



VE in Germany is organized according to a so-called “Dual System,” which consists of two rather different institutional settings: the vocational school (“Berufsschule”) and the “real” workplace (e.g., insurance companies). Accordingly, one aim of the entire research program was to analyze the interrelations among context variables and motivational, emotional, and cognitive constructs.

In our own research project<sup>2</sup> we investigated motivational conditions for teaching and learning in a special branch of VE (the insurance business). Our focus was on motivational development: We attempted to analyze inter- and intraindividual developmental trajectories of selected motivational variables and to identify external and internal conditions that could be used to explain the observed developmental changes. A specific focus of our research approach was on the role of emotional experiences for the development of interest-related motivational dispositions.

## Theoretical Background

### Conceptualizing Context in the Area of Vocational Education

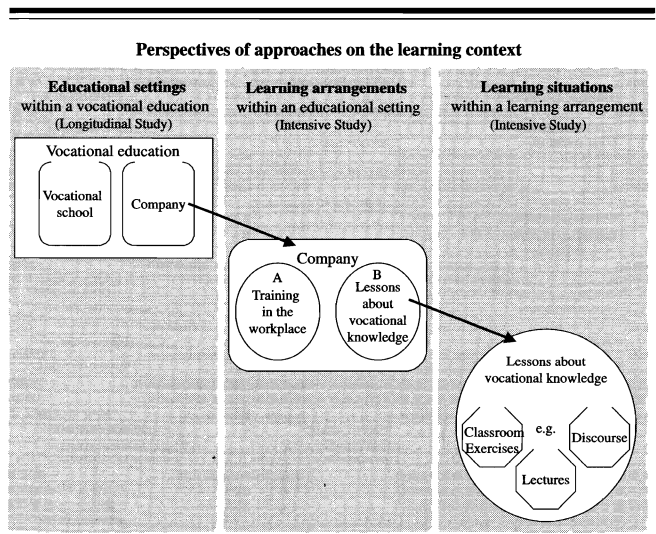
Contextual conditions of VE can be identified and analyzed at different levels of the educational system and with respect to different research questions (see Figure 1). First, at a rather general level, context is interpreted as the characteristics that are specific to each of the two educational settings of the German Dual System of VE: the vocational school and the training within the companies. In both contexts, relatively similar topics are taught; however, they are imparted under somewhat different perspectives. In vocational school the students learn basic knowledge of their later professional field in a relatively systematic manner. Thus, the contents are cognitively embedded in the knowledge structure of professional disciplines, such as law, economics, etc. The training program and instruction in the companies, on the other hand, are much more focused on knowledge and background information about how to perform in real life situations of the forthcoming job, for example, as an insurance salesman. In this educational context the topics are taught in a much more concrete and practically-oriented manner.

At a second level, contextual conditions can be described with respect to the characteristics of different

learning arrangements that take place within each of the two educational settings. A learning arrangement can, among other things, be characterized by instructional aspects. Within the educational setting of the company, two kinds of learning arrangements are typically used: training in the workplace and formal lessons about certain aspects of vocation-related basic knowledge. During the training at the workplace, the contents and topics of teaching are more often connected with information and exercises about how to carry out certain tasks of the future profession. Thus, the apprentices experience teaching and learning as an immediate preparation for a forthcoming job. Although the contents of the lessons are also of high practical relevance, they are much more linked to the systematic structure of a certain domain of professional expertise.

At an even finer level, we made a distinction with respect to didactical methods or teaching strategies. In our model we have labeled this contextual level the learning situation. During a lesson, for example, one can use classroom exercises, lectures, discourse, or other didactical procedures (see Figure 1).

Beyond the just-described conceptualization on the basis of recognizable external (“objective”) characteristics of the learning environment, such as the organizational pattern or the kind and quality of teaching and learning materials, a second approach to thinking about



**Figure 1** Different levels and aspects of the context in vocational education.

<sup>2</sup> The project “Conditions and Effects of Learning Motivation in Vocational Education” was supported by a grant from the German Research Foundation (DFG), Grant KR 715/5-1 to 5-3. Colleagues on this project were Klaus-Peter Wild and Inge Schreyer.

central characteristics of an educational context can be identified. This approach stresses the fact that every learning context is connected with a specific type of embedding of the learning content in a certain cognitively-represented framework, which attributes specific meaning to the topic. For example, the contents of a subject-matter, such as physics or mathematics, can either be taught within the “cognitive context” of basic natural science (e.g., proof of physical laws or history of science), or they can be taught from the perspective of a cognitive context, in which the main focus is on the meaning of natural sciences and mathematics in the society or the application of physics-related knowledge in certain fields of practice (Hoffmann, 2002). According to Renninger, Ewen, & Lasher (2002), the kind of embedding of the learning content in a certain cognitive framework can more or less complement the learners’ already existing interests.

#### Interest-Based Motivation and the Role of Emotional Experiences

As stated above, the main focus of our research project was on the development and change of vocation-related interests and motivational orientations. In accordance with many other researchers, we assumed that vocational motivation based on interest has a positive influence not only on learning and achievement in general (Hardt & Kleinbeck, 2002; Hidi, 1990; Krapp, Hidi & Renninger, 1992; Prenzel, Kramer, & Drechsel, 2002), but also with respect to the motivational prerequisites of life-long learning (Achtenhagen 1997; Beck, 2002; Straka & Nenninger, 1995).

In our theoretical approach, *interest* is defined as a particular person-object relationship, which can be studied and theoretically reconstructed on the level of concrete interactions or engagements and on the level of dispositional individual structures (Krapp, 2002a,b, 2003; Krapp, Hidi, & Renninger, 1992; Lewalter, 2002). Essential (formal) characteristics refer to specific value- and feeling-related qualities (personal significance and positive emotional experiences during interest-based actions) as well as “intrinsic quality,” which is based on a high level of identification with the object of interest (Schiefele, 2001). Furthermore, interest is characterized by a high readiness for activation and change. The concept *interest-based motivation* refers to a motivational state that results either from a situational interest or an individual interest (Hidi, Renninger, & Krapp, 2004). Briefly, situational interest is conceptualized as being generated by particular aspects of the environment that

focus attention, and it represents an affective reaction that may or may not last (see Hidi, 2001, for a review). In contrast, individual interest is conceptualized as being a relatively enduring predisposition to attend to objects and events and to reengage in certain activities over time (Renninger, 2000).

Within the area of training and education the object of interest can be interpreted at different levels of specification. On the one hand, a “vocation-related interest” can refer to a rather specific topic or a certain kind of activity; on the other hand, the object of an interest can be defined by the whole spectrum of contents and actions that make up the curriculum of a job-specific VE program.

At this rather general level of describing an individual’s vocation-related interest there is a close connection to the concept of *motivational orientation*. In accordance with educational-psychological theories on goal orientation (e.g., Dweck & Leggett, 1988; Elliot & Church, 1997; Hidi & Harackiewicz, 2001; Köller, 1998; Linnenbrink & Pintrich, 2000; Pintrich, 2000), we interpret motivational orientation as a component of the (cognitive) motivational belief system.

Measures of motivational orientations are based on answers to the question “why”; specifically, why a person is willing to engage in a certain learning task. Lepper (1988), Schiefele (1996), and others have proposed a differentiation between *extrinsic* and *intrinsic motivational orientations*. An extrinsic motivational orientation typically refers to aims apart from the motivational incentives of the learning activity itself. The motivation to learn is rooted, for example, in the wish to get good grades, to outperform others, or to avoid punishment. An intrinsic motivational orientation is either based on the joyfulness of the learning activity itself or—more importantly for teaching and learning in general—the subjective appreciation of the learning content. This is typically the case when a learner has a well-developed interest in the topic of the learning task (Renninger, 2000). *Interest orientation* is the prototypical form of an intrinsic motivational orientation. A learner who expresses a high degree of interest orientation will only engage in a learning task when there is a chance to realize or to further develop at least one of his or her actually valued situational and/or individual interests.

Whether or not motivational dispositions such as individual interests or certain kinds of motivational orientations are activated in a concrete learning situation depends on the actual demands and action-possibilities in a given learning context. As a rule, the amount and the quality of a learner’s motivation to engage in a learn-

ing task is always the result of a variety of different motivational components. Thus, it is clearly possible for a student to pursue both intrinsic and extrinsic goals at the same time (Hidi & Harackiewicz, 2001).

Motivational states and processes are inseparably connected to accompanying affective processes. Emotional experiences are important components of learning motivation for at least two reasons. First, they can be interpreted as integrated parts of the motivational system (Boekaerts, 2003; Csikszentmihalyi, 1990; Deci & Ryan, 2002; Hascher, 2004; Kuhl, 2001; Lewalter, 2002; Pekrun, 1992). Thus, they represent experiential indicators of the "quality" of motivation. Prominent theoretical approaches that explicitly refer to this aspect include Csikszentmihalyi's (1990) flow concept, theories on the interrelation of motivation and anxiety (for a summary see Jerusalem & Pekrun, 1999; Zeidner, 1998), and the "social-cognitive, control-value theory of achievement emotions" (Pekrun, 2000). Second, emotional experiences can be interpreted as conditional factors that have an indirect but substantial influence on the direction of motivational development. In line with theoretical models and concepts discussed in other fields of psychological research (e.g., Boekaerts, 1996, 2003; Brunstein, Maier, & Schultheiss, 1999; Heckhausen, 2000; Sun, 2002), we postulate that in addition to cognitive aspects (such as intentions, beliefs, attributional preferences, or different components of the self-concept), emotional experiences play an especially important role for the development and change of *content-specific motivational dispositions, such as interests* (for a more detailed discussion of this theoretical approach see Krapp, 2002b; 2003; Lewalter, 2002). According to this hypothesis, two kinds of determining factors have to be taken into account: cognitively-represented factors, especially with respect to personal values, goals, and volitionally derived intentions, and feeling-related experiences during goal-oriented actions, such as learning. With respect to the development of interest we have postulated that the maintenance of a situational or individual interest will only occur if both factors are experienced together in a positive way; more specifically, such maintenance of interest will only occur if a person experiences his or her actual engagements (e.g., a learning task) as personally relevant or "meaningful" because they are related to personal goals, and if the emotion-related (affective) experiences during these engagements reach a certain qualitative level of positive feedback (Krapp, 2003). By adopting similar ideas from Nuttin's (1984) relational theory of behavioral dynamics and from Deci and Ryan's self-determination theory (Deci & Ryan, 1985, 1991; Ryan, 1995), we assume that

the fulfillment of so-called *basic psychological needs* for competence, autonomy, and social relatedness plays a crucial role for both the development of interest and for interest-based motivational orientation.

## The Relationship Between Contextual Conditions of Vocational Education, Motivational Orientations, and Emotional Experiences

The research projects of the above-mentioned Priority Program of the DFG on the interrelations among contextual conditions of vocational education, motivation, and emotional experiences have mostly dealt with the question of whether or not the two educational settings of the dual system (school and company) differ with respect to various indicators of learning motivation and the quality of emotional experiences.

Taken together, the findings clearly show that characteristics of the two educational settings will have an impact on the average amount and quality of learning motivation within these contexts.

For example, in an longitudinal study of 117 apprentices in the insurance business, we analyzed developmental trajectories of motivational orientations in VE for a period of two and a half years by means of repeated questionnaire assessments (see Krapp & Lewalter, 2001; Wild, 2000, for an overview of this study). Twice a year the students attended the vocational school for a period of 6 weeks. For the rest of the year, they worked in the company. Thus, it was possible to analyze the effect of the learning context on various indicators of motivation at both levels of educational settings (see Figure 1). Comparing the average scores for intrinsic and extrinsic motivational orientations (e.g., achievement orientation vs. interest orientation) for both contexts we found a remarkable and rather stable general trend: Intrinsic motivational orientations depend to a much greater extent on the context than do extrinsic motivational orientations (Wild & Krapp, 1996b). The same general trend was observed when the development of vocation-related interests was being analyzed at a more concrete level by using qualitative data. In retrospective interviews conducted during and at the end of the entire vocational training, we found that more than 80% of all newly developed job-related interests could be traced back to the learning and train-

ing context in the company (Lewalter, Krapp, Schreyer, & Wild, 1998).

Results from other studies within the above-mentioned research program (e.g., Prenzel, Kramer, & Drechsel, 1998, 2001) have also shown that the learning context in the company is more supportive of the occurrence and maintenance of content-specific or interest-based motivational variables than is the context of the vocational school.

Furthermore, findings in previous studies indicate that characteristics of the learning context at the level of the two educational settings seem to have an influence on the quality of emotional experiences (Lewalter, 2002; Wild & Krapp, 1996a). As the results of our own studies and those of Prenzel, Kramer, and Drechsel (2001) have shown, the educational setting of the company is more supportive for basic needs (Deci & Ryan, 2002) than is the vocational school setting.

Further empirical support for the hypothesis that there is a substantial relationship between contextual characteristics and emotional experiences is found in results from quasi-experimental studies (e.g., Sembill, Wolf, Wuttke, & Schumacher, 2001).

The currently available results have one main shortcoming: The influence of the context has been analyzed only at the level of the entire educational setting. The impact of the specific contextual conditions were not taken into account when analyzing the relations among emotional experiences, motivation, and context. To reduce this disadvantage, we have supplemented our research methods by combining the *experience-sampling method* (ESM) with video observations while trying to explore the contextual conditions within the educational setting of the company in more detail.

## **An In-Depth Approach to the Analysis of the Relationships Among Learning Contexts in the Company, Motivational Orientations, and the Quality of Emotional Experiences**

Based on the results of the above-mentioned longitudinal study (Krapp & Lewalter, 2001; Wild, 2000), we conducted an intensive study in the company context in order to examine more precisely the conditions and effects of this educational setting. This study refers to the second and the third level of contextual conditions: learning arrangements and learning situations (see Figure 1).

## **Method**

### *Sample*

Our sample consisted of 113 trainees in the insurance business (13 training groups in 7 different companies). The average age was 19.7 years, and 52% of the trainees were male. The lessons took place in small groups ranging from 3 to 14 trainees.

### *Procedure*

The study took place over a 2 week period. At the beginning and end of this period, questionnaires were used to assess the impact of the contexts on motivational variables. To assess intrinsic and extrinsic motivational orientations, the students completed a self-report questionnaire using 5-point Likert scales with response alternatives ranging from *not at all* to *very much*. Students were asked "Why do you learn during the training on the workplace (or the lessons on vocational knowledge)?" For our purpose, two measures are of special importance. The scale *interest orientation* refers to the perceived possibilities to realize vocation-related interest as a reason for learning. This 3-item scale includes statements such as, "I learn because I am interested in the topic." The 4-item scale *achievement orientation* refers to external *incentives for learning* (e.g., "I learn because I want to get good grades."). The students were asked to answer the questionnaires for both contexts with regard to a 2-week period (reliability: interest orientation workplace/lessons  $\alpha = .84/.83$ , achievement orientation workplace/lessons  $\alpha = .78/.84$ ).

To assess the impact of the learning context *lessons* on emotional experiences, a combination of video-based observations and self-report data including the ESM was used. The number of lessons investigated in each of the 13 training groups ranged from 4 to 10.5 h (7 h on average). The lessons were videotaped and analyzed using the computer-program *Cat Movie* (Wild, 1999). The videos were coded with regard to the main learning situation apparent in each sequence of the lesson.

With regard to the emotional aspects, empirical indicators of two kinds of emotional experiences were taken into account: (1) experiences that indicate a positive quality of learning motivation (a feeling of being interested and a feeling of being committed); and (2) experiences that represent the postulated system of the three basic needs (competence, autonomy, and social relatedness; Deci & Ryan, 1991). These indicators were obtained by two methods: (1) the average level of emotional experiences, which was assessed retrospectively with re-

gard to the previous 2-week period in each learning context using 5-point rating scales (ranging from *not at all* to *very much*) for each of the investigated emotional experiences; and (2) a measure based on the ESM data. We used a programmable pocket calculator as a signaling and recording device. The calculator was programmed to give each student signals at random intervals. Upon being signaled, the student was asked to answer the 5-point rating scales referring to his or her subjective emotional experiences in the actual situation. The students were also asked to indicate their actual activities by choosing one to three learning activities from a list of 12 different activities, such as listening, reading, asking a question, or taking notes. This ESM technique allows an immediate assessment of emotional experiences during the course of the teaching and learning. Thus, it provides a means to avoid errors that often result from the delay of retrospective assessment of emotional experiences (Csikszentmihalyi & Larson, 1987). Furthermore, it reduces the impact of the general attitude toward the whole learning context on the actual situation-specific estimations of the subjects. The ESM assessments were matched with the "objective" video-data by means of a time code superimposed on the video recording.

## Results

### *Intrinsic and Extrinsic Motivational Orientations in Relation to Two Learning Contexts in the Companies*

As can be seen in Table 1, in both contexts the mean value of achievement orientation is significantly higher than the mean for interest orientation. We also found high correlations across the contexts for both orientations (achievement orientation:  $r = .85, p < .001$ ; interest orientation:  $r = .67, p < .001$ ). In accordance with the findings at the level of educational settings, we found significant differences between both contexts only with respect to

interest orientation, which was significantly higher during the training at the workplace as compared to the vocational lessons; there is no difference for achievement orientation between both subcontexts (see Table 1).

### *Emotional Experiences in Two Contexts of the Companies*

Table 2 shows the results concerning the average level of emotional experiences in both subcontexts of the companies. There are significant differences for being interested and the closely-related feeling of being committed. With respect to the measures that we assume to indicate the fulfillment of basic psychological needs, only the feeling of competence differs significantly between the two contexts ( $p < .05$ ). For all three emotional experiences, the average level of experience is significantly higher during the training in the workplace.

In order to get more detailed information about the relation between the contextual conditions and the emotional experiences, we refined our analysis and analyzed these relations at the third level of context (see Figure 1); namely, learning situations during the lessons about vocational knowledge in the companies.

### *Impact of Learning Situations and Learning Activities on Emotional Experiences*

To get an exact description of the situational conditions that may have an influence on the actual emotional experiences of the students, we considered two kinds of available information: (1) assessments of the actual learning situation on the basis of specified segments of the video recordings; and (2) ESM data concerning actually realized activities of the students during the same time period.

On the basis of the video data, three main categories for describing the actual learning situation could be identified: lecture, discourse, and classroom exercises. In

**Table 1**

Mean values, standard deviations, and *t*-test results of motivational orientations during a specific period of training in both contexts.

Motivational orientation	Context A: Training at the workplace M (SD)	Context B: Lessons about vocational knowledge M (SD)	t value <sup>3</sup> df = 106
Interest orientation	3.72 (.71)	3.50 (.68)	4.04***
Achievement orientation	3.95 (.73)	3.96 (.77)	-.10 n.s.
<i>t</i> value(2-tail, df = 106)	-2.84**	-5.86***	

<sup>3</sup>*t*-value calculation for paired sample, 2-tail; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

**Table 2**

Mean values, standard deviations, and *t*-test results of emotional experiences during a specific period of training in both contexts.

Quality of emotional experiences	Context A: Training in the workplace <i>M</i> ( <i>SD</i> )	Context B: Lessons about vocational knowledge <i>M</i> ( <i>SD</i> )	<i>t</i> value <sup>3</sup> <i>df</i> = 106
Interested	4.11 (.66)	3.96 (.60)	2.22*
Committed	4.04 (.71)	3.73 (.64)	4.44***
Competent	3.65 (.66)	3.53 (.63)	2.06*
Autonomous	3.55 (.82)	3.49 (.84)	.94
Socially related	4.12 (.77)	4.07 (.84)	.83

\* $p < .05$ , \*\*\* $p < .001$ ; <sup>3</sup>*t*-value calculation for paired sample, 2-tail.

**Table 3**

Correspondence of video-based descriptions of the learning situation with self-reported activities in the ESM records.

Self-reported Learning Activities (ESM records)	Video-based descriptions of the learning situation		
	Lecture	Discourse	Classroom exercises
Receiving	<b>263 (S1)</b>	<b>411 (S2)</b>	13
Discussing	35	<b>187 (S2)</b>	52
Classroom exercises	51	22	<b>149 (S3)</b>

order to determine the degree to which the actual activities of the students corresponded to the observational categories, we summarized the activities measures of the ESM questionnaire into three main categories of students' actions: (a) *receiving* (listening, reading, making notes), (b) *discourse* (asking or answering a question, making an oral contribution, having a conversation with the teacher), and (c) *classroom exercises* (individual work or group work). Table 3 shows the distribution of the ESM records (each ESM questionnaire is equivalent to one record) classified by the three observed categories of learning situations.

The distribution of the scores in Table 3 makes it clear that there is no complete correspondence between the kind of self-reported activities on the part of the students and the teachers' intentions about how to shape the actual learning situation. For instance, among the total of 349 ESM records that were produced during periods of lecturing, 263 correspond with respect to the self-reported activities of the students. However, in 86 cases, the students reported unsuitable activities (discussing, 35; classroom exercises, 51). Less surprising is the fact that during 620 incidents of discourse, only about 30 percent of the students' activities indicate ac-

tive participation (discussing, 187), whereas most of the students remain passive (receiving, 411). In 22 cases the students do not participate in the discourse at all (classroom exercises, 22).

In the following analyses we refer only to those data where both classifications correspond (bold-marked partial samples: S1, S2, S3). As an indicator of the quality of emotional experiences, we used the students' ESM ratings. Because the sample of the students and the number of data records was not distributed randomly to all learning situations, and in order to partial out possible effects of individual differences with regard to the average intensity of experiencing emotional qualities, we used data records which were standardized on the person level (i.e., the measures indicate whether the actual level of experience lies above or below the average level of a person's emotion-specific estimates).

Table 4 shows the aggregated data for each emotional experience during each type of learning situation. Only during the learning situation discourse are all mean values of the investigated emotional experiences positive (above the individual average); during lectures and classroom exercises all mean values are negative (below the individual average), with one exception: feel-

**Table 4**

Mean values and standard deviations for emotional experiences during different learning situations (based on individuals' mean values of standardized ESM records).

Quality of emotional experiences	Lecture ( <i>n</i> = 65)	Discourse ( <i>n</i> = 102)	Classroom exercises ( <i>n</i> = 62)
Interested	-.08 (.43)	.11 (.30)	-.19 (.67)
Committed	-.18 (.49)	.06 (.29)	.11 (.54)
Competent	-.08 (.39)	.06 (.26)	-.10 (.41)
Autonomous	-.03 (.41)	.09 (.23)	-.11 (.47)
Socially related	-.06 (.33)	.05 (.24)	-.06 (.46)

**Table 5**

Mean values, standard deviations, and paired-samples *t*-test results (2-tail) with paired samples for emotional experiences during different learning situations based on persons' mean value of standardized ESM records.

	S1/S2 <i>M(SD)</i> ( <i>n</i> = 64), <i>t</i> value <sup>3</sup>	S1/S3 <i>M(SD)</i> ( <i>n</i> = 35), <i>t</i> value <sup>3</sup>	S2/S3 <i>M(SD)</i> ( <i>n</i> = 60), <i>t</i> value <sup>3</sup>
Interested	-.08 (.43)/.11 (.33); -2.71**	.04 (.43)/-.21 (.84); 1.38 n.s.	.12 (.36)/-.20 (.67); 2.65**
Committed	-.18 (.50)/.07 (.33); -2.83**	-.19 (.54)/.18 (.63); -2.35*	.08 (.31)/.11 (.55); -.37 n.s.
Competent	-.08 (.39)/.06 (.30); -1.86 <sup>+</sup>	-.10 (.40)/-.11 (.50); .13 n.s.	.06 (.28)/-.10 (.42); 2.11*
Autonomous	-.04 (.41)/.07 (.26); -1.61 n.s.	-.03 (.45)/-.10 (.50); .63 n.s.	.10 (.23)/-.11 (.47); 2.87**
Socially Related	-.06 (.33)/.05 (.25); -1.86 <sup>+</sup>	-.03 (.28)/-.06 (.48); .37 n.s.	.02 (.27)/-.06 (.47); .96 n.s.

<sup>3</sup>*t*-value calculation for paired sample, 2-tail; n.s.  $p > .1$ ; <sup>+</sup>  $p < .1$ ; \*  $p < .05$ ; \*\*  $p \leq .01$ ; S1, S2, S3: see Table 3.

ing committed during classroom exercises. Thus, our findings seem to indicate that the active or passive participation in a discussion about the learning content has a positive influence on the feelings of being interested and committed. The same tendency can be observed with respect to the need-related experiences for competence, autonomy, and social relatedness. The learning situations lectures and classroom exercises do not seem to support the examined emotional experiences to the same degree.

Since the students' ESM evaluations were not distributed over all of the learning situations, we calculated *t* tests for paired samples in order to analyze the possible effects of the learning situations on the quality of emotional experiences (see Table 5). The most obvious differences occur when lectures (S1) are compared with discourse (S2). In this case almost all emotional experiences show significant differences (at least at the 10% level). No difference was found for feeling autonomous. The comparison between the learning contexts discourse (S2) and classroom exercises (S3) again demonstrates the superior position of the learning situation discourse

with respect to the average quality of emotional experiences. We find significant differences for being interested and for feelings of competence and autonomy. Concerning the comparison between lecture and classroom exercises, there is only one significant difference, namely, the experience of feeling committed was significant higher for classroom exercises.

## Summary and Conclusion

This chapter is concerned with the role of contextual conditions within the German Dual System of VE on learning motivation and emotional experiences. Since research on contextual conditions can refer to different levels and aspects of an educational system we first offered a simple model, which can be used to describe and classify different levels and meanings of context within the Dual System of VE. We also discussed the idea, that every learning context represents a certain cognitive represented framework in which the learning content is embedded. This framework attributes specific meaning to

the contents and topics of the curriculum, and will therefore have far-reaching implications for the kind of learning motivation that is likely to occur in this context.

With respect to the central motivational and emotional concepts that make up our theoretical background (e.g., person-object theory of interest, goal-orientation theories, self-determination theory) which are concerned with, for example, vocational interests, intrinsic and extrinsic motivational orientations, and emotional processes and states as indicators of how a learner experiences the actual learning situation, there is already a substantial body of empirical research available. Prior research in the area of VE has focused primarily on the analyses of differential motivational conditions and effects in the two main "educational settings" of the Dual System: vocational school and training in companies (see Figure 1). Results from various studies indicate that there are substantial connections between contextual conditions and specific components of learning motivation, such as vocational interest and intrinsic motivational orientations (Krapp & Lewalter, 2001; Prenzel et al., 2001; Wild, 2000). Furthermore, it has been shown that the context has an influence on the quality of emotional experiences, which we assume to be of central importance for the development of interest-based motivational dispositions (Lewalter, 2002; Prenzel et al., 2001; Sembill et al., 2001). However, there seems to be no general or unidirectional relationship between contextual conditions and the degree or quality of motivation and emotional experiences.

The research presented in this chapter refers to data obtained in a so-called "intensive study" undertaken in the educational setting "company." We used a variety of different methodological approaches to get more detailed information about the theoretically-postulated relations, such as questionnaires, video-based observations, and the experience-sampling method (ESM). The main focus was on the analysis of the connections among the learning arrangements of the VE in the company, motivational orientations (extrinsic vs. intrinsic orientations), and a selected set of emotional experiences. Furthermore, we attempted to explore empirical relations between contextual conditions and the quality of emotional experiences at the level of exemplary "learning situations" (see Figure 1).

Comparing the indicators of extrinsic and intrinsic motivational orientations between the two main "learning arrangements" (training at the workplace and lessons about vocational knowledge), we found significant differences only for interest orientation (not for achievement orientation). This finding is in line with results

from our longitudinal study (Krapp & Lewalter, 2001). Both, quantitative and qualitative analyses showed that the general learning context "company" (i.e., "workplace"), in which the contents are generally presented in a practically-oriented manner, supports interest-based forms of motivation to a stronger degree than the more theoretically-oriented education in the vocational school (i.e., "lessons"). These differences may be due to the fact that different contexts of VE represent different cultures of teaching and learning (Järvelä & Niemivirta, 2001; Völet, 1999, 2001), which, in turn, provide different frameworks for thinking about the meaning and usefulness of the contents to be learned. From this point of view, our results correspond with those of a study on physics education (Häußler & Hoffmann, 1995; Hoffmann, Häußler, & Lehrke, 1998). In this longitudinal study, students' interest and level of academic achievement were significantly higher when physics was taught within a context that provided possibilities to transfer the acquired scientific knowledge to practical day-to-day life problems, than when it was taught within a context of rather abstract scientific research and argumentation.

A second aim of our research approach was to analyze the relation between specific contextual conditions in the company and the quality of emotional experiences while engaging in teaching and learning in these contexts. Using data from retrospective questionnaires, ESM recordings and video-based observations of a series of lessons in the company, we found substantial empirical relationships between the two main contexts of VE in the companies (training at the workplace and lessons) and the two exemplary indicators of a positive emotional evaluation of the teaching situation (feelings of being interested and feelings of being committed). At the level of specific learning situations (classroom exercises, lectures, discourse), we also found significant relations. However, the results show no consistent tendency with regard to our theoretical assumptions. Contrary to our theoretical expectations, the measures indicating the quality of emotional experiences with respect to the postulated system of basic needs (competence, autonomy, relatedness) did not vary systematically with the contextual conditions under consideration. At the level of learning arrangements, only the measures concerning the experience of competence differed significantly between both contexts.

Taken together, our findings support the general hypothesis that the different contexts of VE are related to content-sensitive motivational categories such as topic-specific (vocational) interests or interest-based motivational orientations. This is in line with the finding that

only those emotional experiences which seemingly have a close relationship to the contents of teaching and learning (i.e., the feelings of being interested and committed and the experience of competence) are affected by the contexts. At the moment, however, this is only a speculative hypothesis that deserves further research in order to be tested more thoroughly. Furthermore, the results indicate that the learning situation “discourse” provides a rather supportive learning context with regard to the quality of emotional experiences.

Independent of the validity of the empirical results and theoretical conclusions we have presented in this chapter, we think that our *methodical approach* offers insight for how research in this field could be undertaken at a more concrete level of inquiry. Methods that attempt to investigate the teaching and learning process as dependent on changing contextual conditions are costly and time-consuming; however, they provide detailed information about the manifold relations among contextual conditions, emotional experiences, and the occurrence and maintenance of certain motivational characteristics. We also think that the combined usage of situation-specific measures of cognitive, emotional and motivational components of the learning process (e.g., ESM records) and video-based observations of related teaching situations can be very fruitful, because the data contain an objective record of the learning situation (video recordings) and, at the same time, offer insight into the subjective perspective of the trainees (ESM data). The benefit of this combination became apparent in our research approach when data from both sources were compared. Interestingly enough, the subjective assessment of the learning activities (ESM data) and the objective descriptions of the situations based on analyses of the video-recordings only corresponded to some degree.

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