Chapter 2
Transfer of Learning in German Companies

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2.1 Introduction

The long-term success of a company significantly depends on whether employees effectively and sustainably learn and transfer new information in the form of effective work performance, profitable for the company. Employees' continuing education is therefore a central component of securing the company's future. On average, large German companies spend over € 1,000 a year per employee for continuing in-house education (Lenske and Werner 2009). Similarly large expenditures are also made by US American companies with 1,200 USD per employee (Industry Report 2007). However, the largest percentage of expenditures goes into management training with 5.9 billion USD in the year 2007, which represents 10 % of the total budget for ongoing corporate education of all US companies (Industry Report 2007).

Despite the high expenditures for ongoing corporate education, only about 10 % of German companies take measures to transfer what has been learned to the work situation and thereby ensure sustainable preservation (Käpplinger 2009). Accordingly, it will be investigated which measures, if any, are used by German companies to transfer learning and to what extent they can be assessed, based on theoretical and practical aspects.

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2.2 Research Status

The theoretical starting point of the study, *continued education and transfer of learning security* is the evaluation model for continuing education measures by Donald Kirkpatrick (1967). This model comprises four levels to evaluate training, ranging from satisfaction measurement after continuing education activity to success monitoring via corporate figures. Kirkpatrick called these levels *reaction*, *learning, behavior,* and *results* (Kirkpatrick 1967). *Reaction* means the reaction of a participant after continuing education, which is oftentimes statements of satisfaction. *Learning* is the level of cognitive increase of knowledge. This evaluation level can be illustrated with knowledge tests. *Behavior* on the other hand relates to direct behavior, which was potentially changed in training. The highest level, *results*, reflects the effect of the training on a company level and is verified, for example, by measurement of key figures, and also through nonmeasurable changes such as subjective statements. These are, for example, work satisfaction, the quality of teamwork, and the relationships between employees in general (McGovern et al. 2001). Studies show that transfer of learning is insufficiently evaluated by companies (Käpplinger 2009).

In continuing education practice, the participants' learning satisfaction and the increase of knowledge are primarily evaluated, its effect on an organizational level is, however, moderate (Alliger and Janak 1989). *Behavior* has a high predictive power for the usefulness of continuing education activity for the entire company (Alliger and Janak 1989). The findings for transfer security point in a similar direction: 10.1 % of 410 representative German companies adopted measures for transfer security in 2009 (Käpplinger 2009). These results are astonishing because studies show that without the purposeful use of transfer of learning support measures, 10–15 % of what is learned in continuing education is implemented in professional performance (Baldwin and Ford 1988).

Promising transfer processes can be enabled with the help of substantiated transfer of learning management that comprises all company internal "measures for planning, optimization and control of transfer of learning" (Solga 2011, p. 343). Transfer of learning management includes processes before starting continuing education as well as upon conclusion (Leifer and Newstrom 1980).

In their transfer process model, Baldwin and Ford (1988) structured factors (training inputs) that influence the transfer of learning and are relevant for goal-oriented transfer of learning management. Baldwin and Ford (1988) differentiate these into the categories: *learner* (motivation, abilities and his personality), *training design* (learning principles, content of continuing education and procedure planning) as well as *working environment* (support mechanisms and application possibilities of the learned). However, the aforementioned categories are not directly or indirectly linked with the successful transfer of learning. The *training inputs* should primarily lead to a learning and retention process. Learning and retention are described as *training outputs*. Processes of knowledge-generalization and maintenance of behavior can only be initiated with this learning result, which then incorporate as transfer conditions. However, so claim the authors, the characteristics of

the learner and the work environment are directly linked to the transfer conditions, while the training design is only relevant to the transfer via the intermediate step of the learning process (Baldwin and Ford 1988).

Further studies illustrate the broadness of the training inputs based on the factors *learner*, *training design,* and *work environment*: In the learners' area of function, the job involvement (Noe and Schmitt 1986) and the transfer motivation (Axtell et al. 1997), for example, are identified as influencing factors. The contribution of the training design was outlined by Ehrenberg (1983). He named the securing of integrated, conceptual learning approaches in differentiation to pure transfer of knowledge without reference to the appropriate use of simulations and the promotion of knowledge-transfer by the learner himself, meaning the learner as the teacher (Ehrenberg 1983). Trost (1985), however, pointed to follow-up events, which are conducted 4–6 weeks after an initial continuing education and by which the previously learned is further developed. In the area of work environment, for which a large number of scientific studies are available, influences of the organizational culture, especially the learning culture (Tracey et al. 1995) and influences stemming from the support of an executive officer (Holton 2005; Leitl and Zempel-Dohmen 2006) can be found.

In Karg's dissertation (2006), the influencing factors based on the Baldwin and Ford model were confirmed empirically. Approximately 120 seminar participants of a pharmaceutical-chemical company were interviewed. The purpose of the seminar was the attainment of self- or social competencies. Satisfaction with the seminar and the influencing factors for the transfer of learning was determined in two stages via quantitative and qualitative methods. The transfer itself was not captured directly, "but only the participants' theories about the transfer and its influencing factors" (Karg 2006, p. 108). The study confirmed the influence of the factors *learner*, *training design* and *working environment* on the desired learning result, the improvement of social and personal competencies. The following factors were identified through factor analysis: participant's interest, which includes personal goals, involvement of superiors in the participant's learning process by communicative monitoring amongst others, support from the participant's personal environment, especially experiencing feedback from trainers and colleagues, application orientation, and the company's general learning culture, which is determined by a supportive environment of the learning group and the openness to acquisition of new competencies of its employees. Heteronomy in the learning process was identified to be a transfer-hindering factor (Karg 2006).

In a further study with the project titled "Personnel development for small and medium-sized enterprises," with a sample size of 80 seminar participants and ten superiors, transfer barriers were formulated as well (Kurtz and Janikowski 2008). Included in the transfer-hindering factors are lack of objective definition, clarity and control, absence of knowledge about necessary processes of change, the perceived lack of control of employees, and their fears in the transfer process, as well as company or learning culture related factors such as lack of feedback, mistake-intolerance, and absence of role models in executive officers (Kurtz and Janikowski 2008).

However, the determined influencing factors of the transfer have to be viewed in light of two core problems of transfer research, the static nature of the research design in relation to the dynamic nature of the transfer process, as well as the deficient mass of criterion (Baldwin and Ford 1988).

From a practical perspective, Heinsen and Vollmer (2007) offer an overview of the transfer of learning security methods named in literature, which are separated into methods used before, during, and after a continuing education activity. In addition, the authors supply data with regard to proliferation of transfer-safe methods in companies, which are compared to methods used in adult education. It is shown that during continuing education, transfer-securing measures are more often taken in companies than in facilities of continuing education, but no major differences can be determined overall (Heinsen and Vollmer 2007). Since the study is based on a sample size of nine facilities, four in adult education and five in economy, the empirical significance is minimal.

In order to mirror the actual situation as precisely as possible, this study, with the help of a larger sampling pool, will examine which transfer securing measures are used by German companies.

> If one looks at in-house continuing education as a significant success factor of globally competing companies, then with consideration of the legitimation of this sometimes cost-intensive investment, it is necessary to determine the actual, achieved success resulting from continuing education and make it measurable. (Jahn and Hofstetter 2008, p. 13)

Accordingly, it will also be established which methods are used by large German companies to evaluate the transfer of learning.

2.3 Study

The objective of this study is to analyze the current condition of transfer-securing and evaluation of continuing education in German companies. Besides researching the current situation, it is the objective of this study to determine if there is a need for consulting and continued education to secure and evaluate the continuing education transfer in the current continuing education practice of these companies.

2.3.1 Sampling

All DAX30-, MDAX-, SDAX-, and TecDAX companies, as well as the top 500 revenue generating family businesses with at least 1,000 employees were contacted for the study[1]. The differences in education-controlling quality between large companies and small and medium-sized enterprises, especially microenterprises (Käpplinger 2009) are the primary reasons why only companies with more than 1,000

[1] This list was published by the Family Business Foundation 2009 (TOP 500).

employees were examined. Large companies clearly employ education control more often than microcompanies (Käpplinger 2009), so it can be assumed that isolating the companies by size, amongst others, will result in more substantive results than if small companies would have been included in the examination.

107 companies participated in the survey, which equals a response rate of 16.9 %. The questionnaires were sent to the relevant persons of the human resource departments. The online surveys were conducted from January to March 2011. Anonymity was ensured by generating a personal code.

2.3.2 Method

The questionnaire consists of four areas: general questions, questions about transfer of learning security, about evaluating the learning result and the transfer of learning, as well as collecting corporate figures.

The general questions are intended to elicit basic attitudes regarding the topic and prepare the interviewee for the topic. The tied, quasimetric answers were captured with five-level Likert scales, each ranging from very low to very high, and should provide information as to what significance the respondents give to the usefulness of:

- continuing education of employees in their companies,
- internal continuing education evaluation in their companies,
- transfer of learning security and,
- evaluation of transfer of learning.

In the second part about transfer of learning security, the response format is divided into yes/no questions and open questions. It was asked if the companies employ methods for transfer securing. Following the formative process, these questions were divided into *before*, *during*, and *after* an activity (Heinsen and Vollmer 2007). In the second step, in case of a yes answer, open questions were used to determine the methods employed. As it is intended to determine unconventional methods as well, and as there is a danger of spontaneous recollection or answering according to social desirability with closed answer options (Duller 2007), the open answer more realistically reflects continuing education in German companies.

The questionnaire is designed to capture the entire evaluation of the transfer process, which is why the same tripartite questioning structure—before, during, and after an activity—is used as it is in the previous part. It will be determined if the required employee competence is defined prior to continuing education activity, meaning a target competence is defined, and if yes, how. In addition, it was asked if the employees' competence, which is to be fostered in continuing education, is to be measured before the continuing education (current-state measurement), if this competence is again measured after continuing education, and if the employees' transfer of learning performance is evaluated after continuing education. Subsequently, it was inquired about the methods used in case of an affirmative answer.

The corporate figures make for the fourth and last part of the questionnaire. The number of employees, the number of employees participating in annual continuing education, the expenditures for continuing education in the years 2008 and 2009, as well as the annual turnovers in the years 2008 and 2009 were surveyed. Furthermore, it was distinguishing between family operated and on listed companies, respectively. This data was collected to determine potential differences in the use or quality of methods between companies of differing key-figure classes.

All aforementioned companies were contacted by phone in order to locate the relevant person for the questionnaire, to establish initial contact, and obtain their e-mail address. A total of 632 out of a possible 660 companies received an e-mail with a link to the online survey. The difference is due to either participation-refusal by superiors, companies in bankruptcy proceedings, or too few employees for the listed companies, meaning an independent human resource development department does not exist.

2.3.3 Results

2.3.3.1 Usefulness with Regard to Continuing Education, Transfer Securing, and Evaluation

The characteristic value of the answers to the general questions regarding perceived usefulness of continuing education, transfer securing, and evaluation of continuing education could be indicated on a five-tier rating scale from very low (0) to very high (4). The usefulness of continuing education for the companies' employees is estimated to be high to very high ($M=3.36$, SD$=0.571$), none of the respondents view the usefulness of continuing education as very low or low. On an average the usefulness of transfer of learning security is equally highly rated ($M=3.21$, SD$=0.765$). In contrast, evaluating is viewed as less important: It was inquired about the use of evaluation of continuing education in general ($M=2.88$, SD$=0.918$) and about the transfer of learning security, whereby the latter shows the lowest value ($M=2.74$, SD$=0.862$). However, the larger variance value for evaluation indicates a less consistent view.

2.3.3.2 Transfer of Learning Security Before, During, and After Continuing Education

Regarding the questions as to whether methods for transfer securing are used before, during, or after a company's continuing education activity, 51.9% ($n=55$) of respondents indicated to initiate measures before, 56.1% ($n=60$) during, and 72.9% ($n=78$) upon conclusion (Fig. 2.1). Therefore, the transfer is primarily secured after continuing education, only 38.3% of respondents take the entire process chain for transfer securing into account.

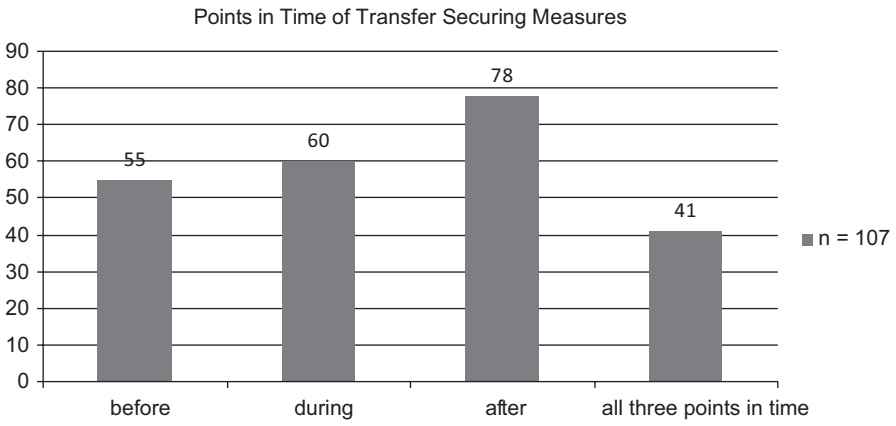

Fig. 2.1 Number of companies that take measures for transfer securing before, during, and after continuing education or at all three points in time. (Source: Authors)

With the objective of a frequency analysis of the given open answers, they were subjected to a process of abstraction. The given open answers were coded in order to determine the frequency of each corresponding method category. The most common answers were introduced first and then the less often mentioned, but relevant methods were discussed subsequently.

The question about the methods for transfer securing before continuing education activity was answered by 45 persons ($n_{total}=107$) with a total of 65 mentions. The two most commonly used methods by respondents are the *incomplete demand analysis* (15 mentions) and the *expectations query* ($n=13$). The demand analysis was categorized as *incomplete* because the named methods only cover a part of a complete demand analysis, namely, the demand query and the determination of demand through employee conversations. In a complete demand analysis, additional workplace analysis is performed or requirement profiles of the corresponding job are compared to the employee's competence. Such a demand analysis is closely tied to objective controlling, the determination and operationalization of learning objectives (Tredop 2008). In contrast, demand queries are carried out purely subjectively from the employee's perspective, although the personal assessment of the employee regarding his/her learning needs are not to be underestimated. *Expectations query* means the determination of expectations and ideas about continuing education on the part of the participant. *Learning objective agreement* ($n=7$) and *learning objective determination* ($n=6$) are similarly often mentioned, but differ in the quality for transfer securing. A joint agreement between employee and executive officer or a representative of the human resource department regarding the learning objective, which represents a voluntary individual agreement between the two parties, is more effective and sustainable for the learner than a learning objective defined by an executive officer or the human resource department. Five persons mention the *dispatch conversation*, the *conversation between employee and executive officer*, and the *examination of the learning subject* before beginning continuing education. The

dispatch conversation is between employee and executive officer and is next to the joint definition of goals, such as a learning objective agreement. It also contains an exchange about expectations of continuing education and opportunities for implementation of the learned into everyday operations. The *examination of the learning subject before continuing education* gives the learners the opportunity to examine the issues of the continuing education beforehand, possibly have a breakthrough and awaken curiosity. The *conversation between employee and executive officer* is not specific enough to subject this category to an analysis.

The question about methods for transfer securing during continuing education activity was answered by 47 persons with a total of 79 mentions. By far the most frequently mentioned method ($n=23$) is *case handling during the activity*. Practical cases are worked on and discussed here. Some distance behind, with nine mentions, follow the methods of *learning objective control* and the *action plan*, the *learning tandems* (eight mentions) and the *tests* (seven mentions). Learning objective control means verification of further suitability of the learning objective by the executive officer, human resource department, teaching personnel, or student and not the verification of learning objective achievement, which is performed with tests. In contrast to learning objective control, the action plan is a planning device applied by the learner himself, by which he sets his learning targets during the entire learning process and independently checks for possibilities to achieve the latter. A learning tandem means joint processing of the learning subject by two learners. Only six persons indicated employing *case handling in real world settings*, meaning a behavior-based exercise which is not tested in seminar proceedings, but in the workplace. Likewise, six persons indicated to be using methods that promote self-reflection, a participant-oriented method in which, for example, a learning journal is used to reflect upon the learning process, *conversations with the executive officer*, which was mentioned five times, must also be viewed as a transfer-promoting process because the interest on part of the executive officer in continuing education can lead to a higher degree of willingness to perform and therefore, improved learning motivation for the employee.

Even though 72 persons indicate, in closed questioning, to be using methods for transfer securing after a continuing education activity, only 42 persons substantiate actual measures in the open question with a total of 61 answers. This difference between yes answers and corresponding open answers is the largest for this category. The discrepancy makes it likely that transfer securing is generally seen as a means which is effective after continuing education, without being able to sustainably perform such securing. This leads to the conclusion that these many yes answers could result from a socially desired response behavior. Most mentions ($n=18$) are given to the method *description of the learned and its application*. What is meant is a reflexive postprocessing of the learning subject, which also includes a test for use of what was learned. *Coaching/supervision* is named by twelve persons, *learning objective evaluation* by eight. The learning objective evaluation is again a verification of the further suitability of the learning objective by executive officer, human resource department, teaching personnel, or students. Depending on the result of this verification, this can be followed recursively by a new learning objective

with renewed continuing education. Seven persons mentioned the *follow-up events*, meaning a subsequent meeting where the learned material can be further delved into. The *feedback conversation* is indicated by five persons, it is not obvious from the mentions, however, who is holding the conversation and who or what is receiving the feedback.

Besides the most commonly mentioned answers there are also methods which have only very few mentions, but distinguish themselves by their quality. Methods for securing the transfer of learning, which can be used before continuing education, are *coaching* ($n=1$), targeted *selection of the trainer* ($n=1$), the *selection of participants* according to the corresponding need ($n=2$), as well as a *transfer objective agreement* beforehand ($n=2$). *Coaching/mentoring* is mentioned by three persons, during a continuing education activity. An additional method is *learning-result oriented adaptation of measures* (3 mentions) meaning a procedural coordination of content and the structure of the continuing education applied to the determined learning objective. Depending on the results of an interim evaluation, which is integrated, individual differences between the learners can be taken into account, and in the sense of formative evaluation (Scriven 1996) find their way directly into the configuration of the still active continuing education activity. After continuing education, four companies mention the subsequent support by the trainers, e.g., by availability for advice through telephone. *Learning tandems* are also mentioned by four companies. *Tests* are performed in two companies, one person mentioned the *action plan*. As already described, this is a device for objective-determination and verification applied by the learner himself, which is used over the entire course of the learning process.

2.3.3.3 Evaluation of the Transfer Process

More than half of the companies ($n=62$; 58.5 %) have a value for the competence that the employee has to meet (competence target). The current competence of the employee is also measured in advance by 30.2 % ($n=32$) of the companies (actual competence). Approximately one-third of the respondents ($n=38$; 35.3 %) test the acquired competence upon conclusion of continuing education (Fig. 2.2).

While most respondents define the learning objective of continuing education, there are far fewer who have knowledge of the extent of continuing education participants already possessing the desired competencies before the event, and to what extent the learning objectives were actually really achieved through the activity. The employees' transfer of learning performance after continuing education is evaluated by 37 companies (34.9 %).

The open-ended question about methods for measuring actual competence before a continuing education activity was only answered by 23 persons with a total of 33 mentions. The most prominent mention was the *external assessment by executive officer or others* ($n=11$). This can be done by questionnaire or in personal conversation. In eight cases *tests* were taken, and seven companies indicated measuring the actual competence with the help of *self-assessment by the participant*.

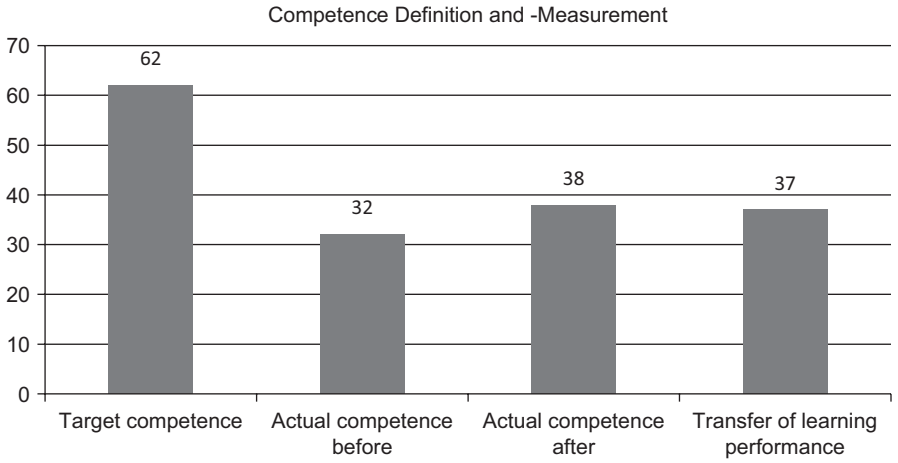

Fig. 2.2 Number of companies which define the competencies of the employees before continuing education and measure them before and after continuing education. (Source: Authors)

A total of 14 companies indicated using *third-party assessment by the executive officer or with the help of other persons* as a method to measure actual competence. Ten respondents named *tests* and nine the *self-assessment by the participant*. It is obvious that the methods for measuring the competences before and after continuing education are hardly distinguishable.

As a method for evaluation of the employees' transfer of learning performance after continuing education activity, 19 out of 29 respondents named *third-party assessment by the executive officer or other persons*. 13 companies indicated to be using *questionnaires* for the evaluation of the transfer of learning. *Self-assessment* was mentioned as a method in eight cases.

Methods with only few mentions, but which are of importance to the transfer evaluation, are the *key figure measurement* as well as a *development* or *assessment center* for the measurement of the employees' actual competence. The *key figure measurement* was specified as a sales number measurement by one respondent only. Other possible key figures are, amongst others, cost reduction in production or a decrease in customer complaints. The *development* or *assessment center* is a monitoring device, by which the employee is assessed in the execution of certain tasks, traditionally in roll play for measuring social competence or in strategic-analytical exercises to determine his intelligence and mental performance. This tool serves as a foundation for personnel decisions, such as recruitment, mission planning, and/or the pursuit of individual employee development. One company mentioned the *360°-feedback*. In addition, an indication is given in the *potential analysis* and the *qualification matrix*. All methods are highly objective-measuring methods which are uniquely significant, but time consuming and costly. To measure the employees' competence upon completion of continuing education, less goal-oriented methods are used as well. Three companies indicated use of the *questionnaires.* Since competences are not only aspects of knowledge but also abilities and skills, not all lev-

Table 2.1 Correlative connections between assessments of usefulness. (Source: Authors)

Usefulness of …	… evaluation of internal continuing education	. … transfer of learning security	…. evaluation of transfer of learning security
… continuing education	0.474**	0.397**	0.363**
… evaluation of internal continuing education		0.351**	0.479**
… transfer of learning security			0.678**

** All listed correlation measures according to Spearman-Rho are two-sided, significant on the 1 % level

els can be surveyed with questionnaires, which illustrate attitudes and assessments more than anything else. The *development/assessment center* (*DC/AC*) and the *key figure measurement* received a mention as well. It is notable that there is no difference to the first competence measurement. It turns out that only one company uses the key figure measurement before as well as after continuing education. The *DC/AC* is not used by any company before and after continuing education. In absence of at least two sets of data records from several measurement points, no findings regarding efficacy of a measure can be derived. This means that only one company is conducting a stringent evaluation of continuing education measures.

In the evaluation of the transfer performance, *tests* are mentioned by four persons, the *interview* by two companies and the *observation* and the *key figure measurement* by one each.

The scarcity of used methods can probably be ascribed to cost-intensity and time consumption. It would be interesting to find out in the future if the choice of these methods leads to a higher success rate regarding transfer of learning, or if at least subjectively a higher use for the company or the participant is to be expected.

2.3.3.4 Operative-Statistical Differences in Averages and Correlations

In the following section, statistical correlations between selected results are shown and interpreted between each other as well as between results and operating figures in the subsequent section. With the variables for the assessment of usefulness of continuing education, evaluation of continuing transfer of learning security, and evaluation of transfer of learning security, the intercorrelations were calculated by use of Spearman-Rho.[2] The strongest connection is between the two-variable usefulness of transfer of learning security and usefulness of evaluation of transfer of learning security ($r_s = 0.678$, $p < 0.01$). The weakest connection is seen between the variables usefulness of transfer of learning security and usefulness of evaluation of internal continuing education ($r_s = 0.351$, $p < 0.01$). It can still be described as moderate, however (Table 2.1).

[2] This correlation calculation is justifiable for quasimetric variables.

For the mean-value comparisons of the metrically-scaled corporate figures (number of employees, number of employees that participate in continuing education annually, expenditures for continuing education in the years 2008 and 2009, as well as annual turnover in 2008 and 2009) with the dichotomous question if the company is part of a family-managed business or not, no significant disparities between yes and no answers were determined.

It can be noted that for the sampling at hand, no differences in corporate figures between family-run and listed companies can be determined. This could be an indicator of the success of family businesses, since only family business with high revenue turnover and more than 1,000 employees (Stiftung Familienunternehmen 2009) were surveyed in the sampling and therefore they approach the key figures of publicly traded companies.

With the mean-value comparisons of usefulness-indications for transfer of learning securing methods through *t*-test, significant differences could be determined in some cases. Companies which indicate using methods for transfer of learning security before, during, or after a continuing education estimate the usefulness of the former significantly higher ($M_{before}=3.36$, $M_{during}=3.37$, $M_{after}=3.32$) than companies not using methods for transfer securing ($M_{before}=3.06$, $M_{during}=3.02$, $M_{after}=2.93$) ($t_{before}=-2.272$, $p<0.05$, $t_{during}=-2.367$, $p<0.05$, $t_{after}=-2.141$, $p<0.05$). In order to determine if the positive attitude of the usefulness also leads to the actual application of transfer of learning measures, a chi-square test was attached. No significant results are available for the methods before and during continuing education activity. This means that the statement regarding transfer of learning security being useful does not automatically lead to the application of methods to transfer of learning security. According to the theory of planned behavior, this result is plausible insofar as the attitude is a predictor for intention, but not for behavior, which is predicted rather by intention. Also, from a cost-effective theoretical perspective it can be determined that most likely, with given usefulness, behavior is not shown due to high, subjectively perceived cost. It is interesting, however, that companies who valued the usefulness of transfer of learning security commonly use methods after continuing education significantly more often ($t=-2.141$, $p=0.038$). This result underlines the assumption that transfer of learning security is traditionally viewed as a method that comes into play after continuing education, especially since in the sample the highest number of companies are those who practice securing after continuing education.

In the mean-value comparison of the question about usefulness of transfer of learning security evaluation, the results were ambivalent. The questioned company representatives, who measure the employees actual competence in the content to be learned before beginning continuing education, assess the usefulness of the evaluation of transfer of learning security significantly higher ($M=3.0$) than companies who do not perform this measurement ($M=2.64$) ($t=-2.039$, $p=0.046$). Also significantly higher value ($t=-2.525$, $p=0.013$) the usefulness of the evaluation of transfer of learning security by companies who indicated to actually evaluate the transfer of learning performance ($M=3.03$ in comparison to $M=2.59$) is assessed. With the measurement of competence of employees after a continuing education

Table 2.2 *t*-tests for participation and expenditures in annual continuing education. (Source: Authors)

t-test	Participants	Investment in 2008 (€)		Investment in 2009 (€)	
	M_{before}	M_{during}	M_{before}	M_{during}	M_{during}
Companies use transfer securing methods	1,621.18	1,805.74	1,580,320.00	1,736,130.43	1,423,455.03
Companies do not use transfer securing methods	2,890.61	501.10	333,439.18	286,906.48	199,721.03
T	−2.250	3.819	2.335	2.548	2.814
P	0.029*	0.000**	0.028*	0.018*	0.009**

* two-sided significant on the 5 % level
** two-sided significant on the 1 % level

(secondary current-state measurement), no significant differences could be determined with regard to usefulness of transfer of learning security evaluation. A tendency of the mean-value differences in favor of companies who perform the secondary current-state measurement is however identifiable ($M=2.87$ compared to $M=2.67$) ($t=-1.161$, $p=0.248$). The direction was not the same for the differentiation in companies who determine the employees' target competence before continuing education. The usefulness of transfer of learning security evaluation of companies who define no target-competence ($M=2.77$ in comparison to $M=2.37$) tends to be estimated even higher, even when this difference is not significant ($t=0.281$, $p=0.780$).

Therefore, it can be noted that the measurement of the actual competence is exclusively connected to usefulness of the evaluation of transfer of learning security. Even though the first measurement of the current-state value is the sample's most often used evaluation method, it leads to no significant mean-value difference without other usefulness assessments.

2.3.3.5 Transfer of Learning Security in Correlation to Corporate Figures

In companies who use transfer-securing methods before and during a continuing education activity, significantly more employees participate in annual continuing education than in companies who use no transfer securing measures before or during continuing education. Furthermore, these companies invested, significantly, more in continuing education in the year 2008 than companies without transfer securing. Additionally, companies who use transfer-securing measures during continuing education made more expenditures for continuing education in the year 2009 than companies without transfer securing (Table 2.2).

No significant differences can be determined with regard to investment in continuing education and companies who use methods for transfer securing after con-

tinuing education, however. That the methods for transfer securing after continuing education, again bear no significant results, is supported by the already mentioned assumption that, due to traditional ideas, transfer securing primarily consists of measures which are taken after continuing education, no differences are evident, because it is used by 72.9 % of respondents. Additionally, this result shows that the traditional view is held across all company sizes, since there are no significant oppositions here.

It was also established that the questioned companies who define the employees' target-competence before continuing education have also had significantly higher investments in continuing education in the year 2009 (M=€ 1,084,783.5) compared to companies who do not define target-competence (M=€ 265,454.07) (t=−2.284, p=0.030). Those differences are not identifiable for either the initial current-state and secondary current-state measurement, or for the transfer of learning security evaluation.

The assessment of continuing educations' usefulness, continuing education evaluation, transfer of learning security, and evaluation of transfer of learning security were correlated with the corporate figures via Spearman-Rho. Significant moderate correlations exist for the transfer of learning security usefulness and employees' annual participation in continuing education (r_s=0.245, p=0.025), for the annual turnover of 2008 (r_s=0.276, p=0.041) as well as the annual turnover of 2009 (r_s=0.311, p=0.012). An even more significant, but lesser correlation exists to the number of employees (r_s=0.190, p=0.05). Correlation tendencies are evident with usefulness of continuing education evaluation and the companies' annual turnover in 2009 (r_s=0.231, p=0.064), as well as between usefulness of the transfer of learning evaluation and employee participation in one continuing education per year (r_s=0.212, p=0.053).

A simple variance-analysis was performed in order to connect the four possible combinations of employee numbers and annual turnover with the estimation of usefulness (questions 1 to 4). The grouping variable has the values few employees–low sales, many employees–low sales, few employees–high sales, and many employees–high sales. Due to the high standard deviation, the dichotomization of number of employees and turnover could not be performed by arithmetic means, but was used in a way so that equally populated groups resulted.

It is shown that amongst the four above questions, only the answer to question 3, the usefulness of transfer of learning security, is significantly different between the groups (F=4.191, p<0.01). Post-hoc tests have shown that this difference is caused by companies with high annual turnover and that the number of employees has no influence on it: companies with high annual sales attribute a significantly higher meaning to the usefulness of transfer of learning security (Table 2.3).

It was already confirmed earlier that the usefulness of transfer of learning security is in direct correlation to the application of securing measures after continuing education. Therefore, a comparison can be made to Käpplinger's study (2009). Even though the usefulness of continuing education measures was not assessed in his study, the use of education-controlling devices in comparison with the company size directly was. A comparison to Käpplinger is possible via the determined

Table 2.3 Correlation between estimations of usefulness and corporate figures. (Source: Authors)

Groups for ANOVA		*N*	Minimum	Maximum	Mean	Standard deviation
Few employees–low sales	Usefulness of continuing education	26	2	4	3.42	0.578
	Usefulness of evaluation of internal continuing education	26	1	4	2.85	0.834
	Usefulness of transfer of learning security	26	1	4	3.04	0.824
	Usefulness of transfer of learning security evaluation	26	1	4	2.65	0.846
Many employees–low sales	Usefulness of continuing education	8	3	4	3.25	0.463
	Usefulness of evaluation of internal continuing education	8	1	3	2.38	0.916
	Usefulness of transfer of learning security	8	2	4	3.25	0.707
	Usefulness of transfer of learning security evaluation	8	2	4	2.75	0.707
Few employees–large sales	Usefulness of continuing education	7	3	4	3.71	0.488
	Usefulness of evaluation of internal continuing education	7	3	4	3.43	0.535
	Usefulness of transfer of learning security	7	3	4	3.57	0.535
	Usefulness of transfer of learning security evaluation	7	2	4	3.14	0.690
Many employees–large sales	Usefulness of continuing education	24	2	4	3.42	0.584
	Usefulness of evaluation of internal continuing education	24	0	4	3.04	1.122
	Usefulness of transfer of learning security	24	2	4	3.71	0.550
	Usefulness of transfer of learning security evaluation	24	1	4	2.92	0.881

opposing interrelation of usefulness and actual implementation. The result, which correlates the usefulness of transfer of learning security with the company's annual turnover, represents a contradiction to Käpplinger's study. Although it shows that there are differences in the use of education-controlling devices between large and small companies, he refers to the number of employees in order to do so

(Käpplinger 2009) instead of the sales turnover class. It must be stated that Käpplinger chooses a different classification – he declares companies with at least 500 employees as large firms (Käpplinger 2009) – so that no exact comparison can be made. Inspite of this, it can be said that companies with higher turnover attribute higher significance to the usefulness of transfer of learning security and at the same time take measures for transfer securing after continuing education.

2.4 Summary and Future Outlook

The presented study gives a good overview of the practice of transfer of learning security in German companies. The objective was to research the methods which are used in companies to secure and evaluate the transfer of learning. In conjunction, additional preferences regarding continuing education, transfer of learning, and evaluation were surveyed.

In conclusion, it can be assessed that methods for transfer securing are merely a peripheral matter for the examined German companies, regardless of the companies' size. There is a specific need for transfer securing before and during an activity, since about half of the examined companies are not securing these process elements according to the survey results. The entire process chain is only taken into account by a third of the questioned companies. With regard to the named methods for transfer securing, it also becomes clear that these are either insufficient or that some of the most commonly mentioned methods are ineffective. They are insofar insufficient, for example, as processing and integration of learning phases are not finding systemic consideration in transfer securing during the activity. Casework, the method with most mentions for transfer securing during the learning process, represents only a few basic moments of the learning phases. Generally, use of an action form cannot meet the complexity of the learning process. Additionally, some of the most commonly used methods can be considered insufficient, as for example, the description of what was learned and its application to transfer securing after an activity. This method for the transfer of abilities into the learning context, for example, is not expedient.

The reason for the absence of application of transfer securing methods maybe primarily found in incurred cost and time commitment, since it can be stated, amongst other things, that companies with higher sales turnovers are giving the usefulness of transfer of learning securing measures a higher degree of significance, and as a result use it more often. The number of company employees was not indicative of increased usefulness perception and application in the surveyed sampling.

Furthermore, the results regarding the commonly used methods prove that knowledge about transfer-securing measures is deficient. Since the applied methods are only partially promising, targeted consulting and custom-made continuing education of the companies with regard to transfer of learning is necessary. This desideratum is also supported by the fact that most companies only start using securing measures after continuing education, and it appears that the knowledge about

comprehensive securing starting before an activity is missing. The evaluation of continuing education is in part only subjectively surveyed as well, or is not consistently objective, for example, it is ascertained through key figures or individualized measurement methods, which can interact with a comparatively low use of transfer evaluation. Insufficient practical application of continuing education evaluation is shown in the deficit that the competence to be acquired by the participants is not inherently determined by the respondents. The lenient capture of current-state competence, before and after continuing education, constitutes an additional shortcoming, resulting in deficient knowledge of continuing education effectiveness in companies. From the point of view that a successful measurement of competencies is difficult due to its complicated architecture, it can be assumed that only a minority of questioned companies can make profound statements regarding the effectiveness of continuing education measures. With high definable costs of continuing education measures, the learning effect remains undetermined.

With the help of transfer securing methods determined in the questionnaire, new examinations can now be performed with a stronger focus on the qualitative use of the different methods, in order to find more precise statements about the success of a measure and develop tailor-made continuing education programs. Besides the quality of continuing education strategies for transfer securing, implementation must be taken into account as well. Accordingly, it is necessary to identify transfer-securing methods of high standards on the one hand, and sustainably implement these into the company's practice on the other. To this end, consulting offers should be developed to a greater extent, particularly to do justice to individual business practice.

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