

The State of Transfer of Training Research: Moving Toward More Consumer-Centric Inquiry

Timothy T. Baldwin, J. Kevin Ford, Brian D. Blume

Over the past 30 years, there has been an explosion of research in the human resource development (HRD) literature devoted to transfer of training - and much has been learned. Yet despite recent demands for evidence-based practice, too little of the science of transfer is informing professionals in their design and execution of training initiatives. We offer three broad prescriptions for moving future transfer research toward more consumer-centric outcomes: (1) systematically report more and richer information related to the trainees, trainers, and organizational contexts under study; (2) focus explicitly on the optimization of transfer - not just learning; and (3) expand the measurement and reporting of transfer outcomes. We conclude with a general call for transfer scholars to adopt a more consumer-centric mind-set where studies are designed with an eye to informing training interventions of greatest frequency and importance to contemporary organizations and training practitioners.

Key Words: Transfer of training, Consumer-centric science

Nearly 30 years ago, the first two authors published a review of transfer of training (Baldwin & Ford, 1988) that summarized the existing research evidence of the time and outlined an agenda for going forward. Much has been learned since that time, and subsequent reviews and meta-analytic studies have synthesized those findings (Baldwin, Ford, & Blume, 2009; Blume, Ford, Baldwin, & Huang, 2010; Burke & Hutchins, 2007; Ford & Weissbein, 1997). It has been gratifying to see the growing interest in addressing a recurring challenge of the HRD discipline - the training transfer problem - and it is clear that transfer has become widely recognized as an important arena for research and practice.

While there has been an explosion of interest and published articles, transfer research is not immune to recent critiques regarding a 'crisis of relevance'

in our academic literature (Hoffman, 2016). Behavioral science research in general, and transfer of training in particular, has prompted increasing concerns about the applicability of findings to the problems of most pressing and substantive interest to consumers of our research. For example, among training professionals, the transfer problem remains acute and there are recurring calls for more evidence that can inform the design and execution of effective training initiatives. Recent survey evidence suggests that three-quarters of the nearly 1,500 senior managers at 50 organizations interviewed in 2011 by the Corporate Leadership Council were dissatisfied with their companies' learning and development outcomes (Beer, Finnstrom, & Schrader, 2016).

If we want to be scholars who matter to our professional colleagues, we need to think critically about the questions we ask - and the questions we don't ask - and what influences that distinction. We need to find better ways of collectively identifying the most important and relevant questions, the underinvestigated issues, and the applicable evidence that trainers and educators most need to design and execute effective learning experiences.

So we argue in this paper that the time is ripe for a *new* agenda for transfer research. Today's rapidly changing business climate dictates that organizational success depends more than ever on the speed with which people can learn and transfer new knowledge. For example, at Cisco Systems, considerable annual revenue comes from products or services *less than three years old*. Similarly, at Eli Lilly & Co., projections are that nearly 80% of business revenue in some divisions in 2022 will come from *different* products and services than in 2017. Indeed, technological, social, and economic developments are affecting *all* industry sectors and requiring that successful organizations design and accelerate their learning initiatives (Hagel & Reeves, 2015). It is therefore timely for scholars to renew our efforts to ensure that our research is targeted to provide relevant and consumer-centric evidence.

Toward that end, in this article we take stock of the current state of transfer research and offer three prescriptions for moving toward greater relevance and consumer-centric inquiry: (1) getting closer to trainees, trainers, and learning contexts; (2) focusing explicitly on optimizing impact on transfer; and (3) expanding our perspective of training transfer outcomes or criteria. Our intent is to spotlight the type and form of empirical investigations that will provide the best yield in new *and useful* transfer knowledge. Our prescriptions are drawn in part from our recent qualitative and quantitative reviews (cf. Baldwin et al., 2009; Blume et al., 2010), but also very much from our work as instructors and consultants directly involved in the design and implementation of training efforts.

Getting Closer to Trainees, Trainers, and Learning Contexts

Over 45 years ago, John Campbell (1971) cautioned training researchers to be careful about treating trainees as if they just fell from some great 'trainee bin in the sky.' Unfortunately, much of our extant research continues to do

exactly that. More specifically, it is all too common to see empirical studies with methods sections that include only passing reference to the trainees or learners (e.g., '126 subjects completed a one-day training program taught by an online provider'), or which present trainees as passive rather than active players in their own learning and transfer (Baldwin et al., 2009). Yet, we know that individuals come into training with all sorts of differences in goals, expectations, needs, and attitudes toward training that change over time as they experience the learning process and then ultimately attempt to apply trained knowledge when opportunities present themselves on the job. Poell and Van Der Krogt (2010; 2014) have characterized this phenomenon as 'learning paths,' and we think this is an exciting direction for future research.

Weiss and Rupp (2011) similarly argue that the prevailing research paradigm treats employees as objects to be studied rather than understood. That is, the implicit goal is to measure employee properties (e.g., conscientiousness) and then use that measurement to predict some desired organizationally relevant outcome (e.g., training transfer). They contend that such research, while useful, also constrains the type of research that is seen as valuable and directs attention away from other important questions about work as it is "disconnected from what really matters to people" (Weiss & Rupp, 2011, p. 84). They advocate for a more person-centric approach to studying work-related issues with an intentional focus on the work context and lived experience of the employees - both in the moment and over time (Weiss, 2014). This approach pays attention to not only what happens to people at work but also what it is like to experience an event; for example, "what is it like to the person to experience injustice, to be bored, to be ostracized, to learn something new?" (Weiss & Rupp, 2011, p. 87).

We contend that a timely and useful direction for future research is to get closer to the trainees and how they experience learning events - what the learning context is and the personal experience of those events - including their feelings, attention, and search for meaning and how these change over time during the learning event and subsequently on the job. For example, one could ask trainees what they expect to learn and transfer before training, and then follow up by linking the learning/training and work contexts with changes over time in expectations, motivation to learn, and transfer. We need to get closer to key stakeholders and the actual context of where and how learning and transfer occurs. This focus on the learner will require being more resourceful in our samples and data collection and intentional about reporting (or ideally even manipulating) variables in those domains (see, for example, the article in this volume by Kahn & Girvan, 2017).

In addition, too little research has examined or even reported the nature and motives of our *trainers*. For example, in most extant transfer studies it is unstated what, if anything, trainers are held accountable for - satisfaction of the trainees, learning standards, transfer outcomes, or just filling seats. Frink

and Klimoski (2004) contend that understanding the accountability demands relevant to human resource management strategies such as training are critical to understanding behavioral patterns that are found. In his classic treatise “On the Folly of Rewarding A While Hoping for B,” Kerr (1975) used training as an exemplar of that phenomenon suggesting that trainers are often *disincentivized* to focus on and measure transfer. This is because trainees will often have favorable attitudes toward a training experience itself (e.g., measured via post-training ‘smile sheets’) but are likely to be less satisfied if attention is shifted to more difficult objectives of transfer. The consequence is that if trainers are held accountable for conducting a well-received program, they will have little incentive to focus on or feel accountable for transfer outcomes. A better understanding of what transfer-enhancing strategies are embedded into the training by trainers, and what trainers are hoping will happen when incorporating those strategies, would be useful information to know in any transfer study. Clearly, there is a pressing need to develop a better understanding of how trainers are being evaluated and *their* expectations of, and accountability for, transfer. We suspect that the impact of trainers is more pronounced than existing transfer research conclusions might suggest.

Finally, it is hardly provocative to contend that what is meant by the phrase ‘learning context’ has evolved rather substantively over time. For example, today there is considerably more self-study (e.g., using online modules) and informal learning that occurs in conjunction with (or instead of) formal training. K. G. Brown and Sitzmann (2011) note that while the majority of past theory and research has focused on formal learning (i.e., planned and systematic efforts to teach knowledge and skills), formal learning is not sufficient for keeping pace with constant changes in the workplace. Today an important part of learning in the workplace is informal, such as looking up information online, experimentation, and discussing issues with colleagues (K. G. Brown & Sitzmann, 2011; Enos, Kehrhahn, & Bell, 2003).

Although formal learning opportunities and outcomes tend to be explicitly defined, in informal settings employees themselves identify or create learning opportunities (Enos et al., 2003). The informal learning process that occurs outside of any traditional training context can significantly impact training transfer, and research that simultaneously examines formal and informal training is therefore needed. A recent study by Sparr, Knipfer, and Willems (2017) is a notable example of examining feedback seeking and reflection as informal, proactive learning behaviors in the transfer of formal training.

Study Ways to Optimize Impact on Transfer

As noted in our introduction, since our 1988 review, many empirical studies have been conducted examining the relationship between predictor constructs and transfer outcomes (see, e.g., Massenber, Schulte, & Kauffeld, 2017). Blume et al. (2010) conducted a meta-analysis of this empirical research and

showed that certain individual difference factors such as conscientiousness and certain contextual factors such as supervisory support predict transfer outcomes such as use and effectiveness. In addition, they found that pre- and post-training interventions had small effects on transfer outcomes. They also found evidence that most predictor variables had stronger relationships to transfer when the focus of training was on open as opposed to closed skills.

As noted by Roe (2008), this type of empirical research has focused largely on ‘what happens’ between variables. This means that the research questions are related to whether an independent variable construct predicts some criteria of interest. Roe concludes that such research findings, while useful to some degree, are incomplete as they ignore temporal facets and the changing nature of relationships *underlying* ‘what happens.’ Similarly, Ployhart, Holtz, and Bliese (2002) have also critiqued this approach with the concern that the cumulative knowledge derived from these efforts gives few insights into how people actually behave and perform over time. They note that “it is probably not an overstatement to claim that the cumulative knowledge gained from applied psychological research gives us little insight into how people develop, behave, perform, and grow over time” (pp. 455–456.).

We agree that additional studies that simply examine if certain factors (e.g., workgroup support) predict transfer should no longer be a top priority. For example, we know that support, in varying forms, is an important factor that impacts transfer, and we have probably accumulated sufficient data on such relationships. Rather, we propose the need to examine ‘how’ to enhance or optimize transfer, rather than simply describing the ‘what’ of relationships between the predictor and transfer constructs.

Specifically with regard to work support, future studies might more usefully focus on examining different interventions or strategies for building support and which are most effective in various contexts. This requires thinking of different types of interventions than we have currently studied (e.g., relapse prevention) that target just the individual trainee. Instead, we need to also consider interventions that can influence contextual factors that can, in turn, positively impact transfer.

As one illustration, we know that debriefing sessions used by the military to talk over lessons learned from an experience can have large impacts on future behaviors and performance (Dunn, Scott, Allen, & Bonilla, 2016; Ellis & Davidi, 2005). One could study the impact of ‘after-action review’ debriefing sessions held by supervisors with trainees soon after the trainee has attempted to apply something learned in training. This would provide insight into what was learned from the experience and how to more effectively apply trained knowledge and skills. From a conceptual perspective, we might predict that such an intervention could provide accountability, show support for the trainee, and potentially motivate the trainee to continue with efforts to apply trained skills to the job. What our literature needs now is empirical evidence of such effects discovered in contemporary training contexts.

To truly advance our understanding of optimizing transfer, we also need more research *combining* both pre- and post-training interventions and the value added of such combined interventions on transfer outcomes. Our extant research is characterized by predominantly single intervention - type studies that have shown limited impact on transfer (Blume et al., 2010). Once we build more understanding of how to effectively impact transfer through strategies targeting contextual factors, we can then study the interaction effects of interventions focused on both the trainee and contextual factors.

For example, Gollwitzer and colleagues (Gollwitzer, 1999; Sheeran, Webb, & Gollwitzer, 2005; Wieber, Thurmer, & Gollwitzer, 2015) have extensively described the strength and functioning of implementation intentions where individuals specify exactly how and when they will apply new strategies to address an issue. In an initial study in the training domain, Friedman and Ronen (2015) found that sales managers with implementation intentions received higher transfer of training scores than those without such goals. A useful next step would be to study the impact of including both implementation goals that focus on the trainee at the end of training and after action reviews that focus on transfer contextual factors and behaviors in the transfer setting to examine their combined effects.

Another way to consider how to optimize transfer would be to renew research examining traditional principles of learning, with an explicit focus on transfer - not just learning - outcomes. Perhaps one of the unintended outcomes of Baldwin and Ford's (1988) transfer review was a shift in research away from the principles of learning and training design in favor of pre- and post-training variables. We think the time is right to shift some focus *back* to learning design, given recent research in cognitive science and educational settings that have reconsidered some conventional wisdom regarding principles of learning and what strategies are more effective in making learning 'stick' (Brown, Roediger, & McDaniel, 2014; Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013).

This research has important implications for maximizing training transfer that may even seem somewhat counterintuitive to how trainers (and trainees) think about learning. One example is the overuse of blocked instruction and practice where one procedure is learned before moving to another procedure. Research indicates it is often the case that a *random* or interleaved practice is better to *blocked* practice for transfer. For example, P. C. Brown and colleagues (2014) describe a study of a college baseball team whose coach employed two different batting practice regimens. One group practiced hitting 45 pitches each day delivered in block form (15 fastballs, then 15 curveballs, and 15 change-ups) while a second group practiced hitting 45 pitches a day delivered in an interleaved form (i.e., the batter did not know which pitch was being delivered at any one time, yet by the end of the 45 pitches they had been given 15 fastballs, 15 curveballs, and 15 change-ups). The results showed that those given the blocked practice did better during the practice (learning)

sessions in terms of the number of hits. However, the group that performed better in actual baseball games (the transfer context) was the group given the interleaved practice condition. Interestingly, when asked, learners and trainers typically say they prefer the blocked practice and believe they have learned under this practice condition - providing a powerful incentive to keep blocked practice during training, even though this approach may not maximize transfer - the ultimate goal (Simon & Bjork, 2001).

In this same vein, one of the more intriguing anecdotal observations we have made in conducting training sessions is how much better candidates think they will transfer than they actually do. Some prominent researchers have dubbed this phenomenon 'unskilled and unaware' (Kruger & Dunning, 1999), and we believe this is often operative in training domains. P. C. Brown and colleagues (2014) discuss the value of generative learning in which learners generate their own thoughts, perhaps incorrect, about phenomena versus teachers or trainers presenting only effective models and correct answers. One advantage of a 'generate first' approach is that it provides an opportunity for students to contrast their own thinking with that of others, including experts in an area. This sets the stage for appreciating the critical features of the new information that is presented to them and their divergence from the views of experts or known templates. Learners may not immediately appreciate this approach, or feel as if they are not gaining knowledge, but research shows that the ultimate transfer achievement (e.g., later retrieval of information or procedures) is often greater (P. C. Brown et al., 2014).

In short, we contend that the transfer *paradox* phenomenon—where the methods that work best for reaching isolated and specific learning objectives may *not* be the methods that optimize the achievement of integrated objectives and transfer of learning—needs to be more center stage in our transfer research (Van Merriënboer, 1997; Van Merriënboer, Kester, & Paas, 2006). That is, we argue for a renewed interest in the study of instructional methods and strategies that explicitly aim at *transfer* - not just immediate learning - as the dependent variable (Yelon, Ford, & Anderson, 2014).

Expanding Training Transfer Criteria

A review of the specific measurement of dependent variables (or criteria) used in the extant transfer research literature reveals a notable narrowness in how we have conceived transfer in studies to date. We submit that it is time to expand our transfer criteria, and that such expansion is consistent with several of the points made earlier in this article. In fact, some of the above recommendations would inherently necessitate examining transfer in different ways. For example, getting closer to trainees would enable us to understand what transfer means to trainees themselves and thus how to better capture that in our measures. This might also help better interpretation of findings such as those by Ellington, Surface, Blume, and Wilson (2015), who reported that

the transfer time interval negatively impacted a standardized measure of skill assessment, but not a measure of skill generalization evaluated by supervisors. As another example discussed above, examining how informal training or post-training interventions influence training transfer is likely to require a longer-term perspective when assessing transfer over time.

While traditional research has generally defined transfer as the use of the trained skills or the effectiveness in applying the training (Blume et al., 2010; Yelon, Ford & Bhatia, 2014) more recent work has embraced the notion that the trainee is an active participant in learning and transfer (Bell & Kozlowski, 2008; Bell, Tannenbaum, Ford, Noe, & Kraiger, in press). Consistent with this perspective, we view transfer as a series of choices that trainees make to discard, maintain, apply, or modify trained knowledge and skills in their work context (Baldwin et al., 2009).

Along these lines, one potential research direction is to enhance our knowledge of factors that are related to the emergence of transfer behaviors over time. Blume, Ford, Surface, and Olenick (under review) provide a model and direction for incorporating time into transfer research, focusing on the importance of initial attempts to apply training on the job and its impact on training transfer trajectories. Such a within-person analysis of trainees should be useful in understanding the transfer process over time (Sitzmann & Weinhardt, in press). Another potential avenue for research would be to utilize experience sampling methodology (Fisher & To, 2012) to study transfer and evaluate the success of the initial transfer attempt and subsequent application attempts.

Future research might also fruitfully examine differences among trainees' transfer *trajectories*, depending on the amount of time that passes between training and transfer and other factors. For example, Huang, Ford, and Ryan (in press) demonstrated that the application of trained knowledge and skills on the job may result in different transfer trajectories for different trainees. That is, some trainees may decrease their application of trained knowledge and skills over time while others would maintain or increase transfer over time. They investigated within-person variability in mastery goal orientation and variability over time in the application of statistical skills to the job. Participants completed six surveys after training to examine the extent to which the trainees reported using the newly acquired knowledge and skills in different research contexts. They found that trainees varied in their initial attempts to transfer and the subsequent rate of change in transfer behaviors. They also found that post-training self-efficacy predicted initial attempts to transfer, while motivation to transfer predicted the rate of change in behavior in the transfer setting. We believe there is a need for additional studies that examine training trajectories and the factors that can impact those trajectories. We also need to be more creative in measuring transfer outcomes such as how quickly a trainee achieves a certain *sufficiency* standard - not full mastery.

A final direction is to expand the use of qualitative research studies to gain insight into the training context and transfer. Yelon and colleagues (Yelon, Ford, & Anderson, 2014; Yelon, Ford, & Bhatia, 2014) demonstrated that within two to three years post-training, many workshop participants had greatly expanded the use of trained knowledge, skills, and abilities (KSAs) beyond direct use on their particular job such as teaching others strategies learned in training. These findings from their qualitative study suggest that we could expand our measure of transfer to examine whether trainees seek out new situations to apply a certain trained KSA, while at the same time deciding to discard other trained KSAs after an initial attempt. Choi and Roulston (2015) interviewed medical school residents and examined transfer criteria in terms of continuous learning. They discovered that subjects' professional identity and prior positive or negative view toward the training material influenced the extent to which they took advantage of other elective (versus mandatory) training in the same content area as well as the extent to which they were proactive in gaining further information concerning the evidence base for the medical efficacy of the trained procedure. These types of qualitative studies reinforce the importance of measuring transfer in nontraditional ways and underscore the value of getting closer to our trainees as a path to better understand training transfer.

Conclusion

In organizational contexts, positive transfer of training is generally regarded as the paramount goal of training efforts - yet it has proven to be a formidable challenge. Although the research literature has become voluminous, there is a legitimate concern that the transfer problem remains acute. U.S. corporations spend enormous amounts of money - some \$356 billion globally in 2015 alone - on employee training and education but they could be getting a better return on their investment (Beer et al., 2016).

Forscher (1963) famously lamented an emerging 'bricklayer' phenomenon whereby academic scholarship was becoming fixated on generating lots of pieces of knowledge - bricks - but was far less concerned with putting them together into a cohesive whole useful to our research consumers. In this article, we have attempted to present strategies for future research that we believe will enhance the relevant yield of our collective scholarly work. To achieve such greater yield will require getting closer to our trainees, trainers, and learning contexts, examining ways to specifically optimize transfer, and being more expansive in our measurement of transfer. These approaches will hopefully induce research scholars to ask different and ultimately more useful questions than simply 'what happened' in a transfer context. Our research too often has concluded with something akin to 'here are some good findings you need to use' - with the onus solely on practitioners to make sense of research and to figure out how it applies to their work. The grand challenge (Banks

et al., 2016) for transfer of training scholars, therefore, is to begin to shift our focus to a more consumer-centric mind-set. We hope that the articles in this issue, including the provocative editorial by Poell (2017), will serve to advance the field in this direction.

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Timothy T. Baldwin is a professor of management at Indiana University.

J. Kevin Ford is a professor of psychology at Michigan State University.

Brian D. Blume is a professor of organizational behavior and HR management at the University of Michigan, Flint.

Corresponding Author:

Timothy Baldwin can be contacted at baldwint@indiana.edu

