, over the long term, the professionals acquired knowledge and mental skill, chose to use them, and attempted application. They reflected on outcomes, decided to reuse or revise, and tried again. Thus, the process of long-term transfer is described as complex, dynamic, and emerging, and framed as ‘learning to use and learning from use’. This paper is a valuable source when seeking to understand the richness and diversity of the transfer process. Scholars can see the value in using qualitative data when assessing training and its transfer; mixed method approaches for holistic training evaluation offer untapped potential. Implications for practitioners include planning for long-term transfer, for instance by setting multiple transfer goals over time and employing cycles of trial and feedback.


As other authors have discussed previously, training activities are inevitably embedded within an organisational context. The authors of this chapter elaborate more fully on this view on the basis that organisations are dynamic, multilevel systems. They outline a multilevel model that bridges the gap between a) conceptions of training needs assessment, design, and evaluation, and b) the higher levels at which training needs to have an impact if it is to contribute to organisational effectiveness. The chapter
discusses the distinction between horizontal transfer and vertical transfer as well as top-down contextual effects and bottom-up emergent processes. The authors highlight the challenges of identifying how training effects at one level (e.g. the individual trainee and his/her own performance) may aggregate to accomplish objectives at another level (e.g. group or organizational performance).


First, this paper discusses three key dilemmas about transfer and argues: 1) adaptive expertise need to be deliberately developed to help individuals’ transfer knowledge that is very domain-specific, 2) training that is designed and delivered to maximise immediate outcomes potentially impairs longer-term benefits of developing transferable competencies, and 3) training interventions designed to transfer require substantial effort from the trainee/employee and this may decrease motivation. The author reviews research relevant to these dilemmas and provides possible resolutions. Second, this is also the lead article in an issue of the journal *Applied Psychology*, and so there are eight commentaries that react to the points raised by means of critique, additional research reviewed, and further possible solutions. What is more, the author of the lead article ultimately responds to those commentaries and through this conversation scholars and practitioners gain a rich understanding of the complexity that underpins the transfer of training. Indeed, the dilemmas discussed are as relevant today as when they were originally published. Professional involved in training design and delivery may benefit by identifying and trailing some of the proposed solutions. Given these various viewpoints scholars may think of the issue as a source of implicit theory that can be used for developing and testing new theory, and foremost provide clarity on very real challenges.


This important study presents the findings of a meta-analysis, and is the most comprehensive summary of the empirical research findings in respect of the variables linked to transfer effectiveness. It integrates the results of 89 studies (total N=12,496) and is elaborated in our overview section under Empirical Evidence. The substantial relationships found between transfer and predictors include the trainee’s cognitive ability, conscientiousness, motivation, and a supportive work environment. Most of these predictor variables appear to be more important when the focus of training is on open as opposed to closed skills. In addition, whether participation in training is voluntary or not was found to affect subsequent training transfer. A further finding was that the probability that trained competencies will transfer is promoted by learning experiences that are realistic and encompass characteristics of the actual
work environment. For scholars this seminal study is a good source for generalised estimated effect sizes about what affects training transfer. Practitioners may use these findings as evidence-base for informing training planning, design, delivery, evaluation, and the management of transfer.


This review considers learning in relation to recent trends as they relate to work, technology, and society. Discussed are wide-ranging influences on the development of human capital resources and the resulting implications for research and practice. 1) Considerations about the workplace include sections on culture and climate, teams, task characteristics, job crafting, social networks, development networks and mentoring, supervisor support, and trust and fairness. 2) The form and design of learning is reviewed through the evolution of learning design, self-regulation and self-directed learning, social learning and communities of practice, instructor-led learning, blended learning, the role of the instructor, informal learning, experiential learning, pre-learning interventions and transfer of training, e-learning gaming as it relates to simulations, massive open online courses, and social media. 3) Discussed are also factors for facilitating learning including sections on big five traits and proactive personality, goal orientation, and affect and emotion. The review further considers 4) organisational-level outcomes of learning that are considered critical for competitive advantage including cross-level perspectives, strategic learning and financial performance, creativity and innovation, employment branding and social Responsibility, engagement, and well-being. Finally, 5) methodological issues are discussed to stimulate research about this broad strategic perspective. Taken together this paper provides a timely integration of the significant developments that affect learning at, from, and for work. Much, if not all, of what is discussed is thus relevant to the training effectiveness including the transfer of training. The paper provides both a useful introduction to current trends affecting work-related learning and a resource for stimulating research and practical decisions.
The Trainee


A key strength of this paper is that it adopts the perspective of the trainee as s/he experiences training and transfer. The paper is based on a systemic approach whereby the individual is understood as the basic input to the training system comprised of the work and training. A qualitative study is described that seeks to explore and integrate the various factors affecting trainees’ motivation to learn and transfer. Some 44 individuals from different organisations, jobs, and educational backgrounds were interviewed about their experiences and views relating to a general management training course that had taken place one year earlier. To assess what are here termed direct and indirect training transfer the authors discuss participants’ experiences and insights relating to pre- and post-training, and the complex interactions during training between the trainer, the trainees and the content and method used. Also examined are factors associated with returning to the work environment, including organisational factors affecting both the training transfer process and the trainee as person. While there is a wealth of literature that connects the various factors affecting training effectiveness more precisely, the rich information presented by this study provides a unique perspective on the challenge of transfer and renders it more accessible.


This study examined the relationships between more stable or trait-like individual differences and more dynamic or state-like individual differences, as well as their effect on learning performance. The authors theoretically delineate a model in which the trait-like variables cognitive ability, general self-efficacy, learning goal-orientation, and performance goal-orientation affect learning performance by mediation of the state-like variables goals, specific self-efficacy, and state anxiety. By means of two studies (N = 316; N = 323) these hypotheses were largely supported. Most noteworthy, it was found that goals and specific self-efficacy are significant proximal mediators for the effect of the trait-like individual differences on learning performance, which suggests a key role for self-regulatory processes in learning. Cognitive ability and general self-efficacy also had a significant impact on learning performance. More and some mixed findings are also discussed. Taken together this paper provides evidence that training effectiveness is a function of both dispositional and malleable individual differences, which then may has implication on both selection and managerial decisions as they relate to work and training.
Trainee motivation is considered a key factor in promoting successful training transfer, and this paper summarises the results of two decades of research on this topic. This is approached by proposing an integrative theory of training motivation which makes it useful literature for understanding the complex mechanisms underpinning transfer. A model then specifies a number of linked stages: 1) personality traits (e.g. locus of control) and situational variables (e.g. peer support); 2) pre-training self-efficacy and valence (i.e. individuals’ beliefs), and job variables (e.g. career exploration, job involvement); 3) motivation to learn; 4) training outcomes (i.e. declarative knowledge, skill acquisition, post-training self-efficacy, and reactions); and 5) training transfer (i.e. transfer behaviour, job performance). The authors establish two versions of their theory, represented by a completely mediated model and a partially mediated model. As a result of integrating findings from 104 studies the path model based on the partially mediated theory fitted the data best, suggesting that individual and situational characteristics directly affect all stages instead of being completely mediated by pre-training self-efficacy, valence and job variables. This paper is a key resource for people interested in training motivation, its antecedents and its implications for both transfer and training effectiveness.


This chapter on motivation as it relates to training makes several important contributions to our understanding of training transfer. A model is presented that comprises three qualitatively different, yet interrelated, motivational stages in training. The first of these, the motivation for participating in training, is portrayed as having a flow-on effect to the motivation during the learning process, which subsequently affects the final motivational stage, motivation to transfer the training to the work situation. This phase depiction about what influences an individual’s decision to participate, learn, and ultimately transfer is of great potential assistance to researchers and practitioners in considering how to go about enhancing training effectiveness. The key message here is that just attending training is not sufficient to ensure training transfer – individuals are motivated for different things at different times. The paper then discusses how each stage in training motivation is influenced by a range of factors, including trainee characteristics, voluntary vs. mandated training, framing of training, and organisational climate training metacognition and goal orientation, and post- training self-efficacy and organisational climate.

This paper uses the Five-Factor Model of personality to develop a model of personality influences on training-related aspects of motivation. The authors explicate the differentiated role of introversion, instability, agreeableness, conscientiousness, and openness to experience on motivation to learn and motivation to transfer. In a study using a sample of call centre agents (N = 94), the author found that extraversion and agreeableness predict motivation to learn; and motivation to learn, extraversion, and emotional stability predict transfer motivation. The impact of extraversion on transfer motivation was partially mediated by motivation to learn. Although this study was unable to find support for several of its hypotheses, the paper is valuable for demonstrating the importance of dispositional factors for training effectiveness.


This meta-analysis based on 38 studies (N = 6977) two views on motivational change over the trajectory of a working life: 1) the view that motivation declines with age, 2) and the view of age-related motivational maintenance. It was found that age positively correlated with the motivation to learn, and that age moderated the strength of the relationship between motivation to learn and transfer of training. In other words, motivation to learn and transfer do not decline over the trajectory of a working life, but remain at a high level and may even increase with age. Significant boundary conditions affecting the impact of age on motivation to learn and training transfer were identified, and these include training design (social training vs. individual training), study characteristics (publication source, study setting, SS/SMC bias, use of control groups, survey modality, instrument), and participant characteristics (level of education, attendance policy, work context). The authors note that much more theory is needed to explain age-related motivational change. It is suggested that practitioners need to design learning experiences so they offer more social interaction and networking opportunities for older employees, and increase accountability for younger staff.


This doctoral thesis examines an otherwise under investigated topic. Using a multi-national sample (N = 5327, 40 countries) and multi-level analysis it tests the influence of national culture on training transfer. At the culture-level training content and managerial support were significant predictors of transfer behaviour. For instance, country level scores on intentions to transfer product-oriented training were
highest for respondents from Japan and lowest for respondents from Canada. The intention to transfer process-oriented training was greatest for respondents from Brazil and lowest for respondents from China. Co-worker support and advancement opportunity was not found to influence training transfer at the culture-level. Surprisingly, findings suggested that cultures that have higher levels of managerial support tend to have lower intentions to transfer training. Also, in testing the premises of the classic Baldwin and Ford model (1988) the author concludes that it was most predictive cross-culturally when cultural values were aligned with the western assumptions under which the model was developed. That is, more individualistic cultures that generally value hierarchy showed the greatest interest in training transfer, arguably when it is tied to opportunity for advancement within the organisation. On the contrary, egalitarian cultures showed opposite effects. In sum, cultural values appear to be a critical factor in determining the transfer of training. While cross-cultural research is widely conducted in relation to e.g. leadership, management, and performance, for training effectiveness this is clearly not the case and this study is one of the very few addressing this topic. The importance for understanding the role of cultural values for training effectiveness is immense given that large multi-national organisations role out identical learning experiences on a global scale, and training providers are tasked to train an increasingly multi-cultural workforce. Organisations and managers may also consider the cultural composition of a given work group in which training need to be transferred. This thesis may be used as a starting point for practitioners to get sensitised on the topic, and for scholars to set out on future research about cross-cultural effects in the transfer of training.


The authors describe the motivation to improve work through learning (MTIWL) as the desire to learn and to apply what was learned. As antecedents to MTIWL, the study examines affectivity, work commitment (work ethic, job involvement, affective commitment, and continuance commitment), and the dimensions from the Five-Factor Model of personality. Findings indicated that MTIWL was strongly affected by a person’s positive affectivity, work commitment, and extraversion. Similar to Gegenfurther and Vauras (2012), this paper makes a case for considering stable individual differences as drivers of training effectiveness. It also suggests that personality characteristics affect training outcomes to a substantial degree through trainee motivation. The dispositional profile of both employees and candidates for employment is therefore an important aspect for organisations to be aware and to respond when seeking to maximise the benefits of training. The authors offer advice on how to go about selecting and working with individuals who are not predisposed to be motivated to improve work through learning.

This longitudinal study examined predictors of participation in training and development activities. Specifically, motivation through expectation and motivation to learn, as well as a range of work environment variables, were defined as antecedents for participation in formal learning experiences. Employees (N = 1705) from various industries were asked to provide data on above variables, and 12 months later provided an estimate of how much they participated in training and development activities since. The author found that training participation is greater if employees expect that the skills and knowledge gained will be instrumental for gaining extrinsic rewards (e.g. pay increase). Moreover, the value of those rewards (valence) and how likely training is to provide skills and knowledge (expectancy) are not as predictive as their instrumentality. Motivation to learn was found to have indeed a unique predictive effect on training participation. Among the other influences found on training participation are job and organisational factors, such as support from the supervisor, job requirements and organisation size. To increase motivation for, and thus participation in, training, organisations may use these results to reconsider how they link extrinsic outcomes such as pay, promotion, and job security to professional development. They may also reflect on how the support available may help promote training participation.


This study examines training participation as a function of basic workplace literacy skills. Basic workplace literacy skills describe those skills individuals need to effectively respond to the literacy demands of the workplace. That is, to successfully perform minimal job duties, learn, and apply learning on the job, an individual must be skilled in reading, writing, mathematics, and listening. The study (N = 1079) found no support for motivation as a mediator between workplace literacy skills and training participation. However, two ability-related antecedents (job-related reading and math proficiency) were found to be direct predictors of training participation. Furthermore, three perceptual variables (staffing strategy, continuous learning culture, and previous transfer success) were found to predict training-related motivation. This suggests that employees who meet the basic workplace literacy requirements of their jobs are more likely to participate in more training than do employees who do not.

To examine the impact of trainee choice of training on subsequent motivation and learning this study (N = 207) assigned trainees to one of three conditions: a) no choice of training; b) choice of training-but choice not received; c) choice of training- with choice received. Findings suggest that those trainees having a choice of training did have greater motivation to learn, provided they were ultimately given the training of their choice. In contrast, trainees allowed to choose but whose choice was not the training module subsequently delivered were less motivated and learned less than those not asked to participate in the choice of training at all. Practitioners need to acknowledge that there are downstream effects of the provision of choice and subsequent reception or rejection of that choice on trainee motivation to learn and learning outcomes. In other words, while the notion of choice may be generally a good thing, there are risks if individuals do not receive what they choose.


This study (N = 119) tested a pre-training intervention designed to enhance post-training transfer. Using an experimental design with a control group the pre-training intervention addressed individuals’ internal, controllable attributions: the belief that success is due to effort and strategy. This improved attributional state had a positive impact on the motivation to learn. This, in turn, affected knowledge acquisition during training, as well as amount of practice after training, and both subsequently had favourable effects on transfer. The pre-training intervention also had an effect on transfer above and beyond that accounted for by motivation to learn and post-training practice. This study is useful because it adds to the repertoire of methods training providers and supervisors can employ prior to the training to facilitate eventual transfer.


This study makes use of self-regulation theory in examining whether core self-evaluations (CSEs) affect learning motivation and performance, beyond established individual-level predictors of general mental ability and conscientiousness. Using a longitudinal design (N = 631) learning motivation was found to mediate the impact of CSEs on performance. The study conceptualised learning motivation as multidimensional construct, comprising self-efficacy, goal setting, and goal commitment. The results indicate the advantage of this multi-dimensional model over a uni-dimensional model of learning.
motivation, and offer a more complete picture of how learners’ self-regulation intervenes in the relationship with performance. It is reasoned that CSE influences learning performance by boosting context-specific self-efficacy, setting of challenging goals, and commitment to goal fulfilment. Although it does not examine transfer per se, this paper introduces CSE as an important antecedent for learning, and therefore for training effectiveness. Given that CSE is considered a more stable trait-like characteristic, this suggests that supervisors and instructors will have to engage in long-term approaches to enhance learners’ positive self-views. The paper suggests some intervention strategies that may assist with this.


This longitudinal study (N = 103) examined the effect of trait-like individual differences on the learning motivation of trainees as they progress through a training episode. Theoretically the research was anchored in an expectancy-valence framework stating that individuals are motivated to learn when a) they perceive a relationship between effort and progress, and b) the attainable outcomes from this progress are valued. Learners were assigned to a challenging yet achievable learning goal and performance measures were taken at the onset of the course, and three weeks later halfway through when performance feedback was given to potentially also alter subsequent motivation levels. As theorised it was found that conscientiousness and learning orientation were positively correlated with expectancy, valence, and motivation to learn; while performance orientation was negatively correlated with expectancy and motivation to learn. Yet, no significant relationship between performance orientation and valence was found. Further analysis showed that those individuals with a more positive profile (i.e. high in both conscientiousness and learning goal orientation, and low in performance orientation) were around 40% more motivated and performed about 30% better than those with a contrasting profile. Moderation analysis also indicates that those high in learning goal orientation remain motivated to learn also when receiving critical feedback. Taken together these findings highlight the importance of dispositional variables for training outcomes. It appears that an individual’s goal orientation is particularly crucial and practitioners may want to understand and perhaps facilitate such profiles. For researchers it remains a task to understand whether goal orientation as it relates to training is a dispositional factor (as theorised in this paper) or a malleable individual difference (as theorised in other research) that can be managed.

This quasi-experimental study with students (N = 600) investigated how course delivery mode, learning goal orientation, and perceptions of barriers and enablers affect the motivation to learn as mediating factor on course outcomes. Delivery mode was either a classroom or a blended learning experience. Those individuals enrolled in the blended learning condition, with high learning goal orientation, and who perceived the features of the environment and context rather as enablers rather than barriers had a higher motivation to learn. This motivation to learn then significantly related to course outcomes including higher satisfaction, metacognition, and grades. Motivation to learn was further supported as a partial mediator between delivery mode and metacognition and between perceived barriers/enablers and course satisfaction. Exploratory interaction analysis further revealed effects for learning goal orientation, barriers/enablers, and learning mode. For instance, those in the blended learning condition were more motivated to learn, engaged in more metacognition, and achieved higher grades. The authors attribute this to these learners having both greater accountability for and more control over their learning experience. More research is needed to understand the mechanisms by which technology enhances the delivery of instruction, the motivation to learn, and ultimate outcomes. Researchers should also replicate these findings in an organisational environment and clarify the stability of the learning goal orientation construct. Yet, the findings suggest a range of practical implications. To enhance course outcomes via higher learning motivation individuals may be steered toward blended learning experiences, their perceptions of enablers need be enhanced while concerns about potential barriers are addressed.


This paper presents a theoretical and meta-analytical review of the literature on self-regulated learning: the processes that enable individuals to guide their goal-directed activities throughout a learning experience to reach a desired level of achievement, including the modulation of affect, cognition, and behaviour. The goal of the authors was to clarify the fundamental constructs that constitute self-regulated learning, how these constructs are interrelated, and how they work in concert to predict knowledge acquisition. The authors identify 16 fundamental constructs that constitute self-regulated learning, and meta-analytic findings from 430 studies (N = 90,380) suggest that they are interrelated. The self-regulation constructs goal level, persistence, effort, and self-efficacy were found to be the strongest predictors of learning; accounting for 17% of the variance in learning, after controlling for cognitive ability and pre-training knowledge. Surprisingly, the self-regulatory processes of planning, monitoring, help seeking, and emotion control were not found to exhibit significant relationships with learning. The authors propose a
framework of self-regulated learning that includes goal level, self-efficacy, attributions, effort, motivation, environmental structuring, time management, attention, and metacognitive strategies. The paper helps to advance a more parsimonious theory about how learning occurs in the modern work and higher education environments. The authors end by arguing for more research into self-regulation theory as it applies to training transfer.


The aim of this study was to investigate the relevance of two modes of action control for the transfer of management training: self-regulation and self-control. Three hypotheses were derived and tested in a longitudinal field study (N = 82) that assessed individuals’ intention memory, emotions, intention realization, and criteria fulfilment. The study found that self-regulators remember intentions better than self-controllers. It was also found that self-regulation is associated with positive emotions, whereas self-control is associated with negative emotions. Finally, some support was found for the prediction that self-regulation increases the success of training transfer, whereas self-control impedes the success of training transfer. This is one of the few papers that specifically examine the role of self-regulation for training transfer. It also assists practitioners by discussing several ways for improving managers’ self-regulation.


Given that research in other domains established that higher individual self-efficacy favourably affects a variety of outcomes, this paper focuses on the role of trainee’s self-efficacy: the perceived capability to perform a specific task. It is predicted that self-efficacy may affect an individual’s self-regulatory behaviours, which in turn shape behaviours that impact the ultimate effectiveness of a training program. A longitudinal study (N = 215) was carried out, examining situational antecedents of self-efficacy development during training, and the subsequent influence of self-efficacy on trainees’ reactions and performance improvement. It was found that a trainee’s initial performance, achievement motivation, and choice, as well as a range of constraints affect the development of self-efficacy. For practitioners this highlights the importance of identifying and minimizing different types of constraints within the entire training system, not just in the training program itself. The study further finds support for the central role that self-efficacy plays in enhancing training effectiveness and performance, and so scholars interested in the role of confidence beliefs in facilitating training transfer may find this paper helpful in suggesting further avenues for research.

The purpose of this study (N = 254) was 1) examining how both training self-efficacy and instrumentality perceptions predict ultimate training transfer; and 2) to clarify the intervening role of motivation to learn and motivation to transfer. While a general case is made for the important role of trainees’ cognitions on their motivation, the authors take an exploratory approach. The best structural model identified would suggest that training self-efficacy is a main predictor or motivation to learn, while the perceived training instrumentality is the main predictor for motivation to transfer. Also, learning motivation predicts transfer motivation and only the latter has a significant relationship with actual training transfer. Perceived training instrumentality also directly predicts training transfer. These differential effects suggest that individuals need first to believe they ‘can do’ before they ‘will do’. That is, learners should be provided with confidence in their abilities so their learning motivation rises. Then, a good understanding of the utility of what was learned should be facilitated so they are motivated to transfer the training. This study demonstrates the complexity of the cognitive-motivational processes underpinning training transfer. Yet, future research should provide a stronger theoretical rationale, discern the various dimensions of training instrumentality, and replicate this study using a longitudinal design.


This review focuses specifically on motivation as it relates to transfer. The authors summarise, critique, and synthesize past transfer motivation research. It is concluded that: 1) individuals may be already motivated to transfer what they learn even before attending the training; 2) the way a training is framed determines the extent an individual is motivated to transfer it to the workplace; 3) the organisational normative context promotes or hinders the development of transfer motivation at any time; 4) during training transfer motivation is affected by factors associated with training instruction, its conditions, and consequences; 5) individual factors in response to the training program determine if and how individuals are motivated to initiate and to execute transfer actions; 6) perceptions of the work environment facilitate or inhibit the motivation to transfer learning on the job; 7) the motivation to transfer is a necessary condition for transferring training to the workplace. The paper then discusses some alternative views that complement and extend current theory on transfer motivation, including multidimensionality, dynamic nature, position in the nomological net, and level of analysis. For practitioners this review is an important resource to better understand the role and mechanisms of transfer motivation.

This meta-analysis used findings from 148 studies (N = 31,718) to examine the relationship between motivation and transfer in professional training. Given the heterogeneity in the ways in which previous researchers have conceptualised training-related motivation, the authors identified nine dimensions. Eight of them showed positive correlations with transfer: motivation to learn (p = .28), motivation to transfer (p = .44), pre-training self-efficacy (p = .29), post-training self-efficacy (p = .33), mastery orientation (p = .27), performance orientation (p = .04), avoidance orientation (p = -.11), expectancy (p = .52), and instrumentality (p = .40). These estimates indicate that cognitive factors may be strong predictors of transfer. Knowledge type, instruction, and assessment conditions were found to moderate the size of the relationships for all nine of the motivation dimensions with transfer. First, correlations were higher when the training focused on declarative and self-regulatory, rather than on procedural, knowledge. Second, learner-centred environments tended to show greater numbers of positive correlations than did knowledge-centred environments. Third, when compared with external, supervisory, or peer assessment, self-assessment of transfer produced upwardly biased population estimates irrespective of the transfer criterion. In sum, various dimensions of motivation and boundary conditions are identified which are important for transfer. Future theory needs to include these, while practitioners also need to consider them when evaluating and facilitating training transfer.


This paper investigated how professionals, who typically have considerable autonomy in determining how they will operate in some or all of their tasks, decide if and when they will apply new ways to act that they have learned in training. To understand the formation of training transfer intentions, 180 stories of transfer were collected and analysed. The qualitative data was sourced from 73 physicians who initially attended a faculty development fellowship. The authors describe these self-governing individuals as ‘application minded’. The authors note that most individuals formed their intentions to transfer during training sessions. More generally it was concluded that, in forming transfer intentions, individuals 1) weighed their experiences in training against job requirements, task experiences, self-evaluations, and goals and values against 2) what they see, hear, feel and do during training, to ultimately consider 3) a new idea’s credibility, practicality and need. The paper finishes with a practical discussion about and an overview of approaches that promote the formation of transfer intentions and commitment.

This longitudinal study (N = 49-104) examined transfer climate as an antecedent to training transfer. What makes this study particularly interesting, however, is its investigation of positive and negative affectivity in relation to trainees’ perceptions of transfer climate and other training-related variables such as pre-training self-efficacy, pre-training motivation, and post-training transfer implementation intentions. The argument made is that positive and negative affectivity shape individuals’ sensitivity for the signals of the work environment and so may act as moderating and confounding factors. Albeit providing only little theoretical explanation it was expected that both positive and negative affectivity relate to perceptions of transfer climate and affect the relationship between transfer climate and implementation intentions. Findings indicate that the two measures of affectivity are related differently to the positive and negative transfer climate. Yet, negative affectivity was the only significant predictor of post-training transfer implementation intentions, lowering individuals’ goals to apply what was learned. Factor analysis further indicates that affectivity may confound measures of perceived transfer climate. However, given its design this study cannot determine whether levels of affectivity are contributing to their perceptions of the transfer climate or are a product of the transfer climate. Those results suggest that future theory and models of training motivation and transfer should consider affectivity. To enhance the chance of training transfer practitioners may seek to reduce negative affectivity in learners and build their positive affectivity.


In this conceptual paper the case is made to approach motivation as it relates to learning via psychological engagement theory. The authors focus on the concept and use the term ‘learning’ deliberately as employees are typically engaged in a plethora of in/formal learning experiences that improve knowledge, skills, and abilities. Accordingly, they propose to shift from instructor-centric models to a learner-centric view. As a result the individual is not seen in a passive role but understood to be an active agent at work and for learning. Consequently, motivation for training and transfer need be understood through the psychological states affected by the work and learning context the individual is part of. To highlight the potential utility of such a view learner engagement is discussed in relation to a number of learning methods, organisational climate, interpersonal dynamics, and individual differences. It is also illustrated how the construct of learner engagement may be further developed and operationalised, including a rich discussion about directions for future research. Given how the world of work and learning has changed this paper provides a timely proposal and potentially useful lens for advancing theory, research, and practice for training effectiveness, and foremost for learning and performing.
The Work Context


This study investigated the extent to which organisations implement specific activities for facilitating the transfer of training before, during, and after training, and the relationship between these activities and the transfer of training across organisations. Reports from training professionals from 150 organisations suggest that for training transfer the following activities matter: 1) for pre-training, trainee input and involvement (.27) and supervisor involvement (.24); 2) for the training itself, identical elements (.35); and 3) for post-training organisation support (.32) and supervisor support (.17). Given the range of activities discussed is quite varied; this paper represents a good source for practitioners who need to consider possible activities to facilitate transfer. Moreover, the research also found that facilitating activities that take place in the work environment before and after training are more strongly related to transfer than facilitating activities during training. Even so, the study suggests that organisations rarely incorporate such activities into their training approaches to improve the transfer of training. When they do, it is most likely to occur during training rather than before or after training. Taken together the findings indicate that organisations are not making the most of available research when it comes to the transfer of training and that they have much to gain by applying what the science of training offers.


This paper highlights the importance of organisational factors for the investigation and facilitation of training effectiveness. Most factors studied under the traditional conceptual transfer frameworks pertain to trainee characteristics and attributes that are directly related to the training context or training-related outcomes. Under such view, the work environment is defined in terms of characteristics that mainly describe the training transfer climate and therefore treat training as a non-systemic phenomenon, independent of the variables that affect work performance. The model proposed here suggests that training transfer is affected by the following organisational aspects: sociotechnical system design, job design, quality management, and continuous learning environment. The model was tested using survey data supplied by a sample of employees (N = 198) of one organisation. The study found that motivation to learn, the motivation to transfer, and training transfer were significantly related to a positive learning transfer climate, and/or awareness of how one’s job contributes to the organisation’s quality mission, rewards for recognition for new ideas and performance, risk taking and innovation driven culture, organisational commitment, a high performance team environment, job motivation and satisfaction, a quality driven culture. Collectively these influences portray a high performance work system and make
evident that the transfer of training should be studied in isolation. Given the desired ultimate outcome of any training intervention is to improve performance, for practitioners this paper helps create the holistic awareness that work environments characterised by high performance and commitment are also conducive to the transfer of training.


Similar to Kontoghiorghes (2004), the authors of this chapter argue that much of training research and practice tends to oversimplify the complexity of managing contextual factors in work organisations. They make the case that training experiences should not be considered as isolated events, but rather as episodes in peoples’ organisational and working lives. This draws attention to events that occur prior to the delivery of a training intervention, as salient influences on employee/trainee cognitions and motivation will affect the degree of training success independent of the actual learning experience. A framework of those pre-training contextual factors is proposed with variables categorised under a) training introduction, b) training cohort, and c) transfer climate. Individuals synthesise and interpret information from these contextual domains which, in turn, determine an episode’s boundaries including in/voluntary participation, training goals, and purpose.


This study tests the proposition that contextual factors – here management actions - send signals to employees that affect perceptions and influence behaviour as they relate to training. The study (N = 193) investigated how intentions to transfer training are affected by three pre-training signals: a) course information provided to trainees, b) accountability to supervisor, and c) program status (i.e. mandatory or voluntary). The findings suggest that trainees report greater intentions to transfer learning to the workplace when they a) received information prior to the training program, b) recognised that they would have some accountability for the training with their supervisor, and c) perceived a program as mandatory.

This chapter reviews evidence on what constitutes transfer-ready employees. Two characteristics are discussed 1) motivation to improve work through learning and 2) learning agility. The latter describes four ‘agility’ aspects needed to continuously improve from experience. People agility involves mechanisms of seeking and getting feedback. Results agility describes mechanisms of achieving results under tough conditions. Mental agility describes mechanisms of thinking through problems. Change agility involves curiosity, passion for ideas, willingness to experiment, and proactive engaging in skill-building. Based on these constructs the authors propose four principles for shaping an individual’s state and capacity for maximising benefit and transfer from a training program.


This study (N = 101) examines employees expectations, attitudes, and decisions to select training programs. The research examined how training outcomes differ as a result of a) the type of announcement or prior information individuals receive about a training program, and b) the amount of freedom they have to participate in the program. Trainees who received a realistic training preview and those who had a high degree of choice over whether or not to attend were found to believe the workshop is a good fit, profit more from the training, and commit more to their decisions to attend the workshop when compared to trainees who received the traditional announcement and those who had a low degree of choice. It was also found that degree of choice had a stronger effect on the training outcomes than type of prior information; it affected not only trainees' initial perceptions and their receptivity to training but also the amount of learning that took place. Thus, organisations and training providers should give employees a realistic and balanced point of view so they can see in what ways a training fits into their self-development plans, and how it is relevant to the demands of their work. This in turn heightens the desire to learn, a precondition for the effectiveness of training programs.


This study (N = 967) examined the extent to which employees’ attitudes and general beliefs about training influence their pre-training motivation, and their perceptions of the extent to which they are able to transfer training back to their job. 14 predictors were tested and it was found that the overall reputation of training, intrinsic and compliance incentives, organisational commitment, and three social
support variables (subordinate, supervisor, and top management support) were predictive of pre-training motivation. In addition, pre-training motivation and subordinate, peer, and supervisor support were predictive of perceived training transfer. Some hypothesised predictors, such as extrinsic incentives, were not supported. The key finding for practitioners relates to supervisors who, it is suggested, should actively support employees’ training efforts by providing a) opportunities to use skills learned in training, b) feedback about transfer attempts, c) reward for successful skill transfer, and d) a climate in which employees’ training efforts are supported by their peers and subordinates.


The purpose of this longitudinal study (N = 126) was to investigate the effect of framing a training episode. The model tested hypothesised that training framing shapes learners’ self-efficacy, which in turn affects their motivation for training, and both these variables determine subsequent training outcomes (utility reactions, learning, transfer motivation). Findings indeed suggest that supervisors who frame an upcoming training as important and realistic can increase employees’ self-efficacy for the training and their motivation for training. That is, motivation for training had a direct effect on training outcomes and so self-efficacy acted as a partial mediator while also directly affecting training outcomes. For managers the overall finding is important as it suggests communicating about an upcoming training episode promotes psychological readiness states needed so subordinate are more likely to subsequently transfer the training. However, the study has several methodological limitations and scholars should extend this line of research by employing quasi-experimental designs and by theorising and testing different training framing options.


This chapter seeks to explain participation in formal training and development activities by using a planned behaviour approach. It is argued that employees are most valuable to their organisations when they are participating in on-going training and development and when this development is proactive or self-motivated. A central argument made is that participation in formal training and development is essential if employees are to enhance their generic competencies and thus employability, and so can be viewed as a precondition for career success. The authors argue that employees need to be viewed as agents of their own development. They discussed how individuals may influence and exploit their personal learning best by being aware of and taking responsibility for their own learning.

In prior publications the authors developed the Learning Transfer System Inventory (LTSI), which may be best understood as a) a framework for understanding training transfer and b) an analytical instrument for measuring an organisation's capacity for successfully transferring learning and training. This paper represents perhaps the most useful and first to consult when seeking to understand the conceptual, psychometrical, and empirical basis of the LTSI. That is because the set of factors argued to substantially enhance or inhibit transfer of learning to the work environment is systematically discussed. 16 factors, grouped into motivational, environmental, and ability elements, are thought to jointly affect learning, individual performance, and organisational results. The paper also studies the convergent and divergent validity of the associated measures in relation to 28 comparison measures. The results indicate mostly divergent relationships, demonstrating a certain uniqueness of the LTSI as a framework and usefulness as an analytical tool for both practitioners and scholars. However, the LTSI is meant as a diagnostic tool administered post-training to assess individual trainees' perceptions and the transfer environment. As a result it can be used to provide information to organisations about what factors to target for enhancing training transfer. Conversely, as the instrument is designed to be administered after the training, the underlying model neglects the time-dimension, and falls short of covering sufficient details about factors that influence transfer before and during training. It should be noted that the measurement instrument of the LTSI is proprietary.


This study sets out to examine the potential influence of job dissatisfaction on the process of training transfer. Specifically, the study (N = 220) tested whether job dissatisfaction would have a negative effect on transfer. Also examined was whether expectation of positive transfer consequences and motivation to transfer would buffer this effect. The researchers found that job dissatisfaction has a detrimental effect on training transfer. However, motivation to transfer and the expectation of positive transfer consequences buffered that effect. That is, the more motivated a person is towards transfer, the less negative is the effect of job dissatisfaction on actual transfer. However, this is only the case if a person expects positive outcomes from transferring the training, for instance acknowledgment or rewards. For practitioners these findings underscore the detrimental effect of job dissatisfaction, such as negatively affecting work-related attitudes and work-relevant behaviour, and also training transfer. However, action can be taken to mitigate this negative effect. Dissatisfied employees may be motivated to transfer through organisational
recognition. This study contributes to a more complete picture of the conditions underlying the failure to transfer.


This study examined the extent to which two forms of social support predict training transfer: 1) supervisor support, which involves asking questions about training, holding trainees accountable, use of participative goal-setting etc.; and 2) perceived organisational support (POS) which describes employees’ belief about how much the organisation cares about them and values their contributions to the organisation. Testing both organisation- and supervisor-based types of support is thought to offer more information on each factor’s unique contribution to training transfer and to aspects leading to it. It was found that both supervisory support and POS were positively related to trainee self-efficacy and motivation to learn, so influences on these individual factors could stem from either support source. However, supervisor support was positively related to learning goal orientation and organisational support was not. For scholars, this paper clarifies several important mechanisms. For practitioners this study suggests trainees’ goal orientation originates from a more proximal source such as the supervisor. This is indicated by the finding that supervisor support also positively influences motivation to transfer and does so to a greater extent than organisational support.


Complementary to the article above this short paper describes a study (N = 440) which examines three potential sources of social support for training transfer: 1) co-workers, 2) supervisor, and 3) the wider organisation. Co-workers emerge as important, yet neglected, resources employees can draw on as support for both maintaining skills and transferring them to a workplace setting. These findings should direct attention to study the mechanism by which peers can systematically assist in the transfer of training. For practitioners the findings may stimulate the development of transfer-enhancing interventions situated at the co-worker level.


This paper extends prior work on the role of the supervisor at work in promoting training effectiveness. Specifically, it uses Leader-Member-Exchange theory (LMX) to investigate the relationship between the individual worker and his or her direct manager/leader as it affects training outcomes. The study (N =
investigates the extent to which leaders (through their relationships and exchanges with followers) influence the transfer, maintenance and generalisation of new skills at work. The study also examines several aspects of followers’ perspective (the resulting training motivation and outcome expectancy of the individual involved in training), which are theorised as mediators of the link from LMX to training transfer. The hypothesised relationships are supported and this paper is one of the first to connect LMX with training interventions. Consequently, supervisors and line managers may use this paper to better understand their powerful role in motivating subordinates’ transfer behaviour. For trainees it becomes important to gauge the relationship with the leader about receiving support in solving work issues more generally, including those relating to training transfer.


Research has shown that interventions post training can favourably affect the transfer of training, especially those that originate at the transfer environment, the workplace. This study thus examined the willingness of managers (N = 174) to adopt training research innovations in order to support subordinates in transferring training. Specifically, it was tested whether managers react more positively to 1) relapse prevention or supervisor support as potential intervention to facilitate transfer; and 2) utility analysis or research information describing the effectiveness of the intervention. No significant differences were found between the transfer interventions or information conditions, though there was a positive trend toward supervisor support and research information. Interestingly and concerning for practice, findings suggest that managers are unlikely to adopt either intervention and so would not boost transfer for their subordinates who return from training. Supervisors and line managers as well as human resource executives may consider this paper to stimulate reflection about organisational and managerial practices as they relate to training transfer support. Scholars should seek to understand what underpins this disregard of new knowledge and how the adoption of research into practice may be better facilitated.


This study provides rich qualitative information about supervisor behaviours that employees find helpful and unhelpful in transferring training. Semi-structured interviews (N = 24) were analysed and the results suggest that what supervisors’ behaviours prior to, during and after course attendance are critical to training transfer. 1) Prior to the course supervisors motivated, encouraged, and set expectations. 2) During the course supervisors signalled the value placed on the course. 3) After the course supervisors held meetings to support transfer. Generally, transfer was maximised when participants experienced a
positive role model and when supervisors showed interest in their experience of the course, encouraged and sponsored new initiatives, and involved them in decision-making. The main perceived hindrances to training transfer identified included culture, policies and a lack of encouragement. From a scholarly point of view this study may be used to develop better theory about what supervisors may do to help transfer, currently an under researched topic. The rich qualitative data also gives meaningful insights from an employee’s perspective, and this makes this study particularly useful to practitioners.


This organisational study (N = 247) investigated the effects of 1) training and training transfer factors, 2) company-level training outcomes, and 3) the relationship between the latter and company performance. Specifically, the model tested relates the 1a) volume and quality of training, 1b) supervisor support, 1c) peer support, and 1d) organisational incentives to constructs about company-level training outcomes 2a) the acquisition and interpretation of information, and 2b) cognitive and behavioural changes to 3) company performance. The proposed structural model had an acceptable fit, yet not all hypotheses were supported. Findings suggest that the volume and quality of training is a function of supervisor support, the latter also enabling organisational incentives for training transfer. Organisational incentives were then directly related to both company-level training outcomes and cognitive and behavioural changes; and indirectly related to company performance through encouraging cognitive and behavioural changes. The volume and quality of training were related only to the acquisition and interpretation of information, while no direct relationship with company performance was found. Taken together it may be interpreted that organisations benefit most by rewarding the application of training, and supervisors appear to have a key role in this process. For organisational leaders this study suggests that the most leverage for training investments is generated by providing an organisational support system for training transfer. Scholars may employ a similar methodological approach yet test for the relative importance of several leveraging factors for transfer.


This paper examines the role of the social context at work in relation to training transfer. The authors propose social network analysis (SNA) as a methodology for analysing transfer climate prior to training. In brief, SNA focuses on the interpersonal mechanisms and social structures that exist among interacting units such as people within an organisation, and outcomes are affected by how those people are tied into the larger web of social connections. SNA is introduced as a tool for analysing an employee’s organisational network relationships prior to training to help the facilitator, the supervisor, and the
individual learning gain an accurate picture of the transfer climate. The transfer climate encompasses an individual's perceptions of supervisor support, opportunity to use new training, level of peer support, supervisor sanctions, and positive or negative personal outcomes resulting from application of training on the job. SNA is thus put forward as a technique to analyse the interpersonal mechanisms and social structures that exist within a unit the learning individual is nested in. An actual study is not reported but a hypothetical case and the process of conducting SNA is described and illustrated for scholars and advanced practitioners. Training transfer researchers may gain a lot by studying why individuals act and respond to social pressures that exist within the social context. Proposed future research may address e.g. the optimal level of connectedness (density) within a work group so as to transfer training back to the job. In practice SNA could be a vehicle for mapping out the social structure of an organisation to identify relational barriers affecting the transfer climate. SNA is also proposed as an assessment tool prior to the planning of a training to identify the opinion leaders within the organisational climate so as to include them in the development and implementation of the training program.


This article complements the one above, by reviewing those studies which apply a social network analysis (SNA) to the transfer of training. Three groups of studies using SNA are identified and they address: 1) the role of the social network within the organisation for transfer of training, 2) the network outside the organisation, hereby stretching the traditional idea of social support; and 3) the social network as an important outcome of training itself. The insights reviewed and the potential perspectives offered through SNA are promising, and help unravel aspects which were hereto disguised by more general constructs of social support. Of benefit to practitioners and scholars, the paper discusses how SNA can provide a fine-grained way of looking into social processes in the workplace that support learning and transfer.


Through ten in-depth interviews with managers participating in leadership development programmes this study sought to better understand the personal and organisational factors that affect 1) participation in such training, and 2) their ability to transfer what is learned to the workplace. The qualitative data was coded, discussed, and findings are linked to existing theory and summarised in tables. A main finding relates to the uncertain environment throughout the public sector from which the study participants were drawn. This context is described as the greatest inhibitor to training participation and transfer. For instance, continuous structural change makes individuals uncertain about choosing a learning experience
that would benefit them most in the future. Other themes identified relate to goal setting and self-preservation/expectancies. A theme identified and previously not discussed in the literature relates to the impact of a supportive home environment upon participation, thereby calling for targeted research on the side effects of professional development in the domain of work-life. Further themes discussed in relation to participation relate to an ageing workforce, available resources or lack thereof, and poor managerial planning. Emerging themes about training transfer included diminishing transfer motivation, time and opportunities to apply, training integration and reward for transfer in the organisation, and organisational reticence to new knowledge and skills. The paper provides rich insights that help grasp the challenges for effective training as they relate to extant theory as well as potentially new concepts that demand scholarly attention. A discussion for practitioners on mitigating some of the identified challenges relates to e.g. shorter sessions which cater for a better work-life-training balance, and employing trainers with a practical understanding of the (public sector) context.


Culture is an important concept as it applies to organizations, and may be understood as the basic assumptions and beliefs that are shared by members of a particular group, that operate unconsciously, and that define an entity's view of itself. This article forwards a model of the relationship between training failure and the manifestations of various levels of an organization’s culture: 1) dominant culture, 2) subculture, and 3) human resource development culture. Consequently, factors relating to ineffective training are integrated within this organisational culture framework. The author then considers the socio-political context of organisational subcultures, and argues that the characteristics of the human resource development profession form a weak subculture that must defer to more powerful subcultures. This article is unique in that it specifically examines the importance and role of distinct cultures as a contextual variable for training effectiveness. Understanding the cultural beliefs and assumptions about the function and the profession of human resource development more generally is crucial to developing new strategies for improving training transfer.


This empirical study addresses the role of organisational culture as a major contributor to employee learning and development. The scenario examined does not involve a formal training episode but the design and measures employed make it relevant for understanding the transfer of training. Findings from a survey of 1,255 employees associated with 354 organisations indicated that organisational subculture was highly associated with employee motivation to transfer learning, far higher than organisational culture.
overall. More specifically, supportive and innovative subcultures have clear positive relationships, while bureaucratic subcultures have negative relationships, with motivation to transfer learning. Also, a considerate leadership style had a stronger relationship to motivation to transfer learning than did a structuring leadership style. For practitioners these findings suggest that organisations need to focus efforts on shaping organisational subunits which most strongly affect the motivation to transfer learning from training.


This study (N = 180) investigates the extent to which the opportunity to perform trained tasks on the job affects the transfer of technical skills to the job. This opportunity to perform trained tasks was conceptualized as consisting of three dimensions: 1) breadth, 2) activity level, and 3) type of tasks performed. The results indicated that trainees obtain differential opportunities to perform trained tasks as a result of supervisory attitudes and workgroup support, as well as the trainee's self-efficacy and cognitive ability. The findings also suggest that individuals who are given both greater breadth and a higher activity level will be more likely to retain and possibly improve proficiency on trained skills. Although this may sound common-sensical to supervisors, peers, and learners, it may not be commonly practiced, particularly in respect of complex tasks which require more repetition in order to automatize skills.


This study examined the effect of relapse prevention (RP) training on training transfer. Relapse prevention (RP) training is based on clinical psychology research into addition, and its primary goal is to teach individuals how to self-manage in ways that help them avoid relapsing into earlier behaviours. In a quasi-experimental study, trainees were randomly assigned to three treatment conditions: a group provided with 14 RP strategies, a group provided with 3 RP strategies, and a control group with no RP strategies provided. The results showed that the trainees' ability and desire to transfer was improved both of the RP conditions, although in completely counter-intuitive ways. That is, the control group showed the highest transfer motivation. Neither of the RP condition significantly affected retention of course content, use of transfer strategies, or use of trained skills. However, several cognitive and behavioural transfer strategies significantly affected the use of trained skills. For practitioners this paper represents a reminder that systematic research is needed to understand and before deciding on interventions to enhance transfer.

This conceptual article gives attention to the crucial role of accountability in managing the transfer problem by applying the theoretical lens of Schlenker’s pyramid of accountability. That is, accountability for transfer is applied to the role of the trainee, trainer, immediate supervisor, and top management throughout the training process. A theoretical framework is advanced. For practitioners this framework may be helpful to help establish the appropriate degree of accountability, which is comprised of three key components. 1) The prescriptions or expectations that guide a person’s behaviour: pre-training transfer expectations, requirements for transfer briefings, reports, or specific action plans. 2) The event or action that occurs or is anticipated: the use of new knowledge and skills on the job post-training. 3) Characteristics of a person’s identity or role, qualities, and convictions: the role of transfer in a trainer’s job description or a trainee’s sense of dedication to using skills provided by the firm. Recommendations for practice given comprise conducting a training transfer accountability audit to determine where and for whom accountability lapses exist in an organisation, developing and clearly communicating prescriptions and expectations for training transfer for each stakeholder group, and evaluating training transfer outcomes across training programs.
The Training Experience


This study explores the extent to which practitioners’ knowledge and beliefs about training transfer are consistent with findings in the research literature. A survey was developed that captured the views of training professionals (N = 139) as they relate to typical components of training transfer. It was found that practitioners by and large agree with standing findings in the areas of training design and the work environment. However, they agreed less with evidence relating to individual differences that affect transfer success and about evaluation practices used to measure transfer outcomes. More specifically, the results suggest trainers may be neglecting extant knowledge relating to pre-training periods such as needs analysis which may then bolster transfer for certain learners. Similarly, it appears that practitioners stop short of comprehensively evaluating the learning experiences they set up. This paper demonstrates well how the transfer of training may be impaired by a research-to-practice gap. Interestingly, it was found that those practitioners with higher education and/or an association with a relevant peak body are more likely to possess knowledge and beliefs that are consistent with evidence based knowledge on training transfer. This paper benefits the discussion on the training transfer challenge. For scholars it highlights a crucial element in the training effectiveness chain that can be considered under-investigated. For practitioners it may serve as a trigger to reflect on their own beliefs and practices about training transfer.


As a logical extension to the article above this paper reports a study that examines the methods training professionals use to learn about training transfer. Using quantitative survey data and follow-up interviews the authors sought to understand trainers’ use and perceived utility of the existing literature for developing their own competence about facilitating training transfer. Findings indicate that training professionals seek information about training transfer mainly by means of informal learning which includes discussions with other training professionals, reading books, searching the Web, and the experiences made on the job. The trainers’ own learning behaviour is driven by the accessibility of information, the quality of the source, and their own motivation (to learn). It also emerged that trainers would seek to learn more about training transfer through discussions with experts and academics. Yet, limited opportunities to engage with formal learning experiences about training transfer appear to hinder systematic development of training transfer competence. Also, trainers read practitioner journals significantly more often than research journals. Somewhat concerning, the consumption of any such
literature is rare and perceived to be of little use in remaining current on training practices. While the study does not offer clear evidence on the underlying rationale, this finding may be either interpreted as a) the transfer research conducted and/or training literature available is of little use to real world scenarios, or b) the training professionals neglect evidence-based transfer guidelines and do (too) little to improve their practices. Given its rich discussion this paper may be used by practitioners as a wake-up call to reflect on their own professional learning practices and what informs their actions when training others. Scholars may be stimulated to extend this line of inquiry so as to better understand different types of training professionals, their motivation to develop, and potentially some idiosyncratic skill sets that help trainers learn for themselves.


Based on previous research, this article develops a typology of situational elements that affect learning and its transfer. The author compiled and organised constructs which can be manipulated by researchers or practitioners as part of a training intervention or its implementation at work. Elements are categorised along the time-dimension into pre-training, training design, and post-training elements. This stage view is flanked by situational elements of the transfer or work environment which likely affect an individual throughout the entirety of a given learning experience. This paper may be particularly useful to practitioners as it draws attention to malleable factors that reside in the individual or the environment and which can influence training transfer. It also discusses how these factors can be managed.


This paper presents a model that provides an integration of three relatively distinct process pathways through which training design elements are thought to influence trainees’ learning and transfer. It was found that exploratory learning, as opposed to proceduralised instruction, demonstrated significantly higher levels of both analogical and adaptive transfer. Moreover, trainees who were encouraged to make errors while learning demonstrated higher levels of adaptive transfer than did trainees exposed to an error-avoidance frame. Taken together the findings suggest that a) active learning approaches produce superior transfer relative to more traditional, proceduralised instruction, and b) trainees that make and learn from their errors are aided in their development of adaptive expertise. The model also specifies that intrinsic motivation and self-efficacy are key predictors of trainees’ basic knowledge and analogical transfer. Also, those trainees reporting higher levels of state anxiety early in training had lower levels of self-efficacy at the end of training, though an emotion-control strategy has been identified as effective
tool for lowering trainees’ state anxiety. Taken together this is a very comprehensive model of active learning and its impact on training transfer.


This study examines the effects of feedback specificity on the transfer of training, seeking to illuminate the processes by which feedback affects transfer. The experimental study of trainees (N = 48) working on a computer simulation used a technique called ‘concurrent verbal protocol methodology’ to identify explicit information processing activities employed by the trainees. The findings suggest that increasing feedback specificity helped participants identify which actions were correct and incorrect, which actions caused specific errors, and what the correct responses were. Conversely, trainees receiving less specific feedback relied more heavily on explicit information processing and had more exposure to the challenging aspects of the task than those who received more specific feedback, which differentially affected what they learned about the task. This paper helps highlight the importance of feedback in promoting learning and transfer.


Error management training (EMT) is a method that may be applied during training to enhance learning and subsequent transfer. EMT creates a learning environment which provides explicit encouragement for learners to engage in active exploration, to make errors during training and to try to learn from those errors. This meta-analysis of 24 studies (N=2,183) finds that EMT leads to better training outcomes than do alternative training methods. Importantly, EMT was found to be effective only when post-training performance and not within-training performance was considered, highlighting its significance for training transfer. Also, EMT was found to work best for performance tasks that were dissimilar to training. Given that both active exploration and error encouragement were identified as approaches with favourable outcomes, EMT appears to be an effective training method compared with learning experiences that do not encourage errors, such as purely exploratory and proceduralised training. Given that EMT can be implemented using simple and easy-to-administer instructions it would be desirable to identify the most effective and efficient class-room dynamics practitioners can facilitate.


On the basis that management training typically occurs off-the-job in external training environments, this study (N = 595) examined whether designing aspects of training to resemble participants’ work situation
can improve subsequent training transfer. The role of identical elements was examined in its utility above and beyond motivation to learn and expected utility of the training. Indeed, identical elements were found to have a unique and direct contribution to the prediction of training transfer. Consequently, especially when developing open as opposed to closed skills training, training providers should consider designing learning experiences that trigger cognitive, emotional and behavioural processes and responses that closely resemble those activated in the actual work environment.


Reflective learning journals (RLJs) are thought to encourage learners to engage with the content of training by examining their experiences in applying the learned material. This qualitative study sought to 1) evaluate the role of RLJs in encouraging trainees to transfer the programme content, 2) assess the extent, from the learners’ perspective, that the RLJs facilitated transfer, and 3) examine the RLJs as a training evaluation tool. Over the course of a 11.5 day leadership program participants (N = 75) were encouraged to keep a daily learning diary to record key observations surrounding each module. Three months post-training, participants were asked to finalise and submit their individual RLJ using their notes, diaries and post-training experience. It was found that many participants engaged in deep reflection, showing honest self-critique regarding application of the material. This in turn enabled them to think critically about their transfer behaviour. The authors also discuss how organisations may utilize employees’ reflections to understand ways to enhance transfer by improving work environment factors. The authors also comment very positively on using RLJs as an evaluation tool for training providers due to the very personal insights they gained. For instance, they received detailed reports about how participants reflected deeply on their current use of the material, their motivations, development plans, and concerns. The authors recommend using critical reflection as engaging methodology for researching and facilitating training transfer.


This longitudinal field study is noteworthy for testing how the transfer of training and trainee self-efficacy may benefit from different goal-setting interventions during the learning experience. The 89 participants were randomly assigned to 1) a distal outcome goal group; 2) a proximal plus distal outcome goal group; or 3) a ‘do-your-best’ (DYB) goal group. The findings suggest that the use of proximal plus distal goals increased training transfer maintenance relative to distal goals or DYB. However, they had no effect on
skill generalisation or self-efficacy. Instead, distal goals were found to increase these latter two measures relative to being urged to DYB and increase self-efficacy relative to proximal and distal goals. The results demonstrate that different forms of goals (i.e., learning, behavioural outcome, proximal plus distal) can be more effective for training transfer than simply urging learners to do their best when they are faced with novel tasks. Given the authors also note a range of inconsistencies between other findings and extant literature, scholars may consult this paper for future research on goal-setting as it relates to training transfer.


This meta-analysis of 117 studies (N = 2,509) estimated the effects of behaviour modelling training (BMT). If BMT is fully implemented it emphasises a) describing to trainees a set of well-defined behaviours to be learned, b) providing models displaying the effective use of those behaviours, c) providing opportunities for trainees to practice using those behaviours, d) providing feedback and social reinforcement to trainees following practice, and e) taking steps to maximize the transfer of those behaviours to the job. Training transfer was greatest when mixed (negative and positive) BMT models were presented, when practice included trainee-generated scenarios, when learners were instructed to set goals, when trainees’ superiors were also trained, and when rewards and sanctions were instituted in trainees’ work environments. This confirms findings discussed in the work cited above, for instance the positive effects of goal setting and accountability. More generally, BMT effects were largest for learning outcomes, smaller for job behaviour, and smaller still for results outcomes. Also, BMT effects on declarative knowledge decayed over time, training effects on skills and job behaviour remained stable or even increased. Finally, skill development was greatest when learning points were used and presented as rule codes and when training time was longest. A number of boundary conditions to effective use of BMT are discussed that may inform both practitioner and scholars in refining their approaches to facilitating and researching training transfer.


This conceptual paper argues that the typical methods employed for training people are based on how learning is historically understood. As a result it concludes that many methods currently employed may not be as effective as those related to the proposed third-generation instructional model. It is argued that technological and societal change foster a new paradigm that places greater emphasis on the learner who socially constructs his/her own knowledge through shared meaning arising from interactions among
instructors and learners. This is enabled by learning designs that define broad content areas and provide tools and strategies for collaborative learning among instructors and learners. Ultimately, as a result this knowledge can be more easily transferred back to an applied context while social skills are built and transferred alongside. Consequently, this paper and the scholarly reactions in the same journal issue can inform future research about how employees may be guided through developing and applying new competencies either in training and/or on the job. The article also reviews the history of first- and second-generational instructional design models. Practitioners may find this useful to reflect on the beliefs underlying current and future practices.


Trainee reactions – learners’ subjective evaluations, usually post-training – remain the most used source or method of evaluation in the training domain. The authors divided trainee reaction measures into two categories: 1) affective reaction describe general satisfaction with the training, and 2) utility reaction describe judgements of usefulness of the training content for the work situation. They then carried out a meta-analysis of 34 studies involving these measures. They found that utility reactions were more strongly related to transfer than were affective reactions. Moreover, utility reactions were also stronger correlates of transfer than were measures of immediate or retained learning. In other words, just because a trainee comprehends a new skill does not mean it will be applied on the job, unless there is a perceived utility in doing so. What is more, in examining the data on all four levels of training evaluations derived from Kirkpatrick’s well-known model they found only modest intercorrelations, questioning the central premise of the Kirkpatrick model whereby the different levels are causally linked. Consequently, utility measures are not simply substitutes for measures of learning or transfer.


This article provides a conceptual and quantitative review (k = 136; N = 27,020) of the nomological network of trainee reactions; it integrates the literature on antecedents and outcomes of reactions and proposes theory-driven moderators of the antecedents–reactions–outcomes relationships. It thus updates and extends Bennett, et al. (1997), albeit it exclusively focuses on the first evaluation level linked to reactions. The meta-analytic findings suggest reactions primarily capture characteristics of the training course, mainly instructional style (p = .66) and human interaction (p = .56). Pre-training motivation, trainees’ personalities, anxiety, and perceived organisational support had weaker effects. More, reactions predicted pre-to-post changes in motivation (p = .51) and self-efficacy (p = .24) and were more sensitive
than affective and cognitive learning outcomes to trainees’ perceptions of characteristics of the training course. Affective and utility reactions did not differ in their relationships with learning outcomes. And outcomes correlations tended to be stronger in courses that utilised a high level rather than a low level of technology. The study advances knowledge about the nomological network of reactions, which are found to play a significant role in training transfer.


The authors of this empirical study (N = 152) developed and tested a model of reactions to assessment and their implications for training motivation. Two dimensions of reaction linked to a pre-training assessment were examined: utility and distributive justice were found to equally affect trainees’ motivation to learn. Individuals who had more positive perceptions of both the utility of the assessment process as well as distributive justice were more motivated to learn in the subsequent training program. Consequently, work organisations and training providers should promote both dimensions as reactions to the skill assessment process have a significant impact on individuals’ motivation to learn, which in turn drives important learning outcomes. The findings also suggest that employees are likely to react differently to skill assessments depending on their individual characteristics, such as goal orientation. This suggests that training practitioners may not be able to treat all learners identically; instead it is proposed to focus on tailoring the process to different trainees.


The authors set out to determine the factor structure underlying reactions to training by analysing learner reaction forms (N = 9,128). As a result of an exploratory factor analysis six factors emerged: 1) a dominant factor on the utility of training, and several others relating to 2) the instructor satisfaction, 3) testing satisfaction, 4) materials satisfaction, 5) course structure satisfaction, and 6) overall satisfaction. This set of factors lends itself to improving the ‘smile sheets’ being used in practice. Organisational researchers may also find this article helpful in developing their own ideas around training reactions and transfer.
What Works in Practice


This comprehensive and compact article begins by explaining why training is important and proceeds to a discussion on how to use training appropriately. The authors integrate a wealth of important research and systematically provide recommendations for implementing a training program in an organisation. They argue that training is a systematic process, and so they logically explain what matters before, during, and after training. For ease of use the article provides checklists with steps to take at each of these three time periods. The article then discusses implications for both leaders and policymakers and an exploration of issues that may come up when deciding to implement a training program. In addition they include a range of key questions that executives and policymakers may ask about the design, delivery, or implementation of a training program. The article finally considers future areas of research, provides a number of still unanswered questions, and thus gives rise to the development of new and important work in this evolving field. Very useful.


In this relatively short article the authors take the position that in practice not all available information is essential for those simply seeking some straightforward recommendations on training transfer. They thus provide a qualitative review that that identifies only those factors that have shown the strongest, most consistent relationships with training transfer. Factors discussed relate to 1) trainee characteristics involving cognitive ability, self-efficacy, motivation, and perceived utility of training; 2) training design involving behavioural modelling, error management, realistic training environments; and 3) the work environment involving transfer climate, support, opportunity to perform, follow-up. This simplified review may serve as a basic guideline for those interested in determining what really matters in regard to the transfer of training. The authors also advocate their construct selection to researchers with the intent to stimulate systematic investigations about boundary conditions.


In this paper the authors suggest a practical approach to planning training interventions so they more likely will have a significant impact on organisational goals and objectives. They begin with a brief review
of relevant models and soon provide guidance for training with business goals and planning the evaluation of impact. They offer and discuss four guidelines relating to: 1) developing a theory of impact, 2) reframing the point of evaluation from proof to evidence, 3) isolating the effects of training, and 4) establishing accountability for training. Although already published about a decade ago this brief paper offers practitioners systematic assistance for planning a training intervention.


This paper describes cost-effective methods post training that create a more favourable environment for transfer. Briefly explained are 1) action plans, 2) performance assessment, 3) peer meetings, 4) supervisory consultations, and 5) technical support. The paper then goes on and illustrates the implementation of these techniques in two case studies: one case relates to a training program for managers of a manufacturing company, and the other case relates to supervisory training of a firm that supplies engineered products globally. A straight-forward narrative makes this paper an easy yet rich reading experience for practitioners who may benefit through the real world illustrations including sets of readily applicable questions that prompt processes and behaviours for transferring training.


This is one of the most well-known practitioner-oriented books about training effectiveness. For practitioners it brings together many of the most important principles, including the transfer of training. It goes about this via six key steps: 1) define the business outcomes, 2) design the complete experience, 3) deliver for application, 4) drive learning transfer, 5) deploy performance support, and 6) document results. Not every element discussed is based on evidence, though much reflects the state of research. While it does not go into enormous psychological depth, it explains most central mechanisms in perhaps a more accessible language. Consequently, this book may be considered the most comprehensive practical guide to improve training and ultimate transfer. Online resources and additional workshops complete the book.

**Transfer of Learning in Organizations.** (2014). Schneider, K. Springer.

Many of the established concepts in the literature on training transfer and discussed in this annotated bibliography above are summarised in this book. In relation to training transfer the ten chapters address case studies; enablers and inhibitors; the development of self-regulation; a systemic perspective;

This book adopts a facilitator approach to training transfer. The author suggests 20 exercises, all organised in a step-by-step fashion. Each technique is briefly introduced, a conceptual rationale may be given though little or no underpinning evidence is discussed, and foremost the sequence of actions is presented. To illustrate, techniques suggested include ‘Boss Briefing/Debriefing: Use Manager to Encourage Application on the Job’; ‘Can-Do Attitude: Support Success and Positive Outcomes’; and ‘Apples: Minimize the Influence of Some Participants’. Each of these exercises also contains commentary on potential downsides, variations, or how to combine it with another exercise. The book may be used as a stimulating source for what to do in regards to training transfer.


This 20 page brochure contains some information on training transfer. For the most part it seeks to tell the reader what to without fully explaining the why, and some references may also considered dated. Nevertheless, it considers different stages and stakeholder, some common pitfalls, and provides a few checklists that might be helpful for practitioners.
Extended Reference List


transfer
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