Transfer of training: A review and new insights

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Even successful training programs cannot guarantee that newly learned knowledge and skills will be transferred to the workplace. This has led to researchers’ interests in understanding the transfer process. Notwithstanding that transfer issues have been studied for several decades, the recent emphasis on ‘workplace learning’, especially the so-called ‘situated learning’ approach, suggests that conventional training transfer research may be inadequate to understand the dynamics of performance improvement through training. Against this, the authors point to the increased policy emphasis on the development of transferable generic skills, which underscores the ongoing importance of training transfer. This review paper suggests that the role of trainees themselves has not been dealt with sufficiently in research, which leads to a new direction for studying the transfer of training.

Introduction

As the idea that work has become increasingly knowledge based has taken hold, investing in intangible assets – especially human capital – has been regarded as a core strategy for competitive advantage (e.g. Adler and Kwon 2002; Bontis 2001; Hand and Lev 2003; Nonaka and Takeuchi 1995; Nooteboom 2000; Storberg-Walker 2004). Many practitioners thus feel that organizations should spend more resources on training their employees in order to improve their competence at work (Kelloway and Barling 2000). Yet, training needs to be demonstrably effective. Kirkpatrick’s (1967) taxonomy evaluated training on four ‘levels’: according to how trainees felt about it (i.e. reactions), whether they learned anything (i.e. learning), whether the learning was transferred to the job (i.e. behavior) and whether it achieved its objectives, in terms of fixing the perceived performance deficit that was the training’s rationale in the first place (i.e. results). Building on the similar (to Kirkpatrick) training evaluation framework of Hamblin (1974), Phillips (1996) added another level (the ‘ultimate’ level) to Kirkpatrick’s (1967) four-level taxonomy – that of calculating the return on investment (ROI). The basic function of the ‘ultimate’ level is to compare the fourth level of Kirkpatrick’s taxonomy with the costs of training, hence calculating the ROI. Since its emergence, the ‘four-plus-one’ model has not been widely applied. Blanchard et al. (2000) suggest three reasons. First, organizations prefer to measure the first two levels rather than the last two, which are perceived to be harder to measure. Second, organizations choose to measure behavior (the third level) instead of results (the fourth level) for similar reasons, and also because the cost of overcoming the difficulties of measurement may be prohibitive. Third, sometimes
those who assess the value of training may find the training is not worth the cost – this may be an unwelcome finding, actually leading to training departments avoiding such evaluation exercises.

Notwithstanding innovations in the training transfer field, it is indisputable that the effectiveness of training depends ultimately on whether the learned outcomes are used in the workplace (Salas and Cannon-Bowers 2001). Transfer of training occurs when the knowledge learned is actually used on the job for which it was intended (Olsen 1998). More precisely, Ford and Weissbein (1997) defined it as the application, generalizability and maintenance of newly acquired knowledge and skills. We refer to this approach to learning and transfer (which is the focus in this paper) as the ‘conventional’ school, in order to distinguish it from the increasingly popular ‘workplace learning’ approach, to which we briefly turn below.

Because a vast amount of training investment has been wasted owing to poor learning transfer, researchers have attempted to reveal the determinants of the transfer process (Broad and Newstrom 1992; Georgenson 1982; Kupritz 2000; Robinson and Robinson 1995, cf. Goldstein and Ford 2002). Researchers in the field have expanded our understanding of what factors affect motivation to transfer and the subsequent transfer behavior, proceeding from an early stage of parsimonious studies to the recent stage of integrated model development. Despite a veritable explosion of studies shedding light on transfer of training, it has been argued that our understanding of real transfer issues is incomplete (Burke and Baldwin 1999). This may be attributed to the lack of innovative ideas of how we should proceed from our current state.

At the same time as research on transfer of training has continued as usual, there has been a rise in interest in new schools of thought about learning at work. The various ‘workplace learning’ literatures in part trade on the interest in the concept of the ‘learning organization’ (Senge 1990). However, there are very different approaches to ‘organizational learning’, including ‘incidental, or informal (i.e. unplanned) learning’ (Marsick and Watkins 1990, 1999), and the acquisition of ‘work process knowledge’ (Boreham et al. 2002). In particular, the ‘situated learning’ school stresses the importance of learning as identity formation through ‘legitimate peripheral participation’ in ‘communities of practice’ (Brown and Duguid 1991; Lave and Wenger 1991) and the importance of knowledge that is tacit (that is, not publicly visible and not easily assessable) (Polanyi 1967) and collectively held (Sandberg 2000). The implications of this broad school for transfer literature appear sweeping: if knowledge acquisition is dependent on actual workplace practice, and in particular on increasing membership of and participation in a ‘community of practice’, there is little role for learned outcomes acquired through off-the-job training to be transferred to one or a number of workplaces (Tennant 1999).

Yet such a view would be overstated. While there is no doubt that workplace learning is an important – perhaps increasingly so – component of total learning, there is also an increasing emphasis on the development of generic skills that, by definition, apply to a multiplicity of workplaces. These generic skills are known by different terms in different countries: in the UK as ‘core skills’, ‘key skills’, ‘common skills’; in New Zealand as ‘essential skills’; in Australia as ‘key competencies’, ‘employability skills’, ‘generic skills’; in the USA as ‘basic skills’, ‘necessary skills’; in France as ‘transferable skills’; in Germany as ‘key qualifications’ (see NCVER 2003). The Organization for Economic Cooperation and Development (OECD) (2007) subsumes them within a ‘vast agenda’ of ‘lifelong learning’, which (particularly important for our later argument) ‘covers all purposeful learning activity’ and ‘all forms of formal, non-formal, and informal learning’ (OECD 2007, 10). ‘Lifelong learning’ emphasizes the centrality of the learner and motivation to learn. The OECD is currently exploring the role of national – and, indeed, international and Europe-wide – qualifications systems not only to register the transferable skills, but also to
aid in their development and transfer (OECD 2007).

As indicated in the definitions of transfer of training, the ‘conventional’ school is interested in the extent to which learned outcomes – learned off the job – are used in (transferred to) the workplace. This process of transfer can be more or less effectively managed, and it is with this that the conventional school is mainly concerned. Though various learning interventions (e.g. Web-based learning) may provide applicable and pertinent alternatives to traditional learning modes, it is still trainees who make the decision to apply the knowledge and skills on their jobs, thus underscoring the role of learners in important learning transfer decisions.

After reviewing the extant literature, we suggest that a research focus on the decision role of trainees in the transfer process may be the key component which can illuminate the transfer of training. To this end, a robust theory (i.e. the theory of planned behavior) may be able to make a contribution to our understanding of the process, and we have prepared to introduce several new variables as worthy of study in training transfer research. Prior to proposing new research directions, this paper will first present our review outcomes, introducing what we have known about transfer of training. Then, we query the existing studies that prevent proper application, in part because of their inconsistent findings which hinder future inquiry. Finally, we explore a new approach which concentrates on the role of the trainee as the new focal point for training transfer research, and we sketch how robust psychological theory (in particular the ‘theory of planned behavior’) can augment this new research paradigm.

Review of the Previous Literature

To date, there are important studies that have separately proposed full or partial transfer of training models. It is useful to organize this material chronologically, and it can be grouped into three stages.

From the 1960s to the Late 1980s

The contributions of Baldwin and Ford (1988), Kirkpatrick (1967), Noe (1986) and Noe and Schmitt (1986) were early and influential. As mentioned in our introduction, Kirkpatrick (1967) established the four major indicators for training evaluation, which are trainee reactions (how trainees feel about training), learning (what they learn), behavior (whether they apply what they learn in the workplace), and organizational results (whether perceived performance deficits have been fixed). His contribution to the transfer literature is the provision of the training effectiveness taxonomy. Another similar model was developed by Warr et al. (1970), and used by Hamblin (1974). Olsen’s (1998) definition relates the transfer process to the behavior indicator of Kirkpatrick’s (1967) taxonomy.

Noe (1986) and Noe and Schmitt (1986) adopted the same definition of transfer of training and further expanded Wexley and Latham’s (1986) notion of trainability (a function of ability and motivation) to include an environmental component. These early publications influenced Baldwin and Ford (1988), who reviewed the major empirical studies of training transfer that were done on or before 1987. They also completed a critical evaluation of the transfer literature and proposed a systems model of transfer of training. Their framework highlights the importance of such training inputs as trainee characteristics (ability, personality, motivation), training design (principles of learning, sequencing, training content), and work environment (support, opportunity to use) on training outputs (learning, retention) and the key transfer outcomes such as generalization (application of learned outcomes to a variety of situations) and maintenance (continuing to use the new methods). This emerging body of knowledge provided a solid foundation for followers to design and investigate important propositions.

By the end of this period, Alliger and Janak (1989) had completed a meta-analysis of 12 studies and 26 correlations which examined
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Figure 1. Pertinent variables in transfer of training studies.

The three assumptions of the Kirkpatrick model. These assumptions stated that the four levels of training evaluation criteria are (1) arranged in ascending order, (2) causally linked and (3) positively related. Their results queried these assumptions, indicating that more complicated theoretical development was needed to understand training effectiveness. For example, it might be assumed that learners who liked training (reacted well to it) would learn more, but this is not necessarily the case. It might be thought that learners reacting well to training would pay more attention to the training but, surprisingly, attending can actually be deleterious to learning (Lewicki 1986). However, because the scale of the latter study was too small, the results were not so authoritative.

From the Early to the Late 1990s

During this period, there was an explosion of empirical research on the transfer of training. Relevant studies in this period were influenced mainly by the work of Baldwin and Ford (1988) and Noe (1986). Empirical research was designed to examine the dependent and independent variables suggested by both of these ‘classic’ review papers. Updated narrative review papers that have addressed their implications have also been published (e.g. Noe and Ford 1992; Tannenbaum and Yukl 1992). As noted by Ford and Weissbein (1997), much progress has been made during this period. As adapted from Colquitt et al. (2000), we listed and integrated pertinent variables in Figure 1. This is not an exhaustive list of all the tested variables, but only those that were important and could be classified under the four popular categories – individual characteristics, job/career variables, situational variables, and training outcomes.

Figure 1 illustrates that the transfer process consists of two major transfer variables – motivation to transfer and the transfer behavior itself. The latter is the same as Alliger et al.’s (1995) concept of job behavior, which is the performance of learned (off the job) behavior in the work setting. Motivation to transfer, or the extent to which trainees are motivated to transfer what they have learned on their jobs, is expected to influence transfer behavior, just as motivation to learn has been regarded as an important predictor of learning. The independent variables studied in this period were mainly under three categories – individual characteristics, job/career variables and situational variables – while training outcomes are expected to be the mediators between the independent variables and the transfer process.
Here, we have only listed the variables with higher scrutiny frequency which we perceive to be the more important. They are described as follows:

- **Individual characteristics.** There has been a long history of research examining the linkage of individual characteristics with learning. For example, training motivation has been proposed to be a function of personality dimensions, both narrow traits (e.g. simple skills and hobbies) and wider traits (e.g. mental and physical abilities, personality) (Digman 1990). Their effect on training outcomes nevertheless remains ‘a relative void in the literature’ (Mount and Barrick 1998, 852), except for a couple of studies. For example, locus of control (i.e. a person feels in control of events in their lives), conscientiousness and anxiety are significantly related to transfer behavior (e.g. Ackerman et al. 1995; Barrick and Mount 1993; Silver et al. 1995). Moreover, Silver et al. (1995) found a significant relationship between locus of control and skill acquisition. Ford et al. (1998) revealed that both mastery and performance orientations predict post-training self-efficacy positively and negatively, respectively.

- **Situational variables.** It has been found that trainees need an opportunity to perform what they have learned on the job (Ford et al. 1992; Quinones 1995). Transfer climate (whether a workplace is supportive of efforts to apply new learned outcomes or not) may either support or inhibit learning application in the workplace (Mathieu et al. 1992). The effect of transfer climate on trainees’ ability, post-training self-efficacy, and motivation to transfer has been found to be significant (Rouiller and Goldstein 1993; Tracey et al. 1995; Tziner et al. 1993; Xiao 1996). Transfer climate has thus been proved to have a powerful impact on the extent to which employees used trained knowledge and skills in the workplace (e.g. Thayer and Teachout 1995; Tracey et al. 1995). Rouiller and Goldstein (1993) also supported a positive relationship between climate and the generalization of managerial skills in the fast-food industry. Transfer climate is known to be a broad construct that contains a set of factors influencing transfer (Holton et al. 2000). It has also been proposed that more specific variables, such as social, peer, subordinate and supervisor supports, affect transfer behavior (e.g. Burke and Baldwin 1999; Seyler et al. 1998; Tracey et al. 1995). For example, in their study of 967 managers in departments within state government agencies, Facteau et al. (1995) found that peer support predicts transfer significantly. Intervention strategies also play a significant role in improving the probability of transfer (Brinkerhoff and Montesino 1995; Kraiger et al. 1995). But Holton and Baldwin (2003, 460) have argued that ‘most existing authors have stopped at the point of identifying, describing, or measuring factors that may influence transfer without investigating how those factors might be effectively changed or managed’. During this period, two notable post-training interventions (goal setting and relapse prevention training) were proved to enhance the transfer process (e.g. Burke and Baldwin 1999; Gist et al. 1991; Tziner et al. 1991; Werner et al. 1994). Arthur et al. (1998) also revealed that delays in the actual application of training on the job created significant skill relapse.

- **Job/career variables.** Compared with variables of other categories, job/career variables were studied with less frequency in this period. Noe (1986), however, proposed to investigate the explanatory power of career exploration and planning in training and transfer motivation. The results varied. For example, although researchers found a positive relationship of organizational commitment to reaction to training (Tannenbaum et al. 1991) and motivation to transfer (Seyler et al. 1998), others found that organizational commitment was not significantly related to perceived training transfer (e.g. Facteau et al. 1995). Moreover, although job involvement and career commitment are suggested to be related to training (Colquitt et al. 2000; Mathieu et al. 1993), no evidence exists to indicate that they have a significant relationship with the transfer process.
Training outcomes. The four pertinent training outcome variables in Figure 1 can be classified using the classification scheme by Kraiger et al. (1993): (1) declarative knowledge (cognitive outcomes); (2) skill acquisition (skill-based outcomes); and (3) reaction to training and post-training self-efficacy (affective outcomes). Pre-training self-efficacy has been found highly likely to be an important variable in understanding training and job performance (Mathieu et al. 1993; Stajkovic and Luthans 1998). The positive effect of post-training self-efficacy on transfer behavior has also been proposed (Mathieu et al. 1993). Research in this period has revealed varying results. Some studies have consistently shown that declarative knowledge, skill acquisition and post-training self-efficacy predict transfer behavior (Ford et al. 1998; Tannenbaum et al. 1991). In contrast, reaction to training, as another affective training outcomes variable, was not significantly correlated with skill acquisition and behavior generalization, while skill acquisition was, unexpectedly, negatively related to behavior generalization (Baldwin 1992).

After an explosion of empirical studies during the early to mid 1990s, some researchers suggested not following up the studies that have been done in the past (e.g. Ford and Weissbein 1997). Narrative literature reviews published in this period include Ford and Weissbein (1997) and Holton et al. (1997). Ford and Weissbein (1997) reviewed 20 published empirical studies and suggested that progress had been made to confirm the influence of work-environment variables on transfer outcomes. Holton et al. (1997) in support of Alliger and Janak (1989) critically reviewed Kirkpatrick’s taxonomy and argued that it was flawed owing to the lack of evidence supporting the sequential order of the four levels. A more stringent review has also been undertaken by Alliger et al. (1997) using the promising scientific techniques of meta-analysis, reviewing major journals pertaining to variables related to training effectiveness.

Meta-analysis draws upon the summary statistics across a large number of empirical studies without having access to the original data (Schwarzer 1988). This is argued to be a more coherent way to develop an integrative model (Hunter and Schmidt 1990), and helps explain why meta-analysis has been used increasingly in behavioral and social sciences research. Alliger et al. (1997) meta-analytically reviewed a total of 34 studies and 115 correlations. They reported that utility-type reaction measures (whether trainees think the training is going to be useful to them) were more strongly related to learning and transfer performance than affective-type reaction measures (whether trainees ‘liked’ the training), while utility-type reaction measures were more predictive of transfer than learning measures.

There are other studies that have not been included in Figure 1 but are related to transfer research. For example, the transfer process was found to be affected by pre-training contexts (Quinones 1995; Smith-Jentsch et al. 1996) and training design (Driskell et al. 1992; Schmidt and Bjork 1992; Smith-Jentsch et al. 1996). Learning strategies – a planned approach to learning – were found to be associated with positive learning outcomes (Ford et al. 1998). Goldsmith and Kraiger (1997) suggested a method for structural assessment of an individual learner’s knowledge and skill in a specific domain. Yelon and Ford (1999) further noted that training transfer is a multi-dimensional construct, and thus it differs depending on the type of training and closeness of supervision on the job.

From the Year 2000 Onwards

From the year 2000, new approaches to integrative transfer model development have been raised. In addition to the conclusions drawn from narrative and ‘vote-counting’ literature reviews (e.g. Cheng and Ho 2001; Noe and Colquitt 2002), Colquitt et al. (2000) provided another meta-analysis reviewing major journals which published work pertaining to variables related to training motivation and relations among...
training criteria. Their work extended beyond that of Alliger et al. (1997), and represented the most comprehensive meta-analytic study on training and transfer motivation. Specifically, Colquitt et al. (2000) meta-analytically summarized the literature on training motivation with a prescribed model specifying several linked stages in the order of (1) personality traits (e.g. locus of control) and situational variables (e.g. peer support), (2) pre-training self-efficacy, valence (i.e. individuals’ beliefs pertaining to training values), and job/career 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 behavior and job performance). They established two versions of the integrative theory of training and transfer motivation – a completely mediated version and a partially mediated version. In the completely mediated version, the influences of individual and situational characteristics on other variables were fully mediated by pre-training self-efficacy, valence and job/career variables, while the partially mediated version tested the direct effects of individual and situational characteristics on all stages. Their meta-analytic path analyses indicated that the partially mediated model fitted the data better than did the completely mediated model. Despite their results (in the part of transfer motivation) showing that many of the variables correlated in the predicted manner, a number of proposed relationships were not empirically supported. This suggests that certain parts of the extant transfer theory need revisiting.

Other than repetitive examinations of previous variables and models (e.g. Cheng 2000; Holladay and Quinones 2003; Smith-Jentsch et al. 2001), there was little new research which discovered new variables in this period (e.g. Gaudine and Saks 2004; Naquin and Holton 2002). It was found that team leaders can shape the degree of transfer through informal reinforcement (or punishment) of transfer activities (Smith-Jentsch et al. 2001). Naquin and Holton (2002) tested the antecedents of a new variable, motivation to improve work through learning (MTIWL), which had been raised by Baldwin et al. (2000) and Naquin and Holton (2001). This MTIWL is a multidimensional variable that combines four previously independently tested variables – motivation to train, performance outcomes, training attitudes and motivation to transfer. Their results supported strong links between positive affectivity traits, such as work commitment and extraversion, to the MTIWL. Huitt and Saks (2003) investigated managers’ reactions to two post-training transfer interventions (relapse prevention and supervisor support training) and two types of information about their effectiveness (utility analysis and research information). They found that despite a trend in favor of the supervisor support intervention, managers did not indicate a high acceptance of either relapse prevention or supervisor support intervention. Bates and Holton (2004, 153) turned their attention to study whether employees with different mastery levels of job-related workplace literacy skills differ in their ability to apply new training on the job, but their findings indicated ‘a complex and little understood relationship between workplace literacy skills and learning transfer system perceptions’. Gaudine and Saks (2004) conducted a longitudinal quasi-experiment to test the effects of two independent variables (i.e. relapse prevention and transfer enhancement post-training intervention) on three dependent variables (i.e. self-efficacy, transfer behavior and performance). Unexpectedly, the results failed to support the effectiveness of the post-training intervention. Hutchins and Burke (2006) reviewed the literature using relapse prevention as a post-transfer intervention and argued that inadequate sample sizes, inconsistent research methods, incomplete model examinations, self-report measures and comparisons with indistinct transfer interventions are reasons for disqualified studies. Saks and Belcourt (2006) studied the effect of activities before training (e.g. supervisor involvement, training attendance policy), during training (e.g. training
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rewards, training feedback) and after training (supervisor support, organization support) on transfer of training. One of their important findings showed that pre-training and post-training activities were more strongly related to transfer than were activities during training.

A group of researchers also attempted to establish a generic instrument, namely the learning transfer system inventory (LTSI), to measure transfer and its antecedents in real work settings (Holton et al. 2000). The LTSI classified 16 constructs (identified based on extant literature) into four categories: trainee characteristics, motivation, work environment and ability. Ongoing research has been done by the same research group to instigate the application of the LTSI in other countries (e.g. Chen et al. 2005; Khasawneh et al. 2006). In addition, other researchers have tested the inventory and have supported it empirically despite calling for a more complex model (e.g. Kirwan and Birchall 2006). Holton and Baldwin (2003) made research progress by building an action-oriented approach to transfer intervention on the LTSI. This helps explore ways to change and manage effectively the factors influencing the transfer process. In considering this, Holton et al. (2003) made use of part of the data in the LTSI database and showed that transfer systems were correlated with organizational types, organizations and training types. For example, employees in private sector organizations perceived that they would have more opportunity to apply their new training, while those in public sector organizations perceived that their supervisor was more likely to oppose the use of their new learning. This brings to our attention the question of how to study the effectiveness of these transfer systems to give rise to proper actions for transfer intervention and skill relapse prevention.

Inconsistent and Unexpected Findings from Previous Studies

Despite the proliferation of transfer-related studies in the past several decades, inconsistent and unexpected findings have often disappointed researchers and training practitioners. In the work of Colquitt et al. (2000), other than insignificant relationships, many proposed relationships in their completely or partially mediated models were significant, but in the opposite direction to that which was expected. For example, locus of control and age were negatively related to post-training self-efficacy, while skill acquisition was negatively affected by conscientiousness.

The studies examining the relationships between general dispositions and training transfer have also shown incoherent findings. For example, perceived locus of control has been widely adopted in training and transfer studies, but the findings of its effects were not consistent (e.g. Button et al. 1996; Cheng 2000; Noe and Colquitt 2002; Tziner et al. 1991). Moreover, although attitudes toward career, job and organization (career commitment, job satisfaction and organizational commitment, respectively) are conceptualized as the relative strength of psychological identification with career, job and organization, respectively, and predict transfer behavior, at least partially (Cheng 2000; Facteau et al. 1995), the results of the empirical inquiries vary greatly. For example, Facteau et al. (1995) found a significant, positive relationship between organizational commitment and pre-training motivation, while Cheng (2000) reported that organizational commitment has a significant but negative effect on motivation to learn. This may reflect the likelihood of conceptualization weaknesses in employing them as directive, independent variables.

Similar reasoning applies to such variables as transfer climate, social support (e.g. supervisors, peers and subordinates) and opportunity to transfer (Cheng 2000; Facteau et al. 1995; Goldstein and Ford 2002; Holton et al. 2000; Noe 2002). Counterintuitive results were reported. For example, despite the evidence pertaining to the predictive power of social support on transfer behavior (e.g. Brinkerhoff and Montesino 1995; Holton et al. 2000; Olsen 1998; Seyler et al. 1998; Xiao 1996), non-significant (or even negative) relationships between a
supportive environment and transfer outcome have also been found (e.g. Rouiller and Goldstein 1993; Tziner et al. 1991; Van der Klink et al. 2001). This implies that the construct validity of these tested variables may be questionable, jeopardizing their obtained results.

Some variables have been known to exert different influences under various conditions (e.g. Bates and Holton 2004; Holton et al. 2003). For example, Holton et al. (2003) contended that the cultural variations across organizations may disturb the impact of different types of supports on transfer outcomes. They quoted an example that an organization with a strong team culture made peer support a more significant predictor of learning transfer than supervisor support, while the exact opposite was the case in a state government agency.

**New Insights to Carry Forward**

These inconsistent and unexpected findings alert us that our previous models may not be adequate for studying the transfer process. Perhaps other schools of thought may provide us with plausible answers. Also, transfer of training as a field of study has been somewhat challenged recently by the rise of the various ‘workplace learning’ schools, which emphasize learning’s dependence on its context, with little role for the transfer of learning (Brown and Duguid 1991; Lave and Wenger 1991; Tennant 1999). As mentioned earlier, the situated learning approach has by no means replaced traditional training methods; in fact, there is increasing interest in the development of generic skills and qualifications which presuppose transfer. Furthermore, organizations may be more confident in using what they already know. Rainbird (2000) has also warned that the primary purpose of the workplace is not learning, but the production of goods and services; and therefore employers may be reluctant to devote sufficient resources to learning, as opposed to working. Workplace learning should therefore not be regarded as a panacea. Besides this, learning outcomes achieved from situations other than the workplace may be selectively applied to jobs. When most of the formal and informal training activities still involve the transfer of learned behavior, we should not neglect the functional role of trainees who choose either to transfer or not to transfer or how much they want to transfer. This suggests there may be some essential but hidden variables we need to spot. We therefore should like to introduce the theory of planned behavior, which has been regarded as one of the more robust social psychological theories. The theory emphasizes explaining human action through understanding the human psychological process (Ajzen 1991, 2001; Fishbein and Ajzen 1975) – in particular, by uncovering the links between intentions (and their antecedents) and behavior.

We suggest that the theory of planned behavior may be able to explain the transfer process by the focus on behavioral intention (i.e. transfer intention) and its antecedents. It is because when trainees have their right to choose what to transfer (regardless of learning modes – either on-the-job or off-the-job training; or knowledge types – either tacit or explicit), personal intentions become significant. This not only fills a gap in prevailing theoretical models, as we shall argue more extensively below, but also registers and somewhat clarifies the variables that other researchers have found important in explaining the transfer of training. Specifically, the role of ‘intention’ functions as a mediator through which three external influences (attitude toward the transfer behavior, subjective norm and perceived behavioral control) on transfer behavior appear as discrete and measurable components of the theory.

For example, although transfer-enhancing behavior from supervisors is expected to instigate positive trainees’ transfer, the previous findings indicated that positive transfer may not be produced if the trainees devalue the supportive behavior. Since trainees would determine to which social group they should refer, these referent others become stimulants of transfer behavior and may be one missing link in the transfer process. Therefore, one must be able to identify the referent others
and evoke commitment and compliance. This is what the theory of planned behavior refers to as the subjective norm.

Attitudinal studies also have conflicting findings. As Kim and Hunter (1993a,b) realized, another major challenge for research comes from the difficulty of selecting relevant attitudinal constructs. Researchers have proposed attitudes toward the job (e.g., job satisfaction), the organization (e.g., organizational commitment) and one’s career (e.g., career commitment), etc. These are the reflective attitudes that would help facilitate the specific behavior. Notwithstanding this, we may have ignored one important attitude—the attitude toward the transfer behavior. If this attitude is strong and positive, the transfer behavior will emerge. Holton et al. (2000) suggested that work attitudes may be related to the transfer behavior. Weigel et al. (1974) supported the view that the more specific the content of the attitude measure is to the behavioral criterion, the higher the relationship between the two. As noted by Alliger et al. (1997, 352), ‘the more behaviorally specific attitudes are, the more likely they are to predict behavior’. The results of a meta-analysis by Kraus (1995) showed that attitude is more related to behavior when the two variables were measured at corresponding levels of specificity. Therefore, attitude towards the transfer behavior will be more relevant to explaining that transfer behavior.

There are many studies that have examined the predictive power of narrow and broad traits on training transfer. Despite perceived self-efficacy being treated as a robust motivational variable (Bell and Kozlowski 2002; Cheng 2000; Gist et al. 1989; Holton et al. 2000; Mathieu et al. 1993; Maurer et al. 2002; Morin and Latham 2000; Wood et al. 2000), other personality trait control conceptions, such as perceived locus of control, have been associated with conflicting findings (e.g., Button et al. 1996; Cheng 2000; Noe and Colquitt 2002; Tziner et al. 1991). According to Ajzen (1991), people with internal locus of control (those who believe they are able to control life’s affairs) do not necessarily believe that they can adequately perform the behavior, even if they perceive that they have the chance to perform. The theory of planned behavior uses perceived behavioral control to explain behavioral intention from the dispositional perspective. In principal, perceived behavioral control has two dimensions. One is perceived self-efficacy, which represents the ease or difficulty of performing a specific behavior and the confidence in one’s ability to perform it (Ajzen 2002) and has been well received as a powerful motivational predictor of transfer behavior. The other is perceived controllability, which refers to the control over external forces that may prevent the performance of the behavior and so is non-motivational. This is based on the rationale that, if people possess volitional control over necessary opportunities and resources, it is more likely that they can perform the behavior successfully. In a training transfer situation, perceived self-efficacy and perceived controllability are implicit and explicit conditions intangibly and tangibly relating to the application of newly acquired knowledge and skills in the workplace.

We started to think of whether transfer intention is a mediator when we observed the training transfer definition from Olsen (1998), who raised the importance of understanding how one’s intention to use the new knowledge and skills can be built. As noted by Ajzen (1985, 2002), behavioral intention might be the most influential variable that can predict specific human behavior. Ford (1997) also suggested that self-reports of intentions to use trained knowledge and skills are a factor relating to training transfer. Krueger (2000) further contended that individual and contextual variables exert their influence on a specific behavior through behavioral intention (acting as a mediator), and are thus not directly linked to the behavior.

Conclusions

We have reviewed the existing literature on transfer of training and found that there are inconsistent and puzzling findings in the empirical research. This is a problem for the
field. Moreover, the current popularity of ‘workplace learning’ approaches suggests that the study of the transfer of ‘decontextualised’ knowledge may be a fruitless project. We have suggested, however, that, prior to the replacement of other kinds of learning/training by workplace learning, training transfer issues are still acute and need to be solved. However, knowledge (or ‘learned outcomes’) is acquired (whether through the workplace or not), it needs to be transferred to the job, or from one job to another, and the trainee makes this transfer decision. This validates the study of the transfer of training. We have also suggested that the field may be able to be regenerated by the application of robust theories from other areas of psychology. Here, we propose to apply the theory of planned behavior, which turns our attention to the role of trainees’ intentions to transfer. This may help overcome the inconsistencies and problems of earlier research, especially those that have been mentioned in previous paragraphs. We are on the point of proposing a new theory for the field of transfer of training. We hope that this will regenerate debate on what we have suggested and may be a possible new research paradigm.

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Note

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