Transfer of Training in Corporate Setting: Testing a Model

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In the field of HRD transfer of training is of particular interest because of its link with training effectiveness. In general, three categories of transfer influencing factors are distinguished: characteristics of trainee, training design, and work environment. Based on a review of existing research a new transfer of training model is developed. This model contains the major influencing factors and their relation with learning and performance. The transfer of training model is tested in a corporate setting. Results indicate that trainee’s self-efficacy and the supervisory support are important factors.

The importance of training effectiveness is frequently stressed in the field of human resource development. Training is considered to be effective when trainees can apply their learning to their work situations, and consequently, when their performance on the job improves. However, training appears not to be as effective as is desired or needed. Broad and Newstrom (1992, p. ix) stated, for example, that most of the investments in training and development is wasted because most of the knowledge and skills gained in training are not fully applied by those employees on the job. Baldwin and Ford (1988, p. 63) stated that 10 percent or less of expenditure on training actually results in transfer to the work environment.

In general the lack of transfer of training is seen as the main cause for these losses. Transfer of training is referred to as the degree to which trainees effectively apply knowledge, skills, and attitudes, gained in a training context, to the work situation. This definition has three implications. Firstly, it implies that there is something to transfer: the knowledge, skills, and attitudes gained in a training context. In other words, learning must have occurred. Secondly, the trainee should be both able and motivated to transfer the training. Finally, there is the situation, different from the training context, in which the training content is applied. In other words, there are a lot of factors that may influence transfer of training (and therefore performance) positively or negatively. The focus of this study was to identify and test the effects of these influencing factors.

Method

Available literature on the influencing factors in training design, trainee, and work environment was reviewed. A particular effort was made to explore research conducted in a corporate setting, which used vocational or professional oriented training programs. Based on this empirical material a transfer of training model was constructed, in which the most important influencing factors in trainee and work environment and their relations with learning and performance were presented (see Figure 1).

Then the validity of the transfer of training model was examined in a corporate setting provided by a large international Dutch banking organization. A program for computer assisted instruction for desk clerks concerning 'Legal Aspects' was selected. It consisted of a computer program and a textbook, and was concluded with an (optional) examination provided by the training department. The affiliated banks purchased the training material from the training department. The individual banks decided on how and when to use the training programs, as no strict guidelines were offered by the training department.

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Data on the variables in the model were collected by means of four observations taken before the training (O1), immediately after the training (O2), approximately one month after the training (O3), and approximately three months after training (O4). The instruments used to collect the data, consisted of questionnaires and tests, and a log. The questionnaires, the log and the transfer test were designed, tested and revised for this study. For the pretest and posttest the tests designed by the bank's training department were used.

Two groups of respondents were established: one group received all measurements, while the other group (the comparison group) only received a selection. The trainee's supervisor also completed a questionnaire, which coincided with the last observation for the desk clerks. The sample consisted of 112 respondents: 75 in the so called treatment group, 37 in the comparison group. The collected data were analyzed by means of methods of multiple regression analysis and intercorrelation.

The potential weaknesses of the design were investigated and it was concluded that the collected data were internally valid. Additionally, the reliability of the various variables incorporated in the questionnaires were examined, and were in general found to be satisfactory. Finally, the two groups in the sample were compared with no systematic differences being found. The sample was also found to be representative for the population of desk clerks.

The Transfer of Training Model

The model presented here is the result of an effort to synthesize pieces of empirical evidence into a more comprehensive view on the transfer of training process in the context of corporate training. In the transfer of training model (see Figure 1) the influencing trainee characteristics and work environment characteristics have been incorporated.

Trainee Characteristics. In general, trainee characteristics appear to influence behavioral change, although Baldwin and Ford (1988) have stated that the extent and direction is not agreed upon and although characteristics are being examined separately. For the purpose of this study the trainee characteristics that appear to have the most influence on the transfer of training process have been selected.

Ability. It is apparent that an individual's ability determines a vast amount of the variance in learning outcomes. Not only the accumulated skills from past experience with similar tasks (prior knowledge), but also the flexible adaptation of skills to a novel learning task (Clark & Voogel, 1985) are considered.

Self-efficacy and Learning Style. Personality factors that seem important are self-efficacy and learning style. Self-efficacy is defined as 'the individual's expectation or confidence that tasks can be successfully performed' (Ford, Quinones, Sego, & Speer Sorra, 1992). The underlying hypotheses are that individuals high in self-efficacy are more likely to be active in trying out trained tasks and attempting more difficult and complex tasks on the job (Ford et al., 1992) and that there is a positive relation between self-efficacy and perceived frequency of use of skills (Ameel, 1992, p. 72).

Learning style is the composition of learning activities, orientation toward learning and the mental model of learning that an individual possesses (compare Vermunt, 1992). Together these aspects appear to determine a large part of test results.

Job involvement and Perception of Relevance. Important motivational factors are job involvement and perception of relevance. Job involvement is defined as 'the degree to which the trainee identifies psychologically with the work, or the importance of the work for the individual's total self image' (Noe, 1986, p. 742). Hypotheses indicate that job involvement is positively correlated with learning (the amount of acquired knowledge), and with frequency of training use and through this indirectly with behavior change. Besides, it is critical to explain the relevance of the task to be mastered to the trainees' current jobs or future employment opportunities (Ameel, 1992, p. 40).

If the trainee does not have an accurate perception of the training's relevance it is probable that he will not learn to do anything he could usefully do on the job. Therefore it is
expected that the trainee's perception of relevance of the training content is related to the so-called motivation to learn (before the training program) and the motivation to transfer (after finishing the training program). In the first instance, the perception of relevance is probably based on information on the training content provided by the training department, supervisor, and colleagues. In the second instance, it will stem from firsthand experience in the training program and the trainee's opinion of its relevance for the actual job. Perception of relevance is hypothesized to have a positive correlation with learning and with the frequency of training use.

Work Environment Characteristics. The work environment comprises all of the conditions in which an employee has to perform the tasks and duties belonging to his or her function. Within this environment, certain variables influence either positively or negatively the individual's capacity to transfer training to the workplace. The most important influencing factors are derived from the relation between the trainee and his or her supervisor. Here important factors are supervisory support, feedback, and opportunity to perform.

Supervisory Support. The perception of the supervisory support is determined by the activities the supervisor performs before, during, and after the training program. The amount of support influences the trainee's perception of the importance of the training program and of the supervisor's trust in the trainee's ability to perform. In turn, the trainee's perception of relevance is effected and an actual effort to transfer is made (motivation to transfer). Furthermore, there appeared to be a link between supervisory support and the frequency of training use.

Feedback. From the research on the influence of feedback, it was concluded that feedback from supervisory and organizational sources was related to reported job performance while feedback from peers and self was not. Most of the unique variance in performance explained by feedback was also accounted for by feedback from these sources. Negative expressions or consequences (e.g., no recommendation for a promotion) were related to lower performance, and positive job changes, expressions or formal recognition (e.g., increasing responsibility) were related to higher performance. It is hypothesized that the trainees' perception of the feedback...
influences (either positively or negatively) the trainee's self-efficacy and thus indirectly performance on the job.

Opportunity to perform. A final important factor on the transfer of training due to the work environment are the opportunities the trainee encounters to practice the newly learned skills. This opportunity to use or opportunity to perform is defined as the extent to which a trainee is provided with or actively obtains work experiences relevant to the tasks for which he or she is trained (Ford et al., 1992). Issues to consider are, for example, the number of trained tasks the trainee actually performed on the job, the number of times a task is performed, or the overall perception of difficulty and complexity of the performed tasks (in case a trainee happens to perform only the relatively easy tasks). It was concluded that the degree of opportunity to perform was influenced by the supervisor.

Training Design Characteristics. It was concluded that achieving transfer depends on two things. On the one hand the trainee must gain sufficient knowledge of and exercise on a specific task to master it (declarative and procedural knowledge). Training must therefore rely on the crucial elements in the transfer task and train these elements in the learning environment: similarity of tasks. On the other hand the trainee must have sufficient conditional knowledge in order to decide if it is appropriate to apply mastered knowledge and skills. To accomplish this attention must be given to variability of tasks. The bottom line is that training must offer opportunity to both task performance and decontextualization.

Training objectives aiming at near transfer (low-road transfer, automatic processes) or that have a procedural nature ask for knowledge that is context bound. To accomplish this knowledge must be introduced in the context it will be used and behavioral oriented training methods are needed. When training objectives aim at far transfer (high-road transfer, controlled processes) and are of a declarative nature then the students must be stimulated into generalizing and making analogies in order to render knowledge less context-bound (decontextualization). This can be accomplished by offering varied examples and using cognitive oriented training methods.

From the literature examined several assumptions can be formulated about the increase of transfer. Near transfer is promoted by: introducing knowledge in the context it will be used; behavioral objectives that guide instruction, and the presence of identical elements in tasks in training and in job environment promotes transfer. Far transfer is promoted by: introducing varied context, which leads to decontextualization of learning, stimulating generalization and analogies, discovery strategies, and a sequence by increasing diversity, which in turn decreases contextual bindings.

As can be observed no training design characteristics have not been included (yet) in the transfer of training model. The reason for this being the lack of variation in the training design because this study was conducted with one training program.

Results

In the transfer of training model, several relations between trainee characteristics, work environment characteristics and the learning result and performance were hypothesized. In Figure 2 the relations confirmed by means of the analyses of regression and intercorrelations are recapitulated. The straight lines refer to the results from regression analyses and the corresponding Beta-weights, the dashed lines refer to the amount of intercorrelation ($r^2$).

From Learning Result to Performance. In the model it was hypothesized that the learning result would positively affect opportunity to perform, and in turn, that opportunity to perform would affect performance positively. The data provided no evidence for the confirmation of these hypotheses, although opportunity to perform was positively related to performance.
The limited range in the scores of all three variables may have contributed to the lack of significant results (see also Hastings, 1994, p. 102). First, the learning result did not vary widely because the pretest score was already very high: about 80% of the trainees would have passed the examination criterion used by the bank's training department before entering the training (ceiling effect). Nevertheless, a significant learning result was measured. It was also concluded that the learning result was negatively affected by work experience and formal education, but this was explained by the positive influence these two variables have on the pretest score. Secondly, the score for opportunity to perform didn't vary very much either. This was due to the fact that, in general, the desk clerks are not able to regulate the number of opportunities they encounter in which they can perform the learned behavior, but the client's requests do. And thirdly, the performance assessment by the supervisor didn't show much variability either. All desk clerks have experience in performing these specific tasks, and probably the assessment instrument didn't provide the supervisor with a strong method to distinguish between the desk clerks. If, of course, there were actual differences in performance.

In summary, the desk clerks possessed already substantial work experience, in which they probably learned (on-the-job) how to perform the tasks. Consequently, the work experience influenced the test scores significantly. Nevertheless the hypothesized relations are still expected to occur when trainees do not have a high entrance level. These results are therefore considered as valid for this specific context and not necessarily in other circumstances.

Self-efficacy. The hypotheses that self-efficacy would affect both opportunity to perform and performance were only partially supported by the data. The mutually affecting relationship between self-efficacy and opportunity to perform is a very clear example of the mechanism Taylor, Locke, Lee & Gist (1984, p. 414) referred to: "self-efficacy is reciprocally related to past performance, i.e., it is both a cause and an effect of performance". The finding that trainee's self-
efficacy immediately after the training was positively affected by work experience, is yet another confirmation of results in other research in which both ability and past performance have consistently been found to be positively related to self-efficacy (Lee & Bobko, 1994, p. 365; Taylor, Locke, Lee & Gist, 1984, p. 405).

Self-efficacy was not found to affect performance, but it was positively related to performance. A similar result was found by various researchers (e.g. Ameel, 1992; Ford, Quinones, Sego & Sorra, 1992). Only one case was found in which self-efficacy was reported to intervene between Type A behavior (involving job involvement, competitiveness) and performance (Taylor et al., 1984, p. 413).

Thus, opportunity to perform affects self-efficacy, and in turn, self-efficacy is positively related to performance. This assertion is analogous to Den Ouden's (1992) conclusion that perceived control is positively related to behavior, when it is supported by an intention to perform. In this study, the employee's behavior is regulated by the clients' requests. Ergo, the opportunity to perform regulates performance instead of the intention to perform (motivation to transfer). The chain of reasoning is therefore as follows: the self-efficacy (perceived control) is related to performance when it is supported by opportunity to perform. The results of this data set validate this assertion to a great extent.

In summary, in this study trainee's self-efficacy is an important variable, maybe more important that the learning result. However, in the preceding section as has already been explained, the lack of significant effect from learning was due to the work experience.

Supervisory Support. Supervisory support was assumed to affect performance through the trainee's self-efficacy. The data showed that the perceived supervisory support affected opportunity to perform and performance, but not the trainee's self-efficacy. This result is not consistent with the assertion of Hastings (1994, p. 11) who reasons that "...since self-efficacy is related to performance, the impact of supervisory support and involvement, and situational constraints in any given context is mediated by the interaction of these variables and the trainee's self-efficacy." Also, Gielen en Van der Klink (1995) synthesized the results of four studies, and concluded that no convincing evidence was found to support the premise that supervisory support directly contributes to trainee's performance. In fact, in studies where the supervisory support was controlled, only a part of the assumed direct effects were confirmed. Gielen and Van der Klink proposed that more powerful interventions of supervisory support are required to promote transfer directly, and more powerfully.

Another finding that was not assumed in the model was the reciprocal effect of perceived relevance of the training program and perceived supervisory support. This finding is consistent with the suggestion that employee motivation can be profoundly affected by management actions which, either intentionally or unintentionally, send salient cues or signals (Baldwin & Magjuka, 1991, p. 26). From their research Baldwin and Magjuka concluded that the mandatory status of a training program and the trainee's accountability to a supervisor affected motivation to transfer. In other words, when an employee perceives that the supervisor is supporting the training program, he or she will assume that this training program must be important or necessary.

Nevertheless, these results provide some evidence for the various models that describe supervisory activities before, during, and after training, which are assumed to enhance transfer of training (e.g. Broad, 1980, 1982; Gradous, 1991; Robinson & Robinson, 1989). From this study it can be concluded that supervisory support can certainly affect performance, although providing support was not part of any treatment or due to prescriptions of any kind. Given this fact, the effects of a combination of controlled supporting activities may be significantly larger than the effect found in this study.

Differences between Supervisors. At the start of this study no assumptions were formulated with respect to differences between supervisors. Two facts appeared: one being the supervisory support to affect performance, and the other being the supervisors providing this influencing support resided at various banks from different types and in different parts of the country. Therefore it was investigated whether differences between these supervisors existed. The
data indicated that significant differences existed between supervisors for the pretest score and the learning result. Apparently the training program was used differently by the supervisors: in some cases as initial training, and in other cases as refresher training. This could occur because the training department does not prescribe how and when to use the training program.

In addition, the trainee's perception of supervisory support varied significantly for different supervisors, and the supervisor's perception of trainee's features (e.g., job involvement, self-efficacy) was also significantly different. It is not unreasonable to assume that similar patterns will also occur in other settings, because supervisors are likely to have different perceptions on providing support, and consequently are likely to differ in actual provided support. These results can offer an explanation for the studies in which supervisory support was not found to affect performance. It is possible that when analyses are separated for different supervisors larger effects of support can be calculated.

Discussion

Firstly, the transfer of training model that was developed based on the literature review is perceived as output from this study. Secondly, this model was tested in the context of corporate training. In the previous section the more important results have been summarized and discussed. The relations that were assumed in this model were partially confirmed by the data. However, the model is not rejected or adjusted based on these results. One important reason for not rejecting the transfer of training model is that data were only available from one setting. As has already been indicated that unexpected effects were found, which were due to this one setting. These effects were primary due to the high work experience, affecting the learning result negatively. This influenced primarily the lack of evidence for the assumed relationships between learning result and opportunity to perform, and between opportunity to perform and performance. Of course, one can reverse this argument by not rejecting the model and stating that the relations confirmed by the data (as presented in Figure 2) were also due to this particular setting. This is certainly possible. Ergo, the transfer of training model will not be adjusted based on these results either.

Another result was the importance of the trainee's self-efficacy. It seems meaningful to discuss this issue although it is (again) specific to this study's setting. With the current focus on training effectiveness and reduction of training costs it may be profitable to reconsider the use of training programs. In this setting it appeared that work experience was a predicting factor for the pretest score, and for self-efficacy. Trainee's self-efficacy was in turn positively related to performance. With this mechanism in mind, one may consider to focus more on on-the-job training for tasks which can be expected to be learned relatively easy on-the-job. In this research setting, the tasks were not too difficult, so colleagues of the desk clerks could assist and/or explain how to perform.

References


Note: This paper is based on a dissertation published in the Netherlands. It is possible to purchase it from the author.