

Chapter 5

EMOTIONS IN WORK AND ACHIEVEMENT

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INTRODUCTION

Actually, we should not have consented to write an article on work and emotion in a yearly review book. In order to do a review, one needs literature that can be reviewed. As we shall show, there is little research that speaks directly to the issue of work and emotion.

Nevertheless, we decided to write this review. We think that it is useful to analyze the implications of emotions at work. Furthermore, there is a body of research, normally not noticed by industrial and organizational psychologists, that studies emotions in achievement situations. And finally, we are convinced that industrial and organizational psychologists *ought* to take the issue of emotions at work more seriously.

Within this introduction, our understanding of the term “emotion” will be outlined, and the relevance of emotions for industrial and organizational psychology will be analyzed briefly. The following two sections serve the purpose of reviewing empirical research. The second section summarizes research directly pertaining to work-related emotions, the third section reviews the much larger body of research on emotions and achievement. Based on these summaries, assumptions of a model on work and emotion will be presented in the fourth section. In conclusion, general implications for industrial and organizational psychology will be discussed briefly.

Defining Emotion

The term “emotion” is among the vaguest concepts of psychology

(Kleinginna & Kleinginna, 1981). Upon closer scrutiny, however, it seems that subjective experience is at the heart of most definitions of emotion. Laymen and psychologists alike normally use emotion terms (like joy, sadness, or anxiety) only when components of subjective experience are involved. In line with this everyday usage of the concept, emotion may be defined as an integrative subjective experience typically comprising (a) emotion-specific feeling states (affective components), (b) perceptions of physiological and expressive processes (body-perceptual components), and (c) emotion-specific cognitions (cognitive components).

Defining emotion in such a way allows us to separate it conceptually from neighboring concepts. One example is motivation. If one defines both emotion and motivation in broad, traditional ways, these two domains are nearly inseparable. On the other hand, if both are defined specifically, their functional interrelations can be explored more meaningfully (cf. Pekrun, 1988a, b).

The Relevance of Analyzing Work and Emotion

For several reasons, emotions should be analyzed within industrial and organizational psychology. Work can be assumed to be among the important determinants of human emotional life. For many humans, work may even be one of two areas of life which really matter (the other one pertaining to love and social relationships). Work often influences individual development and health via the mediation of emotions. Furthermore, emotions are among the primary determinants of behavior and achievement at work. Emotions may therefore profoundly influence both the social climate and the productivity of companies and organizations.

There are three arguments for the assertion that work can trigger virtually all kinds of human emotions. First, one of the primary functions of emotions is to enable organisms to respond quickly and in organized ways to important events. Often being of high individual importance, work may therefore be among the main sources of emotion in many individuals. Second, work implies individual and social situations, thus inducing both self- and task-related emotions (like enjoying task performance) and social emotions (like admiration, sympathy or jealousy). Third, work typically comprises actions and events as well as enduring states. This implies that work can induce both action- and event-related emotions (like hope for success, pride of a product, or anger at the company's decisions for restructuring) and state-oriented emotions (like sustained fear of unemployment in a competitive labor market).

Conversely, emotions may influence all kinds of work activities and, therefore, all outcomes of such activities. Work outcomes relate both to the individual's life (e.g. an individual worker's social status and health), and to productivity and social climate at work. By implication, work-related emotions can also be postulated to influence indirectly work-related aspects of a

REVIEW I. STUDIES ON WORK AND EMOTION

In view of the high relevance of work-related emotions, the most surprising result of a literature search in this area is the paucity of research. Apparently, emotions have not constituted an interesting issue for industrial and organizational psychologists. This may be due partly to behavioristic or cognitive biases, partly to a misunderstanding of the mechanisms of emotions, and partly to the fact that other issues (like productivity) seemed more urgent. Even the recent revival of research on emotions in general and social psychology was taken up in industrial and organizational psychology only with a long delay (the first significant discussion having taken place in Cummings & Staw, 1989).

This is surprising because the issue of work and emotion has been around for a long time (although empirical research was clearly not abundant). Münsterberg (1912) speaks about feelings at work and work joy (in contrast to job satisfaction), and Hersey (1951) used emotions as a central variable in his *Zest for Work*. Thus, modern industrial and organizational psychology should start again to study work-related emotions. The little research and speculation on emotions at work that is available will be summarized next. Positive and negative emotions will be dealt with separately.

Positive Emotions

Positive emotions at work have been even less often researched than negative ones. The knowledgeable reader may protest and point to the large body of research on job satisfaction. However, we submit that there is only a tenuous relationship between job satisfaction and emotions.

Emotions and job satisfaction

Locke (1976, p. 1300) defines job satisfaction "as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences." This sounds as if job satisfaction were an emotion. However, the notion of job satisfaction being an emotion has not been taken seriously among industrial and organizational psychologists (Landy, 1989). Job satisfaction is usually measured as a trait-like evaluative judgment or an attitude rather than as an emotion. Moreover, job satisfaction is a broad concept; different emotions at work, such as enthusiasm, joy, aesthetic pleasure, flow-related emotions, happiness, or pride are not distinguished.

Therefore, job satisfaction will not be dealt with in this article. Besides being a global concept with unclear relations to emotions, the job satisfaction literature is vast and has been ably summarized by others (e.g. Bruggemann, Groskurth, & Ulich, 1975; Locke, 1976).

work emotions—the investigation by Herzberg, Mausner, and Snyderman (1959). They asked their subjects to report critical incidents in which they “felt exceptionally good or exceptionally bad about . . . [the] job . . . This can be either the ‘long-range’ or the ‘short-range’ kind of situation . . .” (p. 141).

The well-known result was the two-factor theory of job satisfaction, with environmental factors—the hygiene factors—leading towards dissatisfaction when they are not met, and job content factors—the motivators—causing satisfaction. Thus, these two factors were posited to be orthogonal. One criticism of this book has been that the results could not be replicated with a questionnaire approach (Ewen, Smith, Hulin, & Locke, 1966; Hinrichs & Mischkind, 1967). Additionally, since the method of critical incidents was used, it was argued that defensive attributions might have distorted the picture. When people are asked about negative events, they tend to make outside factors responsible (i.e. the hygiene factors). This may have been the reason why hygiene factors were related to dissatisfaction. In contrast, positive events—the motivators—tend to be attributed to internal variables. This may explain why they were associated with satisfaction (Farr, 1977). Because of lack of empirical support and these theoretical arguments, the two-factor theory has not fared well.

However, the theory might be resurrected when we take emotions at work into consideration. The following interpretation might be viable as well: Herzberg, Mausner, and Snyderman’s critical incidents approach may actually have measured emotions to a much larger extent than the questionnaire studies which used measures of attitudes more than of emotions. Although attitudes include emotional facets as well, they are clearly not emotional constructs. Different results of questionnaire studies may thus have been a by-product of their more unemotional nature. It could be true that *emotions* related to unhappiness are orthogonal to emotions pertaining to happiness, while orthogonality may not be true for self-reported *attitudes* of satisfaction and dissatisfaction. Empirically, such an interpretation has not been tested up to date. A test would be all the more interesting because it has been argued in general emotional research that frequency of positive and negative affect is *negatively* correlated, whereas intensity of positive and negative affect is *positively* associated (which implies that the mean overall level of reported positive versus negative affect may be uncorrelated; cf. Diener, 1984).

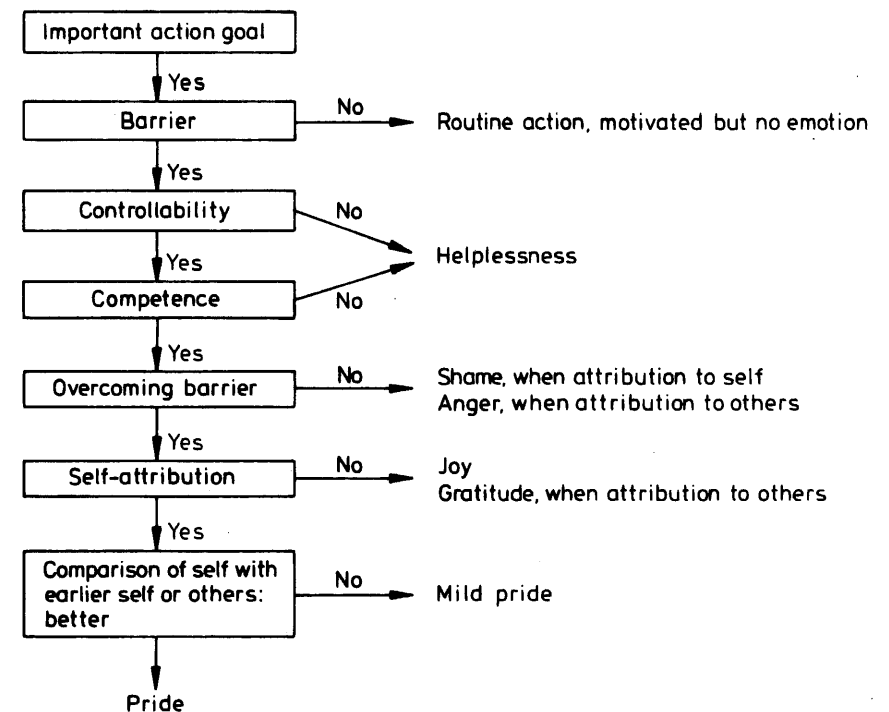
Another topic related to job satisfaction is *fun*. Abramis (1987) has studied fun at work. He differentiated “ease of incorporation of fun at work,” “attributions about the effects of fun on performance,” “organization encouragement of fun,” “fun more outside than inside work,” “desire for more fun,” “intent to make work more fun,” and “creativity”. Moreover, fun could be empirically differentiated from job satisfaction. Abramis’ article seems to be a beginning. The issue of fun at work should certainly be studied

Pride and aesthetic pleasure

Pride and aesthetic pleasure may be of particular importance for industrial and organizational psychology. They seem to be most intimately related to work.

Pride in the sense used here implies that one is proud of one’s job, the products one produces or the skills that one uses to do a job well. Frese (1990) has suggested that the flow chart presented in Figure 5.1 captures the essence of pride. Given an important action goal, the most important factor leading to pride is overcoming a barrier. A barrier blocks the path to the goal or makes goal achievement so hard that it cannot be reached. A barrier may mean that the action does not run smoothly, that something unpredictable happens that makes it difficult to continue the normal procedure, that some outside interventions lead to difficulties, or that the goals are set so high that they cannot be reached. Mandler (1980) has suggested in general that interruptions of action plans lead to emotions. While we are not sure that this is always the case (e.g. this conceptualization does not describe boredom very well), it is of particular use for pride.

The barrier can only be overcome when it is principally controllable and



when the necessary skills are available. When both controllability of the barrier and competence are low, helplessness may appear. If the barrier is controllable and if competence is available but the barrier is not overcome, anger is experienced when this failure is attributed to other people.

If the barrier is overcome and this fact is attributed to other people, thankfulness may be the result. If the achievement of overcoming the barrier is attributed to oneself, pride ensues (cf. Weiner, 1985). Pride may be heightened when one's achievement is higher than earlier achievements or other people's achievements.

Not all barriers are the same. For example, a barrier may lead to an anger response when it is not seen to be a natural aspect of the task. An example: a runner who stumbles because somebody else made him trip will not see this barrier as a natural part of the task of running, but rather as a foul. The same behavior, however, may be a natural barrier for the wrestler. Whether a barrier leads to pride or to anger, thus, depends on the overall task and the typical ways of performing it.

Aesthetic pleasure is also intimately related to work. While today aesthetic pleasure is often distinguished from normal work and appears to be related to watching or hearing art instead, in earlier history aesthetic dimensions were clearly important issues of everyday work. Cave paintings and art work on everyday tools were important for their aesthetic pleasure and their functional value. It can be argued, however, that this is still true today. There are many occupations whose main purpose it is to produce aesthetic pleasure (for example, the jobs of dancers, hairdressers, designers, disc-jockeys, or decorators). In addition, aesthetic criteria are widespread in many areas of work (cf. Sandelands & Buckner, 1989). Examples are:

- the secretary who makes a letter look better;
- the butcher who decorates the meat;
- the blue-collar worker who polishes the product he made;
- the scientist who works for a long time to present her theory in a four-fold table (Occam's razor is, of course, an aesthetic criterion as well);
- the florist who puts together the flowers in an aesthetic way;
- the programmer who thinks of a good program as being lucid and elegant.

Aesthetic pleasure may be strongly determined by individual, historical and cultural factors. Nevertheless, it seems possible to describe three general components of the precursors of aesthetic pleasure (Frese, 1990):

- harmony in the sense of good Gestalt;
- extrafunctionality, which means that a design goes beyond pure functionality (although it should not be dysfunctional in order to be experi-

- a moderate amount of newness (a related concept is Berlyne's, 1960, moderate complexity).

Sandelands and Buckner (1989, p. 111) describe four components of art that have ramifications in work:

- "boundaries," that is, physical and non-physical boundaries that make art special;
- "dynamic tensions," for example, in rhythm;
- a "record of growth" which leads, for example, to a resolution of tensions;
- an element of "unresolved possibility" which may challenge the observer and resist a simple resolution of tensions.

Aesthetic pleasure can derive from an action result—a product—and from the action itself. Flow-related experiences, as studied by Csikszentmihalyi (1977), may be closely related to action-oriented aesthetic pleasure. Surgeons show, for example, a "symphony of motions" which means that the activity can be done without concentrating on anything else but on the activity itself, without interrupting self-referent thoughts ("can I do it?"). The activities are harmonic, they show elements of extrafunctionality (particularly so in rhythms that Csikszentmihalyi describes as "microflow-experiences"), and they have an element of newness. Surgeons do not report flow experiences from routine operations. Another occupation that shows a high degree of flow experiences is computer programming. According to Frese, Fritz, and Stolte (1991), 90% of computer programmers reported a flow experience at least once a week.

It may be assumed that aesthetic pleasures in the sense of flow-related emotions develop more often in occupations that combine elements of sensorimotor skills and of thinking, that are reasonably complex and present challenges, that give a high degree of freedom at work and allow the person to pursue things at his or her own pace.

Sandelands and Buckner (1989) argue persuasively for the importance of aesthetic pleasure as a true work-related feeling (in contrast to judgments about work, as in the case of job satisfaction). We concur and think that it might be particularly important to conduct more research on aesthetic emotions at work.

Positive social emotions

One social-behavioral indicator of fun is smiling and laughing. Sutton and Rafaeli (1988) researched smiling. However, in contrast to other studies, they were interested in emotional expression not as a dependent variable, but as an independent variable that would increase sales in convenience stores. There-

not really interested whether the emotions were in fact "felt" by the clerk. Four expressions were observed by incognito observers: greeting, thanking, smiling, and eye contact. In contrast to their hypothesis, emotional expression was negatively related to store sales ($r = -0.10$). As a result of additional qualitative work, Sutton and Rafaeli (1988) concluded that busy stores sold more, but were also more "no-nonsense-throughput"-oriented. When lines were long and when the emphasis was on efficiency, there was less time for emotional expression.

Many firms have an active interest in employees' expressions of positive emotions. The more customer-oriented a service industry is, the more emphasis it puts on appearance, including emotional appearance (Peters & Waterman, 1982). Hochschild (1983) has studied what she calls emotional labor. She analyzed stewardesses and bill collectors. Stewardesses are required to smile and show positive emotions, and some airlines use their stewardesses' "real" friendliness even in advertising ("On PSA our smiles are not just painted on. So smile your way from L.A. to San Francisco"). Therefore, they are taught to "deep act," the smile is supposed to come from the heart. In order to achieve this even in stressful encounters with customers, the stewardesses are trained to "see" customers differently (e.g. by thinking they act like children when they misbehave). In contrast, bill collectors were found to show negative emotions that threaten the "customer" into submission.

Hochschild (1983) estimates that one-third of the employees (mostly females) in the USA show some kind of emotional labor. It is easy to come up with a list of relevant occupations: psychotherapists, priests, prostitutes, managers, physicians, teachers, salespeople, con-men, professors, and so on.

Empirically, displaying emotions was shown to be important in nurses (Ostner & Beck-Gernsheim, 1979) and in cocktail waitresses (Tidd & Lockard, 1978). Tidd and Lockard (1978) showed that offering smiles produced better tips from the customers. Of particular importance are emotional displays in con-men (Sutherland, 1937) and in poker players (Hayano, 1982). A rigid regimen of emotions is required of employees of Disneyland (van Maanen & Kunda, 1989). They have to display positive emotions even with "nasty" customers. Here displaying emotions means, of course, that the emotions are faked to a large extent (Rafaeli & Sutton, 1989). Faking emotions may sometimes be perceived negatively by customers (cf. Rafaeli & Sutton, 1989). In a similar vein, Girtler (1985) suggested that women who had recently become prostitutes were preferred by customers because they were still emotionally open, while the long-time professionals displayed emotions only on a more superficial level.

Social emotions are shown when certain cues arrive from the target person (usually a customer) or when the setting allows and requires the display of emotions. Rafaeli and Sutton (1989) give examples of how these situational factors influence the display of emotions.

positive emotions which was investigated. While there is some evidence in the literature that faking emotions, for example smiling, may actually produce positive feelings (cf. Adelman & Zajonc, 1989; Strack, Martin, & Stepper, 1988), Hochschild (1983) gives many examples where workers find it tiresome and even stressful to fake positive emotions. This is particularly so when they have to show positive emotions under stressful negative circumstances, that is, when they certainly do not feel positively. Thus, showing positive emotions while not feeling them may itself produce negative emotions.

Negative Emotions

Negative emotions and stress

Research on negative emotions at work mirrors studies on positive emotions in a significant way: for research on work-related stress, similar arguments as for studies on job satisfaction can be made. "Stress" as referred to in industrial and organizational psychology is a summary label that is related not only to emotions, but to other processes as well. Clearly, stressors at work may produce negative emotions like disgust, anger, anxiety, or disappointment. However, stress is not itself a negative emotion. Rather, it is a diffuse and global negative state.

Although not being identical with stress, negative emotions may nevertheless be important mediators in the stress process, and measuring them may actually enhance explained variance of criteria like illness or burnout. In line with such a perspective, Frese and Zapf (1988) have argued that various mediators of work-related stress processes ought to be analyzed, including objective stressors and their perception, appraisal processes, and short- versus long-term stress effects. Negative emotions may intervene after the perception of stress and the appraisal of it. One would assume that negative emotions heighten the effects of stressors and may even be the crucial variable in the stress process.

Of course, these arguments do not speak against the usefulness of stress research. After all, the most important dependent variable of this research—illness—is as general a concept as "stress." However, there are some arguments for using specific emotion concepts in stress research. First, people who do not show any emotions in stress situations may be affected in different ways than persons who do experience emotions. For example, psychoanalytic theory has suggested that people who show little emotion may actually have more trouble dealing with stressors. Although there is little evidence for such assertions (cf. Birbaumer, 1986), they need to be seriously studied. Second, there may actually be specific emotion effects that have not been researched. Just as the concept of Type A coronary-prone behavior pattern has achieved predictive power after the specific emotion of hostility was isolated (Matthews, Glass,

and more fruitful when specific emotions are included in the stress equation. Furthermore, different effects may appear because of different emotions involved. For example, physical illness and psychosomatic symptoms may be due to a different set of emotions than behavioral and emotional dysfunctioning like depression, irritation or anxiety.

There is some recent evidence corroborating this last hypothesis. Broadbent (1985) has shown, for example, that pacing or job demands had little impact on depression, but a noticeable effect on anxiety (partially out the respective other dependent variable). On the other hand, lack of social support or working alone tended to be related to depression, but not to anxiety. An emotion-related differentiation of buffer effects was shown in Frese (1989). Buffer effects are of particular interest in research on social support and stress (Cohen & Wills, 1985; House, 1981). The buffer hypothesis underlying much of this research implies that stressors exert stronger effects on dysfunctioning when there is little social support than when there is a lot of support (cf. Cohen & Wills, 1985). In a recent longitudinal study (Frese, 1989), social support showed this buffer effect mainly with the dependent variables irritation/strain and social anxiety, but little with psychosomatic complaints and nearly none with depression. Apparently, the more social forms of dysfunctioning (like social anxiety and irritation/strain) were more affected by support than the less social forms.

Thus, again, industrial and organizational psychology has studied one particular area of emotions, but largely without reference to the specifics of it. For this reason, we shall bypass general stress research in this chapter (for a summary, see e.g. Cooper & Payne, 1988).

Anxiety, sadness, shame, disgust, and boredom

A work-related discussion of negative emotions should include, for example, anxiety, sadness and hopelessness, shame, disgust, and boredom as well as anger and envy. Again, we find that little research is available that looks at such specific emotions at work.

In general, achievement-related *anxiety* has been researched often (cf. next section). However, in industrial and organizational psychology, anxiety is usually studied as part of the general stress syndrome and not as a specific emotion (e.g. Broadbent, 1985; Cherry, 1978; Frese, 1990; Mohr, 1986; one exception is research on teachers' anxiety; cf. Coates & Thoresen, 1976).

Sadness and *hopelessness* can be the result of a situation one cannot control (Seligman, 1975). Career traps or non-changeable aversive work situations may lead to such feelings. Extreme examples were found in long-term unemployment when employment possibilities were slim (Frese & Mohr, 1987).

A proxy for the concept of helplessness is the construct of *attributional style* proposed by Seligman and co-workers (Peterson, Semmel, von Baeyer,

(or optimistic) ways of assigning causes to events. In a longitudinal study, Seligman and Schulman (1986) have shown that an optimistic attributional style predicts productivity and turnover of insurance salespeople, over and above an Aptitude Index Battery especially developed for the selection of salespeople.

In many ways, *shame* is the opposite of pride and should appear when a failure in an achievement setting is attributed to oneself. In addition, shame can refer to a social reference standard—often an ethical standard. Shame appears when some ethical standard has been violated. For example, there were reports in the newspapers that German seamen involved in disposing of poisonous waste in the North Sea, leading to environmental problems, did not disclose their work to anybody and reacted with shame when asked about their jobs.

Disgust has been studied in prostitutes (Girtler, 1985). The general picture seems to be that disgust is quite strong in the beginning of one's career in this occupation but subsides relatively quickly. Some interesting questions are whether a low-level emotion of disgust continues even when the high-level emotion subsides, whether remnants of disgust make it difficult to develop positive emotions towards the client, and whether disgust is one of the factors leading to burnout.

The emotion of *boredom* has been researched a little more often. Boredom is assumed to be one effect of assembly line and control room work (Smith, 1981). However, even here one review states: "the amount of research devoted to the topic of boredom by psychologists and psychiatrists is astonishingly small . . . At this time it is difficult to find more than 40 papers published since 1926 directly concerned with boredom. This is less than one paper a year for 53 years" (Smith, 1981, p. 338).

Boredom—an emotion associated with a state of reduced physiological activation—is one result of non-variable working conditions that reduce the amount of attentional diversity. However, there is no one-to-one relationship between these conditions and boredom. Another consequence may be *satiation*. This is a state of high arousal with a strong negative emotional content of resentment and irritation (Lewin, 1928; Karsten, 1928; Bartenwerfer, 1957). For this reason, a cross-situational correlation of $r = 0.35$ between "monotony" (in the sense of boredom) and satiation (Plath & Richter, 1984) makes sense.

It is surprising that the differentiation between boredom and satiation—two emotions that follow from monotonous conditions—has not been made in the Anglo-American literature. This is curious because, for example, Smith (1981) specifically refers to the unsolved "problem" that monotony can have both activating and de-activating physiological effects. The differentiation between boredom (de-activation) and satiation (activation) may help to explain this phenomenon. In the mid-1980s, the fact that monotonous conditions can lead to "frustration"—which seems to be the same as "satiation" as discussed

Not every monotonous situation leads to boredom or satiation. Dependent upon individual prerequisites, monotonous situations may actually be agreeable. For example, introverts become bored less and extroverts more easily (Smith, 1981, for a review). Furthermore, lack of variability (i.e. monotonous conditions) should be differentiated by whether it refers to time or content (Martin, Ackerman, Udris, & Ögerli, 1980). Lack of variability with regard to time may actually be positive, since it involves rhythm (quite clearly, rhythm implies some lack of variability). Rhythmic work is easier to do than other work. It seems to be lack of variability with regard to content that produces boredom and satiation (Martin *et al.*, 1980).

Social negative emotions

Emotions like anger and envy are intimately related to social concerns at the workplace. Landy (1989) describes killings which often take place because of work-related *anger*. Landy's discussion was based on newspaper clippings; there is little systematic research looking at anger in work situations. However, some scattered field studies indicate that anger is often a key ingredient of work-related stress (e.g. Long, 1988; Mykletun, 1985). Indeed, in a study of work stress in young engineers, Keenan and Newton (1985) found that anger was among the most often cited stress emotions reported for work situations. Anger also seems to be one of the reactions to unemployment (cf. Keefe, 1984).

Furthermore, there are a few studies on social stressors that may be related to anger. Zapf and Frese (1991) have shown that social stressors at work have a relationship of similar size with psychosomatic complaints and irritation/strain as task-related stressors. The correlation between social stressors and irritation/strain was between $r = 0.30$ and 0.41 (Zapf & Frese, 1991). Possibly anger is a mediator here, although this was not studied. Generally, irritation/strain was predicted quite well in recent occupational stress research (Mohr, 1986). Operationalizations of this concept included items like "Little things can make me very angry." Thus, there are relations to anger, although the concept is not identical with the construct of anger.

Anger may be an important factor in relationships between supervisors and employees. Although supervisory behavior has been studied in detail, anger was not part of this research.

Finally, there is one type of research in industrial and organizational psychology that is related to anger, although it has not been directed to its analysis: the study of conflicts (Thomas, 1976). In his practical book on how to use and cope with conflict, Tjosvold (1991) has even argued for using anger to make a firm productive.

Another issue of human relations at the work place is *envy* and *jealousy*. According to Miner (1990), 77% of a sample of 278 employed people observed some signs of jealousy at the workplace, usually as a result of variable or

intangible rewards. Whenever somebody advances, gets a higher salary, or a better room, co-workers may become jealous. This in turn may lead to social conflicts.

Conclusion

Our discussion of empirical research on emotions at work has been replete with the statement that we know little. However, there is one specific domain of active research which seems to be of obvious relevance to industrial and organizational psychologists and which is usually not well covered even in articles on work and emotions (like the ones published in Cummings & Shaw, 1989)—the domain of emotions in achievement situations. We shall now turn to this area and present a summary of it.

REVIEW II. EMOTIONS IN ACHIEVEMENT SETTINGS

Overview

There are a number of research traditions analyzing emotions and achievement. The roots of these traditions are primarily located in general, social, and educational psychology. Among them are the fields of test anxiety, of attributional antecedents of achievement emotions, and of relations between mood and intellectual performance.

The oldest and most comprehensive of these traditions is research on test anxiety which has flourished for four decades (cf. Hembree, 1988). Studies on other achievement-relevant emotions have been conducted less frequently in spite of the fact that some of them are central to theories of achievement (above all, this applies to pride and shame which occupy a central place in traditional theories of achievement motivation; cf. Heckhausen, 1989; McClelland, Atkinson, Clark, & Lowell, 1953).

Quantitatively, the differential frequency of research may be concluded from a literature search on emotions in task and achievement settings. Using PsycInfo (covering the Psychological Abstracts), this search pertains to 1974 through 1990. The search strategy included two steps. First, all studies were selected which relate to any kind of human emotion and at least one of the key words "task," "work," "learning," "test," "performance," or achievement." Second, those subsets of studies were selected which analyzed either an emotion connected to task and achievement situations (example: test anxiety) or the relations between a general emotion and task/achievement variables (example: relations between general anxiety and achievement). Table 5.1 displays the results for some important emotions. Apparently, the large majority of studies relate to anxiety (cf. also Hembree, 1988).

Table 5.1—Literature search 1974–1990: numbers of studies on emotions and achievement

Sadness	10	Joy	32
Hopelessness	2	Enthusiasm	9
Anxiety	>700	Hope	0
Anger	31	Relief	2
Boredom	27	Pride	17
Disappointment	2	Gratitude	2
Shame/guilt	24	Admiration	0
Envy	5		
Contempt	0	Surprise	6

emotion: (1) phenomenology and internal structures; (2) situational and cognitive antecedents; (3) consequences for motivation, behavior, and achievement; (4) development; and (5) prevention, optimization, and modification. Today, conclusions for test anxiety can be safely drawn within each of these areas. For other achievement emotions, research has thus far either been restricted to specific facets (like attributional determinants or memory effects), or there is not yet any substantive empirical evidence at all today.

Positive Emotions

Generally, positive human emotions have been analyzed less frequently than negative emotions. This also applies to the field of achievement-related processes. The asymmetry of the present situation may perhaps best be seen from the high intensity of research on achievement-related anxiety and the absence of studies on the complementary emotion of achievement-related hope (see Table 5.1).

Joy, happiness, positive mood

Terms like happiness, joy, gladness, and positive mood are often used interchangeably. Joy/happiness/positive mood is one of the primary human emotions. Body-perceptual components include perceptions of specific patterns of arousal (Scherer, Wallbott, & Summerfield, 1986), cognitive components can include cognitions of positive objects, states or events of any kind. This implies that, contrary to most other emotions, joy/happiness can be past-, present- or future-related. Task-related joy/happiness can therefore be preactional (looking forward to task performance or its outcomes), actional (process-oriented joy experienced during task action), or postactional (product-oriented joy about positive outcomes).

Thus, it seems clear that joy/happiness is a broad emotional category. It

nents leading, for example, to differentiations of elation, gladness, and joy (as argued by de Rivera, Possell, Verette, & Weiner, 1989).

Only select facets of achievement-related joy/happiness have been studied so far. Some studies in the life-event and mood tradition included influences of achievement events on positive mood. The bulk of the studies, however, addressed achievement implications.

Situational and subjective antecedents. A few recent studies included task-related events (e.g. events at school) into lists of daily events and related them to mood (Clark & Watson, 1988; Stone, 1987). Results indicate that such events were associated with a reduction of positive daily affect, as compared to other types of events (e.g. social or leisure; cf. also the experience-sampling study of Cameron, 1975). However, subject samples were highly restricted in most of these studies (e.g. 18 Japanese students in Clark & Watson, 1988). Furthermore, different types of school, work or other task events (like positive versus negative events) were not differentiated.

On the other hand, studies on work-related flow experiences (Csikszentmihalyi, 1977; Okaue & Aruga, 1983), on emotional effects of success at tasks (cf. Heckhausen, 1989), and on emotional implications of intrinsically versus extrinsically motivating tasks (Matsumoto & Sanders, 1988) demonstrated that task processes and outcomes *can* produce joy and happiness. This may also be seen from the results of two recent exploratory studies on task and achievement experiences (Pekrun, 1991a, in press a). In the experience samples gathered from German college students in these studies, positive task-related emotions were reported to be roughly as frequent as negative emotions. The frequency of joy/happiness ranked second among a broad variety of emotions (most frequent was anxiety). Furthermore, joy/happiness was reported for all time intervals before, during and after task situations. This renders some validity to the notion that joy/happiness may be either process- or product-centered in task settings.

Memory effects. Two related mood effects have been studied by memory researchers: state-dependent learning, and mood-congruent retrieval. Learning dependent on mood state implies that material to be learned is stored together with memories of the affect present in the learning situation; therefore, it is remembered better if the same affect is present during retrieval as well. A limited number of studies showed that such effects can occur for mood. However, contrary to relatively consistent findings for learning in drug-induced states, the evidence is weak and inconsistent for mood (cf. the reviews in Blaney, 1986; Leventhal & Tomarken, 1986; Johnson & Magaro, 1987).

Mood-congruence effects, on the other hand, have been found often, though also not consistently so. Such effects imply that retrieval is enhanced when the contents of the material and of mood are congruent at retrieval time,

positive words tends to be enhanced when the person is in a positive mood (as compared to a neutral mood; see the reviews cited above).

Both effects are primarily explained in terms of network models of memory. Most prominent is Bower's (1981) formulation that emotions are linked to emotion nodes in memory networks, which implies that an activation of these nodes (experienced as an emotion) enhances activation of associatively related representations (e.g. life events or learned lists of words). The ecological validity of the available evidence, however, seems to be limited because studies were largely confined to mood effects induced in the laboratory.

Convergent and divergent thinking. A small set of studies demonstrated that positive mood induced in the laboratory leads to a more intuitive and holistic approach to solving both convergent (algorithmic) and divergent (heuristic) problems (cf. Abele, in press; Kuhl, 1983; Schwarz & Bless, in press). Depending on task demands, this could either facilitate or impair performance (Schwarz & Bless, in press). One example is divergent productions of associations which were found to increase in quantity and quality when positive mood had been induced (Abele, in press; Isen, Daubmann, & Nowicki, 1987). Positive mood might also be connected to a reduced number of self-related, task-irrelevant cognitions (which is a precondition for high task involvement: Abele, in press).

Risk-taking behavior. The results of a small number of studies indicate that positive affect can induce risk aversion for higher risks and risk proneness for lower risks, and can lead to quicker and more efficient decision strategies when compared to neutral conditions (Isen & Geva, 1987; Isen & Means, 1984; Sjöberg & Winroth, 1986). One (partial) explanation of the first-mentioned effect is a motivational one: positive affect induces motivation to protect this pleasant state, which might cause aversion of high risks (cf. Isen & Geva, 1987). The second effect might be a result of the use of holistic strategies (see above) and the implied reduction of detail-oriented, time-consuming analytic processing when in a good mood.

Helping behavior. A substantial body of research shows that positive mood can promote helping (for meta-analyses and discussion, see Carlson, Charlin, & Miller, 1988; Cialdini & Fultz, 1990; Miller & Carlson, 1990). Two hypotheses put forward to explain this phenomenon are (a) priming theory, and (b) the mood maintenance hypothesis (cf. Carlson, Charlin, & Miller, 1988). Priming theory holds that positive mood leads to heightened accessibility and activation of positive cognitions which induce positive interpretations of helping situations and thus increase the likelihood of helping. This view is compatible with mood-congruent memory effects as discussed above. The mood maintenance hypothesis states that being in a positive mood produces motiva-

Thus, available research indicates that positive mood induces a variety of changes in memory processes, cognitive problem solving, risk-taking and decision-making strategies, and helpfulness. Memory and problem-solving effects are of immediate relevance for all types of work situations involving cognitive demands. The importance of risk-taking and decisional effects might vary as a function of degrees of freedom, complexity, and importance of decisions. For example, such effects are presumably of high relevance for the actions of brokers and managers. Effects on helping should be of importance for all types of collaborative work. Finally, one further implication of positive affect might be its positive impact on intrinsic task motivation, although causal studies on such effects are lacking to date (for correlative evidence, see Matsumoto & Sanders, 1988).

Other positive emotions

Beyond joy and positive mood, positive emotions were largely neglected by achievement-related research, although emotions like hope, pride, gratitude, relief, or admiration may be of primary relevance for achievement. Apparently, the only strong empirical exception is attributional research on cognitive antecedents of positive achievement emotions like pride and gratitude (cf. Weiner, 1985). Furthermore, there is some theorizing on hope.

Hope is a future-related emotion which can be assumed to be central to human endeavors aimed at important, but uncertain outcomes. This has been recognized in the achievement motivation literature which labelled success motivation as "hope for success" (cf. Heckhausen, 1989). Hope was assumed to be a central force motivating achievement behavior. Anticipation of pride following success was theoretically regarded as a key ingredient of achievement-related hope (McClelland *et al.*, 1953). However, it seems that this assertion was never directly and empirically tested. Instead, hope for success was regarded as a dispositional variable underlying achievement behavior and was empirically defined as a bundle of success-related appraisals, emotions, and behaviors (cf. Heckhausen, 1989). Therefore, studies on task- and achievement-related hope are lacking.

Contrary to future-related hope, *pride* and *gratitude* are outcome-related emotions arising after positive events have taken place. Studies within the attributional tradition produced evidence on the causal cognitions linked to pride and gratitude in achievement settings. The primary finding is that pride is related to internal attributions of success, whereas gratitude is connected to perceived causation by other people (see Weiner, 1985). However, the relative importance of different internal causal factors (like ability and effort) in the experience of pride has been controversially discussed in recent years (cf. Brown & Weiner, 1984; Covington & Omelich, 1984; Weiner & Brown, 1984). Furthermore, the causal status of attributional cognitions for the ex-

1982). Nevertheless, attributional correlates of achievement emotions like pride and gratitude are relatively well studied today, whereas other facets of these emotions remain to be analyzed empirically (e.g. their achievement implications).

Negative Emotions

Primary negative emotions are sadness, anxiety, anger, disgust, and contempt (Ekman, 1984). Other negative emotions may be regarded as mixtures or as cognitive differentiations of these emotions. This applies, for example, to hopelessness (which may be a derivative of sadness) and to disappointment (which seems to include components of sadness and, perhaps, anger). Some of these emotions received attention in the achievement literature.

Sadness, negative mood

Sadness is complementary to happiness/joy. Contrary to happiness (as well as fear or anger), its body-perceptual components are characterized by perceptions of low activation (Scherer, Wallbott, & Summerfield, 1986). Cognitively, sadness can relate to a variety of different objects and events located in past, present or future in much the same way as joy/happiness does. Concerning antecedents and effects, however, empirical results demonstrate only partial functional complementarity of the opposite emotions of sadness and happiness.

Antecedents. Similar to global relations between frequencies of self-reported task events and reduced daily positive affect, relations with increased negative mood have also been found. Again, relations were weak, samples restricted, and different types of task events were not sufficiently differentiated in these studies (e.g. Bolger, De Longis, Kessler, & Schilling, 1989; Stone, 1987). Furthermore, in recent exploratory research on academic task and achievement situations in students, experiences of sadness were reported far less frequently than joy/happiness and negative emotions like anxiety, anger, disappointment, dissatisfaction, and frustration (Pekrun, 1991a, in press a). Because of the paucity of relevant research, firm conclusions concerning sadness in task and achievement settings cannot yet be drawn. For task-related work situations, it may well be that negative emotions are normally more specific than sadness is (see the next section). On the other hand, sadness might nevertheless be an important work emotion, primarily triggered by negative social work events.

Achievement and behavioral implications. State-dependent learning and mood congruence effects were found not only for happiness/positive mood, but for

weaker for negative than for positive mood in normal non-depressed subjects (Leventhal & Tomarken, 1986). Possible reasons are (1) reduced efficiency of encoding in a sad state (caused e.g. by reduced motivation); (2) greater difficulties of negative materials to be incorporated in memory networks of non-depressed persons because humans normally tend to be optimistic and cognitively self-serving (Taylor & Brown, 1988); and (3) remedial attempts of the subject to counter sad mood at the time of retrieval (e.g. by invoking positive cognitions). Such qualifications notwithstanding, sad and positive moods seem to induce parallel memory effects, both enhancing memories for congruent items and impairing memories of incongruent material.

With regard to *cognitive problem-solving styles* and *decisional strategies*, the effects of sad and happy moods are not parallel, but opposite. Whereas positive mood seems to enhance an intuitive and holistic mode of thinking and deciding, sad mood apparently induces more analytic, detail-oriented, narrowly focused ways of cognitive problem-solving and making decisions (Schwarz & Bless, in press). Again, overall performance effects may depend on (analytic versus holistic) task demands.

Concerning *helpfulness*, the effects of negative mood again seem to parallel rather than oppose the effects of positive mood (Miller & Carlson, 1990). For sad mood, a comprehensive body of research shows enhancing effects on helpfulness as well. As for positive mood, one prominent explanation is a motivational one. This is the negative state relief model of helping which claims that sadness promotes motivation to help because helping another person can lift one's mood (for controversial accounts of this model, see Cialdini & Fultz, 1990; Miller & Carlson, 1990).

In summary, like positive mood, sad mood has been shown to induce changes in memory processes, cognitive problem solving, decisional strategies, and helpfulness. Some of these effects parallel the effects of positive mood, others are opposite. Both cognitive and motivational mechanisms seem to be responsible. In any case, as with positive mood, the relevance of these effects for performance, decisional behavior, and cooperativeness in work situations is readily apparent.

Anxiety

Psychoanalytic writers were the first to discuss the topic of achievement-related anxiety (e.g. Stengel, 1936). Empirical research in this domain began in the 1950s. Researchers then tested (neo-) behavioristic assumptions by choosing anxiety as an indicator of general "drive" and relating it to learning and performance (Spence & Taylor, 1951). Within this tradition, the concept of "test anxiety" was (re-)introduced (cf. Mandler & Sarason, 1952). This concept pertains to anxiety experienced before and during test-like situations, including examinations. Since the 1950s, test anxiety has attracted more inter-

conclusions can be relatively safely drawn from the available body of evidence (for a meta-analytic review, see Hembree, 1988).

Internal structures. In 1967, Liebert and Morris proposed to separate affective-physiological components of test anxiety from its cognitive components (called "emotionality" and "worry," respectively, by these authors). This distinction soon gained popularity, and it could be shown that emotionality and worry follow different time courses across exam situations. Emotionality reaches an early peak and loses intensity rapidly during an exam, whereas worry tends to stay high throughout—at least when negative performance expectancies prevail (Morris, Davis, & Hutchings, 1981). Furthermore, the two components relate differentially to performance (Hembree, 1988). In recent years, both worry and emotionality have been subdivided even further. Evidence on substructures, however, is not yet conclusive (cf. Schwarzer & Quast, 1985).

Another important distinction which was developed early in the anxiety field is the now well-known differentiation of anxiety as a state or a trait (cf. Spielberger, 1972). This distinction applies to general anxiety as well as to test anxiety.

Development. The average level of test anxiety increases sharply during the elementary school years, but stays at approximately the same mean level after grade 5 and throughout high school and college (perhaps slightly declining during college; see Hembree, 1988). Explanations of this developmental trend refer to two interrelated phenomena: (a) the cumulative failures which are experienced by many elementary students at school and which may gradually produce anxiety; and (b) the average decline of achievement optimism from the first grade throughout elementary school (cf. Helmke, 1991; Nicholls, 1979). There is lack of evidence, however, on the development of task and achievement anxiety during adulthood.

Situational determinants. Test anxiety was most often studied in school and college students, and the situational antecedents analyzed most often were social environments in classrooms and families. From this research, a set of consistent findings emerges. Test anxiety is positively correlated with (a) achievement pressure by parents and teachers; (b) punishment (specifically, failure-contingent punishment) by parents and teachers; and (c) competition in the classroom (cf. Helmke, 1983). These relationships can be explained as being mediated by achievement expectancies and values which are built up by significant others and trigger anxiety (Pekrun, 1985, 1991c, in press b). However, findings have to be explained cautiously because underlying causal relationships are far from being clarified to date.

Average correlations with social support presumably alleviating anxiety, on

sight, this may seem paradoxical. One explanation is that task-related support by parents and teachers may often be interpreted by the student as evidence for pressure toward achievement. Another reason may be that support does reduce test anxiety, but is provoked by students' anxiety in the first place. This latter possibility would amount to negative feedback loops implying an overall zero correlation.

Subjective determinants. Theoretically, test anxiety may arise when failures are to be expected, and when these failures are of some subjective importance (specifically, anxiety may result when there is some amount of uncertainty, whereas certainty should lead to a state of hopelessness). Achievement-related expectancies and valences may therefore be regarded as primary determinants of test anxiety. According to a recent expectancy-value model of anxiety, the following appraisals may be crucial (Pekrun, 1984, in press b): (1) negative effort-control expectancies (i.e. expectations that sufficient effort to avoid failures cannot be realized); (2) expectancies of failures; (3) expectancies of negative consequences of failures; (4) valences of failures; and (5) valences of consequences of failures. Other types of depreciating self-related cognitions, like causal attributions of failures to internal and stable factors, may contribute to these anxiety-producing cognitions (Leppin, Schwarzer, Belz, & Jerusalem, 1987).

In line with these assumptions, there is consistent evidence that self-concepts of ability correlate negatively with test anxiety, whereas failure expectancies correlate positively (Hembree, 1988). Furthermore, scattered evidence indicates that valences of failures are also positively correlated with test anxiety (Jacobs, 1981; Pekrun, 1984, 1991b, in press b). Contrary to restricted situations as addressed by Atkinson's (1957) risk-taking model and its followers, academic failure expectancies and valences themselves tend to be uncorrelated in students (Pekrun, 1984, 1991b). This might indicate that they contribute independently to test anxiety. However, in the domain of subjective correlates, too, the available evidence is largely cross-sectional and non-causal to date.

Achievement correlates. Most studies on test anxiety analyzed achievement implications. In experimental laboratory studies, it was found that anxiety reduced performance in difficult and/or complex cognitive tasks (typically, anxiety was induced by ego-involving instructions; cf. Hembree, 1988). Consistent with this evidence, field studies showed that test anxiety correlates negatively with achievement both in school and in college (Hembree, 1988).

Different interpretations of this evidence have been put forward during the past 40 years. Most of them center around *cognitive* mediations of achievement-impairing effects of anxiety. Prominent are attention-deficit assumptions of the following type: (1) Anxiety occupies capacity of the working

(2) Therefore, free capacity to solve the task is reduced, which impairs performance at capacity-demanding tasks (see Wine, 1971; Eysenck, 1988). Alternative interpretations refer to *motivational* mechanisms. For example, anxiety may be assumed both to reduce intrinsic task motivation and to enhance extrinsic motivation aimed at the avoidance of failures (Pekrun, 1988b).

Furthermore, anxiety/achievement correlations in field settings might also be produced by failures triggering anxiety (instead of anxiety impairing achievement). In fact, recent longitudinal evidence points to the validity of such an interpretation (Meece, Wigfield, & Eccles, 1990; Pekrun, 1991b, c).

Probably, to some extent all of these interpretations correctly explain anxiety/achievement relations in real-life situations. Past failure experiences may lead to negative self-related cognitions which, being activated by situational demands, can trigger anxiety about possible failures. Anxiety in turn may impair intellectual performance via cognitive mechanisms, may reduce intrinsic motivation, and may strengthen failure avoidance motivation, thus affecting resulting performance via different mediating mechanisms.

Implications for work settings. What can industrial and organizational psychology learn from research on test anxiety? A test can be broadly defined as a circumscribed situation demanding individual or group performance that is externally evaluated and leads to contingent consequences. Evaluation implies chances for either success or failure, and consequences may be of an existential nature (e.g. career, financial, or identity implications). Clearly, some work situations are of this type. Such situations are characteristic of any job where gratifications are made contingent on performance. Specifically, work situations will be test-like when success and failure are uncertain, and when there are severe performance-contingent consequences.

This implies that work may cause anxiety in adult individuals in much the same way as schools do in children (cf. also Coates & Thoresen, 1976). The amount of achievement-related anxiety before and during work situations will depend both on individual conditions (e.g. genetic dispositions; past achievement history; subjective values of failures at work and of their consequences; social support from non-work environments) and on job factors (see next section). Most important is probably the degree of correspondence between individual personality and work conditions (for example, the match between competencies and job demands; cf. van Harrison, 1978).

The probably high frequency of work-related anxiety should lead to concerns about achievement consequences. Maybe these are not negative for tasks which are not attention-demanding. Under more complex and difficult task conditions, however, achievement-impairing effects may be frequent, although the above-mentioned motivational assumptions indicate that effort induced by avoidance motivation may under some circumstances compensate for such negative effects.

may induce other types of anxiety as well. An example is social anxiety which is typically triggered by the presence of strangers and/or cognitions relating to social evaluation (cf. Asendorpf, 1989). Evaluative work situations may simultaneously be of a test-like and of a social nature (examples are stage situations of artists, scientists or politicians). Such situations might lead to a fusion of test and social anxiety, thus implying worry cognitions which relate both to social evaluation and to performance failures. Test situations with added social stress may imply the danger of even further impairing complex performance in anxiety-prone individuals.

Anger

Compared to achievement-related research on joy, sadness, and anxiety, studies on anger and achievement are less frequent. Laboratory research using student samples has shown that anger is often experienced after failure (e.g. Kremer & Spiridigliozzi, 1982; Shalon & Strube, 1988). Anger is fostered by annoying instructions and by destructive criticism and unclear feedback following bad performance (Baron, 1988; Pedersen & Hollandsworth, 1987). Experimental research also indicates that arousal of anger is commonplace when failures are interpreted to be due to others' hindrances. Specifically, this applies if the other persons' negative contributions are seen to be intended (cf. Frodi, 1976; Weiner, Russell, & Lerman, 1979).

A small number of studies found that state-dependent learning and mood-specific congruence effects can also occur for anger (e.g. Laird, Wagener, Halal, & Szegda, 1982). Evidence on other achievement implications, however, is limited. One finding was that anger was positively correlated with performance in competitive sports like basketball (Sebej, Mullner, & Farkas, 1985). Another relevant finding is that the amount of dissatisfaction with own performance (which seems to imply self-related anger) can contribute to the intensification of effort at the next trial (Bandura & Cervone, 1983). Finally, anger at another person can reduce task-related helping and cooperative behavior directed toward that person (see Weiner, 1980).

Some evidence indicates that achievement-related anger may exert effects beyond the achievement domain itself. Anger has been found to contribute to job burnout (Farmer, 1988) and to hypertension and cardiovascular diseases (cf. Knox, Theorell, Svensson, & Waller, 1985). The latter finding stems from research on the coronary-prone type A personality. In a number of studies, this research investigated health implications of hostility as one component of the type A personality (hostility seems to be a close neighbor of anger, although not being identical with it). Among recent results is the finding that hostility might be more important for cardiovascular diseases than other type A components. This seems to be true not only for suppressed hostility, but also for hostility which is acted out (cf. Feshbach, 1986; Matthews *et al.*,

Other negative emotions

Other negative emotions received even less attention than anger. However, there is some empirical evidence on shame and envy. *Shame* about failures was analyzed within the attributional tradition. Complementary to the findings for pride, shame was found to be linked to internal attributions of poor achievement. Again, the causal status of attributions and the relative importance of different internal factors (like ability and effort) remain problematic (Covington & Omelich, 1979, 1984; Sohn, 1977; Weiner, 1985; Weiner & Brown, 1984).

A small set of studies analyzed achievement-related determinants of *envy*. The primary finding is that envy may be triggered if another person achieves more on a dimension which is relevant to one's own self-definition (cf. Salovey & Rodin, 1984; Tesser & Collins, 1988; Silver & Sabini, 1978). This finding has been interpreted within social-comparison and self-evaluation perspectives (see Tesser & Collins, 1988).

Generally, this evidence implies that envy may be experienced wherever persons are evaluated and treated differentially, and that shame will be induced in case differential treatment is attributed internally. In our culture, working conditions normally imply non-egalitarian treatment, and cultural stereotypes are probably conducive to internal attributions. Therefore, today both emotions can be assumed to be highly relevant at work (cf. Miner, 1990, and the previous section).

WORK AND EMOTION: THEORETICAL CONSIDERATIONS

As has been shown in the above reviews, comprehensive attempts at analyzing work-related emotions are lacking to date. Within industrial and organizational psychology, research has largely concentrated on global constructs like job satisfaction or stress instead of analyzing specific emotions. In research on achievement emotions, some emotions received strong attention. However, much of this research has been conducted within separate research traditions concentrating on specific facets of single achievement emotions. Furthermore, emotions beyond the primaries of happiness/positive mood, sadness/negative mood, and anxiety were largely neglected by this research, too. This implies that general conclusions for emotions at work cannot be derived to date.

Therefore, it is the purpose of this section to present some theoretical ideas linking work and emotion. First, the general importance of work for human emotions will be briefly discussed. Second, specific assumptions on work and emotion will be presented. These include a discussion of relevant facets of work, a taxonomy of task and social emotions at work, and a set of hypotheses

The Relevance of Work for Human Emotions

Four broad categories of emotions relevant for work can be distinguished for heuristic purposes (for a similar view, see Warr, 1987). These are: (1) general emotions not specifically related to work; (2) job-related emotions pertaining to one's job as a whole; (3) task-related emotions connected to specific tasks at work; and (4) non-task emotions pertaining to social aspects of work.

General emotions and work

Work can trigger emotions, and these can contribute to an overall emotional state extending beyond work itself. For example, hopelessness induced by insurmountable barriers preventing attainment of career goals can generalize beyond the work domain, thus leading to general depression. It is a well-known finding of job-related stress research that work can contribute considerably to a reduction of mental and physical health (cf. Frese, 1982; Warr, 1987).

Emotions triggered by work, but transcending the work domain, can be of two kinds. First, emotions related to specific facets of work (like anger at a supervisor) can persist outside of work. Although subjectively pertaining to work, such emotions can induce attempts at coping not related to work itself (like starting to argue with one's spouse). Second, emotions can generalize beyond working time even if the individual is no longer thinking of work. This may be one explanation for the fact that overtime leads to a slower unwinding after work (Risler, 1979). Another example is that a happy mood state induced by positive work events can persist after work and provide for a nice evening although attention has already been turned to other things.

Thus, it seems that work can exert influences on general emotional life. The reverse also holds. First, specific emotions triggered by non-work events can influence work-related behavior. For example, grief about the death of a loved one can reduce productivity at work for long periods of time. Second, generalized emotional mood states typically persisting over hours or days normally also extend into the working hours thus influencing thoughts and behavior at work.

Job emotions

Emotions can relate to the overall past, present, or future state of one's job. For example, recollections of past achievements can induce pride and positive mood even after decades and can thus induce optimism concerning present obstacles. A low payment can trigger anger and dissatisfaction eventually leading to leaving the company (Bruggemann, Groskurth, & Ulich, 1975),

motivation and high degrees of either obedience or rebellion. Job-related emotions can thus be assumed to be among the primary determinants of job decisions, and they can influence on-task motivation and behavior at work.

Task emotions

Emotions can refer to specific task-related events and actions. Examples are enjoying the performance of a task, being bored by it, looking forward to success, or being proud of a product. Reversely, task emotions can profoundly influence task behavior and accomplishment (Pekrun, in press c). Task influences on emotions will be analyzed in some detail below.

Social emotions at work

Many activities and events at work are not directly related to the task, but to other work facets. Of specific importance are other people who do not only serve as collaborators, competitors, or supervisors, but also as part of one's social network. Thus, many emotions triggered by work events are of a social nature. Like general and job emotions, social emotions can be assumed to influence task behavior and productivity in spite of not being directly tied to task demands. For example, falling in love with one's supervisor or secretary or being jealous of a competitor's career can strongly influence task performance. Therefore, a company's policy regarding off-task social life can influence both the company's social climate and its overall financial success.

Of these four types of emotion, task and social work emotions are of immediate relevance for work settings. In the following, we shall therefore concentrate on these two categories of emotions directly related to work.

Effects of Work on Emotion: First Steps Towards a Multifaceted Model

To construct a theory of work and emotion is a difficult task. Today there is no consensus on the causes of human emotions on which one might build. Furthermore, there is no consensus about relevant characteristics of jobs and tasks. Any comprehensive attempt to link work and emotion is therefore forced to build on assumptions eclectically derived from current theories and from the rudimentary knowledge about work, achievement and emotions.

In attempting to formulate specific assumptions, we decided to rely neither on reductionist theories of emotion taking into account only a limited set of emotional dimensions (like negative and positive affectivity; Watson & Tellegen, 1985) nor on a limited set of antecedents of emotion. Rather, we think it is more realistic to address a broader range of specific emotions and a variety of possible antecedents of emotions. Such a multifaceted approach is rooted

example at the general emotions side is the component-process model presented by Scherer (1984). This model links a broad set of specific emotions to a number of specific appraisals and states of the organism. An example in the achievement domain is the research by Smith and Ellsworth (1987) who studied the relations between a variety of exam-related emotions in students and a set of appraisal dimensions.

Task and Social Facets of Work

Facets of jobs can be classified in a variety of ways. One first distinction is that task-related aspects can be differentiated from social characteristics of work, although both domains are closely related. For example, on-task cooperation includes both task-related and social aspects. Furthermore, many jobs consist of tasks which are inherently social (e.g. the jobs of therapists or receptionists); in such cases task emotions are largely of a social nature. Nevertheless, the task/social distinction seems to be heuristically fruitful.

Another differentiation is between resources and stressors (Frese, 1989). Resources help in dealing with stressors. Typical resources are competence and skills with regard to work tasks and to the social arena surrounding work, changeability of working conditions, discretion level at work, and social support.

The well-known classification of work conditions developed by Hackman and Oldham (1975) could also be used to systematize job precursors of emotions: skill variety, task identity, task significance, autonomy, and job feedback. Similarly, the structural job characteristics conceptualized by Kohn and Schooler (1982), particularly occupational self-direction, might be used to predict emotions. Kohn and Schooler (1982) themselves used emotion-related constructs like trustfulness, self-deprecation, anxiety, and fatalism as dependent variables.

Different job dimensions are probably important for different emotions. In the following, we shall present a rather eclectic set of dimensions that seem to be important: importance, task identity, complexity, task-intrinsic barriers (demands) and task-extrinsic barriers, control, and outcomes, as well as hierarchy, allocation structure, fairness of allocations, social support and hindrance, social contact, and social value of work.

Of course, all of these job dimensions are basically relational concepts. It is difficult to define them independently of the people working at the jobs. For example, to define the level of task demands usually presupposes some reference to the competencies of individual workers (the Person-Environment-Fit model has explicitly incorporated such relational notions; see e.g. van Harrison, 1978). However, despite their relational nature, all of these variables might also be conceptualized more objectively. For example, the demand for a secretary may be described as to type 40 000 keystrokes a day. Moreover, one

job and then describe job characteristics with reference to such a person (Frese, 1977).

Furthermore, it should be noted that the influence of job facets on emotions is normally not a direct one, but is mediated by the subject's appraisal. For example, effects of objectively high task demands may produce challenge emotions (like anxiety) only if the subject in fact appraises them as high. In long experiences with work, however, workers usually develop quite adequate perceptions of their work environment (Frese & Zapf, 1988), thus reducing the impact of idiosyncratic appraisals. In the following, emotion-relevant job characteristics within the task and the social domain will be discussed in turn.

Task facets

(1) *Importance.* One task facet of primary relevance for emotions is task importance, including the importance of outcomes (this notion is basically the same as Hackman & Oldham's, 1975, concept of task significance). Most emotions are—almost by definition—reactions to events and states which are important to the person. For example, negotiations with an important customer will trigger more fear, hope, pride, or guilt than outcomes of routine activity.

(2) *Identity.* This implies the degree to which one does an identifiable piece of work, rather than just a partialized task (Hacker, 1986; Hackman & Oldham, 1975; Volpert, 1986). Whether or not a job is seen as meaningful may be dependent on this dimension. Together with task importance, it may determine the quality and level of task-relevant emotions at work.

(3) *Complexity.* Generally, the term complexity refers to the number of different elements and relations within a set of objects (Dörner, 1976; Frese, 1987). Within-task complexity may be distinguished from between-tasks complexity. The latter is usually called variability in industrial and organizational psychology (Semmer, 1984). Examples of low versus high complexity are doing repetitive assembly line work versus composing a symphony. Within- and between-tasks complexity directly influences the amount and variability of sensory information delivered and the amount and variability of cognitive information to be processed within a given period of time. Therefore, complexity should influence those emotions which are tied to the balance between factual cognitive stimulation and the individual's level of optimal stimulation (see below). Between-tasks complexity can furthermore be assumed to influence the diversity of emotions experienced at work (e.g. a complex job might trigger many different kinds of task-related and social emotions within one working day, whereas a structurally simple job might produce only one emo-

(4) *Task-intrinsic barriers: demands.* High task demands constitute barriers which have to be overcome on the way to task accomplishment. A barrier is any type of difficulty that makes it hard to do a job. Demands may depend on objective characteristics of the task itself (like the abstractness of the problem), and on task goals (which themselves can be determined externally and/or by individual levels of aspiration). Like importance, demands can be assumed to influence most task emotions. Unlike importance, demands influence not only the strength, but also the type of emotion induced (see below).

(5) *Task-extrinsic barriers.* In addition to task-inherent barriers, there may be external, task-independent barriers that impede task accomplishment. Examples are hindrances by supervisors or co-workers, illness or momentary fatigue, or low quality and breakdown of necessary tools. Such barriers can be of persistent or sudden types (like a chronic illness or a sudden cold). The complementary phenomenon is task-extrinsic resources and supports that help in task accomplishment (like help from a co-worker).

Persisting barriers can be expected by the individual, whereas a sudden development of barriers is often not expected. It is therefore primarily the latter kind of barriers which lead to an interruption of task-related actions. Interruptions of action in turn often enforce a restructuring of action plans and, in many cases, of action goals and expectancies of goal attainment. Such interruptions have been theorized to be among the primary triggers of emotion (Mandler, 1964).

(6) *Causal agency and control.* As used here, the broad term "control" refers to the causation of task and job events. Two aspects may be of specific importance: (1) Who exerts control over aspects of tasks and jobs? Expectancy and attributional theories of motivation and emotion have identified a number of relevant dimensions of causal agency during recent decades. A dimension of primary relevance is the internal versus external locus of control, other dimensions are stability, controllability, and globality of causes (Rotter, 1954; Peterson *et al.*, 1982; Weiner, 1985). (2) To which degree can control be exerted? Even if the locus of causality is specified, control can nevertheless be incomplete because of probabilistic relations between causes and effects. This fact has been acknowledged by behavioristic models taking the degree of "contingency" between behavior and outcomes into account, and by cognitive expectancy theories including subjective probabilities of events into expectancy definitions (cf. Atkinson, 1957; Vroom, 1964).

For work-related expectancies, actions, and retrospective evaluations, control is an important variable. By implication, control is one determinant of emotions dependent on expectancies and evaluations (like hope, anxiety, pride, etc.; see below).

not, and normally accomplishment or non-accomplishment may lead to a variety of outcomes of some importance. Therefore, accomplishment and outcomes can lead to evaluative, postactional and product-related emotions of different kinds. Of course, it is often necessary that one receives job feedback in order to ascertain whether one has accomplished something or not (cf. Hackman & Oldman, 1975).

Accomplishment and outcomes normally depend both on individual job structures and on a company's general structures. Of specific importance are effort-outcome contingencies specified by task, job, and company. Such contingencies relate (a) to the degree to which task completion and outcomes depend on the individual's actions, (b) to the range and value of outcomes delivered, and (c) to the relations between different subjects' outcomes (allocation structures; see below).

Social facets

(1) *Hierarchy.* One social characteristic of work is the degree to which an organization is structured hierarchically. Relevant hierarchies can be formal or informal. This implies that hierarchies can exist even between colleagues at the same nominal level (but differing, for example, in competence or success). Hierarchy can be assumed to influence social emotions which are directed at persons higher or lower in status (like admiration or contempt). Furthermore, one's status within a hierarchy may influence all those emotions which depend on bad or good working conditions linked to status (like the degree of control over task complexity).

(2) *Allocation structures: competition, cooperation, individualization.* Another central feature of organizations is to structure the allocation of valued outcomes (like status, power, money, awards, etc.). Like hierarchies, such structures can be both formal or informal. Beyond single organizations, allocation rules also govern inter-organizational life in many subsystems of society including the economic domain (specifically, the markets for goods and labor). At least three basically different structures of allocation can be identified: competition, cooperation, and individualization (for implications in the educational domain, see Johnson & Johnson, 1975).

A *competitive* structure implies that delivery of valued outcomes to some persons is negatively linked to delivery for other persons (i.e. it is connected to others' non-attainment). An example is the selection of candidates for advancement when more candidates than advanced jobs are available. The goal implied by competitive structures is to be more successful than others, which can be attained by being better than others and/or by hindering them from being successful. Competition can take place between individuals or between groups and organizations. Given inter-group competition, there can still be

Cooperative structures imply that the attainment of valued outcomes for an individual is positively linked to outcome attainment of other persons. Thus, cooperative structures mean that individual success is dependent on the group's success. Working one's way toward success in such structures implies helping others instead of hindering them.

Individualized structures, finally, imply that goal attainment is neither negatively nor positively linked to others' attainment, but is dependent only on task conditions and on one's own efforts.

Different allocation structures can be assumed to lead to different individual goals, to different probabilities and values of outcomes, to different reference norms for evaluations, to different types of hierarchies, and to different task and social behaviors at work. Therefore, allocation structures may profoundly affect the emotions experienced at work.

(3) *Fairness of allocations.* Adams' (1963) equity theory has discussed the background of fairness. When one's own effort is not rewarded similarly to others' effort, one is treated unfairly. Fairness probably has an influence on emotions like hope, jealousy, anger, and hate.

(4) *Social support and hindrance.* As outlined above, support and hindrance from colleagues and supervisors may be influenced by allocation structures. However, they can also be determined by other aspects of work and by individual propensities. For example, even under competitive conditions workers can decide to act cooperatively and to support each other. The result can be subcultures running contrary to an organization's declared goals, as when groups decide not to increase production beyond a certain point although individuals are reinforced for doing so (Roethlisberger & Dickson, 1939). Support and hindrance can be assumed to induce social emotions like empathy, gratitude, anger, and so on.

(5) *Social contact.* The level and quality of social contact and communication at work are also partly determined by allocation structures. Cooperative structures imply high necessity and/or possibility of communication, the contrary holds for individualized structures. Again, other features of work may also be important. One example is jobs implying frequent contact with persons outside the company (such as customers).

Level and quality of communication at work can generally be assumed to influence social emotions at work. However, one mediating variable may be the degree of control over communication. Communication which cannot be avoided (like negotiating with a customer or listening to a supervisor's instructions) might produce other feelings than communication which is voluntarily sought.

in public opinion, and individuals differ in evaluations of their job's social usefulness and of the overall value of work. Conceptualizations of work simply being a duty versus work value being dependent on task content have been debated widely (Nölle-Neumann & Strümpel, 1984). Attributions of social usefulness of one's work may be central for identity formation and self-worth. Therefore, they can be assumed to influence overall job- and self-related emotions.

Classifying Work Emotions

There are several ways of classifying human affect which can be used to structure the domain of work emotions (cf. Pekrun, 1988a). Two basically different approaches are (1) to classify emotions according to common underlying dimensions (like negative versus positive valence or degree of activation); and (2) to classify them into discrete categories. The first approach typically leads to two- to four-dimensional conceptions of emotions derived by dimensional methods like factor analysis (for an application of a three-dimensional classification to industrial and organizational psychology, see Warr, 1987, chap. 3). An advantage of such approaches is their conceptual economy. One disadvantage, however, is that they cannot cover the specific emotional qualities attached to discrete emotions. This implies that those approaches are more removed from factual emotional life. Therefore, it may be argued that relationships between single emotions and specific aspects of work cannot adequately be dealt with from the perspective of global two- or three-dimensional conceptions. Specific emotions may be induced by specific facets of work, and they may produce, for example, discrete motivational states and strategies of processing information (see below and Pekrun, in press c).

For this reason, we decided to use discrete emotion categories for analyzing linkages between work and emotion. Within our set of emotion categories (see Table 5.2), one first criterion of ordering emotions is their valence (positive versus negative emotions). By valence we mean the dominant subjective value of the respective emotion (in special cases, the experienced value of an emotion may diverge from its modal value; e.g. anxiety can be experienced as positive by some persons in specific situations). Second, task-related emotions can be distinguished from social work emotions, although there may be close connections and even overlaps between the two (as in professions where tasks are of a social nature).

Third, within the domain of task emotions, emotions may be differentiated according to the task-related time perspective they imply. According to this criterion, three types of task emotions can be distinguished: process-related on-task emotions (task enjoyment and boredom); prospective pretask (or pre-outcome) emotions (hope and anxiety; anticipatory joy and hopelessness);

Table 5.2—Taxonomy of work-related emotions

		<i>Positive</i>	<i>Negative</i>
Task-related	Process	Enjoyment	Boredom/satiation
	Prospective	Hope Anticipatory joy	Anxiety Hopelessness (Resignation/despair)
	Retrospective	Relief Outcome-related joy Pride	— Sadness Disappointment Shame/guilt
Social		Gratitude Empathy Admiration Sympathy/love	Anger Jealousy/envy Contempt Antipathy/hate

about accomplishment/non-accomplishment and outcomes; pride and shame; anger and gratitude).

Linking Work and Emotion

After relevant job facets and emotions have been classified, both can be linked. Since many positive and negative work emotions are complementary, they will be discussed in pairs. Task emotions of process-related, prospective, and retrospective types will be discussed first, social emotions second.

Process-related task emotions: enjoyment, boredom and satiation/frustration

Task-related *enjoyment* and *boredom* can be assumed to be intimately linked to the relative complexity of the task (*complexity hypothesis*). "Relative complexity" refers to the match between the level of stimulation provided by the task, and the level of stimulation which is optimal for the individual at a given point in time. Tasks too low in relative complexity can produce boredom. The same may perhaps be assumed for tasks too high in complexity because above-optimal complexity implies that the individual is not able to break down the delivered amount of information into meaningful pieces. Tasks with an optimal level of complexity, on the other hand, may induce enjoyment.

However, one boundary condition for the induction of both task enjoyment and boredom seems to be that the attention of the individual is not occupied by other topics (*attentional focus hypothesis*). Specifically, this might hold because process-based emotions like enjoyment or boredom are relatively fragile

(like suddenly intruding off-task events). Three such cases preventing enjoyment/boredom for attentional reasons may be the following. First, the person experiences another emotion which is strong enough to bind attentional resources. For example, worrying about an upcoming examination can override boredom which otherwise would be induced by low-complexity rote learning. Second, the person engages in secondary actions running parallel to task performance (like talking to colleagues). Third, the person engages in daydreaming while performing the task.

In all three cases, low task complexity (monotonous conditions) is compensated by stimulation from other sources. Concerning boredom, the two last-mentioned methods of raising stimulation (overt and covert compensatory parallel action) are ways of coping with this unpleasant emotion. One important corollary is that in jobs where task complexity is low, but attention must be focused on the task, boredom may be sustained and cannot be avoided. In such cases, low-activation boredom can change to the high-activation emotion of "satiation" (see our first review section). Probably, there is even a cyclical response to such conditions producing changes between states of boredom and satiation.

Therefore, one should assume that high levels of boredom/satiation as well as low levels of task enjoyment are experienced by workers at low-complexity, high-attention surveillance jobs. Lower levels of boredom will be experienced at tasks with equally low levels of complexity, but possibilities of compensatory overt or covert action. The degree to which such actions are possible will depend both on job structures (like the availability of colleagues with whom to talk during task performance) and on individual competencies (e.g. competencies to engage in elaborate daydreaming). This also implies that boredom and amount of communication at work should be related negatively overall. Finally, boredom will be lowest and enjoyment highest at jobs where complexity is optimal. One feature of jobs which is decisive for optimal complexity is the degree of individual control over complexity (Frese, 1988).

Finally, one interesting asymmetry between boredom and most other emotions should be mentioned. Whereas most emotions (probably also including task enjoyment) decay over time, boredom is sustained and maybe even strengthened by ongoing low-complexity task performance. Apparently, boredom is an emotion functioning to prevent organisms from exposing themselves to low levels of stimulation over too extended a period of time.

Prospective task emotions

(1) *Hope and anxiety.* Relating to uncertain future events, hope and anxiety are complementary. Whereas hope pertains to positive anticipated events, anxiety refers to negative events.

Hope may be induced by expectancies (implying some degree of uncer-

tive event probability, which in turn may depend both on situational expectancies that the event will occur even if nothing is done for it, and on action expectancies that suitable actions can be realized and will be successful. Value may be determined by the subjective importance of the event itself, and of its consequences (for details, see Pekrun, 1988a).

This implies that hope should be influenced by factors producing task- and outcome-related expectancies and values. Therefore, one facet of work necessary for the experience of hope is that important outcomes are delivered (e.g. status positions that are socially valued). Second, concerning the expectancies side, both an element of uncertainty and sufficiently positive expectancies seem to be necessary.

Uncertainty implies that hope may play a role in all jobs which stimulate motivation by making positive outcomes contingent on effort, but without giving the person certainty about the exact nature of this contingency. Three typical cases may be the following. First, the effort-outcome contingency relation is prespecified, but the individual is subjectively uncertain whether sufficient effort will be realizable. Second, the contingency relation is specified, but the individual is not sufficiently informed about it (e.g. because of ambiguous feedback). Third, the relation is not known in advance because it pertains to a new type of product (like, for example, a scientific discovery or a work of art).

Given challenge, facets of the following types may foster hope by inducing positive expectancies in spite of uncertainty: (a) task demands which can be mastered because they do not exceed individual capabilities; (b) task-extrinsic resources; (c) control over tasks, goals, external resources, and outcomes; (d) cooperative job structures (providing social resources); and (e) social support (also providing resources).

These assumptions imply that hope can play a role in many types of work situations. Even in jobs where contingencies are fully specified at present, hope may still be characteristic when future advancement is possible and strived for. However, it should be kept in mind that features of work can be assumed to produce hope only when *some* amount of uncertainty about efficacy and/or outcomes remains. Otherwise, hope will be replaced by confidence and anticipatory joy. This might be important for performance because hope can be assumed to be a strongly motivating force often producing more individual effort than when one is certain about future rewards.

Anxiety is complementary to hope. There is some evidence that anxiety can be triggered by expectancies relating to important negative future events (although there may be other modes of induction: Asendorpf, 1989; Pekrun, 1984, in press b). Like test anxiety (see previous section), task-related anxiety at work may largely depend on negative expectancies and valences relating, for example, to failure, loss of status, or unemployment. Complementary to work facets fostering hope, the following factors may be of particular relevance: (a) high importance of failures and their outcomes (e.g. by making continuing

exceed individual capabilities, thus producing failure expectancies; (c) additional task-extrinsic barriers adding to uncertainty about adequate task completion; (d) low controllability of tasks and goals, of barriers, and of task outcomes; (e) competitive structures of allocations (which imply that failure is programmed for at least some individuals, see above); and (f) hindrance by other persons.

(2) *Anticipatory joy and hopelessness.* When future events become certain, hope is replaced by anticipatory joy, and anxiety by hopelessness. Task-related *anticipatory joy* will be triggered when (a) there is a subjectively certain (or near-certain) expectancy of performing a task, being successful at doing so, or attaining outcomes, and (b) task performance, success, or other outcomes are valuable from the perspective of the subject.

Conversely, *hopelessness* will be induced whenever important outcomes seem not to be attainable or negative outcomes are unavoidable. Hopelessness can take two specific forms: *resignation* and *despair*. Resignation is a low-activation emotion which apparently is a derivative of a sadness. The motivational result of resignation can be a reduction of performance effort to some minimum value necessary not to lose one's position. Despair, on the other hand, is an emotion implying activation which can motivate different ways of coping with a hopeless work situation (like leaving work, changing the job without really hoping for improvement, taking drugs, or committing suicide).

These assumptions imply that factors at work influencing anticipatory joy and hopelessness may be basically similar to factors producing hope and anxiety. Anticipatory joy should be influenced positively by high values of tasks and outcomes, capabilities high enough to meet task demands, low barriers, and so on. Hopelessness will arise when outcomes are important, but unattainable because of clearly too high task demands, high barriers, low control, etc.

Retrospective task emotions

(1) *Relief.* After a task has been completed, one may first feel relief. Relief may be induced whenever there was some subjective tension related to the task situation (e.g. because of fear of failure), or when the task was experienced as aversive. This implies that high task demands and barriers will contribute to the intensity of relief experienced afterwards. Since relief is an emotion tied to the reduction of tension, it can be experienced not only after success, but also after failure (for empirical evidence, see Pekrun, 1991a, in press a).

(2) *Joy, sadness, disappointment, pride, and shame.* Beyond relief, post-task

emotions can be differentiated: those which are triggered directly by evaluations of accomplishments (as successes or failures) and of outcomes (as positive or negative), and those which imply further cognitive interpretations. The first group has been called outcome-dependent (but attribution-independent), whereas emotions of the second group are expectancy- or attribution-dependent (Weiner, 1985).

Posttask *joy* and *sadness* may be regarded as outcome-dependent emotions. Success and positive outcomes can induce joy/happiness. Outcome-related joy will be stronger if the outcome is important, and if high demands and barriers have been mastered. Thus, joy may be higher when previous expectancies were low. In the case of routine success, on the other hand, most people probably do not experience any specific emotion at all.

The reverse applies to sadness-related emotions. Sadness can be induced by failures and negative outcomes, and it may be especially strong when success had been expected. However, sadness with some degree of unexpectedness has another name: *disappointment*. Disappointment will result whenever failures are experienced at important tasks although success had been expected or at least had been hoped for.

Pride and *shame* related to accomplishment and outcomes may be conceptualized as attribution-dependent emotions. For these two emotions, evaluative interpretations alone are not sufficient (although necessary). Specifically, pride is experienced when success is seen to be caused by internal factors (like own ability and/or efforts), whereas shame relates to failure which is seen as being caused by inability and/or lack of effort (cf. Weiner, 1985). Furthermore, beyond internal control, pride and shame also seem to presuppose some degree of uncertainty of success and failure. Since success tends to be unexpected at difficult tasks and failure to be unexpected at easy tasks, this implies that challenging task demands or task-extrinsic barriers are a precondition for the experience of pride (see our analysis of barriers and pride described in the first review section). Conversely, low demands and an absence of barriers may foster the experience of shame after failure (for empirical evidence, cf. Pekrun, 1991a, in press a).

At the organizational level, our analysis indicates that challenging work environments (implying some degree of uncertainty about effort-performance and performance-outcome relationships) should produce more outcome emotions like joy and pride. Similarly, challenging work may also produce greater amounts of outcome-related disappointment and shame since they imply the possibility of unexpected failures. In work environments constantly withholding success and positive outcomes, on the other hand, disappointment and shame will be replaced by resignation and despair.

Pride and shame, however, may not only relate to accomplishments and outcomes of tasks, but also to one's social position within a hierarchy. This implies that pride and shame will be fostered by work environments with

archies of success and failure, competitive structures can also be assumed to promote the experience of pride and shame.

Finally, it should be noted that pride and shame can be tied not only to individual accomplishments and positions, but also to the group one is affiliated with. One can be proud of the results of a collaborative effort even if one's own contributions were small. Therefore, the simple fact of being a member of a reputable company can induce some sense of self-worth in the company's employees. Similarly, being a member of a Nobel prize-winning scientific team may induce pride even if one's own position within the group was an inferior one.

(3) *Self-related and object-related anger.* Anger is usually seen as a social emotion directed towards persons who intentionally harm someone. However, humans are flexible cognitively, and therefore this emotion may also be directed (a) towards oneself, implying, in a sense, that someone regards him- or herself partially as another person, and (b) towards animals, inanimate objects, or situations. Specifically, after failures which are attributed internally, self-related anger may be an alternative emotional reaction instead of shame. Contrary to shame, however, anger probably cannot result from attributions to low ability, but only from attributions to causes which are under one's control. Apparently, similar to anger towards other persons, self-related anger presupposes perceived causation by factors implying some element of intentionality. The primary cause then is insufficient effort where more effort might have led to success. Therefore, self-related anger can be experienced at challenging workplaces where failures can occur which might have been prevented.

Anger might also be experienced if some barriers impeding task accomplishment appear, even if these barriers are not caused by another person or by oneself. For example, in a situation where a task is almost finished on time, but some necessary tool breaks down at that very moment, anger may result at this occurrence in spite of a lack of intentionality.

Social emotions

Beyond the task context, social emotions may develop at work wherever other persons are also present or connected to the workplace. The experience of *gratitude* and *anger* directed at other persons may be a result of support and barriers produced by others. Again, one further condition which is favorable to the experience of these emotions is the perceived intentionality of such behavior. At the organizational level, cooperative structures that enhance mutual support may also be conducive to the experience of *gratitude*, whereas competitive structures might frequently induce *anger*.

Another group of social emotions at work relates to perceived accomplish-

tempt, envy, and pity (which seems to be one variant of empathy). *Admiration* and *envy* are induced by accomplishments or desirable attributes of others which are higher than one's own accomplishments or attributes. Envy has been assumed to presuppose social comparison processes implying (a) that the other person's success is located on a self-relevant dimension, and (b) that this person is similar to oneself, thus inducing comparison (Tesser & Collins, 1988). The second condition may be important because envy is experienced in case the other's success might have been (or should have been) one's own success.

Admiration is different from envy on the variable of similarity. Admiration may be caused by perceived higher success, status, and attributes of people who are *not* similar to oneself (like one's senior supervisor). One further differentiating condition is that admiration seems to presuppose internal causation (one admires another person for high achievements, and not for winning in a lottery; but one can envy him or her for the win). Apparently, however, the boundaries between envy and admiration are fuzzy. It follows that often a mixture of envy and admiration will be induced by another person's success.

Pity and *contempt* are complementary to admiration and envy, since they relate to failures, lower status, and negative attributes of other persons. The critical difference between pity and contempt might be the perceived causation of failures. For example, if another person caused a failure by not investing effort, contempt may result. If, on the other hand, the failure is due to uncontrollable external factors (like unemployment caused by the shutdown of a plant), pity (empathy) may be experienced (cf. Weiner, 1980, 1985).

Since admiration, envy, pity, and contempt depend on social comparison, organizational features fostering comparison processes may also enhance the experience of these emotions. Specifically, this can be assumed for hierarchical and competitive structures.

Finally, wherever others are present, feelings of *sympathy* and *antipathy* may be induced. Over time, these feelings can develop into love and hate, respectively. Generally, feelings of this type will be fostered by work organizations that allow and foster high social contact. However, one boundary condition is that contact is not restricted by role prescriptions implying suppression of feelings (see the first review section).

CONCLUSION

This chapter provides an overview of what is known on work and emotion. Obviously, it is not as much as one would like it to be. Quite clearly, emotions have not been of strong interest to industrial and organizational psychologists. Since the body of literature is so small, the function of an article like this one is more to attract research to the field than to present a body of known facts and

orientation than is typical of other reviews in the Cooper and Robertson series. It serves the dual purpose of showing what is available, and of discussing the impact emotion research might have in our field.

Concerning the development of theory, a multifaceted view of work influences on emotions has been presented. A variety of work facets can be assumed to induce emotions, and various emotions are influenced by work. Of course, most of the assumptions presented are more or less speculative and cannot yet be empirically substantiated. Nevertheless, we think that such a multifaceted approach is more useful than a reductionist approach analyzing only a limited set of work facets or only one or two affective constructs (like job satisfaction/dissatisfaction). A reductionist approach cannot adequately deal with the diversity and richness of relations between work and emotions. Research on such relations, however, should not lose sight of the multidimensionality of both work and emotion.

Beyond the impact of work on emotion, it may also be assumed that emotions influence work. Specifically, it may be postulated that emotions exert strong effects on behavior and achievement at work. Due to space limitations, assumptions about such influences could not be presented within this chapter (see Pekrun, in press c). In any case, one obvious implication is that work and emotion may be linked by *reciprocal causation*: As outlined in the last section, task and social facets of the work situation can induce and sustain emotions at work. Among these facets are demands, control, outcomes, and so on. Emotions, however, may influence work-related cognitive and motivational processes, which in turn affect task and social behavior, performance, outcomes, and, therefore, facets of the work situation. For example, positive outcomes may induce hope and anticipatory joy. These emotions in turn may foster motivation and achievement, thus strengthening the chances for positive outcomes.

Feedback loops between work, emotion, behavior, and outcomes might take different forms. For example, hope and positive outcomes may be linked by positive loops, outcomes inducing hope and hope being favorable for outcomes. In case of positive emotions, positive loops may imply growing productivity. In the case of negative emotions (like hopelessness), they may imply vicious circles of negative emotion, reduced motivation, and declining success. Negative feedback loops, on the other hand, may sustain an equilibrium of work and emotion preventing any runaway of the implied circular processes. This may be of specific importance for negative work emotions. For example, failures may trigger anxiety, which in turn might produce strong motivation to avoid future failures, thus preventing too much deterioration. For the development of companies and of whole economic systems, causal feedback loops of individual emotions may be highly important. They should therefore be carefully analyzed by future research.

On a more general level, our considerations imply the following. First, the

give rise to new and innovative areas of research in industrial and organizational psychology. Second, our hope is that research on emotions at work will be able to provide missing links in established areas like research on job satisfaction, stress, performance, and leadership. Finally, since specific emotions may have specific effects on specific achievements given specific job conditions, one practical result of emotion research at work may be specific emotion management. Management of emotions might imply job design, personnel decisions, occupational training, and leadership with a view on how they affect emotions.

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Chapter 6

THE PSYCHOLOGY OF INDUSTRIAL RELATIONS

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INTRODUCTION

Change and Challenge in Industrial Relations

Industrial relations, both in theory development and in practice, are undergoing major changes and challenges. So this is an exciting period in which to study behavioural aspects of industrial relations. In large parts of the industrialised world in the 1980s there were—or were written about—changes in the strategies, behaviours and possibly attitudes of managements, unions, employees and other parties with an interest in industrial relations. In the early 1980s, there was discussion as to whether industrial relations were dead (or dying) because of the declining influence of trade unions, and the increasingly individualistic approach of some managements to the hiring, rewarding and direction of labour.

Some data appeared to support this view although much of the evidence indicated uneven change: Hartley and Stephenson (1992) note that commentators have pointed to a number of changes which *may* be occurring, especially in the UK and USA although of relevance in other industrialised countries to a greater or lesser extent. These include: the decline in trade union membership; a reduced role for trade unions at workplace and national level; new union strategies for recruitment and effectiveness; the advent of human resource management; the increase in non-union firms; the increased interest in Japanese production and personnel methods; the growing concern with developing workforce flexibility; the reduction in industrial conflict, notably strikes; an alleged decline in collectivism and the promotion of more individualistic frameworks of employment, among other things. Such real or mooted changes have taken place in the context of organisational