
Reference:

Beyond Network Theories: The Affect Infusion Model (AIM)

The idea that good or bad moods should "color" cognitions through associative processes has been so powerful that most research was focused on demonstrating mood-congruity effects in memory, associations and evaluations (Forgas & Bower, 1988). The need for a reformulation became clear as empirical evidence over the past decade or so indicated that affect priming is not an invariable or universal phenomenon instead, it seems rather context-sensitive (Blaney, 1986; Erber & Erber, 1994; Forgas, 1991b,c; Sedikides, 1994, 1995; Parrott & Sabini, 1990). This part of the chapter seeks to locate the associate network model within the broader landscape of contemporary affect-cognition theorizing. It is proposed here that, although affect-priming is a robust and powerful phenomenon, it most reliably occurs in circumstances when people employ substantive, constructive processing strategies that allow the infusion of affect-linked information into cognitive processing (Fiedler, 1991). An integrative multi-process theory, the Affect Infusion Model (AIM), has been developed to specify the conditions under which affect-priming is more or less likely to occur.

Affect infusion may be defined here as the process whereby affective information influences and becomes incorporated into people's constructive processing, selectively influencing their learning, memory, attention and associative processes, and eventually coloring the outcome of their deliberations in an affect-congruent direction (Forgas, 1995a, p. 39). The evidence suggests that affect-priming is the major mechanism producing mood-congruity effects in cognition. However, similar effects can also occur when people directly use affect as information in circumstances that call for simple, heuristic processing (Clore, Schwarz & Conway, 1994). Within the AIM, these two explanations can be integrated as complementary rather than competing accounts, both capable of explaining mood congruity effects, albeit under different processing conditions. The AIM also seeks to account for instances in which affect infusion does not occur, or indeed, when mood-incongruent outcomes are generated, because subjects either directly access a pre-existing opinion, or engage in targeted, motivated processing that is incompatible with affect infusion.

The Multi-process Approach: Features and Assumptions.

In order to achieve these objectives, the Affect Infusion Model is based on a strong assumption of process mediation. That is, the nature and extent of mood effects on cognition should depend on the particular kind of processing strategy used to deal with a given task. A corollary assumption is that, other things being equal, people will try to minimize cognitive effort, adopting the simplest and least effortful processing strategy that satisfies minimal contextual requirements. Most information processing models in cognitive psychology-such as the network model-start out as implicit "single process" theories: they assume robust, universal and context-insensitive cognitive mechanisms. As evidence accumulates, the "boundary conditions" for the theory become more and more salient. This is, indeed, what happened as the network theory has been extended to deal with an increasingly broad and heterogeneous set of
phenomena (Forgas & Bower, 1988). The Affect Infusion Model seeks to define and systematize what is now known about the boundary conditions of mood congruity effects as predicted by network theories. What started as a robust, single-process explanation—the network model—now has to be seen as operating only under certain conditions, as part of a more complex, multi-process theory. Such multi-process explanations have become common in social cognition research dealing with cognitive processes in such areas as persuasive communication, attitude formation and change, self-perception, stereotyping and related fields (Brewer, 1988; Chaiken, 1980; Fiedler, 1991; Kruglanski, 1989; Petty, Gleicher & Baker, 1991). We shall next describe the four processing strategies as identified by the AIM, before turning to a brief discussion of the eliciting conditions that recruit each of these processing styles.

The Four Processing Strategies

A schematic outline of the four basic information processing strategies identified by the AIM, and the contextual variables that trigger their use, is presented in Figure 28.1. Two of these strategies (direct access and motivated processing) involve relatively closed, directed information search processes that limit the opportunity for affect-infusion. The other two strategies (heuristic and substantive processing) require more constructive and open-ended thinking allowing multiple avenues for affect infusion. The kind of affect-priming processes predicted by network theories are most likely to occur in circumstances that are conducive to substantive processing according to the AIM.

The direct access strategy is the simplest method of performing a cognitive task, based on the strongly cued retrieval of stored cognitive contents. Most people have a rich repertoire of such crystallized, predetermined reactions and evaluations to draw on when conditions do not warrant more extensive processing. For example, producing evaluations about familiar objects, responding to well-rehearsed survey questions, or dealing with routine information can be performed by simply retrieving pre-existing reactions. Direct access is most likely to be used when the task is familiar, there is little or no personal involvement, and there are no other motivational, cognitive, affective or situational forces mandating more elaborate processing. The direct access strategy is, by definition, a robust process that resists affect infusion, as little constructive thinking is required.
Figure 28.1 Schematic outline of the multiprocess affect infusion model (AIM): affect infusion in social judgements depends on which of four alternative processing strategies is adopted in response to target, judge and situational features. The flowchart illustrates the hierarchical relationships among factors determining processing choices, and the multiple informational and processing effects influence of affect on judgements. After Forgas (1995a)
The **motivated processing strategy** occurs when information processing is guided by a strong, pre-existing objective, and thus little constructive ("unguided") processing occurs, reducing the likelihood of affect infusion. Motivated processing is most likely when a specific outcome is desired, and information processors employ highly selective, motivated information search and integration strategies designed to produce a preferred outcome (Kunda, 1990). Moods themselves often have motivational consequences, directed at achieving mood maintenance as well as mood repair (Clark & Isen, 1982; Erber & Erber, 1994; Berkowitz & Troccoli, 1990). Motivated processing involves more than just a motivation to be accurate (cf. Kunda, 1990): it occurs when a specific directional goal dominates and guides information search and evaluations. The variables that lead to motivated processing may include enduring personality and individual differences in how people approach a cognitive task (Rhodewalt, Strube & Wysocki, 1988; Smith & Petty, 1995; Forgas, 1997a), as well as such specific and situationally induced motives as self-enhancement, ego-defense, self-evaluation maintenance and the like.

**Heuristic processing** occurs when subjects have neither a crystallized response nor a strong motivational goal to influence their processing strategies and they lack either personal involvement or sufficient processing resources. Therefore, they follow a heuristic strategy to compute a response with the least amount of effort, relying on limited information and using whatever shortcuts are available to them (Brewer, 1988; Chaiken, 1980; Petty, Gleicher & Baker, 1991). Heuristic processing is likely to be adopted when the task is relatively simple or typical, personal relevance is low, specific motivational objectives are absent, cognitive capacity is limited and the situation does not demand accuracy or substantive processing (Figure 28.1). During heuristic processing, reactions may be based on irrelevant associations with environmental variables (Griffitt, 1970) and may also be informed by one's prevailing mood, according to the affect-as-information model (cf. Clore, Schwarz & Conway, 1994).

**Substantive processing** is the last, and most constructive information-processing strategy allowing the greatest likelihood of affect infusion. In terms of the AIM, network theories are most likely to apply to circumstances when substantive processing is adopted. During substantive processing, people need to select, learn, interpret and process information about a task, and relate this information to pre-existing knowledge structures using memory processes. Most single-process models imply that such vigilant, careful information processing is the norm. In contrast, within the AIM substantive processing is essentially a default option, adopted only when simpler and less effortful processing strategies cannot be employed. The likelihood of substantive processing is greater when the task is complex or atypical, is personally relevant, when subjects have adequate processing capacity, and have no specific motivational goal guiding them. It is during substantive processing that memory mechanisms such as affect-priming are most likely to influence the selection, learning, interpretation and assimilation of information into pre-existing knowledge (Bower, 1991; Forgas, 1995a). In terms of the AIM, the more extensive processing is required to compute a judgment, the more likely it is that affect infusion will influence the outcome. This counter-intuitive prediction has been supported in several recent experiments showing greater mood congruity due to extended substantive processing (Fiedler, 1991; Forgas, 1992a,b; 1993a,b; 1995a).

**Factors Influencing Processing Choices**

This section will summarize the role of various antecedent variables associated with the task, the person, and the situation that determine subjects' selection of different processing choices, thus mediating mood effects. The schematic relationship between these variables is summarized in Figure 28.1.
**Task Familiarity**

Familiar tasks are most likely to be processed using the direct access strategy, as long as personal relevance is low and further processing is not demanded. Since people possess extensive and accessible information for responding to familiar issues, mood-congruence will not occur. Research found no mood effects when people think about highly familiar products, their living quarters, or familiar health issues; however, mood-congruent distortions occur when people evaluate little-known products, global life satisfaction, and judgments about unfamiliar health states (Salovey & Birnbaum, 1989; Schwarz et al., 1987; Srull, 1983, 1984).

**Complexity and Typicality of Task**

Complex, atypical or otherwise problematic tasks do require more substantive processing, enhancing affect infusion effects. Experiments show that atypical tasks, such as thinking about unusual people, forming impressions about mismatched couples, or making attributions for complex conflicts, take longer to complete and produce significantly greater mood-priming effects than do simple or typical tasks (thinking about typical people, well-matched couples or simple conflicts) (Forgas, 1992c,d; 1993b; 1994b; 1995b).

**Personal Relevance**

Tasks of low personal relevance tend to be processed using effort-minimizing strategies such as direct access or heuristic processing. High personal relevance combined with specific motivation should lead to motivated processing, while high personal relevance in the absence of specific motivation should lead to substantive processing (Figure 28.1). Even slight changes in personal relevance can have quite dramatic consequences for how people deal with information (Brewer, 1988; Neisser, 1982). We have found that as soon as a judgmental task became more personally relevant, motivated processing was adopted, thereby reducing mood-priming effects (Forgas, 1989; 1991b; Forgas & Fiedler, 1996).

**Personal Motivation**

When a strong personal goal guides information search and processing, affect infusion is unlikely. Positive or negative affect itself can be a source of motivated processing (mood maintenance or mood repair), often leading to mood-incongruent outcomes in memory and judgments (Erber & Erber, 1994). Individual differences can also be linked to habitual motivated processing strategies. Several studies suggest that mood congruency is reduced for subjects who score high on such individual difference measures as Type-A personality, self-esteem, macchiavellism and need for approval (Forgas, 1997a; Rhodewalt et al., 1988; Smith & Petty, 1995) and thus have a habitual tendency to approach certain cognitive tasks from a motivated perspective. Such trait/state interactions probably play a critical role in triggering motivated processing and mediating mood effects on cognition (Mayer & Salovey, 1988).

**Processing Capacity**

Impaired information processing capacity due to overload or distractions should trigger simpler, heuristic processing, even if more substantive processing would be used otherwise. Under such conditions priming effects are less likely, as people rely on simple, ready-made information such as...
stereotypes (Bodenhausen, 1993) or the affect-as-information heuristic (Clore, Schwarz & Conway, 1994).

Mood Effects on Processing

Mood itself can play a dual role in influencing cognition: affect can impact both on what people think (informational effects) and how people think (processing effects). Good moods often lead to faster, simpler and more flexible and superficial processing strategies (Isen, 1987; Mackie & Worth, 1991; Fiedler, 1991; Hertel & Fiedler, 1994). In turn, negative moods cause slower, more systematic and vigilant processing strategies (Ellis & Ashbrook, 1988; Forgas & Bower, 1987; Forgas, 1994a; Schwarz & Bless, 1991). This processing asymmetry has been attributed to at least three possible causes: evolutionary/functional reasons, capacity effects and motivational effects. (a) Functional-evolutionary explanations suggest that affective states "exist for the sake of signaling states of the world that have to be responded to" (Frijda, 1988, p. 354). Relaxed, superficial information processing in a good mood, and systematic, vigilant processing in a bad mood seem consistent with such a functional account, although conclusive evidence for such evolutionary explanations is notoriously difficult to obtain. (b) Capacity explanations suggest that thoughts associated with good or bad moods intrude on people’s attentional and cognitive resources, taking up scarce processing capacity (Ellis & Ashbrook, 1988; Isen, 1987; Mackie & Worth, 1991). However, since both positive and negative moods may impair processing capacity, it isn’t clear how capacity effects could explain the asymmetric processing consequences of good and bad moods. (c) Motivational explanations suggest that bad moods motivate people to engage in controlled processing in the service of mood repair, while good moods motivate subjects to engage in simplified, heuristic processing in order to avoid cognitive effort and maintain a pleasant affective state (Clark & Isen, 1982). Overall, the evidence suggests that happy people are more likely to process information heuristically, whereas sad people will process it more substantively.

Multiple Influences on Processing Strategies

According to the AIM, there is a hierarchical relationship between variables in determining processing outcomes (Figure 28.1). For example, the processing effects of mood tend to be weaker and secondary to other processing influences. Several studies found that complex or atypical tasks will be processed slowly and substantively by both happy and by sad subjects, showing strong affect-priming effects; in other words, task characteristics rather than mood was the primary determinant of processing strategies (Forgas, 1995b).

In terms of the AIM, both heuristic and substantive processing can produce mood congruent outcomes, through either the affect-as-information or the affect-priming mechanism. Whether heuristic or substantive processing was used can be empirically distinguished in terms of processing variables, such as memory and latency data, making the processing predictions of the AIM empirically falsifiable (Forgas & Bower, 1987). The evidence suggests that affect-priming typically occurs in the course of substantive, elaborate processing, and disappears when other (heuristic, direct access or motivated) processing strategies are used (Forgas, 1990, 1994b, 1995a,b). In fact, the AIM has the important and counterintuitive implication that the more extensively people need to think about an atypical or complex task, the more likely that affect infusion due to network principles will occur. In several studies, happy or sad subjects encoded, and later recalled and evaluated more or less typical others (Forgas, 1992b,d), formed impressions about more or less well-matched couples (Forgas, 1993a, 1995b; Forgas & Moylan, 1991; Forgas, Levinger & Moylan, 1994) and explained more or less serious relationship conflicts (Forgas, 1994b). In all cases, affect priming was observed, but only in circumstances conducive
to substantive processing consistent with the AIM. Further, greater mood-congruity effects were consistently related to more elaborate and substantive processing, as indicated by processing latency data. Thus, the AIM provides a more general framework within which network theories can be located, suggesting that affect priming effects are most likely to occur in conditions conducive to substantive, elaborate processing strategies (Fiedler, 1991; Forgas, 1995a).

1.b. Discuss the implications of Two-Factor theory on employee’s motivation? Critically evaluate its strengths and weaknesses.

Reference:

Two-factor theory

The two-factor theory (also known as Herzberg's motivation-hygiene theory) states that there are certain factors in the workplace that cause job satisfaction, while a separate set of factors cause dissatisfaction. It was developed by Frederick Herzberg, a psychologist, who theorized that job satisfaction and job dissatisfaction act independently of each other.

Two-factor theory fundamentals

Attitudes and their connection with industrial mental health are related to Maslow's theory of motivation. His findings have had a considerable theoretical, as well as a practical, influence on attitudes toward administration. According to Herzberg, individuals are not content with the satisfaction of lower-order needs at work, for example, those associated with minimum salary levels or safe and pleasant working conditions. Rather, individuals look for the gratification of higher-level psychological needs having to do with achievement, recognition, responsibility, advancement, and the nature of the work itself. So far, this appears to parallel Maslow's theory of a need hierarchy. However, Herzberg added a new dimension to this theory by proposing a two-factor model of motivation, based on the notion that the presence of one set of job characteristics or incentives lead to worker satisfaction at work, while another and separate set of job characteristics lead to dissatisfaction at work. Thus, satisfaction and dissatisfaction are not on a continuum with one increasing as the other diminishes, but are independent phenomena. This theory suggests that to improve job attitudes and productivity, administrators must recognize and attend to both sets of characteristics and not assume that an increase in satisfaction leads to decrease in unpleasurable dissatisfaction.

The two-factor, or motivation-hygiene theory, developed from data collected by Herzberg from interviews with a large number of engineers and accountants in the Pittsburgh area. From analyzing these interviews, he found that job characteristics related to what an individual does — that is, to the nature of the work he performs — apparently have the capacity to gratify such needs as achievement, competency, status, personal worth, and self-realization, thus making him happy and satisfied. However, the absence of such gratifying job characteristics does not appear to lead to unhappiness and dissatisfaction. Instead, dissatisfaction results from unfavorable assessments of such job-related factors as company policies, supervision, technical problems, salary, interpersonal relations on the job, and working conditions. Thus, if management wishes to increase satisfaction on the job, it should be concerned with the nature of the work itself — the opportunities it presents for gaining status, assuming responsibility, and for achieving self-realization. If, on the other hand, management wishes to reduce dissatisfaction, then it must focus on the job environment — policies, procedures, supervision, and
working conditions. If management is equally concerned with both (as is usually the case), then managers must give attention to both sets of job factors.

The theory was based around interviews with 203 American accountants and engineers in Pittsburgh, chosen because of their professions’ growing importance in the business world. The subjects were asked to relate times when they felt exceptionally good or bad about their present job or any previous job, and to provide reasons, and a description of the sequence of events giving rise to that positive or negative feeling.

Here is the description of this interview analysis:

Briefly, we asked our respondents to describe periods in their lives when they were exceedingly happy and unhappy with their jobs. Each respondent gave as many "sequences of events" as he could that met certain criteria—including a marked change in feeling, a beginning and an end, and contained some substantive description other than feelings and interpretations...

The proposed hypothesis appears verified. The factors on the right that led to satisfaction (achievement, intrinsic interest in the work, responsibility, and advancement) are mostly unipolar; that is, they contribute very little to job dissatisfaction. Conversely, the dis-satisfiers (company policy and administrative practices, supervision, interpersonal relationships, working conditions, and salary) contribute very little to job satisfaction.

Two-factor theory distinguishes between:

**Motivators** (e.g., challenging work, recognition, responsibility) that give positive satisfaction, arising from intrinsic conditions of the job itself, such as recognition, achievement, or personal growth, and

**Hygiene factors** (e.g. status, job security, salary, fringe benefits, work conditions) that do not give positive satisfaction, though dissatisfaction results from their absence. These are extrinsic to the work itself, and include aspects such as company policies, supervisory practices, or wages/salary.

Essentially, hygiene factors are needed to ensure an employee is not dissatisfied. Motivation factors are needed to motivate an employee to higher performance. Herzberg also further classified our actions and how and why we do them, for example, if you perform a work related action because you have to then that is classed as movement, but if you perform a work related action because you want to then that is classed as motivation.

Unlike Maslow, who offered little data to support his ideas, Herzberg and others have presented considerable empirical evidence to confirm the motivation-hygiene theory, although their work has been criticized on methodological grounds.

**Validity and criticisms**

In 1968 Herzberg stated that his two-factor theory study had already been replicated 16 times in a wide variety of populations including some in Communist countries, and corroborated with studies using different procedures that agreed with his original findings regarding intrinsic employee motivation making it one of the most widely replicated studies on job attitudes.
While the Motivator-Hygiene concept is still well regarded, satisfaction and dissatisfaction are generally no longer considered to exist on separate scales. The separation of satisfaction and dissatisfaction has been shown to be an artifact of the Critical Incident Technique (CIT) used by Herzberg to record events. Furthermore, it has been noted the theory does not allow for individual differences, such as particular personality traits, which would affect individuals' unique responses to motivating or hygiene factors.

A number of behavioral scientists have pointed to inadequacies in the need hierarchy and motivation-hygiene theories. The most basic is the criticism that both of these theories contain the relatively explicit assumption that happy and satisfied workers produce more. Another problem is that these and other statistical theories are concerned with explaining "average" behavior and, on the other hand, if playing a better game of golf is the means chosen to satisfy one's need for recognition, then one will find ways to play and think about golf more often, perhaps resulting in an accompanying lower output on the job. Finally, in his pursuit of status a person might take a balanced view and strive to pursue several behavioral paths in an effort to achieve a combination of personal status objectives.

In other words, an individual's expectation or estimated probability that a given behavior will bring a valued outcome determines his choice of means and the effort he will devote to these means. In effect, this diagram of expectancy depicts an employee asking himself the question posed by one investigator, "How much payoff is there for me toward attaining a personal goal while expending so much effort toward the achievement of an assigned organizational objective?" The Expectancy theory by Victor Vroom also provides a framework for motivation based on expectations.

This approach to the study and understanding of motivation would appear to have certain conceptual advantages over other theories: First, unlike Maslow's and Herzberg's theories, it is capable of handling individual differences. Second, its focus is toward the present and the future, in contrast to drive theory, which emphasizes past learning. Third, it specifically correlates behavior to a goal and thus eliminates the problem of assumed relationships, such as between motivation and performance. Fourth, it relates motivation to ability:

Performance = Motivation*Ability.

That said, a study by the Gallup Organization, as detailed in the book First, Break All the Rules: What the World's Greatest Managers Do by Marcus Buckingham and Curt Coffman, appears to provide strong support for Herzberg's division of satisfaction and dissatisfaction onto two separate scales. In this book, the authors discuss how the study identified twelve questions that provide a framework for determining high-performing individuals and organizations. These twelve questions align squarely with Herzberg's motivation factors, while hygiene factors were determined to have little effect on motivating high performance.

To better understand employee attitudes and motivation, Frederick Herzberg performed studies to determine which factors in an employee's work environment caused satisfaction or dissatisfaction. He published his findings in the 1959 book The Motivation to Work.

The studies included interviews in which employees where asked what pleased and displeased them about their work. Herzberg found that the factors causing job satisfaction (and presumably motivation) were different from those causing job dissatisfaction. He developed the motivation-hygiene theory to explain these results. He called the satisfiers motivators and the dissatisfiers hygiene factors, using the
term "hygiene" in the sense that they are considered maintenance factors that are necessary to avoid dissatisfaction but that by themselves do not provide satisfaction.

The following table presents the top seven factors causing dissatisfaction and the top six factors causing satisfaction, listed in the order of higher to lower importance.

**Leading to satisfaction**

- Achievement
- Recognition
- Work itself
- Responsibility
- Advancement
- Growth

**Leading to dissatisfaction**

- Company policy
- Supervision
- Relationship with boss
- Work conditions
- Salary
- Relationship with peers
- Security

Herzberg reasoned that because the factors causing satisfaction are different from those causing dissatisfaction, the two feelings cannot simply be treated as opposites of one another. The opposite of satisfaction is not dissatisfaction, but rather, no satisfaction. Similarly, the opposite of dissatisfaction is no dissatisfaction.

While at first glance this distinction between the two opposites may sound like a play on words, Herzberg argued that there are two distinct human needs portrayed. First, there are physiological needs that can be fulfilled by money, for example, to purchase food and shelter. Second, there is the psychological need to achieve and grow, and this need is fulfilled by activities that cause one to grow.

From the above table of results, one observes that the factors that determine whether there is dissatisfaction or no dissatisfaction are not part of the work itself, but rather, are external factors. Herzberg often referred to these hygiene factors as "KITA" factors, where KITA is an acronym for Kick In The Ass, the process of providing incentives or a threat of punishment to cause someone to do something. Herzberg argues that these provide only short-run success because the motivator factors that determine whether there is satisfaction or no satisfaction are intrinsic to the job itself, and do not result from carrot and stick incentives.

In a survey of 80 teaching staff at Egyptian private universities, Mohamed Hossam El-Din Khalifa and Quang Truong (2009) found that perception of equity was directly related to job satisfaction when the outcome in the equity comparison was one of Herzberg's motivators. On the contrary, perception of equity and job satisfaction were not related when the outcome in the equity comparison was one of Herzberg's hygiene factors. The findings of this study provide a kind of an indirect support to Herzberg's
findings that improving hygiene factors would not lead to improvement in an employee's job satisfaction.

**Implications for management**

If the motivation-hygiene theory holds, management not only must provide hygiene factors to avoid employee dissatisfaction, but also must provide factors intrinsic to the work itself for employees to be satisfied with their jobs.

Herzberg argued that job enrichment is required for intrinsic motivation, and that it is a continuous management process. According to Herzberg:

- "The job should have sufficient challenge to utilize the full ability of the employee."
- "Employees who demonstrate increasing levels of ability should be given increasing levels of responsibility."
- "If a job cannot be designed to use an employee's full abilities, then the firm should consider automating the task or replacing the employee with one who has a lower level of skill. If a person cannot be fully utilized, then there will be a motivation problem."

Critics of Herzberg's theory argue that the two-factor result is observed because it is natural for people to take credit for satisfaction and to blame dissatisfaction on external factors. Furthermore, job satisfaction does not necessarily imply a high level of motivation or productivity.

Herzberg's theory has been broadly read and despite its weaknesses its enduring value is that it recognizes that true motivation comes from within a person and not from KITA factors. (French, 2008)

**1.c. What are the problems in the assessment of achievement motivation?**

**Reference:**

**Difficulties in the assessment of achievement motivation**

Clear behaviour-oriented assessment criteria such as oral communication, dealing with conflicts or influencing behaviour can normally be handled well by the observers. Uncertainties in relation to adequate perception and evaluation are recurrently seen in the case of the requirement of achievement motivation. Many assessors admit to having difficulty in evaluating general achievement motivation on the basis of exercises that are barely one hour long. In addition to this, that fact that behaviour is always a result of ability and motivation therefore makes it difficult to assess motivation as an isolated criterion.

Nevertheless the assessment of achievement motivation cannot be disregarded. Its general relevance becomes clear, for example, if one follows scientists such as Eckardt & Schuler (1992) who regard achievement motivation – next to cognitive skills – as the second, probably general, professionally relevant factor. This is also seen in the fact that, despite the aforementioned assessment difficulties, 58% of companies questioned by Neubauer (2001) state a factor similar to achievement motivation - commitment - as a requirement in their AC. And the study by Kilcullen, Mael, Goodwin and Zazanis (1999) even provides empirical evidence in the military context that motivation at work and achievement orientation have a significant correlation with job performance by members of the American Special Operation Forces.
Because achievement motivation is regarded as an essential factor for the success of a future career officer, but its measurement gives rise to various uncertainties, a multi-method diagnostics might be useful in order to obtain a more comprehensive and more adequate picture. Such a method has already produced encouraging results in the ACABO. In order to give a broader base to the dimension analysis, specific cognitive performance tests have been integrated into the procedure. These then emerge as good predictors for the study success and accordingly contribute to improving the predictive validity of the ACABO (Annen & Gutknecht, 2002).

Based on these considerations, achievement motivation has since 2003 been tested in the ACABO with a further questionnaire instrument - the achievement motivation inventory (LMI) from Schuler & Prochaska (2001). In addition, each candidate carries out a self-assessment of his achievement motivation at the end of the assessment. This self-assessment is based on the same definition specification as is found in the observation sheets. This is in keeping with the requirement of Höft & Bolz (2004) that self-assessment and other rating should be carried out by an identical procedure.

1.d. "Emotion is the cognitive interpretation of a physiological response." Explain with the help of suitable examples.

Reference:

Two-factor theory of emotion

Schachter & Singer (1962) The two-factor theory of emotion, or Schachter-Singer theory, states that emotion is a function of both cognitive factors and physiological arousal. According to the theory, "people search the immediate environment for emotionally relevant cues to label and interpret unexplained physiological arousal."

Stanley Schachter and Jerome Singer (1962) performed a study on 184 college students on how emotion comes from a state of arousal and what makes the most sense of the situation. From this information, they designed a study that would give the participants a shot of epinephrine (adrenaline). Although, all participants told that they were given an injection of a new drug called Suproxin to test their eyesight. Shortly after injection, blood pressure and heart rate both increase, blood flow decreases, while muscle and cerebral blood flow increase, blood sugar and lactic acid concentration increases, and respiration rate increases slightly. Schachter and Singer then manipulated the participates by informing them in one of the three different ways: epinephrine informed, epinephrine ignorant, and epinephrine misinformed.

When an individual has no immediate explanation for the state of physiological arousal they are feeling, they will label the feelings to which cognitions are available to them. That is why subjects would have feelings of euphoria or anger. The subjects that were in the misinformed or ignorant condition behaved similar to the stooge. While those who were informed of the expected feelings had little to no emotion pattern. They found that when the subjects were informed the individual had a perfectly appropriate explanation for his or her feelings.

The results support the proposition that for following the injection of epinephrine, those subjects had no explanation for the bodily state they felt. They did give behavioral and self-report indications that...
they had been manipulated into the feeling states of euphoria and anger. Subjects' emotional states were inferred from both observations of the subjects and the subjects responses on a self-rating of emotion scale. Those subjects who had received the adrenaline injection were more emotional by both measures, showing that the first factor in emotion, intensity, resulted from visceral arousal.

Participants who were in the misinformed or ignorant condition behaved similarly to the confederate, while those who were informed of the expected effects of the adrenaline showed no emotional pattern. This suggests that participants who were informed cognitively attributed their feelings to the physiological effects of the adrenaline, while the uninformed or misinformed groups could perform no such attribution and so interpreted the feelings as emotion. Schachter's cognitive labeling theory thus identifies "cognitive attribution," the mind's attempt to pair the feeling of arousal with its (inferred) causal pattern in the environment as the second factor in the Two-factor Theory of Emotion.

Supporting Evidence

In the Schachter & Wheeler (1962) study the subjects were injected with epinephrine, chlorpromazine, or a placebo. Chlorpromazine is similar form of a tranquilizer. None of the subjects had any information about the injection. After receiving the injection, the subjects watched a short comical movie. While watching the movie, the subjects were monitored for signs of humor. After the movie was watched, the subjects rated how funny the movie was and if they enjoyed. The results concluded that the epinephrine subjects demonstrated the most signs of humor. The placebo subjects demonstrated less amount of humor but more than the chlorpromazine subjects.

Erdmann & Janke (1978) administrated there subjects with ephedrine, adrenaline like substance or they were give a placebo. The administrators informed the subjects that they were testing the comparison between pills and powders. Therefore, the subjects were not aware they had taken a drug. After the drug was taken, the subjects followed one of four different routes: neutral, happy, anger, or anxiety conditions. For the neutral condition the subjects rated a text on the nature of the experiment. For the happy conditions subjects were reminded that they had done very well on an earlier mock intelligence test. Then they were asked several complimentary questions, such as: how many grades had they skipped in school? In the anger conditions subjects it was the exact opposite. They were told how horrible they had done on a previous intelligence examination, and were asked how many times they had to repeat a grade in school. While for the subjects in the anxiety conditions, subjects were told they would be receiving electric shocks and were given several mild shocks. The result found that both physiological and self reported dated should that the drug increased the subject's arousal levels over the placebo effect. Data from the mood scale showed that drug manipulation increased the anger and happy conditions. While the happy subjects felt much happier than the anger condition subjects.

1.e. Discuss the role of emotions and cognitions in entrepreneurial decision-making. 10

Reference:

Emotions and Cognitions in Entrepreneurial Decision-Making

In this section, we demonstrate the influence of emotions and cognitions on entrepreneurial decision-making and how emotions and cognitions interact in this process. Although we first outline the influence of emotions and cognitions on entrepreneurial decision-making separately, researchers and practitioners have already agreed that emotions and cognitions cannot be studied without each other.
Only for reasons of clarity do we focus on the influence of emotions on entrepreneurial decision-making and then on the influence of cognitions. The Role of Emotions and Cognitions in Entrepreneurial Decision-Making before we show their interacting effects on entrepreneurial decision-making. Previous studies on the connection between emotions and cognitions (e.g., Forgas 2000) indicated that they are connected in a bidirectional link, i.e., emotions affect cognitions and cognitions in turn influence emotions (Baron 2008).

The Role of Emotions in Entrepreneurial Decision-Making

Emotions in the entrepreneurial process have not been examined by many scholars so far (e.g., Cardon et al. 2005, Goss 2005, 2007, Shepherd 2004), but in entrepreneurship literature they are often connected to information processing and decision-making (e.g., Baron 2000a, Goss 2007, Schindehutte et al. 2006). Because entrepreneurs have specific tasks in highly unpredictable, uncertain, and rapidly changing environments (Picot et al. 2005), they cannot follow certain well-learned scripts. Instead, they often have to trust their “gut feeling” which under such circumstances are especially strong (Baron 2008). Emotions, however, influence the decision-making process and judgments, even when they are unrelated to each other and stem from sources completely independent of the context (Baron 2008). But considering the fact that individuals are able to control or suppress their positive and negative emotions, some studies (e.g., Shiv et al. 2005, Spencer 2005) proved that those individuals, who make decisions (seemingly) independent of their emotions, are more successful and make more efficient decisions. Besides, Baron (1998, 2000b, 2008) postulates that entrepreneurs will experience very intense emotions in their decisions, as they generally show a high commitment to their ventures.

The following two sections outline possible effects of positive and negative emotions on entrepreneurial decision-making processes. It must be mentioned here that neither negative nor positive emotions have a uniformly beneficial or detrimental effect on entrepreneurial decision-making.

The Effect of Positive Emotions on Entrepreneurial Decision-Making

There are numerous studies which provide evidence for the beneficial effects of individuals with positive emotions and even though it has been postulated that emotion related conditions such as passion, enthusiasm, and affection provide important impulses in the entrepreneurial process (Baum and Locke, 2004, Cardon et al. 2005, Smilor 1997, see also Chapter 9), positive emotions have hardly been considered. Many studies have proven that positive emotions lead to more efficient decision-making (e.g., Estrada et al. 1997, Isen 2000), higher involvement with tasks (e.g., Lyubomirsky et al. 2005), and approach behavior (e.g., Baron 2000a, Krause, 2004 and Chapter 15). Additionally, positive emotions might explain why some entrepreneurs are able to tolerate intense levels of stress (Baron 2008) and could therefore be more successful than other entrepreneurs not holding this external pressure.

Some studies (e.g., Ardichvili et al. 2003, Baron 2004, Baron 2008, Forgas 2000) also demonstrated negative effects of positive emotions and showed that positive emotions such as joviality and happiness might lead entrepreneurs to not fully evaluate all possible outcome alternatives and consequently result in hasty and premature decisions. This could happen when entrepreneurs stop the information search for a decision too early (cf. Bless 2001, Picot et al. 2008), because they are already so enthusiastic about their present idea and believe that they cannot find a better one (e.g., Fiet et al. 2004). It was also shown that positive emotions often increase individuals’ willingness to take risks because they feel more optimistic and capable of dealing with potential problems (e.g., Weiss 2002) and expect positive outcomes (e.g., Busenitz and Barney 1997) which increase the tendency to make risky decisions. In
addition, there is evidence (e.g., Cacioppo et al. 1993) that entrepreneurs’ emotions are contagious, resulting, if the emotions are positive, in being more persuasive for investors, employees, and customers. Positive emotions in this instance could serve for a better success of the new venture. However, it cannot be assumed that positive emotions in general are more helpful for the success of a new venture than are negative emotions.

**The Effect of Negative Emotions on Entrepreneurial Decision-Making**

Negative emotions such as anxiety and shame do not have an exactly opposing effect compared to positive emotions, but they are rather heterogeneous. Negative emotions have been found to result in avoidance behavior (e.g., Krause 2004, Lazarus et al. 1980), even though some studies also uncovered that negative emotions can have a positive influence on decision-making through higher concentration and more detailed processing (Schwarz et al. 1991). But negative emotions could make entrepreneurs also more risk averse so that they only make decisions when the option is evaluated as totally safe in order to minimize risks and negative outcomes. Higgins (2005) and Brockner et al. (2004) call this a “prevention focus,” preventing entrepreneurs from engaging in entrepreneurial action although it could be beneficial. Negative emotions might also be contagious and lead to little support from the social network, e.g., investors, customers, employees (Baron 2008). Little or no support from the social network because of negative emotions might also negatively influence the success of a new venture because extensive social networks are seen as a critical success factor (e.g., Birley 1985, de Koning 1999, Low and McMillan 1988, Ozgen and Baron 2007). Shepherd (2003, 2004) examined negative emotions connected with business failure and could show that potential entrepreneurs are more discouraged by fear of failure than that they are driven by the prospects of great success.

**The Role of Cognitions in Entrepreneurial Decision-Making**

All inner processes associated with entrepreneurial activity are at least partly cognitive processes. Therefore, one might argue that entrepreneurial activity is influenced by cognitive biases, and cognitive biases were indeed found to strongly influence entrepreneurial decision-making (e.g., Baron 2004, Busenitz and Barney 1997, Shaver and Scott 1991). Baron (2004) even proposes that especially entrepreneurs are more susceptible to such biases than other persons.

In general, individuals have a strong tendency to weigh negative information more heavily than positive information (negativity bias, e.g., Mitchell et al. 2002, Picot et al. 2008). Additionally, individuals tend to notice information that is connected to information they already know (e.g., von Hippel 1994). This strongly influences decisions in a wide range of contexts, especially in the decision-making context of entrepreneurship. The so-called optimistic bias describes an individual’s tendency to expect positive outcomes and events (e.g., Busenitz and Barney 1997, Simon et al. 2000) and also influences evaluation and exploitation processes. A derivative of the optimistic bias is the planning fallacy which involves individuals’ tendencies to assume that they can achieve more than they actually can during a specific period of time, or that they can complete tasks sooner than is actually practicable (e.g., Bühler et al. 1994). If that is not the case and the tasks take longer than planned to complete, it may lead to the dissatisfaction of investors, customers, and other stakeholders. Finally, the confirmation bias influences individuals’ decision making processes. The confirmation bias refers to the tendency to seek, notice, and remember information that confirms current preferences or beliefs and to overlook and ignore information that is not consistent with current preferences or beliefs (e.g., Nickerson 1998, Picot et al. 2008). This might seriously interfere with the perception and evaluation process of information that could be necessary for the success of the new business. The affect infusion model (Forgas 1995)
assumes that the strength of emotion affects individuals’ judgments, but interestingly, that does not happen consistently.

Baron and Ensley (2006, Baron 2008) compared one cognitive framework that underlies opportunity recognition, namely pattern recognition, of novice and experienced entrepreneurs. Previous literature calls this prototype theory (e.g., Whittlesea 1997) and Hahn and Chater (1997) developed a basis for it with different theories of pattern recognition. It is not surprising that individuals differ in their cognitive frameworks since these are shaped through unique life experiences. In essence, prototypes serve as templates for individuals and seek to notice links between diverse events or trends and to perceive recognizable and meaningful patterns in these linkages (Baron and Ensley 2006). They (Baron and Ensley 2006) argue that entrepreneurial opportunities have similar characteristics that can be recognized by individuals. Therefore, cognitive frameworks employed by entrepreneurs do indeed develop with increasing experience as theories of pattern recognition suggest (e.g., Whittlesea 1997). Experienced entrepreneurs acquire these well-developed cognitive frameworks through processes of learning – processes that occur as they gain experience in the intricacies of starting a new business.

However, it should certainly not be assumed that the development of increasingly strong and developed prototypes is beneficial in all respects or all instances (cf. Garud and Rappa 1994), e.g., for the success of a new venture.

The Interaction Between Emotions and Cognitions in Entrepreneurial Decision-Making Processes

According to Scherer (2005) some researchers still see emotions and cognitions as two independent but interacting phenomena. However, there is more and more common sense that emotions and cognitions cannot be studied separated from each other, but that only an integrative view will lead to an understanding of their effects on entrepreneurial decision-making. Cognitive science research has proven a strong and complex link between emotions and cognitions (Baron 2008, Tice et al. 2000) and the expanding entrepreneurship literature (e.g., Koellinger et al. 2007, Lee et al. 2005, Shepherd 2004, Sternberg et al. 2007) provides also clear evidence that emotions have a systematic influence on entrepreneurial decision-making. In the last two centuries, three integrative fields of research aroused: the study of the influence of emotions on the memory, on cognitive information processing and attention, and on decision-making (Baron 2008).

The mood-dependent memory is therefore a study subject for the interaction of emotions and cognitions as it perceives, stores, and recalls certain information only in certain moods (Baron 2008, Blaney 1986, Bower 1981, Eich et al. 1994). Individuals primarily remember things they learned in a certain mood when they are in a similar affective state again. For example, entrepreneurs remember sad things when they are in a similar sad situation, and they remember happy things when they are in a similar happy situation. Additionally, if entrepreneurs in negative (positive) moods remember more negative (positive) situations, the current negative (positive) emotional state will be enhanced and entrepreneurs will feel even worse (better). This influences entrepreneurs’ decision-making as they only recall selected mood-dependent information on which the decision is based.

As mentioned above, strong positive emotions will result in cognitive strategies for coping and tolerating high levels of stress (Baron 2008, Carver and Scheier 2001). While individuals under weak stress are more concentrated and motivated in their tasks, individuals under strong stress might not be able to “think” anymore – a so-called “black out” – and are unable to explain the simplest relationships. In
addition to the influence of the emotions’ intensity on cognitions, there are also indications that the quality of emotions determines how information is processed and stored (Baron 2008).

Emotions also have been found to influence individuals’ perceptions of the external world (e.g., Baron 2008, Forgas 1995, 2000), e.g., objects, experiences, people, whereas individuals displaying positive emotions tend to perceive the external world as positive and individuals displaying negative emotions tend to perceive the opposite (Baron 2008). For example, happy entrepreneurs tend to see their 8 The Role of Emotions and Cognitions in Entrepreneurial Decision-Making 175 situation as positive (what it is not necessarily), whereas sad entrepreneurs tend to see their situation negative. In line with that, entrepreneurs with positive emotions tend to perceive a broader range of stimuli than entrepreneurs with negative emotions (e.g., Isen 2002, Schiffman 2005). Thus, positive emotions enhance individuals’ entrepreneurial alertness (e.g., Baron 2008). Positive emotions were also found to enhance creativity (creative cognition) (cf. Isen 1999), an important aspect of entrepreneurial cognitions, as happy individuals show a higher cognitive flexibility, i.e., a wider range of ideas and associations (e.g., Baron 2008, Ward 2004). However, individuals in positive emotions and a higher cognitive flexibility were also found to be easier to distract (e.g., Dreisbach and Goschke 2004). Besides, negative emotions under some circumstances were also found to increase creativity, although not as strong as positive emotions (e.g., Baron 2008).

When individuals experience strong positive or negative emotions their capacity to think systematically and to evaluate information carefully is significantly influenced (Baron and Ensley 2006, Ruder and Bless 2003), e.g., strong emotions increase the tendency to engage in heuristics (“short-cuts”) rather than systematic thinking (e.g., Baron 2008, cf. Tversky and Kahneman 1974). Thus, strong emotions reduce cognitive activity and might lead to serious judgment and decision errors (Baron 2008). Some findings indicated that individuals in positive emotions are more likely to engage in heuristics than individuals in negative moods because they do not want to threaten their positive state through the effort of systematic thinking (e.g., Mackie and Worth 1989, Park and Banaji 2000). Others show that individuals with positive emotions engage more in systematic thinking when clear situational cues require the effort of cognitive activity (e.g., Lyubomirsky et al. 2005). When engaging in heuristic thought, decisions are typically made faster as individuals make this decision based on past decisions. For example, if an entrepreneur made the decision that he or she does not like a certain investor, he or she might make the same decision after one year again. The second decision is a “short-cut” as it refers to a decision already made in the past without further considering emotions. Thus, if we think that we make the most rational decisions, because we take our time to collect and evaluate information, emotions are most likely to influence our decisions in that process (cf. Baron 2008).

Additionally, individuals in a positive mood are more likely to judge a statement as true compared to individuals in a negative mood (Garcia-Marques et al. 2004). Besides, there is a decision-making strategy called “satisficing” (e.g., Baron 2008), which occurs when entrepreneurs choose the first best alternative. This strategy is particularly applied when entrepreneurs experience positive emotions and it results. In the early 1970s, Tversky and Kahneman described a research orientation which has dominated the judgement and decision-making literature ever since. They argued that individuals make use of cognitive heuristics, i.e., simple rules of thumb to make “quick-and-easy” decisions, which reduce the complexity of a decision under uncertainty. Heuristics in general, however, are quite useful, but sometimes they also lead to serious and systematic errors, i.e., cognitive biases. Tversky and Kahneman defined three cognitive heuristics for risk judgments, namely representativeness, availability, and anchoring-and-adjustment. in fast and quite efficient decisions. There is a strategy mostly applied in
negative emotions called “maximizing” (e.g., Baron 2008) with which entrepreneurs evaluate exhaustively any possible alternative.

2.a. What relationship do you see between Locus of Control and temperamental dispositions? Discuss the factors that influence one’s locus of control with the help of suitable examples.

Reference:

Locus of control

Locus of control in social psychology refers to the extent to which individuals believe that they can control events that affect them. Understanding of the concept was developed by Julian B. Rotter in 1954, and has since become an important aspect of personality studies.

Individuals with a high internal locus of control believe that events result primarily from their own behavior and actions. Those with a high external locus of control believe that powerful others, fate, or chance primarily determine events.

Those with a high internal locus of control have better control of their behavior, tend to exhibit more political behaviors, and are more likely to attempt to influence other people than those with a high external (or low internal respectively) locus of control. Those with a high internal locus of control are more likely to assume that their efforts will be successful. They are more active in seeking information and knowledge concerning their situation.

One's "locus" (Latin for "place" or "location") can either be internal (meaning the person believes that they control their life) or external (meaning they believe that their environment, some higher power, or other people control their decisions and their life).

History of concept

Locus of control is the framework of Rotter's (1954) social learning theory of personality. Lefcourt (1976) defined perceived locus of control as follows: "Perceived control is defined as a generalised expectancy for internal as opposed to external control of reinforcements" (Lefcourt 1976, p. 27). Early work on the topic of expectancies about control of reinforcement had, as Lefcourt explains, been performed in the 1950s by James and Phares prepared for unpublished doctoral dissertations supervised by Rotter at The Ohio State University. Attempts have been made to trace the genesis of the concept to the work of Alfred Adler, but its immediate background lies in the work of Rotter students, such as William H. James (not to be confused with William James), who studied two types of expectancy shifts:

- typical expectancy shifts, believing that a success or failure would be followed by a similar outcome; and
- atypical expectancy shifts, believing that a success or failure would be followed by a dissimilar outcome.

Work in this field led psychologists to suppose that people who were more likely to display typical expectancy shifts were those who more likely to attribute their outcomes to ability, whereas those who displayed atypical expectancy would be more likely to attribute their outcomes to chance. This was interpreted as saying that people could be divided into those who attribute to ability (an internal cause) versus those who attribute to luck (an external cause). However, after 1970, Bernard Weiner pointed
out that attributions to ability versus luck also differ in that the former are an attribution to a stable cause, the latter an attribution to an unstable cause.

A revolutionary paper in this field was published in 1966, in the journal Psychological Monographs, by Rotter. In it, Rotter summarized over ten years of research by himself and his students, much of it previously unpublished. Early history of the concept can be found in Lefcourt (1976), who, early in his treatise on the topic, relates the concept to learned helplessness. Rotter (1975, 1989) has discussed problems and misconceptions in others’ use of the internal versus external control of reinforcement construct...

Locus of control personality orientations

Rotter (1975) cautioned that internality and externality represent two ends of a continuum, not an either/or typology. Internals tend to attribute outcomes of events to their own control. Externals attribute outcomes of events to external circumstances. For example, college students with a strong internal locus of control may believe that their grades were achieved through their own abilities and efforts, whereas those with a strong external locus of control may believe that their grades are the result of good or bad luck, or to a professor who designs bad tests or grades capriciously; hence, they are less likely to expect that their own efforts will result in success and are therefore less likely to work hard for high grades. (It should not be thought however, that internality is linked exclusively with attribution to effort and externality with attribution to luck, as Weiner’s work (see below) makes clear). This has obvious implications for differences between internals and externals in terms of their achievement motivation, suggesting that internal locus is linked with higher levels of N-ach. Due to their locating control outside themselves, externals tend to feel they have less control over their fate. People with an external locus of control tend to be more stressed and prone to clinical depression (Benassi, Sweeney & Dufour, 1988; cited in Maltby, Day & Macaskill, 2007).

Internals were believed by Rotter (1966) to exhibit two essential characteristics: high achievement motivation and low outer-directedness. This was the basis of the locus of control scale proposed by Rotter in 1966, although this was actually based on Rotter’s belief that locus of control is a unidimensional construct. Since 1970, Rotter’s assumption of unidimensionality has been challenged, with Levenson, for example, arguing that different dimensions of locus of control, such as belief that events in one’s life are self-determined, are organized by powerful others and are chance-based, must be separated. Weiner’s early work in the 1970s, suggested that, more-or-less orthogonal to the internality-externality dimension, we should also consider differences between those who attribute to stable causes, and those who attribute to unstable causes.

This meant that attributions could be to ability (an internal stable cause), effort (an internal unstable cause), task difficulty (an external stable cause) or luck (an external, unstable cause). Such at least were how the early Weiner saw these four causes, although he has been challenged as to whether people do see luck, for example, as an external cause, whether ability is always perceived as stable and whether effort is always seen as changing. Indeed, in more recent publications (e.g. Weiner, 1980) Weiner uses different terms for these four causes—such as "objective task characteristics" in place of task difficulty and "chance" in place of luck. It has also been notable how psychologists since Weiner have distinguished between stable effort and unstable effort—knowing that, in some circumstances, effort could be seen as a stable cause, especially given the presence of certain words such as "industrious" in the English language.

©numerons
Scales to measure locus of control

The most famous questionnaire to measure locus of control is the 23-item forced choice items and six filler items scale of Rotter (1966), but this is not the only questionnaire—indeed, predating Rotter's work by five years is Bialer's (1961) 23-item scale for children. Also of relevance to locus of control scale are the Crandall Intellectual Ascription of Responsibility Scale (Crandall, 1965), and the Nowicki-Strickland Scale. One of the earliest psychometric scales to assess locus of control, using a Likert-type scale in contrast to the forced-choice alternative measure in Rotter's scale, was that devised by W.H. James, for his unpublished doctoral dissertation, supervised by Rotter at Ohio State University, although this remained an unpublished scale.

Many measures of locus of control have appeared since Rotter's scale, some that use a five-point scale, such as The Duttweiler Control Index (Duttweiler, 1984), and some that relate to specific areas, such as health. These scales are reviewed by Furnham and Steele (1993), and include those related to health psychology, industrial and organizational psychology, and those specifically for children, such as the Stanford Preschool Internal-External Control Index, which is used for three- to six-year-olds. Furnham and Steele (1993) cite data that suggest that the most reliable and valid of the questionnaires for adults is the Duttweiler scale. For a review of the health questionnaires cited by these authors, see below under "Applications".

The Internal Control Index of Duttweiler

A scale with reasonably good psychometric properties has been the Internal Control Index (ICI) of Duttweiler (1984). In her paper on this scale, Duttweiler notes many problems with Rotter's I-E Scale, including problems with its forced choice format, its susceptibility to social desirability and her observation that studies that subject the scale to factor analysis suggest it is not assessing an entirely homogeneous concept. She also notes that, while other scales existed in 1984 to measure locus of control, "they appear to be subject to many of the same problems" (Duttweiler, 1984, p. 211). She developed the ICI to assess several variables especially pertinent to internal locus: cognitive processing, autonomy, resistance to social influence, self-confidence and delay of gratification. After administration of this scale to 133 students at Gainesville Junior College in Georgia, United States, she found the scale to have good internal reliability, with a Cronbach's alpha of 0.85. Unlike the forced-choice format used on Rotter's scale, Duttweiler's 28-item ICI uses a Likert-type scale, in which people have to state whether they would rarely, occasionally, sometimes, frequently or usually behave as specified by each of 28 statements.

Attributional style, or explanatory style, is a concept that was introduced by Lyn Yvonne Abramson, Martin Seligman and John D. Teasdale (Abramson, Seligman & Teasdale, 1978). Buchanan and Seligman (1995) have edited a book-length review of the topic. This concept goes a stage further than Weiner, stating that, in addition to the concepts of internality-externality and stability, a dimension of globality-specificity[clarification needed] is also needed. Abramson et al. therefore believed that how people explained successes and failures in their lives related to whether they attributed these to internal or external factors, to factors that were short-term or long-term and to factors that affected all situations in their situations.

The topic of attribution theory, introduced to psychology by Fritz Heider, has had an influence on locus of control theory, but it is important to appreciate the differences between the history of these two models in psychology. Attribution theorists have been, largely speaking, social psychologists, concerned
with the general processes characterizing how and why people in general make the attributions they do, whereas locus of control theorists have been more concerned with individual differences.

Significant to the history of both approaches were the contributions made by Bernard Weiner, in the 1970s. Prior to this time, attribution theorists and locus of control theorists had been largely concerned with divisions into external and internal loci of causality. Weiner added the dimension of stability-instability, and somewhat later, controllability, indicating how a cause could be perceived as having been internal to a person yet still beyond the person's control. The stability dimension added to the understanding of why people succeed or fail after such outcomes. Although not part of Weiner's model, a further dimension of attribution was added by Abramson, Seligman and Teasdale, that of globality-specificity (see the article on explanatory style).

**Applications of locus of control theory**

Locus of control's most famous application has probably been in the area of health psychology, largely thanks to the work of Kenneth Wallston. Scales to measure locus of control in the health domain are reviewed by Furnham and Steele (1993). The most famous of these would be the Health Locus of Control Scale and the Multidimensional Health Locus of Control Scale, or MHLC (Wallston, Wallston, & DeVellis, 1976; Wallston, Wallston, Kaplan & Mades, 1976). The latter scale is based on the idea, echoing Levenson's earlier work, that health may be attributed to three possible outcomes: internal factors, such as self-determination of a healthy lifestyle, powerful others, such as one's doctor, or luck.

Some of the scales reviewed by Furnham and Steele (1993) relate to health in more specific domains, such as obesity (for example, Saltzer's (1982) Weight Locus of Control Scale or Stotland and Zuroff's (1990) Dieting Beliefs Scale), or mental health (such as Wood and Letak's (1982) Mental Health Locus of Control Scale or the Depression Locus of Control Scale of Whiteman, Desmond and Price, 1987) and cancer (the Cancer Locus of Control Scale of Pruyn et al., 1988). In discussing applications of the concept to health psychology, Furnham and Steele also refer to Claire Bradley's work, linking locus of control to management of diabetes mellitus. Empirical data on health locus of control in various fields has been reviewed by Norman and Bennett (1995). These authors note that data on whether certain health-related behaviors are related to internal health locus of control have been ambiguous. For example, they note that some studies found that internal health locus of control is linked with increased exercise, but they also cite several studies that have found only a weak or no relationship between exercise behaviors (such as jogging) and internal health locus of control. They note similar ambiguity for data on the relationship between internal health locus of control and other health-related behaviors, such as breast self-examination, weight control and preventative health behaviors. Of particular interest are the data these authors cite on the relationship between internal health locus of control and alcohol consumption.

Norman and Bennett note that some studies that compared alcoholics with non-alcoholics suggest alcoholism is linked to increased externality for health locus of control, but other studies have found alcoholism to be linked with increased internality, and similar ambiguity has been found in studies that looked at alcohol consumption in a more general, non-alcoholic population. Norman and Bennett appear a little more optimistic in reviewing the literature on the relationship between internal health locus of control and smoking cessation, although they also point out that there are grounds for supposing that powerful others health locus of control, as well as internal health locus of control, may be linked with smoking cessation.
Norman and Bennett argue that a stronger relationship is found when health locus of control is assessed for specific domains than when general measures of locus of control are taken. Overall, studies using behavior-specific health locus scales have tended to produce more positive results (Lefcourt, 1991). Moreover, these scales have been found to be more predictive of general behavior than more general scales, such as the MHL scale (Norman & Bennett, 1995, p. 72). Norman and Bennett cite several studies that used health-related locus of control scales in specific domains, including smoking cessation (Georgio & Bradley, 1992), diabetes (Ferraro, Price, Desmond & Roberts, 1987), tablet-treated diabetes (Bradley, Lewis, Jennings & Ward, 1990), hypertension (Stantion, 1987), arthritis (Nicasio et al., 1985), cancer (Pruyne et al., 1988) and heart and lung disease (Allison, 1987).

They also argue that health locus of control is better at predicting health-related behavior if studied in conjunction with health value, i.e. the value people attach to their health, suggesting that health value is an important moderator variable in the health locus of control relationship. For example, Weiss and Larsen (1990) (cited in Norman & Bennett, 1995) found increased relationship between internal health locus of control and health when health value was assessed. Despite the importance that Norman and Bennet (1995) attach to use of specific measures of locus of control, there are still some general textbooks on personality, such as Maltby, Day and Macaskill (2007), which continue to cite studies linking internal locus of control with improved physical health, mental health and quality of life in people undergoing conditions as diverse as HIV, migraines, diabetes, kidney disease and epilepsy (Maltby, Day & Macaskill, 2007).

In the 1970s and 1980s, Whyte correlated locus of control with academic success of students enrolled in higher education courses. Students who tended to be more internally controlled believed that hard work and focus would result oftentimes in successful academic progress and they performed better academically. Those students who were identified as more externally controlled, believing that their future depended upon luck or fate, tended to have lower academic performance levels. Cassandra B. Whyte further researched how control tendency influenced behavioral outcomes in the academic realm by examining the effects of various modes of counseling on grade improvements and the locus of control of high-risk college students.

**Organizational psychology and religion**

Other fields to which the concept has been applied include industrial and organizational psychology, sports psychology, educational psychology and the psychology of religion. Richard Kahoe has published celebrated work in the latter field, suggesting that intrinsic religious orientation correlates positively, extrinsic religious orientation correlates negatively, with internal locus. Of relevance to both health psychology and the psychology of religion is the work prepared by Holt, Clark, Kreuter and Rubio (2003), in preparing a questionnaire to assess spiritual health locus of control. These authors distinguished between an active spiritual health locus of control orientation, in which "God empowers the individual to take healthy actions" and a more passive spiritual health locus of control orientation, where people leave everything to God in the care of their own health. In industrial and organizational psychology, it has been found that internals are more likely to take positive action to change their jobs, rather than merely to talk about occupational change, than externals (Allen, Weeks & Moffat, 2005; cited in Maltby et al., 2007).

**Familial origins**
The development of locus of control is associated with family style and resources, cultural stability and experiences with effort leading to reward. Many internals have grown up with families that modeled typical internal beliefs. These families emphasized effort, education, responsibility and thinking. Parents typically gave their children rewards they had promised them. In contrast, externals are typically associated with lower socioeconomic status. Societies experiencing social unrest increase the expectancy of being out-of-control, so people in such societies become more external.

The research of Schneewind (1995; cited in Schultz & Schultz, 2005) suggests that "children in large single parent families headed by women are more likely to develop an external locus of control" (Schultz & Schultz, 2005, p. 439). Schultz and Schultz also point out that children who develop an internal locus tend to come from families where parents have been supportive and consistent in self-discipline. There has been some ambiguity about whether parental locus of control influences a child's locus of control, although at least one study has found that children are more likely to attribute their successes and failures to unknown causes if their parents had an external locus of control (see the first of the external links listed below).

As children grow older, they gain skills that give them more control over their environment. In support of this, psychological research has found that older children have more internal locus of control than younger children. Findings from early studies on the familial origins of locus of control were summarized by Lefcourt:

"Warmth, supportiveness and parental encouragement seem to be essential for development of an internal locus".

**Locus of control and age**

It is sometimes assumed that as people age, they will become less internal and more external, but data here has been ambiguous. Longitudinal data collected by Gatz and Karel (cited in Johnson et al., 2004) imply that internality may increase up to middle age, and thereafter decrease. Noting the ambiguity of data in this area, Aldwin and Gilmer (2004) cite Lachman's claim that locus of control is ambiguous. Indeed, there is evidence here that changes in locus of control in later life relate more visibly to increased externality, rather than reduced internality, if the two concepts are taken to be orthogonal. Evidence cited by Schultz and Schultz (2005), for example Heckhausen and Schulz (1995) or Ryckman and Malikosi, 1975 (cited in Schultz & Schultz, 2005), suggests that locus of control increases in internality up until middle age. These authors also note that attempts to control the environment become more pronounced between the age of eight and fourteen. For more on the relationship between locus of control and coping with the demands of later life, see the article on aging.

A study published in the journal Psychosomatic Medicine examined the health effect of childhood "locus of control". 7,500 British adults followed from birth who had shown an internal locus of control at the age of 10 were less likely to be overweight at age 30. The children who had an internal locus of control also appeared the have higher levels of self-esteem.

**Gender-based differences in locus of control**

As Schultz and Schultz (2005) point out, significant differences in locus of control have not been found for adults in a U.S. population. However, these authors also note that there may be specific sex-based differences for specific categories of item to assess locus of control—for example, they cite evidence
that men may have a greater internal locus for questions related to academic achievement (Strickland & Haley, 1980; cited in Schultz & Schultz, 2005).

Cross-cultural issues in locus of control

The question of whether people from different cultures vary in locus of control has long been of interest to social psychologists. Japanese people tend to be more external in locus of control orientation than people in the U.S., whereas differences in locus of control between different countries within Europe, and between the U.S. and Europe, tend to be small (Berry, Poortinga, Segall & Dasen, 1992). As Berry et al. (1992) point out, different ethnic groups within the United States have been compared on locus of control, with blacks in the U.S. being more external than whites, even when socio-economic status is controlled (Dyal, 1984; cited in Berry et al., 1992). Berry et al. (1992) also point out how research on other ethnic minorities in the U.S., such as Hispanics, has been ambiguous. More on cross-cultural variations in locus of control can be found in Shiraev and Levy (2004). The research in this area indicates how locus of control has been a useful concept for researchers in cross-cultural psychology.

Self-efficacy

Self-efficacy is another related concept, introduced by Albert Bandura. Although someone may believe that how some future event turns out is under their control, they may or may not believe that they are capable of behaving in a way that will produce the desired result. For example, an athlete may believe that training eight hours a day would result in a marked improvement in ability (an internal locus of control orientation) but not believe that he or she is capable of training that hard (a low sense of self-efficacy). Self-efficacy has been measured by means of a psychometric scale and differs from locus of control in that whereas locus of control is generally a measure of cross-situational beliefs about control, self-efficacy is used as a concept to relate to more circumscribed situations and activities. Bandura has emphasized how the concept differs from self-esteem—using the example that a person may have low self-efficacy for ballroom dancing, but that if ballroom dancing is not very important to that person, this is unlikely to result in low self-esteem.

Psychiatrist and expert on trauma and dissociation, Colin A. Ross, MD, describes the inappropriate self-blame that characterizes many adult survivors of childhood trauma as "the locus of control shift." This theory is pivotal in his therapeutic sessions with near-psychotic people at the Ross Institute for Psychological Trauma.

It is important to appreciate that differences do exist between internal locus of control and self-efficacy. Smith (1989) has argued that the Rotter scale to assess locus of control cannot be taken as a measure of self-efficacy, because "only a subset of items refer directly to the subject's capabilities" (Smith, p. 229). Smith noted, in his empirical study, that coping skills training led to increases in self-efficacy, but did not affect locus of control as measured by Rotter's (1966) scale.

Summary, critique and the future

Locus of control has generated much research in a variety of areas in psychology. The construct is applicable to fields such as educational psychology, health psychology or clinical psychology. There will probably continue to be debate about whether specific or more global measures of locus of control will prove to be more useful. Careful distinctions should also be made between locus of control (a concept linked with expectancies about the future) and attributional style (a concept linked with explanations for
past outcomes), or between locus of control and concepts such as self-efficacy. The importance of locus of control as a topic in psychology is likely to remain quite central for many years.

2.b. How do you see universality vs. cultural specificity debate in appraisal theory of emotions? Elucidate the individual differences in appraisal.

Reference:

UNIVERSALITY VS. CULTURAL SPECIFICITY OF APPRAISAL

Emotion psychology is currently dominated by a debate opposing universalists, claiming a phylogenetically based psychobiological emotion mechanism, and cultural relativists, assuming that emotions are part of cultural meaning structures (Mesquita & Frijda, 1992; Russell, 1994; Ekman, 1994). This issue is of central importance to appraisal theory since, even if emotion were to be considered a relatively universal psychobiological mechanism, one can assume that the nature of the eliciting events and the type and intensity of emotional reactions to similar events would be highly different across different cultures (see Mesquita, Frijda & Scherer, 1997).

There is some evidence that differences across cultures, (a) in the actuarial frequency of particular events (e.g. crime, see Scherer et al., 1988); (b) in the relative importance of particular aspects of social life, such as the family (see Mesquita, in press); (c) in the definition of self-identity (Markus & Kitayama, 1991); or (d) in the nature of cultural value systems (see Shweder, 1993), all play an important role in the elicitation and differentiation of emotional reactions.

However, such differences might be limited to the surface structure of the emotion-eliciting events, such as type of situation or type of cultural value involved, whereas the nature of the appraisal process and the set of evaluative criteria used (defined in a relatively abstract fashion) might well be part of the universal psychobiological mechanism. Thus, while specific goals are likely to be strongly determined by cultural values (e.g. raising fat pigs, honoring one's ancestors, or achieving maximal self-realization), the abstract appraisal of the goal conduciveness of an event might not be.

While there have been only few attempts to empirically study this issue, a number of preliminary patterns emerge. Among the most extensive data sets available today is a series of cross-cultural studies conducted by Scherer and several groups of collaborators. In a first series of studies, eight European countries, the USA and Japan were compared (Scherer, Wallbott & Summerfield, 1986; Scherer et al., 1988), followed by a large-scale study of 37 countries on all five continents (Scherer & Wallbott, 1994). Matsumoto et al. (1988) reported cultural differences with respect to the number of respondents readily attributing responsibility for antecedent situations to either themselves or other people (the Japanese students checking the "not pertinent" response category much more frequently than other nationalities for the causal attribution question). A preliminary analysis of the differences between rich vs. poor countries (based on Gross National Product) found that in rich countries fear- and sadness-evoking events are usually described as occurring more unexpectedly than in poor countries. This was speculatively interpreted as a greater need for controllability in rich countries (Gehm & Scherer, 1988; Wallbott & Scherer, 1988).

Recently, an exhaustive analysis of the appraisal data from this long-term research program has become available (Scherer, 1997a,b). The overall conclusion is that the appraisal mechanism itself seems to be universal—the appraisal profiles for the major emotions are very similar across the large number of
rather diverse countries studied. However, the data also show rather important cultural differences in the appraisal patterns. While there are isolated effects on expectedness, coping potential and self-consistency, the most consistent and powerful differences are represented by the appraisal of high immorality, unfairness and external causation by African respondents, and the appraisal of low immorality by Latin-American respondents (across all emotions studied). One possible explanation for this result is urbanism-African countries are generally low, Latin American countries high on this factor. The data reflect a tendency for respondents in highly urbanized countries to attribute less immorality to emotion-eliciting events than respondents in less urbanized regions of the world. In addition, the hyper-appraisal of external causation, unfairness and immorality in the African countries is attributed to the importance of witchcraft beliefs in those countries. The use of witchcraft explanations as a means of attributing causation for misfortunes is consistently mentioned by anthropologists studying this phenomenon (see review of the anthropological literature in Scherer, 1997b).

Both cultural similarities and differences have also been found by a growing number of cross-cultural studies by other investigators. Mauro, Sato & Tucker (1992) studied the differentiation of 14 emotions by a set of 10 appraisal dimensions in a comparative study using students in the USA, Japan, the People's Republic of China and Hongkong. They concluded that few differences between cultures are observed for the more "primitive" dimensions, such as pleasantness, attentional activity, certainty, coping ability and goal/need conduciveness, but that there are differences for more complex dimensions. For example, students from the USA made more use of the responsibility dimension than students from Japan (a finding that confirms the pattern found by Matsumoto et al., 1988). Haidt, Koller & Dias (1993) found that social transgressions and unconventional food and sex practices were more readily appraised as immoral by Brazilians than by Americans, and less appraised in terms of morality by highly educated than by less educated respondents in both cultures. Mesquita (in press) asked Dutch, Surinamese and Turkish people living in The Netherlands to rate a list of appraisal questions for six standard situations, such as "receiving compliments or admiration", "success", "offense by a non-intimate other" and "offense by an intimate other". While the appraisals in the three cultures were quite similar, differences were found with respect to the nature and social context of the eliciting situation and in the focality of the concerns upon which appraisal is based.

Studies of the emotion vocabulary in different languages have shown that lexically equivalent emotion words imply comparable appraisal patterns (Ellsworth & Smith, 1988a,b; Frijda et al., 1995; Mees, 1985; Roseman, 1991; Roseman, et al., 1995).

Most of these approaches rely on verbal report of appraisal processes in personal emotional experiences. Recently, Ellsworth and her collaborators (Ellsworth, 1997) have used subtly manipulated cartoon films to investigate potential cross-cultural differences in the appraisal of simple events, particularly in children.

While the cultural differences in the use of appraisal dimensions found in the intercultural studies reported above are generally smaller than the emotion differences, they are nevertheless, at least for some emotions and for some appraisal dimensions, rather sizable. Even though these cross-cultural differences do not call into question the existence of universal emotion-specific appraisal profiles, they do show that members of different cultures seem to appraise emotion-antecedent events somewhat differently on at least some of the major dimensions.

As expected, "complex" appraisal dimensions, requiring the use of cultural schemata, are more affected by intercultural differences than relatively basic dimensions related to stimulus characteristics or
individual well-being (Ellsworth, 1994b; Frijda & Mesquita, 1994; Haidt et al., 1993; Mauro, Sato & Tucker, 1992; Mesquita, in press; Scherer, 1997b). Clearly, both the nature, i.e. the content, of culturally shared norms or standards and the focalization on legitimacy or morality as a major factor in event evaluation can vary widely between cultures. It is thus not surprising that several studies show immorality to be the dimension that shows the strongest culture effects and that the emotions most affected by such differences are shame and guilt, often considered as "social emotions".

Which determinants are responsible for the cross-cultural differences found? Because of the correlational nature of most studies, no causal inferences can be drawn. Furthermore, so far, no agreed-upon set of "culture factors or determinants" has been established that would allow researchers to move from a comparison of countries or geo-political regions (e.g. Africa vs. Latin America, see Scherer, 1997b) to truly "cultural" comparisons. The studies in this area show that among the dimensions to be considered are climate, socio-economic factors, value systems, social structure and language. An issue that also deserves research interest is the potential existence of subcultural differences in appraisal patterns, e.g. between rural and urban populations, between generations, or between specific subgroups.

INDIVIDUAL DIFFERENCES AND PATHOLOGY IN APPRAISAL

Appraisal theory stresses that the evaluation of emotion-eliciting objects or events is highly subjective and depends on the individual's perceived goals, values and coping potential, rather than objective characteristics (Smith & Pope, 1992). This is one of the major strengths of appraisal theory, explaining why seemingly similar events can trigger highly disparate emotions in different persons. Surprisingly, so far there has been little attempt to identify individual difference factors that might underlie systematic appraisal tendencies or biases. However, a review of the literature on individual differences (see van Reekum & Scherer, 1997) in cognitive processing suggests that quite a number of established trait dimensions are likely to consistently affect appraisal processes. The thoroughness or completeness of the appraisal may also be subject to individual differences. Whereas one individual may rapidly accept the result of an initial appraisal, another may engage in repeated re-appraisals before settling on one interpretation. One of the underlying variables might be the amount of cognitive effort that is characteristically expended. Furthermore, the relative complexity of the appraisal may depend on the cognitive style of the individual, i.e. gross vs. more fine-grained appraisal, particularly with respect to the width of the categories used in inference and classification. Appraisal tendencies or biases may also differ with respect to content, i.e. a systematic sensitization or distortion with respect to particular criteria in the appraisal process. A well-known example of such an individual difference variable is external vs. internal control or attribution bias, i.e. to attribute responsibility to oneself rather than others, or vice versa. It can be shown that such potential appraisal biases are likely to affect all the major appraisal criteria (see van Reekum & Scherer, 1997). So far, there has been little systematic research on such individual differences in appraisal. First efforts are being made by Smith and his collaborators, who are studying the effects of differences in performance goals and motivational styles on appraisal (Kirby & Smith, 1996; Smith & Haynes, 1996).

It is readily possible to conceptualize different types of emotional disorders on the basis of such appraisal biases or malfunctioning (see Kaiser & Scherer, 1997; Scherer, 1987). While appraisal is subjective and may exhibit major individual variations due to appraisal biases, it must be considered, at least by an individual's social environment, if not by him/herself, as more or less appropriate to the objective situation and the individual's realistic coping potential. If the appraisal deviates too strongly from such reality constraints, the resulting emotion will be seen as abnormal or disordered. Using this
approach one can attempt to more theoretically link appraisal malfunctions to clinically relevant affect disorders. Clinicians may object that these suggestions are little more than reformulations of syndrome definitions. However, the effort to link theories of normal emotion to an understanding of the etiology of affect disturbance may help, beyond a symptom description, to encourage more general studies on cognitive functioning and appraisal styles in patients suffering from affective illness in order to better understand the underlying mechanisms. In a similar vein, Watts (1992) provides an overview of potential applications of current cognitive theories of emotion to the conceptualization of emotional disorders. Clearly, once the role of appraisal biases in the etiology and maintenance of affective illness are better understood, it may become possible to develop appropriate remedial or therapeutic approaches to eliminate pathogenic appraisal biases (something that is consistently practiced, under somewhat different theoretical auspices, in cognitive-behavioral therapy; e.g. Beck, 1967).

2.c. Is the internet empowering consumer to make better decisions, or strengthening marketers' potential to persuade? Critically evaluate.

Reference:

No one would deny that rapidly advancing technology in media and information delivery—from cable, wireless, and Internet developments to enhanced data storage and the ability to integrate and share information across massive user networks—is destined to have its effects on consumer behavior. Consumers increasingly use the Internet to search for information and evaluate product alternatives before purchasing. Many commentators claim that information access will empower consumers with enhanced decision-making capabilities. This has been stimulated by the belief that if a more complete range of information is made available to consumers they will take the time to sift through the material to arrive at a more thought-through, considered decision. But will they? This chapter explores the issue of whether the Internet puts consumers in the "driving seat," or whether delivery of this promise will be impeded by fundamental limitations of the human condition.

Will new media such as the Internet fundamentally change the way consumers collect and use information to make purchase decisions? Will it be that new "rules" apply? Although others have proposed a vision of consumer empowerment, my view is that it will largely remain just that—a vision. This is because the marketing communicators behind these developments will, as always, employ the same toolbox of fundamental persuasive techniques that have been reapplied with each successive media innovation. Granted these techniques will require some reinterpretation for the Internet, but the fundamentals remain the same. My central proposition is that the same basic communication rules that have been successfully employed in traditional offline media also hold true in the online space. Principles of human decision making that underpin the universality of these communication rules (regardless of media channel) will be reviewed. Despite the impact of innovation on media alternatives, we must realize that we are faced with human characteristics that remain constant over time. These characteristics hold tangible limits for any new media technology, both now and in the future. They are the products of long evolutionary development. Each of the characteristics to be discussed is well established. However, the implications for developing effective communications on the Internet are still very much underappreciated by both practitioners and academics.

HUMAN NATURE CAN ILLUMINATE KEY QUESTIONS

This exploration illuminates several key questions central to the future of the Internet. First, to what extent will access to information lead to better consumer decision-making capability? Many observers
appear to automatically equate more information with better decisions. Although there is no doubt that access to information has been dramatically expanded as a result of the Web, I argue later that we should be very guarded in equating this with better consumer decisions. Second, to what extent will consumers change their basic search and decision strategies? There is ample evidence that more and more consumers are using the Internet as an additional search option across a range of need areas. However, the pattern that I am often seeing is reflected in survey findings whereby a high proportion have tried the Internet as a search option, but a low proportion have found this option to be among the most useful source alternatives. The other highly debatable issue to be explored lies in whether consumers are employing new decision strategies that take advantage of the broader range of available information. I argue that decision strategies have not and will not change. Some say that development of so-called recommendation agents hold the potential to change consumer decision strategies, but I also detail reasons to remain skeptical of this proposal. Third, how much information is too much? A source of continual surprise for individuals involved in developing advertising messages is just how little information it takes to confuse a consumer. I have viewed too many advertising research studies for main media commercials composed of supposedly simple messages where it turned out that the subjects did not comprehend the message as intended. The point is that if it is challenging to successfully communicate short television messages—even when subjects are encouraged to pay attention—then it stands to reason that the more information-loaded messaging generally attempted on the Internet faces even greater hurdles.

Fourth, are we likely to see a new breed of empowered consumers? Predictions of a trend toward "empowered" consumers flow from the growth of information availability. You can imagine that if I am indicating skepticism about enhanced decision capability, search patterns, and new decision strategies, and see potential for confusion, then I would also be skeptical about the extent of consumer empowerment. An additional reason for such skepticism lies in examination of literacy standards in the United States. Yes, there are ways to simplify information presentation, but there is no getting away from the fact that the literacy levels of a large proportion of Americans will limit their capability to absorb and comprehend. This evidence is examined later.

WE ARE ALREADY OVERLOADED WITH INFORMATION

For most purchase decisions, consumers are already overloaded with information. The volume of information will only increase. The key issue is that we have already passed the point at which we are able to use all the available information for most major decisions. As decision complexity increases, we tend actually to use less of the available information. This suggests a paradox in that less information can hold greater utility than more—so long as it consists of the right bits. Information technology that makes available too much information confuses rather than clarifies. This in itself is not surprising, but the point is just how little information a consumer actually uses when making a decision. Cialdini (2001) highlighted the efficiency of "single-feature" responding, noting that rather than delving deeply we tend to revert to a focus on just a single portion of available information. The greatest challenge for any new information delivery system is not the technology itself, but rather determining which bits of information the consumer can effectively use. Currently, we are more adept at developing the technology than at advancing our understanding of information presentation—typically, because technological development precedes consideration of user-friendly information content, presentation, and delivery issues. This approach parallels a "product orientation" in marketing, long associated with high-risk outcomes. Evaluation of a new information technology should focus on how users will consume the information, a "marketing orientation" long associated with more rewarding outcomes. However, it is too often the vague allure of the technology for its own sake that drives the development
process. The challenge of understanding just how consumers use information in specific circumstances represents the most significant hurdle to successful technological implementation.

This is not to deny that a minority of consumers have become more educated. However, basic human strategies for decision making have not changed. For example, across a range of research projects in the online health care arena I have observed that patients hold limited understanding about their disease condition and treatments, even among regular Internet health-information seekers. Despite extensive health information available on the Internet, even fundamental issues about disease conditions are often not well comprehended. Information seekers are quickly confronted with such an array of information that they often feel less certainty than before they started. Research with doctors has turned up similar findings. Even these professional experts tend toward cursory evaluation of new medical information and form subjective impressions based on limited information. Doctors are just as time pressed as patients (if not more so) and face a continual flood of medical news that they feel obligated to sort through and keep up with. Online health presents an interesting case, because this represents one of the largest online search activities. Many consumers are putting considerable time into this search activity. The high-involvement nature of one's health suggests this should be a category where individuals invest high levels of attention and effort in examining the information. Proprietary research has found consumers to be often frustrated in sifting through the mountain of health information. There are also issues in evaluating the credibility of particular sources. Consumers often leave their search with the same level of unresolved uncertainty that stimulated the search in the first place. Although the initial reaction is "WOW, there is so much good stuff," consumers often still end up having to take health decisions based on some global impression or gut-feel—a consumer case of the blinding power of data. Brewer and Chapman (2001) found at best minimal difference in disease knowledge between those disease sufferers (MS and HIV) who searched the Internet for information and those who did not. Similar lack of difference in disease knowledge has been observed in proprietary research for health conditions such as asthma. The big issue in the online health arena is why the promise of empowering consumers with information that should allow them to take better control of their health remains unfulfilled. Is it because of weaknesses in early Internet technology that will be overcome in time, or is it because of the inherent complexity of health messaging? Could it be that inherent complexity of health topics will force the bulk of consumers to continue to rely (and prefer) on expert advice?

A MIX OF CONSTRAINING FACTORS

How does the mind select from the flood of encountered stimuli and then process and interpret? Despite changing conditions of information explosion, the squeeze on time availability and the expansion of available choice, basic principles endure. Figure 16.1 centers on how we select and use information. Arrayed around the inner circle are four conflicting pressures that are at work whenever a consumer "decides." The first three are well documented: the so-called information explosion that engulfs us; the expansion of choice in terms of media alternatives, product variations, services, and lifestyle activities; and increased time pressure. Time constraint conflicts with expanded information availability and also with greater choice. It is telling that the term "information" rather than "knowledge" explosion is typically employed. Information is just raw material for good decisions. It can only be harnessed when analysis, interpretation, and integration transform the information into useful knowledge. The fourth issue—limits to human processing—constitutes an enduring characteristic of mental life.

LIMITS TO HUMAN INFORMATION PROCESSING

©numerons
The limit to human information processing is the major constraint faced by consumers. It is the one constant of the four pressures identified earlier. Conscious attention at any moment is extremely limited as a result of the distinctive roles of working memory and long-term memory. Working memory is the mind’s information gateway. Conscious stimuli arriving through the senses are processed in working memory. They are then either “deleted” or moved to storage in long-term memory. Whereas the capacity of long-term memory is potentially enormous, working memory is extremely limited. The general finding is that working memory can hold between five and nine pieces of information, including information drawn from the senses and from long-term memory (Miller, 1956). Take a simple example: Someone blurts out a telephone number (7 to 10 numbers long—right at the threshold of what is and is not easily remembered)—and you start to dial it. Three punches into the task, someone else asks who you are calling. You reply with the individual’s name. But what happens? Bringing that name into working memory invariably displaces part of the phone number and you are unable to complete this otherwise simple task. It is impossible to pay conscious attention to the bulk of stimuli to which we are exposed. The human strategy is to be highly selective.

Often when thinking through a problem, working memory is almost entirely taken up with stimuli drawn from long-term memory. This further reduces attention to external information. Take another example: multiplying 862 x 87 in your head. To succeed at this task, you certainly cannot be thinking of anything else. You hold the numbers in working memory, and draw “rules for multiplication” from long-term memory. This fills working memory to the brim. Now imagine a product-selection situation in which you seek to evaluate three product alternatives across three separate attributes, each of which has three levels—a 27-piece information space to manipulate mentally. Quite clearly we don't examine every combination when we make decisions. In fact, the limits to human processing make this prohibitive.

Think about it. Three product alternatives evaluated on three attributes does not seem to be that complex of a decision to make. However, what about the much greater number of alternatives and potential attributes that require consideration when making a financial planning decision or a car purchase or deciding the best course of treatment when diagnosed with a chronic health condition? These limits to human processing raise a real question as to how (or if) consumers will use expanded information access. It is not at all clear how people in the future will handle this better. Some commentators revert to a fallback position in claiming that consumers will benefit in cases where they just want to search for the best price. For commodity products where there is little tangible difference, then price comparison is fine. However, the claims of consumer empowerment usually imply more than just search for the lowest price. Others claim that the empowering nature of the Internet lies in ability to obtain recommendations. Again, this is fine. However, there is nothing new in consumers basing their choices on recommendations. We already have access to a great range of recommendation sources—friend’s opinion, professional experts, media news, consumer reports, or observing others using products that satisfy.

LIMITED TIME, EXPANDED INFORMATION, AND CHOICE

We are living in a world where we often have to pack more activities into less time—we are busier than ever. The phrase “juggling time” has entered the popular lexicon. This has contributed to the perception that modern life is associated with greater stress. The dominant view is that heightened stress derived from juggling limited time will be a continuing trend. We are now even reading about the pressures felt by time-poor children. Another complication comes into play with the observation that affluence and modern life presents us with a continuing expansion of personal choice. Consumers have a greater range
of products and services to select from. The fact that these new product options are often more complex in terms of their construction, or sophistication, adds to the difficulty of the alternative evaluation task. Consumers also have a greater range of media and content options, together with an increase in recreation and entertainment alternatives.

At face value, most individuals claim to welcome the greater range of choices. However, a contradiction becomes evident when consumers must actually take additional time to make these choices. Although choice appears to be empowering, supposedly giving consumers a sense of control, choice also places responsibility back on the individual to gather information, evaluate alternatives, and select. This takes time and judgment and generates the same sort of doubt and uncertainty that was produced by the deregulation of public utilities, health insurance, and financial services. In a marketplace where the range of health insurance options suddenly expands, it is difficult and daunting to make the new choices—even though customers may have complained bitterly about the old service and the lack of alternatives. Though consumers may not have liked the old system, they were at least spared the burden to choose. A great paradox lies in a world of greater choice, yet heightened sense of powerlessness.

Godek and Yates (2001) uncovered these same basic conflicts when examining the effects of online product customization. They found that greater range of choice may not be preferred, because the customer often does not feel confident in his or her ability to decide—less choice can actually be better under conditions of uncertainty. The idea that customization is more appropriate when the customer knows what he or she wants (i.e., there is low uncertainty) seems to be an anomalous fit with the proposition that the Internet empowers consumers. Surely sense of empowerment is more related to sources that aid decision making under conditions where uncertainty prevails. Situations where you are most uncertain about a decision are the times when you really need a helping hand. The proposition that too much choice may not be good for us is rooted in the idea that although people claim to want options, in practice, the comfort of what is known and familiar usually holds greatest appeal. The knowledge that we are part of a socially supportive community gives comfort that we can fall back on the opinion of those whom we trust. We don't want to add to the anxiety of an already stressed life.

Information explosion is one of the most talked about conditions of the new economy. Niche cable television covers specific topic areas in previously unheard of depth, while the Internet provides access to exponentially growing content sources. The information explosion holds conflicting implications for consumers. On the positive side, information potentially empowers an individual to make more informed choices, to increase participation in community decision making, and to enhance control of one's destiny. However, realization of these potential benefits depends on consumer's motivation and the availability of tools and skills to sift through, integrate, and form judgments. This presents a substantial problem, given the constraining forces discussed earlier. Consumers confronted with increased information must devote more effort to use it effectively. In many instances, the difficulty is compounded by alternative Internet sources presenting information that is either incompatible or outright conflicting. The Internet, at least at this stage, is not like the offline world where we have come to know which sources are most reliable.

Will this uncertainty in identifying the most credible online sources change? Yes, quite possibility, but the way this will happen is when particular sites take on the role of trusted brands—just like offline brands. The trouble with this scenario is that it seems to defeat the appeal of the online world in terms of much touted fluidity and breadth of source options. If we end up relying on just one or two sites to help us make decisions for each category, then what is the conceptual difference to current offline
decision practices? Where is the real empowerment? It may be that a trusted site does actually give us a more complete range of information. However, the question remains as to whether consumers are able to process the more extensive information contained on the preferred site.

HOW WE REALLY MAKE DECISIONS

Difficulty in delivering information that communicates effectively can be felt in such apparently straightforward tasks as nutrition labeling, fair-balance copy in prescription-drug advertising, environmental and recycling education, and similar public-awareness programs (e.g., Petruccelli, 1996; Hae-Kyong, Ellinger, Hadjimarcou, & Traichal, 2000). The learning is that to be understood information must arrive in short, simple units rather than elaborated explanation. We typically make do by resorting to short-cuts. We seek to satisfy rather than to optimize. If a choice appears sufficient to satisfy a felt need, we invest no further in search and evaluation. The simplest short-cut is habitual repurchase. The persistence of habitual consumer purchase has been demonstrated in the work of Ehrenberg (see Ehrenberg & Uncles, 1996), in which strong stability of market share over time has been observed across many product categories. Will it be that over time consumers will settle into a similar habitual pattern when using the Internet? They will form a small set of preferred site locations in each category and simply revisit when the category need arises. This habitual process is already instilled into the book category, where there is one dominant player, a distant number two, and companies such as Borders Books that have found the number-three position to be an untenable business proposition. Similar limited preference sets are evolving for other categories as consumers fall into habitual patterns. This is usually led by the first entrant who successfully services a need area.

Another well-documented short-cut is to select the brand that is most well-known. In studies where category users are asked to name brands within that category, it consistently turns out that the brand mentioned first is the category leader (Klenosky & Rethans, 1988). A well-recognized brand is safe. One fundamental that many of the failed dot coms did recognize is that they needed to get their brand name to the top of their consumer’s evoked set. What they often did not appreciate was the amount of time and money involved in achieving this goal. Reliance on a well-recognized brand name as prime selection criterion holds true not just in low-involvement products but also in the most complex business-to-business purchases, such as corporate software systems. A study of high-priced white goods found that purchase selections were often based on limited information searches that included just one information source, one store visit, and consideration of a single brand (Wilkie & Dickson, 1985). Involvement theory suggests that these products should attract considerable information search and evaluation as a result of high cost, long period of product use, and infrequent purchase. But this has not been found to be the case. Evidence in fact points the opposite way. Consumers tend to simplify the decision process when faced with increasingly complex tasks (Bettman, Luce, & Payne, 1998). Under complex conditions, they are more likely to fall back on favoring the option that is judged superior on the most prominent attribute. The idea that the uncertainty derived from greater information complexity often results in an increased likelihood of the consumer resorting back to simple (limited processing) short-cuts holds profound implications regarding the potential for consumer empowerment via the online channel.

Other short-cuts are common too. Price can indicate quality; so can an expert’s advice (Hoyer, 1984). Consumers do of course make use of more rational choice criteria. However, even for products with multiple attribute characteristics (such as automobiles), selection is typically based on no more than a couple of product attributes (Bettman, 1979). For example, we may first narrow the product alternates to a manageable few based on company reputation. Then we establish a minimum acceptable level for
several key choice criteria and accept an alternative only if every criterion exceeds the cutoff. This is not to say that consumers follow a single rule or strategy when choosing from among alternatives. The point is that because consumers possess insufficient cognitive bandwidth to integrate multiple beliefs about many alternatives, they are forced to narrow to a limited portion of available information. Historically, the opinion of others has often carried significant weight in important decisions. Often consumers value the opinion of friends who are experienced. In other categories the main influence comes from experts, such as doctors in the medical area, or financial advisors in the money arena.

One approach to mimic the power of opinion comes from sites that claim expertise in a particular category—medical and finance are two such areas. Sites claiming objectivity and independence endeavor to set themselves up as advanced forms of decision short-cuts. Some do this by providing comparative information. Others claim to search for the best price. The development of interactive decision aids (or recommendation agents) has been touted as the way forward for consumer empowerment. These tools attempt to mimic a multi-attribute decision approach in that a consumer can select and weight a listed set of product attributes. The tool then compiles a product comparison matrix based on the consumer's stated attribute importance. For example, in a bicycle selection the consumer could review dozens of bicycle alternatives (drawn from diverse suppliers) based on the weighted attributes they had selected.

This approach does hold some appeal and proponents of the Internet's potential to empower often use such examples. The claim is that these recommendation agents will lead to more "optimal" decisions. However, there are a number of issues that cast doubt on such optimistic claims. If we rely on these tools to make decisions, then is this not just the normal human strategy of falling back on expert advice? Clearly, the use of these tools requires a thing called "trust"—the same kind of trust that we place in a human advisor or a brand. The second issue lies in the level of human concern for making so-called optimal decisions. It seems that consumers make a great many choices in their lives—generally with minimal effort and information—yet we seem to regret a tiny proportion of them. Consumers may not follow strategies that even approach strict rationality yet they appear to get on with their lives just fine. Short-cuts have utility. We persist with them because they tend to work (Gigerenzer & Goldstein, 1996).

CAPABILITY VARIES ACROSS INDIVIDUALS

Another constraint that impedes consumer usage of information lies in differing abilities to process the information. I am talking about the distribution of functional literacy skills across the U.S. population. The National Adult Literacy Survey (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993) defined literacy ability in terms of using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential. The survey attempted to measure a broad range of information-processing skills. The analysis broke the population into five levels of information-processing skill. More than 50% of the U.S. adult population fell into the bottom two functional literacy levels in which individuals exhibit difficulty integrating several facts from a longer document. Fewer than 20% of the U.S. adult population fell into the top two literacy levels in which they were found comfortable in integrating and synthesizing information from long text. Ability to integrate and synthesize would seem to be a prerequisite for any individual confronted with a range of information. Access is only empowering if one has these prerequisite skills. Limitations in the ability to draw logical inferences and think critically will constrain the value of additional information. The top 20% of the population have a clear advantage in harnessing the Internet. Examination of child literacy performance indicates that there is little evidence of any change trend. Child literacy levels remain flat in every grade.
(Federal Interagency Forum, 1999). The only exception is for a small group at the very top literacy level where an upward trend is evident.

Although functional literacy levels have remained at best flat over the last 20 years, the amount and the complexity of available information has continued to increase. This indicates a widening gap between the amount of information available and our ability to process it—our capability to use is lagging behind our access. As noted earlier, one of the most popular online search activities is for health information, yet the quality of the outcomes are questionable. Consumers go online to understand their conditions, make better informed decisions, and participate in their own care—to be empowered. Berland and colleagues (2001) examined the reading grade level of Internet health information for disease states including breast cancer, depression, obesity, and asthma. They concluded that high reading levels are required to comprehend the information. One potential area to aid limited comprehension lies in the use of visual, rather than text-format presentation—particularly the use of rich media involving moving pictures. Although I tend to agree with this possibility, I would also caution the potential for visual techniques to enhance persuasive manipulation on the part of marketing communicators. One only has to look at the visual power of television commercials for which persuasive techniques have been significantly refined since that medium's inception.

**IS TECHNOLOGY TAKING US ON A CYCLE?**

The discussion thus far has highlighted processing limitations together with basic environmental conflicts that consumers face. I have suggested that increased time pressure, expanded access to information, greater range of choice, together with cognitive limitations force consumers to be highly selective in their information usage. Confusion is likely to set in when the information is not "prepackaged" for easy consumption. One may then argue that the enabler of consumer empowerment will be just such easily digestible prepackaged information. The basic counterpoint is that as soon as information is dumbed-down into a simpler form, then what really happens is that the Internet source becomes a surrogate expert. If the Internet does not contribute additional understanding, then where is the difference from reliance on an offline expert?

Figure 16.2 depicts this line of argument in terms of a cycle. In the "old" offline world, consumers often employed the short-cut of reliance on a perceived expert (doctor, experienced friend, observation, or salesperson). Over time, various types of online information sources have evolved. However, we are now at the point where confusion stemming from information clutter is more common. Consequently, I predict that consumers will tend to fall back on Internet applications that really constitute expert recommendation—trusted branded sites, independent intermediary sites, or the recommendation agents. If this approximates reality, then the Internet will indeed change consumer search in terms of sources employed, but it will not change the basic decision strategies, nor will it lead to substantial knowledge enhancement. The same issues of source credibility arise both online and offline. How do we know that a recommendation agent is performing accurately or inclusively? The bulk of consumers simply won't understand how these tools work in the first place. They must take them on trust—much like the kind of trust when we buy an insurance policy. How do we know that the recommendation agent is unbiased? Unscrupulous operators appear to take advantage of consumers in other media when the consumer lacks objective knowledge. The same risks exist online.

Lewis (2001) highlighted the potential for online deception in the arena of expert advice when relating the example of the 15-year-old boy who started dispensing legal advice on the AskMe.com site. This was a site where individuals could post questions about a range of topics and any other users could reply.
Individuals attracted to reply were typically experts in the area (in this case legal) who were interested in promoting their businesses. The site incorporated a user-based rating system whereby recipients were able to rate the quality of the responses and a responder ranking was calculated. This 15-year-old eventually reached the number-one ranking out of about 150 participating experts—legal practitioners. First of all, this says much about the ambiguity of legal advice, but the point is that deceptions can and do succeed.

This example illustrates the potential for online deception where individuals seeking advice have limited points of reference as to source credibility. The consumer must make a trust judgment. The freewheeling open-access characteristic of the Internet is touted as the foundation of its empowering qualities. However, the characteristic of openness can also serve as a double-edged sword in that it can also drive questionable credibility.

ADAPTING OLD LESSONS FOR NEW MEDIA

So, how much information is too much when developing messaging in the online environment? Put simply, for each discrete communication, anything more than a single compact idea is too much. This most obviously applies to one-way communication. Marketers have long understood that a key to successful media advertising is to focus the message on the repetition of a single compelling idea, conveyed as a user benefit. A product or service often has a great many attributes and features. Consequently, the hardest challenge in developing messaging lies in the decision to leave information out. Time limitation makes this a necessity in the standard 30-second television commercial. However, few marketers have translated or extended focused messaging into new information technology forms where time and space limitations would not appear to be constraining. A marketer can of course pack seemingly limitless information in an Internet site. But, too few marketers tightly distill the messaging focus prior to site development. The same communication rules also apply—in appropriate ways—to newer, interactive (one-to-one) media and information technologies.

One might assume that interactive technology promises to negate (or at least alter) this single-idea rule. The promise of interactive is more than repetitive one-way messages; it rests on the potential to realize meaningful two-way communications. Yet the single-idea rule remains vitally important. In such cases the single idea may require adaptation with each discrete communication—depending on the consumer's decision stage. Attention to the single-idea rule will become even more critical as interactive practice develops. This will be because of heightened potential for confusion resulting from mismanagement of the multiple messages that are involved.

Best learnings for interactive implementation can be gained from the masters of two-way communication—successful salespeople. They understand messaging focus in the context of sequential delivery. This understanding rests on two elements: ability to classify customers into motivational types and the insight that each specific type of customer moves through a reasonably consistent decision sequence. They know that a specific focused message at each stage is optimal for moving each customer type to the next decision stage. Examination of successful salespersons has identified that even they (at least implicitly) operate off a finite number of sales "scripts." The sophisticated application of these scripts by successful salespeople supports the proposition that useful customer segments and identifiable decision stages are indeed evident for most any category.

A hypothetical example: New buyers in a category may first want to learn about which brands are most reputable; then they may focus on identification of key product attributes; followed by comparison of
brand alternatives based on these attributes; finally the selection focus may fall on price and after-sales service. Armed with this knowledge a salesperson knows not to talk price at the stage where the customer is trying to learn which are the main brands. They know that talking about additional attributes (particularly unimportant ones) when the customer is focused on comparing alternatives will result in confusion. Their expertise allows them to tailor a focused message based on decision stage. The most successful salespeople better understand and leverage this knowledge (Weitz & Sujan, 1985).

**TOWARD IMPLEMENTATION**

Realizing the potential of focused messaging in a natural sequence is founded on developing a thorough understanding of customers' decision processes. This includes involvement with the category, identification of current information-search patterns, alternative evaluation criteria, and duration of the decision process. Simply knowing the extent of the process can be enlightening. Pinpointing the key evaluative criteria that consumers employ guides what information to eliminate. Identifying the single most important source of customer uncertainty also reveals opportunity.

Simple techniques can be employed to develop these decision insights. For example, one approach is to select a sample of prospects and offer them the opportunity to question a knowledgeable category expert. The subject's sequence of questions and reactions to the expert's answers will provide insight. Another approach is to ask subjects to recall the last time they identified a category need and then have them track back through the sequence of events and thoughts that led to purchase. A third approach—triadic sorting—isolates defining product characteristics by having subjects consider sets of three product alternatives, then select the one they think is most different from the other two. The reasons they give for this selection help identify the primary criteria for distinguishing among alternatives. A range of more sophisticated quantitative techniques is also available. However, regardless of methodological complexity, the research should result in a time line that lays out in a sequential manner just what consumers typically believe and do from the point of need identification through product purchase, and across purchase cycles.

Equipped with this foundation, marketers can identify the most useful role for the Internet at each stage of the decision process. It is important to settle on roles that are realistic. For example, a site designed for one global packaged goods marketer had brand credibility as its objective—an indirect influence on final purchase. The driving insight was that the Target enters the category with scant product knowledge. Consequently, the purchase decision relies on brand trust. On the other hand, Internet domain-name registrars use their sites to expedite the sale. A key insight is that the registrars' customers are among the most comfortable of Internet users. Consequently, the purchase transaction conveniently fits with current usage patterns.

The importance of clearly specifying the role of selected technology tools often appears obvious only in retrospect. Note the belated realization emerging in the arena of financial and investment advice via the Internet. We witnessed an initial rush by financial players to move online, with many believing that consumers would shift their search and transaction activity to the Internet. This resulted in some of today's most sophisticated information delivery and transacting sites. However, not all activity moved to the Web. A combination of Web and physical presence is required. For example, one major online broker plans to open a chain of investor centers; others are moving to partner with office-based financial companies. In short, many financial industry players have had to refine the appropriate role for Internet applications within their consumers' overall decision processes.

©numerons
CUSTOMER-CENTRIC BENCHMARKING: THE EXPERT PROXY

There are many metrics that help evaluate the worth of an interactive program. Examples include sales/ROI growth and comparison with industry standards. However, the following may be the ultimate question if a consumer perspective is adopted: How close does the interactive program come to replacing the informative supremacy of an expert consultant? Some may say that this is too unrealistic a qualifying test for a remote technology today. However, consumers make the comparison, whether or not we want them to. If they can get immediate, custom answers by talking to a perceived expert, then the Web site can at best be a bridge to that level of service and at worst a frustrating barrier that threatens the relationship it seeks to build. The notion of a "Live, Adaptable Expert" provides the ideal against which consumers judge new technology. It may not be immediately attainable, but realistic evaluation of the gap provides a useful sense of worth from the perspective that counts most—the customer's.

3.a. Can we say that individuals remain poor because of their cultural beliefs and attitudes? Critically evaluate the cultural consequences of poverty and vice versa.  

Reference:

One common and controversial belief about the relationship between culture and poverty posits that the former causes the latter—specifically that individuals either are or remain poor because of their cultural beliefs and attitudes, and that societies fail to overcome underdevelopment because of their national or collective cultures (Harrison 1985; Harrison and Huntington 2000). For example, some countries in Latin America and the Caribbean are thought to remain underdeveloped due to a lack of social cohesion, inclination to justice, and interest in engaging their full potential. In this general view, culture is thought of as the sum total of a society's beliefs, norms, values, and attitudes. We do not subscribe to these views. We certainly believe that norms and beliefs can affect patterns of behavior, and that patterns of behavior can be conducive to low socioeconomic attainment. Nevertheless, the political process and economic conditions can shape behavior much more strongly than beliefs and norms; beliefs and norms are malleable, fluid, and dynamic; and the collective beliefs of a society or group are usually heterogeneous, often inconsistent, and even contradictory. All these factors make culture a weak "explanatory variable" in the simple model by which cultural deficiencies cause poverty, a model that, furthermore, distracts policy makers from demonstrably more useful understandings of the role of culture in the eradication of poverty.

Instead, in the pages that follow we argue that beliefs, norms, and values constitute only one of several, more important dimensions of culture, most of which do not bear a simple cause-effect relationship to poverty. In this vein, we suggest that it is important to study not just the impact of culture on poverty but also that of poverty on culture; that culture can shape how people understand and experience poverty; that the more serious cultural challenge to the eradication of poverty lies not in the consistency of beliefs in a given society but in their inconsistency and heterogeneity; and that the malleability and fluidity of culture provide some of the key attributes to be understood and exploited. For these reasons, we suggest that those working toward the reduction of poverty or alleviation of its effects should address culture more seriously than many have been willing to in the past.

To frame our discussion, we follow the arguments by Amartya Sen and others that the study of wellbeing should focus not only on material poverty but also, more generally, on the capabilities people have to acquire the goods (or realize the functionings) they have reason to value (Sen 1985, 1999).
benefit of this approach from our perspective is that it moves us away from a rather narrow perspective by which the consequences of culture would center on its relationship to people’s income, employment, or wealth. The idea of capabilities, however, brings up the thorny problem of subjectivity in wellbeing: capabilities depend on social circumstances and also on what people wish for, which depends on cultural circumstances. We cannot resolve those issues here but we identify those circumstances were some understanding of their import will probably be crucial.

Cultural diversity takes different forms in different settings; in some, such as South Africa and the U.S., it may be associated with racial differences; in others, such as Nigeria, with religious or ethnic differences. Much of our empirical work has been based in the US, though one of us has also conducted work in France. In the first half of the paper we often use the example of the U.S. to frame some of the issues we find important. In the second, we expand more generally to an international context.

II. CULTURAL CONSEQUENCES OF POVERTY

Perhaps the most appropriate way to rethink the simple causal model described earlier is to think of the opposite relationship, to consider the cultural consequences of experiencing sustained poverty. For years, the most prominent, if controversial, theory in this vein was Oscar Lewis’ (1959; 1969) “culture of poverty.” Lewis argued that this culture emerged when populations that were socially and economically marginalized from a capitalist society developed patterns of behavior to deal with their low status. This behavior, which Lewis observed among families in Mexico and in Puerto Rico, was characterized by low aspirations, political apathy, helplessness, disorganization, provincialism, and the disparagement of so-called middle-class values. Once this culture was in place, Lewis argued, it developed mechanisms that tended to perpetuate it, even if structural conditions changed. This work has been criticized at length, in part for assuming that cultures were internally consistent and also for its lack of empirical support (Valentine 1968; Lamont and Small forthcoming).

In recent years, scholars have examined this question with greater theoretical clarity and empirical rigor. The cultural consequences of poverty may categorized into those caused by individual poverty and those caused by neighborhood or community poverty. It is important to note that these are not merely two versions of the same effect observed at different levels. Individual poverty, for example, might be experienced in a context of either collective poverty or collective prosperity. In the former, the cultural consequences may be different from those in the latter, where relative deprivation is likely to play a role.

Many have examined the long-term consequences for individuals of living in sustained poverty or unemployment. For example, in a recent work, Wilson (1996) argued that sustained unemployment specifically affected daily habits and work orientations. The practices of waking up every morning at a given time, having to attend work or meetings and meet employment responsibilities form part of people’s habitus, or dispositions toward behavior, that are themselves conducive to sustained employment. When “work disappears,” and individuals do not participate in the formal labor market, people are likely to lose those cultural dispositions. Something similar was observed during extended unemployment by Bourdieu (1965) among Algerians and Jahoda and by Lazarsfeld and Zeisel (1971) during an economic depression in Austria.

Much more recent work has focused on the community-level question. The consequences of neighborhood poverty—specifically, of living in a neighborhood with a high concentration of poor individuals (regardless of whether the actor herself is poor or not)—have been a subject of intense
scrutiny during the 1960s and 1970s and again in recent years in U.S. scholarship (Wilson 1987; Goering and Feins 2003). The earlier literature examined culture at length, but without the theoretical precision of recent works; the recent scholarship exhibits much more sophistication, with the use of survey data, ethnographic data, and even field experiments, but unfortunately without much examination of culture. Among the earlier studies the standout is Hannerz’ (1969) examination of conditions in a high poverty, predominantly black neighborhood in an unnamed US city. Hannerz found that the community had developed both mainstream and ghetto-specific forms of behavior, with individuals adopting one or another as circumstances demanded.

More recently, scholars have found that neighborhood poverty can have cultural consequences for both individuals and neighborhoods as a whole. Smith (2005, 2007) studied African-American job finders in Michigan and found that living in concentrated neighborhood poverty reduced trust in social networks, such that people were less willing to help others find jobs. On the consequences for neighborhoods, scholars have found consequences very consistent with Hannerz’. Anderson (1999), in a study of black urban neighborhoods in Philadelphia, Small (2004), in a study of a Puerto Rican housing complex in Boston; and Harding (2007), using national U.S. survey data on poor and non-poor neighborhoods, have all found that neighborhood poverty is often associated with cultural diversity—that is, a situation in which multiple beliefs and scripts about appropriate behavior coexist in one context, such that residents are forced to choose among different patterns of behavior, all of which are socially acceptable.

The three studies point to different aspects of the question. Anderson advances a distinction between “street” and “decent” families in neighborhoods that alludes to Hannerz’ work, but, by focusing on differences between types of actors as opposed to types of attitudes, perhaps does not move us forward as it could. Small identifies heterogeneity, but also provides a model as to how it comes about. He shows that at times cohorts of residents exhibit relatively consistent cultural narratives about the neighborhood itself—e.g., on whether it is a good or bad place to live—and that cultural heterogeneity may come about as elders are replaced by newer or younger cohorts. Harding provides comparative data to show convincingly that, at least with respect to beliefs and scripts about sexual behavior and romantic relationships, poor neighborhoods are more culturally heterogeneous than non-poor neighborhoods. His work suggests that relative deprivation may have more salient cultural consequences than deprivation in the context of collective poverty. A recent study by Young (2003) provides important insight into the relationship between individual and neighborhood poverty. Young interviewed African American men, living in poverty and residing in high poverty neighborhoods, about their understandings of themselves and their aspirations. He found that those who rarely left their neighborhoods and who were most socially isolated were the most likely to believe in the tenets of the American Dream, that through hard work and dedication they could improve their own circumstances. Those who spent more time regularly outside their neighborhoods, and who therefore had greater contact with wider society, were more likely to believe that racial discrimination was a serious obstacle to their advancement.

III. COUNTERCULTURES AND THE REPRODUCTION OF POVERTY

An important issue that follows from examining the cultural consequences of poverty is whether these consequences are, themselves, self-perpetuating. The paradigmatic model in this vein has, in some sense, been Lewis’. Lewis did not merely argue that in conditions of poverty people develop the cultural beliefs and attitudes described earlier; he also argued that, once in place, the culture of poverty was self-perpetuating, so that people were unlikely to change their behavior even if the structural circumstances that led to it changed. This proposition was perhaps the most controversial, and it may
have proven one of the least supported. For example, in the U.S. many conservative commentators argued that unemployment rates among blacks were high because of their unwillingness to or cultural predisposition against work. However, as job markets tightened dramatically over the late 1990s, the black unemployment rate plummeted (U.S. Census Bureau 2001: Table 593).

The theoretical assumptions have been criticized as well. Many researchers argued that the development of cultural attitudes and beliefs inconsistent with personal success in capitalist societies were themselves acts of resistance, conscious and not so conscious, against the economic systems of such societies. In one of the most cited models, John Ogbu (1978; Fordham and Ogbu 1986) argued that the situation of poor ethnic minorities in societies had to be understood in light of their migration to such societies. Some were voluntary minorities, groups that had moved to a society willingly and in search of political freedoms or economic opportunities. Others were involuntary minorities, such as slaves and indigenous people, groups that had become ethnic minorities as a result of conquest or violence. Ogbu argued that ethnic groups in the latter category were likely to perceive themselves as fictive kin (“brothers” and “sisters”) and to remain acutely aware of the structural constraints on their advancement (such as the ethnic job ceiling and institutional discrimination). As a result, they were likely to develop an “oppositional culture,” a set of attitudes and beliefs fundamentally at odds with those of mainstream society, one in which subscribing to mainstream beliefs—such as participating in the formal economy or attaining success through the standard educational pathways—was considered disloyal to the fictive kin group. While groups were internally strengthened through the formation of this collective culture, their members’ individual prospects for occupational success were, ironically, weakened. Ogbu tested his model on, not surprisingly, adolescents in school, where presumably their future aspirations would be easiest to perceive. He found that many black students in the U.S. urban schools he studied complained about students who “acted white” and referred to those who attained good grades as “brainiacs.” In this sense, cultural conditions helped reproduce poverty.

This model appealed to scholars and policy makers. It provided a way of looking at culture that did not “blame victims” for their problems, and it presented a model that provide an elegant and comprehensive view of differences in poverty across a range of groups and societies in a way that appeared intuitively correct. However, it was not until the late 1990s that the model was tested explicitly, and the tests found reasons to question it. Ainsworth-Darnell and Downey (1998) examined among a national population of students their attitudes about education, homework, educational attainment, the importance of school, and the role of education in popularity. They found that black students were either no different from whites or more likely to support mainstream ways of attaining success, in direct contradiction of the thesis (see also Cook and Ludwig 1998).

There are broader concerns with the model, however. Notice that in Ogbu’s model culture is both internally consistent and static—the set of beliefs and attitudes about attainment that involuntary minorities are reputed to have is not inconsistent, and, once established, it does not change. Both ideas about culture seem difficult to support. Many, for example, have written of the wide array of beliefs present in urban African American culture, a model in which heterogeneity and opposing views, rather than consistency, seem to reign (Hannerz 1969). In addition, culture changes, an idea given little thought in this context. And yet it is by examining how and where culture changes that the possibility for other forms of change emerges.

Returning to our broader theme, the issues of oppositional culture and cultural resistance point to an additional difficulty: that of conceiving of wellbeing as depending not just on poverty but also on people’s capabilities. Sen and others have argued that whether people are doing well in light of what
they are capable of doing depends not merely on their given society but also on their interests and predilections. For example, most would agree that reducing illiteracy can be conceived as an objective, not subjective goal in practical terms. But when we are concerned about wellbeing, we worry not that every person has a college education, but that those who wish for one are able to attain it. Certainly, the evidence does not bear out an overarching conception of oppositional culture in which most members of involuntary minority reject normal channels of success. Nevertheless, in the context of resistance cultures, it is clear that individuals may be culturally at odds with the expectations of their wellbeing assumed by mainstream society or international standards. There are no answers based on universals that would apply in all circumstances. Yet no successful approach to poverty can fail to recognize the possibility of cultural beliefs or attitudes born of resistance or rejection of mainstream paths to wellbeing. In particular, while preserving traditions may often be interpreted as a form of cultural resistance that is counterproductive from the perspective of economic development, it can also sustain strong group relationships that act as bases for collective empowerment. In turn, cultural erosion that results from industrialization often weakens traditional solidarities and networks of mutual support and hence produce new forms of poverty. The pursuit of economic development often recreates the very problems that it aims to alleviate, but under new guises. Fortunately, new sites for solidarity often emerge as minority and low-status groups are confronted with new challenges (e.g., Mooney (forthcoming) on the Catholic Church and Haitian immigrant communities in Miami, Montreal and Paris).

IV. CULTURAL DIVERSITY AS A TOOL FOR SELF-EFFICACY

Cultural difference from the mainstream is not always a rejection of mainstream ways, and, in fact, cultural difference can be a tool for success, rather than failure, in contemporary capitalist societies. That cultural diversity can itself become a tool for development, self-efficacy, and development has been contested for some time. Banfield expressly argued that cultural traditions in many parts of the world undermined the possibility of political and economic development. What he termed an “amoral familism,” a strong sense of patronage and in-group resource allocation in which merit played little role, was a strong obstacle to development. Other scholars have made similar arguments about economic development in Latin America and political development in the Middle East (Harrison 1985; Harrison and Huntington 2000).

These arguments, however, have tended to be supported by very little evidence. The idea that cultural diversity undermines progress because it undermines common values is based on the faulty assumption that political and economic progress of the collective depends on those particular beliefs in which the major ethnic and national groups differ, rather than those they share. Certainly, nations differ dramatically and populations within them often vary even more in beliefs and attitudes. Nevertheless, the core notions of respect for life, fairness, economic opportunity, and support of the family are more common than implicitly assumed by arguments of this nature. More generally, many have shown the successful adoption of diversity by individuals and groups throughout society.

Social policies that favor cultural diversity and multiculturalism may sustain the creation of a positive collective identity among members of low-status groups. For example, many pundits have argued that in order for immigrant minorities to do well, they must adopt the culture and language of the new societies in which they find themselves. But researchers have shown that retaining cultural distinctiveness can provide important advantages. In an important study of bilingualism among immigrants in the U.S., Portes and Schauffler (1994) found that children of immigrants who were bilingual performed better on math tests and other measures of academic success than those who had learned English but not retained their language of migrant origin. Others have found that children in
school respond positively to culturally relevant materials, and to approaches from multiple, as opposed to one, cultural perspective.

V. CULTURAL DIVERSITY AS A SOURCE OF EXCHANGE, INNOVATION, AND CREATIVITY

A different way to think of diversity is to think of its impact on innovation and creativity. Some have argued that one may increase the level of self-determination among low income or low status minority groups by acknowledging or celebrating their distinctive cultural heritage. While alleviating poverty requires income redistribution and equalizing access to rights, institutions, and other resources, it may also require interventions that give such groups greater roles in the public sphere while asserting their importance as members of the cultural and political polity. Public celebrations of multiculturalism accomplishes this, but promoting self-determination by recognizing the existence and cultural distinctiveness of the group is probably even more important. These undoubtedly influence shared “capacity to aspire” (Appadurai 2006) and sustain the development of stronger sense of collective efficacy.

In development circles, recent scholars have argued that we should place greater importance on local knowledge, including the understandings and practices of indigenous and other marginalized groups (Scott 1999: 313-335). Forms of government that require the contributions of a wide range of citizens are often granted greater legitimacy, and are often more effective and better able to mobilize populations in the pursuit of collective goals. For instance, after the All India Institute for Hygiene and Public Health started using sex workers for peer education in condom use in the Sonagachi district of Kolkata, the rate of HIV incidence went down to about 6 percent in 1999, compared to 50 percent in other red-light areas (Rao and Walton, 2004, p. 8). In her study of efforts to reduce HIV-infection in Uganda and Botswana, Swidler (2007) found that governments and NGOs were effective only when they mobilize the systems of meaning and the social solidarities of the local community. In Uganda, prominent clan structures, even if less democratic than local government in Botswana, provided more effective vehicles for reaching local communities than organizations operated by national or transnational voluntary organizations. Crucial to success were tapping the social imagery of the moral orders prevailing in diverse local communities, invoking the obligations ordinary people feel to their respective friends and neighbors, as well as socially valued models of behavior.

VI. REMOVING STIGMA AS A MECHANISM OF POVERTY ALLEVIATION

How individuals interpret and deal with exclusion and stigma is an important factor in how discrimination affects their mental and physical health and wellbeing (Lamont 2007). Whether members of subordinate groups internalize their lower status and the stigma that comes with it or interpret their situation so as to alter the status hierarchy or power dynamic matters.

Psychologists have given consideration to the intra-psychological mechanisms with which members of stigmatized groups cope with perceived stigma, such as privileging in-group comparisons. Equally important are the variegated frameworks through which people define status, including through standards of evaluation that are autonomous from socioeconomic status (Lamont and Bail 2006). Lamont’s (2000) interview-based study found that African-American working class men differentiate Blacks from Whites by contrasting their “caring selves” with the more domineering self of Whites. For their part, North African immigrants in France challenge stereotypes by demonstrating that they are different and superior to the French on moral grounds. To various degrees, workers in both countries locate themselves above the middle class by pointing to the moral failings of this group. They develop
alternative criteria of evaluation that allows them to locate themselves in a hierarchy. These cultural
templates are widely shared. Cultural resistance can provide strong cultural backbones to withstand the
challenges of upward mobility, but can come about at the expense of considerable stress (James 1994).

More generally, there are other ways for members of stigmatized groups to gain civic
membership. One is to attempt to embrace dominant cultural attitudes, beliefs, and forms; another is to
be bicultural, to adopt cultural forms relevant to different contexts by “code switching” (DuBois
([1903]2005; Carter 2006). Strict cultural assimilation, a traditional route, can come about at the
expense of loss of identity and of other important cultural assets. Biculturalism has been employed
successfully by the upwardly mobile for a long time, but the constant code switching can be alienating,
creating people who are fully at home in neither setting (Shoshana forthcoming).

Larger institutional/governmental strategies, such as affirmative action laws or regulations, also
promote the removal of stigma and allow individuals different options in how they choose to define
their identities. Their usefulness is often context-dependent and debated or contested, as is the case for
the adoption of affirmative action policies in Brazil’s higher education (Silva 2007), or the fall 2007
debates concerning the collection of racial and ethnic statistics by the Institut National d’Etudes
Demographiques in France, opposed by the Constitutional Council.

Considering the culture of the middle class and of political and other elites is crucial to
understanding destigmatization strategies and to capturing the broader relationship between culture
and poverty. Cultural and social exclusion are features of all systems of inequality (Bourdieu and
Passeron 1989), and middle class strategies to pass on privileges to their offspring always constrain
options for less privileged groups – for instance, in the United States where school budgets and
determined by local taxes, the middle class prices the working class out of residential areas with better
schools.

The indifference of elites also often has counterproductive effects. In a systematic comparative
study of elite perceptions of poverty in Bangladesh, Brazil, Haiti, the Philippines and South Africa, Reis et
al (2007) demonstrated that while elite interviewees from various sectors of these societies discussed
poverty as if it were a problem, they had difficulty identifying very pressing or compelling reasons for
concern. There was no very strong sense that to tolerate persisting poverty is to allow some valuable
human resources to go to waste. Moreover, the classic threats posed by poverty, such as crime, were
generally perceived to be rather weak. There was limited support for any notion of introducing a
‘welfare state’ providing broad-spectrum support for the mass of the population on a relatively
universalistic basis (support was stronger in Brazil than Bangladesh). The areas of agreement over pro-
active policies were that more education was the best way to reduce poverty and that poverty reduction
was viewed as primary responsibility of the state.

Whether strategies for dealing with racial, ethnic, or religious stigma can be used successfully to
deal with the stigma of poverty is an open question. Low-income groups are by definition deprived of
resources. A positive self-concept may not make a real impact on their situation. Nevertheless,
recognizing how poverty is sustained by institutional and economic forces has been shown to sustain the
poor in their efforts to improve their situation and gain collective efficacy (e.g. Heller 1999 in the case of
Kerala, India).

VII. INSTITUTIONAL AND CULTURAL CONDITIONS FOR SUCCESSFUL SOCIETIES
Our arguments imply that the protection of individual rights must include the protection of cultural differences. Successful societies recognize individual and group rights and adopt policies that treat diverse groups fairly and that give people from diverse cultures and ethnicities an equal voice in directing their destinies (Kymlicka 1995; 2007). It is also likely that redistributing resources through universal, rather than targeted approaches, keep stigma at bay and thereby do not discourage the respect for difference. These societies facilitate access to a range of institutions, such as schools, hospitals, and welfare, to a wider range of groups while recognizing their distinct needs. They lower inter-racial conflict by increasing inter-group contacts in many institutions (e.g., in schools – see Warikoo forthcoming) and they insure that groups have equal access to resources. They are societies, in short, that maximize the capabilities of groups and individuals (Hall and Lamont 2007). This last aspect is illustrated by Cornell and Kalt (2000) who shows that American Indian reservations that take a "nation-building" approach (assert sovereignty, think strategically and develop strong governing institutions in accord with local cultures) do better economically. Among First Nations in Canada, communities that embrace traditional values and decision-making practices tend to experience greater economic development.

There are important controversies over whether cultural diversity benefits or undermines the creation of successful societies. Some have recently argued that diversity makes it impossible to establish common values, or that it disintegrates social capital by reducing trust and cooperation among citizens. If these arguments were right, the only solution would be for countries to block all borders and eject minorities. Naturally this solution is impracticable. This would not only constitute a violation of civic and human rights unacceptable to majorities in both countries but also create nations unable to communicate effectively across cultural barriers.

3.b. How does Cognitive Evaluations Theory explain intrinsic motivation? Evaluate the effects of overjustification with the help of suitable examples.

Reference:

Cognitive evaluation theory

Cognitive Evaluation Theory (CET- Deci 1975) is a theory in Psychology that is designed to explain the effects of external consequences on internal motivation. Specifically, CET is a sub-theory of Self-Determination Theory that focus on competence and autonomy while examining how intrinsic motivation is affected by external forces.

CET uses three propositions to explain how consequences affect internal motivation:

- External events will impact intrinsic motivation for optimally challenging activities to the extent that they influence perceived competence, within the context of self-determination. Events that promote greater perceived competence will enhance intrinsic motivation, whereas those that diminish perceived competence will decrease intrinsic motivation (Deci & Ryan, 1985).

- Events relevant to the initiation and regulation of behavior have three potential aspects, each with a significant function. The informational aspect facilitates an internal perceived locus of causality and perceived competence, thus positively influencing intrinsic motivation. The controlling aspect facilitates an external perceived locus of causality (a person’s perception of the cause of success or failure), thus negatively influencing intrinsic motivation and increasing
extrinsic compliance or defiance. The amotivating aspect facilitates perceived incompetence, and undermining intrinsic motivation while promoting disinterest in the task. The relative salience and strength of these three aspects to a person determines the functional significance of the event (Deci & Ryan, 1985).

- Personal events differ in their qualitative aspects and, like external events, can have differing functional significances. Events deemed internally informational facilitate self-determined functioning and maintain or enhance intrinsic motivation. Events deemed internally controlling events are experienced as pressure toward specific outcomes and undermine intrinsic motivation. Internally amotivating events make incompetence salient and also undermine intrinsic motivation (Deci & Ryan, 1985).

Evidence for Cognitive Evaluation Theory

Many empirical studies have given at least partial support for the ideas expressed in CET. Some examples include:

- Vallerand and Reid (1984) found that college students' perceived competence and intrinsic motivation were increased by positive feedback and decreased by negative feedback. Further, a path analysis suggested that the effects of feedback on the students' intrinsic motivation were mediated by perceived competence.
- Kruglanski, Alon, and Lewis (1972) found that tangible rewards decreased fifth grade children's intrinsic motivation for playing various games. The authors also attempted to measure whether or not children who received the rewards had an external locus of causality. They asked rewarded and non-rewarded children 1 week after the treatment session for their reasons for playing the games. Of the 36 rewarded children, only 2 mentioned the reward as their reason.
- Goudas, Biddle, Fox, and Underwood (1995) tested this hypothesis with the use of different teaching styles in a physical education class. The students reported higher levels of intrinsic motivation when their track-and-field instructor offered them a number of choices throughout the lesson rather than controlling every class decision.

Evidence against Cognitive Evaluation Theory

Many empirical studies have given at least partial support against the ideas expressed in CET. Some examples include:

- Many studies have found changes in intrinsic motivation without changes in perceived locus of causality or competence (Boal & Cummings, 1981; Harackiewicz, Manderlink, and Sansone, 1984).
- Phillips and Lord (1980) found changes in perceived competence following the receipt of rewards, but no changes in intrinsic motivation.
- Salancik (1975) found that college students rewarded with money reported internal attributions of control.

Alternative Explanations for Undermining of Intrinsic Motivation
Some behaviorist psychologists have offered up other explanations for the undermining of intrinsic motivation that has been found in support of CET. Dickinson (1989) proposed three explanations:

- That intrinsic motivation may decrease over time due to repetitive actions. This is to say that the motivation was not be undermined by an external force but was decreasing because of doing the same action over and over.

- If the controlling actions (the reward) are negative it could negatively influence intrinsic motivation. Rewards can do this in several ways, including serving as a proxy for a punishment by withholding a reward as the reward stands as a means of coercion to complete an otherwise undesirable task.

- Culturally, intrinsically motivated acts that have no extrinsic reward are praised by society whereas actions that receive a tangible reward are not praised as highly, which would indicate that for actions that have a tangible reward they receive less praise and this undermines their intrinsic motivation to complete the task.

Other explanations for the undermining effect include the “overjustification” effect, tested by Lepper, Greene, and Nisbett (1973). The “overjustification” effect claims that subjects will justify their actions later by investigating the causes for their own behavior, and if they were rewarded for that behavior they are likely to place an emphasis on the reward as opposed to any intrinsic motivation they might have had. Similarly, Lepper, Sagotsky, Dafoe, and Greene (1982) showed that children will develop beliefs that if they have to do one task prior to be allowing to engage in another (i.e., “clean up the dinner table before you can have dessert”) that the first task is going to be uninteresting and that the second activity is preferable.

**Implications of Cognitive Evaluation Theory**

The primary implication for CET is that the consequences of a reward will be a decreased level of intrinsic motivation and satisfaction because the reward is perceived to negatively impact the autonomy and competence of the individual. Tangible rewards under most conditions will negatively impact the motivation and interest of employees. However, while expected tangible rewards negatively impact motivation and satisfaction, unexpected tangible rewards do not have a negative impact because they are unexpected and thus do not influence the motivation to engage in the act. Similarly, rewards that are not dependent upon the task and are given freely are also not detrimental to motivation and satisfaction (Deci, Koestner, & Ryan, 1999).

Also, positive feedback is positively related to intrinsic motivation and satisfaction so long as the feedback is not relayed in a controlling manner. Word choice can negatively influence autonomy even under conditions of positive feedback if the feedback is given in a controlling manner, such as by indicating that someone is doing a good job and that they “should” continue the work, as opposed to simply indicating that they are performing well (Deci, Koestner, & Ryan, 1999).

However, an important finding regarding positive feedback is that positive feedback is important for adults, but not for children. In their analysis of the literature, Deci et al. (1999) found that while adults had their intrinsic motivation significantly enhanced by positive feedback, children showed no such difference. Positive feedback for children neither significantly increased nor decreased their intrinsic
motivation. Despite this, perceived satisfaction with tasks was still positively impacted by positive feedback for both children and adults.

It is important to note that the findings of CET are usually based on the premise that the task is an interesting one so that the employee/student will want to engage in the task of their own volition, but when the task is not interesting the findings indicate that the use of rewards does not damage the intrinsic motivation or satisfaction of the employees/student to a significant degree (Deci, Koestner, & Ryan, 1999). This might indicate that under certain situations, such as when a boring task is used, tangible rewards might be appropriate.

Taken together, CET implies that under conditions involving interesting tasks positive feedback is generally a positive force on intrinsic motivation and that tangible and expected rewards are a negative force. This would indicate that when tangible rewards are to be used that they should not be made known beforehand (and therefore linked to the behavior) and that positive verbal feedback is only good when it is applied in a manner that does not threaten the autonomy of the individual. The implications of this theory have been noted in the field of economics due to its implications for incentives (Fehr & Falk, 2002) and in educational settings (Hattie & Timperley, 2007). In the educational field, the difference between children and adults in how important positive feedback is to their feelings of intrinsic motivation is an important one and will alter the application of CET between the workplace and the classroom.

Future Research for Cognitive Evaluation Theory

Future research on CET will likely look to the effect of rewards on long-term tasks as opposed to short-term tasks as this might affect the relationship between rewards and motivation; complicated and interesting tasks that occur over time might display different relationships regarding rewards and intrinsic motivation (as suggested by Hidi & Harackiewicz, 2000). Other elements to consider for future research include investigating how intrinsic versus extrinsic rewards might alter the relationship between rewards and intrinsic motivation, as the expected payoff between learning a new skill (such as learning to play the guitar) and being compensated monetarily could have different effects on intrinsic motivation (Vansteenkiste, Lens, & Deci, 2006).

Overjustification effect

The overjustification effect occurs when an external incentive such as money or prizes decreases a person's intrinsic motivation to perform a task. According to self-perception theory, people pay more attention to the incentive, and less attention to the enjoyment and satisfaction that they receive from performing the activity. The overall effect is a shift in motivation to extrinsic factors and the undermining of pre-existing intrinsic motivation.

In one of the earliest demonstrations of this effect, Mark Lepper and Richard Nisbett promised a group of 3–5-year-old children that they would receive a "good player" ribbon for drawing with felt-tipped pens. A second group of children played with the pens and received an unexpected reward (the same ribbon), and a third group was not given a reward. All of the children played with the pens, a typically enjoyable activity for preschoolers. Later, when observed in a free-play setting, the children who received a reward that had been promised to them played significantly less with the felt-tipped pens. The researchers concluded that expected rewards undermine intrinsic motivation in previously
enjoyable activities. A replication of this experiment found that rewarding children with certificates and trophies decreased intrinsic interest in playing math games.

Theories

One explanation of the overjustification effect is self-perception theory. According to this approach, people infer causes about their behavior based on external constraints. The presence of a strong constraint (such as a reward) would lead people to conclude that they are performing the behavior for the reward. This would shift the individual's motivation from intrinsic to extrinsic.

The most detailed explanation for the overjustification effect is cognitive evaluation theory. This theory proposes that tangible rewards (like money) are perceived as controlling or coercive, and act to decrease perceived self-determination and undermine intrinsic motivation. Because unexpected tangible rewards do not motivate behavior during a task, they are less likely to be perceived as controlling, and thus less likely to undermine intrinsic motivation. Informational rewards (like praise) increase perceived self-determination and feelings of competence, and consequently tend to enhance intrinsic motivation.

Controversy

The overjustification effect is controversial because it challenges previous findings in psychology on the general effectiveness of reinforcement on increasing behavior, and also the widespread practice of using incentives in the classroom. Nevertheless, two meta-analyses found that intrinsic motivation is diminished by expected, tangible rewards in both children and adults, especially when the reward is given for simply performing a task, regardless of the results. Nontangible rewards, such as verbal praise, and unexpected rewards do not undermine intrinsic motivation. In fact, praise may actually increase intrinsic motivation.

These conclusions were challenged in a separate meta-analysis which found that tangible rewards offered for outperforming others and for performing uninteresting tasks (in which intrinsic motivation is low) lead to increased intrinsic motivation. A rebuttal defended the original findings and concluded that this analysis was flawed.

Application

Research in this area suggests that parents and educators should rely on intrinsic motivation and preserve feelings of autonomy and competence as much as possible. When the task is unattractive and intrinsic motivation is insufficient (e.g. household chores), then extrinsic rewards are useful to provide incentives for behavior. Student grades may not undermine intrinsic motivation because grades convey information about competence, much like praise.

School programs that provide money or prizes for reading books have been criticized for their potential to reduce intrinsic motivation by overjustification. However, a study of the Pizza Hut program, Book It!, found that participation in the program neither increased nor decreased reading motivation. Although motivating students to read by rewarding them may undermine their interest in reading, it may also encourage the reading skills necessary for developing an interest in reading.
3.c. What do you understand by Multi-Level theories of cognition-emotion relations? Critically evaluate the strengths and weaknesses of Multi-Level theories.

Reference:

WHAT ARE MULTI-LEVEL THEORIES AND WHY DO WE NEED THEM?

Multi-level theories of cognition and emotion recognize qualitatively distinct kinds, or "levels", of information and representation. Within such theories, representations of a given event or topic at different levels of information can have quite different functional relationships to emotion.

Multi-level theories suggest that, in attempting to understand the emotional effects of events, it is helpful to consider separately the contributions from different kinds of information, and their interactions, rather than to lump them all together in some general concept of "cognition".

There are many potential advantages to such multi-level approaches. They immediately allow us to sidestep some of the unhelpful aspects of the Zajonc-Lazarus debate on the primacy of affect vs. the primacy of cognition in the generation of emotion. As Leventhal & Scherer (1987) have pointed out, much of this argument actually boiled down to a semantic controversy about whether the word "cognition" could be applied to more "sensory-perceptual" aspects of experience, or whether it should be restricted to more consciously accessible "appraisals". Multi-level theories treat both appraisals and perceptual features simply as information at different levels of abstraction. In this way, these theories allows us to focus clearly on the central tasks of characterizing those levels, and their relationship to emotion, rather than on arguing about the boundary conditions for the use of the term "cognition".

Dissociations in cognition-emotion relationships are not uncommon. For example, we can think relatively "coolly" about emotive topics or past events such as "failures" or "catastrophes" without the affect that would normally occur if we actually experienced events that might be interpreted using those same concepts.

Such a simple observation poses profound difficulties for uni-level theories of emotion that suggest that "hot" affect is produced simply by activation of the same concepts or representations of events in memory that are involved in the "cool", "rational" consideration or discussion of related topics. For example, Bower's (1981) highly influential associative network theory of mood and memory used effectively only one level of representation, and relied on this same level to account for both "hot" and "cold" processing. The difficulty with such an approach was that the activation of, for example, a fear-related concept in the course of dispassionately thinking about fear, involved exactly the same process as the mechanism through which, it was proposed, fear was normally generated by a fear-related interpretation or appraisal of experience. As Bower himself subsequently noted, this leads to "the absurd implication that people always feel afraid when they refer to the concept" (Bower & Cohen, 1982, p. 308).

Multi-level theories avoid this difficulty by suggesting that the same topic can be represented in qualitatively different ways at different levels of information, and that some of those levels may be directly linked to emotion, whereas others may not. From this perspective, different types of information are involved in "cool" consideration of emotive material than in affect generation. For example, several theories suggest that the purely "conceptual" or "propositional" representations of affect-related material processed in "cool" thought are not directly linked to affect generation. These
Theories suggest that only representations of the same topics at a more schematic level have the power to elicit emotion. In this way, the dissociation between "hot" and "cold" processing of a topic is explained in terms of the level of representation of that topic that is being processed. Related dissociations, between "intellectual" and "emotional" belief, and between the effects of "rational" vs. "experiential" interventions, frequently arise in therapy. For example, in attempting to change a depressed patient's belief that he/she is a total failure as a person, a cognitive therapist might help the patient review evidence of recent successes or achievements quite inconsistent with his/her extreme negative view of him/herself. After such an intervention patients often respond with something along the lines of: "I agree, intellectually, that it is not true that I am a total failure as a person, but that still doesn't alter my 'gut' belief that I am, nor does it affect my depression". This contrast is accommodated comfortably within multi-level theories that suggest that "intellectual" and "emotional" or "gut" beliefs reflect differences between qualitatively distinct levels of representation, only the level corresponding to "gut" or "emotional" belief having direct links to affect (Teasdale, 1993).

The "cognitive impenetrability" of certain emotional reactions poses similar problems. For many years, I knew Mrs Thatcher as the Prime Minister of the UK. On the basis of media reports a few years ago, I updated the database in my long-term memory so that when asked for the name of the Prime Minister, I said, "John Major". More recently, this information has been further updated so that I now say "Tony Blair". This provides an example of the "cognitive penetrability" of learned action tendencies to new factual information; it was not necessary for me to visit these notables at 10 Downing Street to check out this evidence "experientially" - the written information was sufficient. And yet, if I had a phobia of spiders, I could read repeated accounts that reassured me that any spider that I might normally encounter in England was totally harmless, but my underlying fear might remain unchanged. In order to reduce my fear, I would have to have repeated experiences of being actually exposed (in imagination, or in reality) to spiders without any dire consequences obtaining. Within cognition-emotion theories that recognize qualitatively different and functionally "insulated" levels of information, such cognitive impenetrability is not unexpected. By contrast, uni-level explanations are challenged to account for the "cognitive penetrability" of some categories of information, but not others.

Finally, it is important to remember that the development of theories of cognition-emotion relationships is likely to proceed most effectively if it proceeds in parallel with developments in theory in cognitive psychology, more generally. Within cognitive psychology, there is a widely accepted consensus that the cognitive system as a whole should be conceptualized in terms of interactions between a number of distinct subsystems, each of which is relatively autonomous and specialized for dealing with only certain aspects of certain types of information (e.g., Baddeley, 1986, Shallice, 1988). Within mainstream cognitive psychology, a multi-level approach is normative. Accordingly, it is prudent to assume a multi-level approach if we wish to integrate cognition-emotion relations into any more comprehensive view.

**WHAT MULTI-LEVEL THEORIES?**

I shall review four approaches that have attempted to provide relatively comprehensive multi-level accounts of cognition-emotion relations. Other multi-level approaches that have focused on more specific aspects of cognition and emotion will not be considered, e.g., Brewin 's (1989) valuable discussion of verbally accessible vs. situationally accessible knowledge in psychotherapy change processes.

**Leventhal's Perceptual Motor Processing Model of Emotion**

©numerons
The central postulate of the perceptual motor model of emotion is that adult emotions are complex behavioral reactions that reflect the constructive activity of a multi-component, hierarchical processing system, all of whose levels and components are involved in virtually all emotional experiences and reactions (Leventhal, 1979,1980, 1984) (Leventhal & Scherer, 1987, p. 8).

The model proposes that the components which process emotion are organized at three levels: (a) sensori-motor; (b) schematic; and (c) conceptual.

The sensori-motor level includes a set of innate expressive-motor programmes. In the neonate, these automatically generate distinctive sets of expressive reactions and feelings in response to specific external and internal releasing stimuli (e.g. smiling facial expressions in carers, "looming" objects, and temporal sequences of reward followed by non-reward). Sensori-motor modules are the "seeds" on which experience builds more complex, emotional responses.

The schematic level of processing:

... integrates sensori-motor processes with image-like prototypes of emotional situations. Schemata are created in emotional encounters with the environment and are conceptualized as memories of emotional experiences: they are concrete analogue representations in memory of specific perceptual, motor (expressive, approach-avoidance tendencies and autonomic reactions) and subjective feelings, each of which were components of the reactions during specific emotional episodes

... Generalized schemata, i.e. prototypes, will emerge as similar, motor and subjective states are evoked and combined in memory with the perceptual features derived from multiple situations (Leventhal & Scherer, 1987, p. 10).

Schematic emotional memory is seen as providing a rapid, automatic, perceptual-emotional appraisal of current situations, shaping our subjective experience of events without effort or awareness of their activity, just as perceptual memory schemata shape the organization of objects in our perceptual field.

The generation of virtually all post-neonatal emotional reactions involves activation of affective schematic structures.

The conceptual level of processing arises as the growing infant comes to reflect upon, abstract, and draw conclusions about the environment and his/her emotional reactions to it. Processing at this level involves:

propositionally organized memory structures which have been formed by comparison over two or more emotional episodes. Conceptual processing is also volitional and can evoke emotions by accessing schemata. Thus, conceptual processing involves memories about emotion and mechanisms or procedures for the volitional use of these memory structures (Leventhal & Scherer, 1987, p. 11).

Leventhal's model provides an heuristic account of the way more complex, schematically driven, emotional states might develop from the prepared sensorimotor emotional reactions with which an infant enters the world. These developments include both an extension of the range of sensory-perceptual features that will elicit emotion, and changes in the form of response. For example, it is suggested that, in a child who is regularly tickled or swung in the air when it smiles at its parents, its memory schema for happiness might be described as "euphoric" or excited. By contrast, in a child whose parents respond to smiles with soft coos and gentle endearments, a schema of calm happiness is more likely to develop.
Although recognizing that most adult emotional reactions will involve contributions from all three levels, Leventhal's model makes a clear distinction between the schematic level, which includes memories of emotional experience, and is, itself, capable of directly eliciting emotion, and the conceptual level, which includes memories about emotion, and can only elicit emotion indirectly, by "calling up" the schematic level. It follows that this model has no difficulty in handling the dissociation between "hot" and "cool" processing of emotional material; indeed, Leventhal's observation of related dissociations in the area of health psychology was one of the main sources leading to the development of the model in the first place.

Interacting Cognitive Subsystems (ICS)

Interacting cognitive subsystems (ICS), first described by Barnard (1985), is a comprehensive conceptual framework within which, in principle, accounts of all aspects of information processing can be developed. The framework was applied to emotion by Barnard & Teasdale (1991). Teasdale & Barnard (1993) provide an extended description of the framework and its application to understanding cognition-emotion relationships: moods and their effects on memory; depressive thinking and its role in the maintenance of depression; and the mechanisms of action of psychological treatments (see also Teasdale, 1996, 1997).

ICS is based on a few, basically simple, ideas. The first is that qualitatively different kinds of information, or mental codes, each represent a distinct aspect of experience. Sensory (visual, acoustic and body-state) codes represent the information of relatively "raw" "undigested" sensory experience. Speech-level and visual object codes represent regularities extracted from recurring patterns of sensory codes over an individual's life experience. Recurring patterns in speech-level and visual object codes are, themselves, represented by codes encoding meanings. ICS distinguishes two levels of meaning. Propositional code patterns represent specific explicit meanings of the kind that are conveyed by a single sentence in language. Implicational code represents a more generic, holistic, implicit level of meaning that encodes, in schematic models, recurring regularities and interdependencies across constellations of specific meanings and patterns of sensory codes. Subjectively, synthesis of implicational meanings is marked by experience of "senses" or "feelings" with implicit meaning content: "something wrong", "confidence", "on the right track", "hopelessness". Finally, effector codes control muscular and autonomic responses.

The second basic idea of ICS is that there are specific processes that transform information from one kind of code to another. In the ICS framework, such transformations represent the basic operation through which information processing occurs.

The third basic idea of the ICS approach is that there are separate memory systems for each of the different mental codes. Transformation processes and code-specific memory stores are arranged in nine cognitive subsystems. Each subsystem is specialized for processing input in one information code. Such processing is constrained by a set of explicit operating principles. Extended information processing involves a continuing flow and exchange of data between subsystems.

In ICS, emotion is generated when appropriate patterns of implicational code are processed. Generally, these patterns will represent schematic models encoding recurring themes and regularities extracted from the patterns of propositional and sensory codes synthesized in previous situations that have elicited a given emotion. For example, schematic models encoding themes such as "globally negative
view of self” or “hopeless, highly aversive, uncontrollable situation that will persist indefinitely” will be extracted as prototypical of depressing situations. When, subsequently, high-level meanings related to these themes are synthesized, a depressive emotional response will arise.

ICS proposes that emotional responses to basic sensory input (e.g. a bloodcurdling shriek), and emotions reflecting complex, subtle patterns of meaning (e.g. embarrassment) are ultimately mediated through the same point in the system: "The implicational code provides a 'common currency' in which 'sensory' and 'cognitive' contributions can be expressed, integrated, and can modulate the production of emotion" (Teasdale & Barnard, 1993, p. 91).

Like Leventhal's earlier approach, ICS identifies a schematic level as the most direct influence on adult emotion, and suggests that the propositional level, concerned with concepts and specific meanings, has no direct influence, mediating, instead, "cool" thinking about emotion-related topics. In both accounts, the schematic level receives contributions directly from sensory-perceptual level features, sensory feedback from emotion-related body changes making particularly important contributions to emotion-related schemata. Unlike Leventhal's schematic level (at least the original presentations of it; but see Leventhal & Scherer, 1987) ICS's implicational schematic models include, in addition to sensory-perceptual elements, elements reflecting recurring constellations of specific meanings. Consequently, in ICS, the schematic level driving emotion generation is particularly sensitive to the thematic semantic content of situations (e.g. whether they are perceived as controllable or uncontrollable, whether they involve success or failure to achieve specified goal states, whether they imply an improving or worsening situation).

In contrast to the specific, explicit, propositional level of meaning, implicational level representations are holistic and implicit (cf. Gendlin's, 1981, "felt sense"). This distinction between explicit and implicit levels of meaning allows ICS to explain the frequently observed refractoriness of emotional responses to simple verbal-propositional interventions; change in emotional response depends on change at the implicit implicational-level, requiring change in a wider and more sensorily influenced context than a few "helpful words of advice" may effect (see Teasdale & Barnard, 1993, Chapter 16).

By proposing separate memory stores for implicational and propositional representations, affect being linked directly only to the former, ICS provides a way to explain the variability of the effects of mood on memory biases. The ICS analysis proposes that a mood state will only enhance the encoding or retrieval of affectively congruent material if implicational representations of the material have been created at encoding, a proposal that can account for much of the variability apparent in the experimental literature (Teasdale & Barnard, 1993, Part III).

The ICS approach to emotion is nested within a dynamic, systemic approach to information processing in general. This facilitates accounts of the effects of mood on cognitive processes, such as memory. This aspect of ICS also enables us to formulate accounts of the dynamic processes through which "cognitive" and "affective" factors can interact to establish self-organizing, self-perpetuating, processing configurations that act to maintain persistent affective states, such as moods or emotional disorders. For example, it is suggested that the "depressive interlock" configuration, illustrated in Figure 31.1, plays an important role in the maintenance of clinical depression (Teasdale & Barnard, 1993; Teasdale 1996).

**The Multiple-Entry, Modular Memory System Approach (MEM)**
The multiple-entry, modular memory system approach (MEM) was initially proposed as a framework for understanding memory and related phenomena (Johnson, 1983). It was subsequently applied to emotion and cognition-emotion relationships (Johnson & Multhaup, 1992; Johnson, 1994).

According to MEM, "memory is organized into distinct but interacting subsystems, each made up of component cognitive processes" (Johnson, 1994, p. 88). Two perceptual subsystems (P-1 and P-2) process external stimuli, and store the results of such processing. P-1 handles relatively basic aspects of perceptual processing, of which we are often unaware. P-2 processes give rise to our phenomenal perceptual experiences of meaningful objects interacting in meaningful ways, e.g. identifying a scene as a table on which objects are placed in a particular spatial arrangement.

Two reflective subsystems (R-1 and R-2) process and store internally, or self-generated material, such as that involved in imagination, fantasy and problem-solving. These subsystems allow us to sustain, transform and organize information. R-1 processes are essentially "supervisory" (e.g. reactivating information), whereas R-2 processes operate at a more "executive" strategic level (e.g. discovering relations among aspects of experience).

Within MEM, all four subsystems can contribute to emotion, and similar emotions can be associated with different subsystems. Certain emotions, such as anger or fear, are likely to be "computed" in all subsystems. However, the exact character of an emotion will depend on the specific processes from which it was derived; the fear experienced from seeing a fist come towards you (arising from P-1 activity) and the fear experienced from imagining yourself speechless at a party (arising from R-1 activity) differ in important ways.

It is suggested that the variety of possible emotions increases progressively from the P-1 subsystem to the R-2 subsystem. For example, an emotion such as remorse depends on R-1 and R-2 activity re-activating and retrieving a prior commitment, along with the knowledge that one has failed to keep it, and could not be the result of activity in perceptual subsystems alone. Relatedly, Johnson (1994) has suggested that emotions arising from P-1 and P-2 activity correspond to basic or biologically primitive emotions, whereas emotions requiring R-1 and R-2 processing correspond to "secondary" or "derived" emotions.
Figure 31.1  A sketch of the ICS “Depressive Interlock” configuration, which, it is suggested, plays a major role in the maintenance of clinical depression. The figure illustrates the following key features of the ICS analysis: (1) two levels of meaning—a specific (Propositional) level, and a more schematic (Implicational) level; (2) Implicational meanings (schematic mental models) may reflect contributions from both patterns of specific (Propositional) meanings, and patterns of sensory information (e.g. from bodily sensations); (3) emotion (depression) is generated directly only from the Implicational level of meaning—specific (Propositional) meanings and (speech level) negative automatic thoughts only contribute indirectly to emotion generation, to the extent that they affect the schematic meanings synthesized; (4) processing involves the dynamic exchange of information between subsystems—in the depressive interlock configuration, sensory and cognitive feedback loops can become established that “lock” subsystems into a self-perpetuating configuration that maintains depression. Reproduced from Teasdale (1996), by permission of Guilford Press.
In MEM, as in other multi-level theories: "different, and perhaps conflicting, emotional responses to the same nominal stimulus may co-exist, mediated by different subsystems; which of these would be active would depend on contextual factors, such as the type of cue, that might favor one or the other" (Johnson, 1994, p. 89).

Johnson’s application of the MEM framework to her own studies of memory illustrates important implications of multi-level approaches to understanding cognition-emotion relationships. In one study (see Johnson & Multhaup, 1992, for a more detailed discussion), amnesic Korsakoff patients and control subjects heard brief sections of unfamiliar melodies, and, subsequently, rated how much they liked both these (now, potentially, familiar) melodies, and a set of new, unfamiliar, melodies. Both groups showed a greater liking for the previously experienced melodies than for the totally novel melodies. The extent of this preference was similar in both groups, suggesting that the (largely perceptual-level) processes responsible for the initial affective evaluation of the music, and for the retention of that evaluation, were unimpaired in the amnesic patients. By contrast, when asked to indicate whether they had heard the melodies before, the patients showed marked deficits compared to the controls. Such a dissociation is, of course, exactly what would be predicted from an approach which recognized the existence of separate memory systems specialized for encoding and retaining different aspects of experience.

The second study used a situation in which, it was assumed, reflective-level rather than perceptual-level processes largely accounted for the evaluations made. Subjects were shown pictures of two men, Bill and John, and asked to rate their honesty, intelligence, etc. both before and after hearing factual information about the behaviour of the two (e.g. "broke his wife's arm in a fight") that depicted John as a "good guy" and Bill as a "bad guy". Twenty days later, the evaluations were repeated. Although the Korsakoff patients could remember virtually nothing of the specific factual information about the two characters (compared to 35% recall in controls), they still gave the good guy higher ratings than the bad guy, again suggesting a dissociation between the retention of factual and affective information.

The SPAARS (Schematic, Propositional, Analogical and Associative Representation Systems) Approach

SPAARS (Power & Dalgleish, 1997) is the most recent of the multi-level approaches under review. As the name of the framework suggests, the different levels recognized within this framework are similar to those of earlier accounts: "Analogical" refers to sensory-perceptual levels; "propositional" to a propositional-conceptual level, and "schematic" to a type of representation identical to the implicational schematic models of the res account (we shall return to the Associative level shortly). The strength of Power & Dalgleish's (1997) presentation of this approach is to position it clearly in a philosophical and psychological historical context, and to accept the challenge of actually applying the SP AARS framework to the phenomena of ordered and disordered emotion.

Power & Dalgleish (1997) describe the varied appraisals that, within SP AARS, elicit different types of emotion. Current goals are central to those appraisals, and, it is suggested, these goals themselves are a function of the schematic model "in place" at a given time. In SPAARS, as in ICS, affect-related schematic models play a central role in emotion generation, propositional representations, alone, having no direct role:

Events and interpretations can only be appraised with respect to the individual's goals, such that emotions are generated at the schematic model level of meaning ... although goals can be represented propositionally they can only be the subjects of an emotion-related appraisal process at the schematic level.
model level ... propositional processing will be merely semantic—it will be cold and non-emotional (Power & Dalgleish, 1997, p. 170, original italics).

In SPAARS, the associative level provides a further route through which emotion may be generated "automatically" without concurrent access to the schematic model level of meaning. "Automatic" is used here as a contrast to "controlled" (Shiffrin & Schneider, 1977), in the sense proposed by Logan (1988):

Automaticity is memory retrieval: performance is automatic when it is based on single-step direct-access retrieval of past solutions from memory ... Automatization reflects a transition from algorithm-based performance to memory based performance (cited by Power & Dalgleish, 1997, p. 175).

Noting that almost all cognitive and social cognitive processes (e.g. attitude activation, Bargh & Gollwitzer, 1995) can become automatized, Power & Dalgleish suggest that the same is true of the processes involved in the generation of emotion. That is, with sufficient repetition of a provoking situation, elements of that situation that have been repeatedly paired with the emotional response eventually become able to elicit emotion themselves, "automatically", without the mediation of any extended appraisal process. Within SPAARS, such automatized emotional responses are mediated by an associative level, distinct from the schematic level, so allowing, within this framework, two distinct routes to emotion production. It is proposed that associatively mediated emotional responses are particularly easily established to certain pairings of biologically prepared event and response classes, such as taste aversions to tastes paired with nausea, or phobic responses to animals such as spiders and snakes. The "impenetrability" of such prepared conditioned emotional responses to corrective "rational" information arises, it is suggested, because these responses are mediated through prepared links at the associative level rather than through appraisals involving the synthesis of schematic models.

Figure 31.2 indicates the relationships between the basic components of the SPAARS framework.
The richness of multi-level theories, with their separate levels, information codes, types of representation and processes, each level having different functional relationships to emotion, allows us to do justice to the observed variations in the ways that emotion can be elicited, and to the dissociations and functional independence often observed between different aspects of processing of the same topic. However, there is a danger that the advantages that such complexity in theorizing can buy us may be offset by the difficulty of distinguishing, empirically, between a multiplicity of explanatory accounts for any given phenomenon that different models, or indeed the same model, can provide. Put bluntly, if we can "explain" all aspects of cognition-emotion relations, simply by an unconstrained re-description of those relations in the language of a complex framework which does not yield verifiable predictions, then we may have really explained very little. The reality of this danger is a function of the level of precision of our theorizing, and of the number of constraints that our accounts of any phenomena have to satisfy.
The continuing development of our understanding of cognition-emotion relationships is a "boot-straps" operation, in which we need frameworks to guide the thinking that will lead to the experimental investigations that will, in turn, lead to findings that will force us to modify, or even abandon, our existing frameworks for something better. Viewed in this spirit, each of the approaches I have reviewed has something to offer to this unfolding endeavor, the contributions of the different approaches often being complementary.

As an illustration of the way that a multi-level framework can operate as a "tool for thought" the final section of this chapter illustrates the application of the ICS framework to a topic which it has not previously been applied. I choose to focus on ICS as, of the frameworks that have been presented, it is both the most tightly constrained by explicit operating principles and the one with which I am most familiar.

4.a. In what ways corporate psychopaths differ from criminal psychopaths? How would you identify them? Evaluate their effects on organizational outcomes.

Reference:

Non-criminal or successful psychopaths

As discussed above, in recent times there has been an acknowledgement that psychopaths are more varied and heterogeneous than past research may have indicated, and some researchers have put forward the view that subtypes of psychopathy exist (Murphy & Vess 2003). Commentators have suggested that successful psychopaths have more self-control and are able to control their behavior in a way that criminal psychopaths cannot (McCormick & Burch 2005). This is evidenced by the fact that intelligence has been shown to correlate with violence, with low-IQ psychopaths demonstrating low impulse control and a history of violence (Murphy & Vess 2003).

It can be hypothesized that intelligent psychopaths from relatively privileged social backgrounds who have taken advantage of good educational opportunities know that they can execute their self-serving behavior to far better effect and with much less risk of detection in a corporate setting than in criminal activity. It is acknowledged in the literature that little is known about the life trajectories of these functionally adaptive psychopaths because they have not been the subject of much study (Skeem et al. 2004; Vaughn & Howard 2005). They are not included in correctional samples because they are rarely caught doing anything illegal, and even when they are, their white-collar crimes attract only short periods of institutionalization (Babiak & Hare 2006). Psychopaths who are successfully integrated into the general population are by definition harder to find than incarcerated criminals are, and for this reason the suggestion has been made that research into people who have achieved celebrity status but who are reported to be devious, deceptive and disruptive could prove fruitful (Benning, Patrick & Iacono 2005). Successful psychopaths are successful inasmuch as they have deployed their skills of lying, manipulation and deception well enough to avoid detection and can avoid the displays of anti-social behavior that would get them into trouble with the law. As a result, they can have successful careers. They are described as subtle manipulators who are good at playing the emotions of others and at using people for the value they can bring to the psychopath in terms of excitement, entertainment or material gain (Conner 2006).

In line with this emerging view of successful psychopaths, researchers argue that the construct of a psychopathic personality should not be contaminated with criminality and socially deviant behavior,
because these elements are correlates of psychopathy rather than core characteristics of it (Johansson et al. 2002). This fits with the view of psychopathy held by leading researchers in the field such as Hare and Cleckley, who have both said that there are psychopaths who do not engage in criminal behavior and can function well in society (Cleckley 1988; Hare 1999a).

Recent brain imaging research into successful versus unsuccessful psychopaths reinforces the view that these are two distinct subgroups and that Corporate Psychopaths exist as a separate category of psychopath (Yang et al. 2005).

Congruent with the view that functionally adaptive psychopaths exist successfully and relatively undetected in society, psychologists have taken the subject of psychopathy into the popular domain with the publication, in the past few years, of several books on the subject (Babiak & Hare 2006; Clarke 2005; Hare 1999a; Stout 2005b). Hare, in particular, has repeatedly drawn attention to the existence of psychopaths in corporations and other large organisations (Hercz 2001). In response, business academics are becoming aware of the nature and extent of the influence of Corporate Psychopaths on businesses, and several papers on this subject have recently been published in academic journals and presented at conferences (Boddy 2005a; Boddy 2005b; Boddy 2006b; Morse 2004).

This chapter now arrives at the concept of Corporate Psychopaths, who can be classed as a subset of successful psychopaths who work in corporations.

**Corporate Psychopaths**

As discussed in Chapter 1, the concept of ‘Corporate Psychopaths’ combines the term ‘psychopath’ from the psychological literature with the term ‘corporate’ from the area of business to denote a psychopath who works and operates in an organisation. And, as mentioned above, Hare states that a subset of his PCL- R checklist caters to the identification of Corporate Psychopaths: they are glib and superficially charming; have a grandiose sense of self- worth; are pathological liars, good at conning and manipulating others; have no remorse about harming others; are emotionally shallow, calculating and cold; are callous and lacking in empathy; and fail to take responsibility for their own actions. In other words, Hare identifies Corporate Psychopaths as having the PCL- R Factor One personality characteristics identified in Table 11 above, but not as having the overtly anti- social and criminal manifestations of Factor Two.

Corporate Psychopaths are different from criminal psychopaths in that they are much more in control of themselves (and others) and can appear (Walker 2005) to be charming, polished, likeable and even charismatic. However, they are emotionally unconnected to the rest of humanity and view other people merely as objects to be used and abused as they see fit (Hare 1999b). This view that Corporate Psychopaths are much more in control of themselves than are criminal psychopaths is consistent with research that demonstrates that although they are correlated, the two main trait dimensions of psychopathy (impulsivity/anti- social behavior and callousness/lack of emotion) can show some independence, and that people can be high on one dimension but low on the other (Patrick 1994).

Leading researchers into psychopathy agree that there is considerable reason to believe that the way in which psychopathy is manifested in behavior depends on the social environment of the individual psychopath (Blair et al. 2006) and that family wealth may enable psychopaths to achieve their goals in a socially acceptable manner. Corporate Psychopaths may well be such people, able to control any
impulsive or anti-social tendencies to the extent of hiding them or rendering them lawful in their expression and so enable themselves to operate relatively undetected in society and corporations.

As discussed, the cold-heartedness and manipulativeness of Corporate Psychopaths are reported to be the traits that are least discernible by other people (Mahaffey & Marcus 2006), and this allows Corporate Psychopaths to gain other people’s confidence, be successful in job interviews and gain promotion. Corporate Psychopaths are able to use their extroverted charm (Hare 1994) and charisma (McCormick & Burch 2005) to manipulate others shrewdly to achieve their own selfish ends of enrichment and empowerment.

Once employed within an organization, Corporate Psychopaths systematically and cold-bloodedly go about getting rid of anyone standing in the way of their ascent of the organisational hierarchy, regardless of how valuable those people are to the corporation. Although they are not psychotic (delusional), they are ruthless and dangerous (Hofmann & Hasebrook 2004) to those around them and to the companies that employ them, and so are worthy subjects of business research.

Corporate Psychopaths

In summary, then, the concept of the Corporate Psychopath simply marries the terms ‘psychopath’ from the psychological literature and ‘corporate’ from the area of business to denote a psychopath who works and operates in the organisational arena (Boddy 2005b). As discussed above, these people have also been called executive psychopaths, industrial psychopaths, organisational psychopaths and organisational sociopaths (Pech & Slade 2007). In this current research, it was decided to call them Corporate Psychopaths.

The leader in psychopathy research is Professor Robert Hare. He developed a means of identifying psychopaths – the Psychopathy Checklist–Revised (PCL-R) – for use in clinical psychiatry and psychology (Hare 1991). This checklist has been adopted worldwide as the standard reference for researchers and clinicians to assess psychopathy and is often described as the gold standard measure for the identification of psychopaths in clinical settings (Mahmut, Homewood & Stevenson 2007; Molto, Poy & Torrubia 2000; Wormith 2000). Hare says that a subset of his checklist caters to the identification of Corporate Psychopaths: they are glib and superficially charming; have a grandiose sense of self-worth; are pathological liars, good at conning and manipulating others; have no remorse about harming others; are emotionally shallow, calculating and cold; are callous and lacking in empathy; and fail to take responsibility for their own actions. Other researchers agree that these are the core characteristics of a psychopath (Cooke et al. 2004; Cooke et al. 2005; Cooke & Michie 2001; Cooke, Michie & Hart 2004; Neumann et al. 2005).

This set of characteristics has been developed into a measure of the presence of Corporate Psychopaths within organisations called the Psychopathy Measure–Management Research Version (PM-MRV) (Boddy 2009). Corporate Psychopaths are those workplace employees who score 75 per cent or more of the total possible score on the traits identified as psychopathic in the scale used.

The cold-heartedness and manipulativeness of the psychopath are reported to be the traits that are the least discernible to others, and this allows psychopaths to gain other people’s confidence and facilitates their entry into positions where they can gain most benefit for themselves and do most harm to others (Mahaffey & Marcus 2006). One researcher suggests that the types of organisational behavior that a corporation managed by psychopaths indulges in could include harsh treatment of employees, the
sudden termination of employment contracts, unhealthy and environmentally damaging production practices, dangerous working conditions and the breaking of human rights conventions and the laws of employment (Ketola 2006). This marks psychopaths who work in corporations as potential agents of organizational and environmental destruction and thus as worthy of further investigation. In terms of the incidence of psychopaths in society, Hare reports that about 1 per cent of the general population will meet the clinical criteria for psychopathy (Hare 1994). Hare further claims that the prevalence of Corporate Psychopaths will be higher in the business world than in the general population. Unfortunately, even with this very small percentage of psychopaths in a corporation, Corporate Psychopaths can do enormous damage when they are positioned in senior management roles (Walker 2005).

This book provides a series of measures of this damage. However, it is obvious that much more research needs to be undertaken in this area, and funds are needed to establish a research centre which can systematically conduct this research and thus help to prevent further crises of capitalism.

Research and methodology

A sample of 346 well-educated white-collar workers was drawn from a variety of professional and managerial associations. Respondents were members of chambers of commerce, members of voluntary charitable organisations, postgraduate business alumni and business students, and members of other commercial organisations in Perth, Australia. The sample of respondents was managerial or professional, of working age (aged 21–60, with 60.5 per cent aged over 40) and 53.8 per cent male. The majority (65 per cent) were from companies with more than 100 employees in the manufacturing, mining, cultural, financial services and governmental sectors. The majority (75.7 per cent) had more than 12 years’ work experience. According to the psychopathy definition used in this research, 5.75 per cent of respondents were working with a Corporate Psychopath as their current manager, and 32.1 per cent had worked at some time with a manager who could be classified as a Corporate Psychopath.

A self-completion survey was used among these respondents to investigate the influence of the presence of Corporate Psychopaths. Self-completion questionnaires are reported to be useful in management research as they encourage, by their confidential nature, truthful and candid responses from respondents (Buchanan 2008).

The questionnaire used in the study asked respondents to rate their managers on a variety of behavioral traits. The research was a survey of management behavior and it was anonymous and confidential in terms of both the respondents and the managers they reported on, to avoid biased responses. The questionnaire contained questions about the respondent’s current manager and about any experience of working with a dysfunctional manager. One question comprised a list of behaviors (the PM-MRV) that enabled the identification of the presence of Corporate Psychopaths.

This research exercise yielded 346 complete questionnaires containing 345 responses about current managers and 227 responses about dysfunctional managers with whom respondents had worked, making 572 responses in total. Eighty-five of these were incomplete in terms of the psychopathy scale answers and so were not included in the analysis, which was therefore based on 487 responses.

In the study of psychopaths, samples are sometimes broken down into dichotomous or trichotomous subgroups according to the psychopathy scores of respondents. This is done so that differences in the reported behavior of the groups can be investigated categorically. These subgroups are typically labelled
‘non-psychopaths’ and ‘psychopaths’ in a dichotomous breakdown. In a trichotomous breakdown they are typically labelled ‘non-psychopaths’, ‘intermediate or moderate psychopaths’ and ‘psychopaths’. These breakdowns are based on the distribution of respondents on the psychopathy measure used.

In clinical settings and many research studies, a score of 75 per cent and above (e.g. 30 out of 40 points on the PCL-R) is used to define psychopaths (Herve, Hayes & Hare 2001) and a score of below 50 per cent (e.g. < 20 out of 40 on the PCL-R) is used to define non-psychopaths (Blair et al. 1995; Richell et al. 2003). A low psychopathy score is thus deemed to be one in the range 0–19, and a moderate score one in the range 20–29, for the full version of the PCL-R checklist. The equivalent scores are 0–12 (out of 24) and 13–17 (out of 24) for the screening version of the test (PCL-SV) (Guy & Douglas 2006). About the same percentages were followed for psychopathy measurement in this research. Managers were rated on each of the eight elements in the PM-MRV and given a score of 0 (not present), 1 (somewhat present) or 2 (present) according to the presence of the element in their personality and behavior. The maximum possible score, therefore, was 16 (2 x 8), and the minimum was 0 (0 x 8).

The Psychopathy Measure–Management Research Version was thus built into the questionnaire and used to determine the presence or absence of psychopaths in a given workplace environment. The answers from this research were categorized by score on the psychopathy scale. In line with the conventional procedures for the classification of psychopathy, scores of 13 and above were taken to indicate the presence of Corporate Psychopaths in an organization. Scores of 9–12 were taken to indicate the presence of what were termed ‘Dysfunctional Managers’ (dysfunctional in that some psychopathy was evident but not to the extent of their being full psychopaths) in an organisation. Scores of 8 and less were taken to indicate the presence only of what were called ‘Normal Managers’ in an organisation. This gave 264 responses about managers in whom no psychopathy was present, 104 in whom some was present and 119 in whom psychopathy was present.

One methodological decision to be made was whether to treat the measure used to identify Corporate Psychopaths as a categorical or continuous variable. It was decided to do both, as discussed below. There is some debate over whether psychopaths are a discrete category of people or just those who are at the top end of a continuous scale of psychopathy (Board & Fritzon 2005). Psychologists sometimes treat them categorically. Recently, for example, researchers examined the distribution of psychopathy in a representative sample of 638 adults in the UK. The PCL-SV was used as the psychopathy measure by these researchers, and an independent scale measuring social and behavioral problems was used as an external measure of validity. The researchers found an exceptional rise in behavioral problems beyond a cut-off score of 11.8 on the PCL-SV, which is in line with the recommended cut-off score for identifying psychopaths (12) for that measure. The researchers concluded that psychopathy can be defined categorically because individuals become an exceptional risk at a score of 12 and above (Coid & Yang 2008).

After the data from this current research were categorized into groups for Normal Managers, Dysfunctional Managers and Corporate Psychopaths, as described above, the presence of any statistically significant differences between the findings related to the three groups was investigated. One of the reasons that the psychopathy results were trichotomised was so that they could be presented in a crosstabulated manner familiar to management practitioners. In terms of analysing the significance of any differences found between the categories of Normal Managers, Dysfunctional Managers and Corporate Psychopaths two sets of statistical analyses were looked at in the first instance. The Pearson chi-square figures were investigated for any significant associations or differences between the three categories, and then ANOVA (analysis of variance) statistics were analysed as another measure.
of the same thing to confirm these differences. If differences were indicated then Bonferroni (T-test) statistics were investigated to see where (between which of our three categories) the differences lay, and, in particular, whether there was a significant difference between the Normal Managers and the Corporate Psychopaths and between the Normal Managers and the Dysfunctional Managers.

The main groups of interest in this research were the Corporate Psychopaths and the Normal Managers. The Dysfunctional Managers were reported on for the sake of completeness. Logically, if the psychopathy scale is accurate, then the behavior of the mid-psychopathy group (i.e. the Dysfunctional Managers) should fall between that of the Corporate Psychopaths and that of the Normal Managers. This was indeed the case in this research, and this gives the findings a good degree of face validity.

**Instrument reliability**

Unlike in the physical sciences, where such dimensions as length and depth can be measured directly using commonly agreed-on units of measurement, the measurement of psychological characteristics is, of necessity, indirect, because psychological characteristics are not directly observable (Cooke et al. 2005). Measurement is therefore made of observable behavior such as verbal reports of symptoms, and a person’s standing in terms of the psychological characteristic is inferred from this (Cooke et al. 2005). The difficulties of taking a clinical assessment tool to research a management environment have been discussed by Goldman in his work on personality disorders in leaders (Goldman 2006). Goldman points out that a minimum number of the factors which make up a personality disorder are necessary for a diagnosis and that there is little agreement or consistency over how and by whom assessments can be made. He advocates the setting of objective standards and claims that a clinical participant-observer of organisations, such as himself, is qualified to make such judgements.

The research reported in this book undertakes such an exercise in that it sets objective standards as to what defines a Corporate Psychopath and applies these to the management setting by asking respondents whether the managers they know or have known exhibit or exhibited such behaviors. This may not be as accurate as full clinical psychological diagnosis, at least in terms of identifying individual psychopaths, but it acts as a pragmatic substitute and enables this important research to be undertaken at all.

The method chosen for this research relies on the observation, by respondents, of psychopathic behavior in others. To assess the validity and reliability of this approach, it was important to investigate whether expert psychologists believe that psychopaths can be identified by observation. Fortunately, there is evidence from a number of studies that psychopathic traits are detectable by ordinary, untrained individuals who are well acquainted with the people concerned (Lilienfeld & Andrews 1996; Mahaffey & Marcus 2006). Fowler and Lilienfeld, for example, speculate that observer ratings from people who are better acquainted with their peers could be useful in terms of identifying psychopaths (Fowler & Lilienfeld 2007).

Hare, the leading researcher in the field of psychopathy, considers that the reports of colleagues can be used to identify psychopaths, at least at a screening level, and this is testament to the potential usefulness and validity of such an approach. Other researchers have also asked for the views of third parties, including teachers and parents, in identifying the callous, unemotional and anti-social traits of a psychopathic personality (Dadds et al. 2005). This lends credibility and face validity to the approach used in this research.
There is thus consistency of opinion among psychologists on this point on the basis of the research they have undertaken into the identification of psychopaths. This consistency in results lies at the heart of the standard definition of reliability: consistency in results from the repetition of the same procedures or studies (Gill & Johnson 1997).

The fact that peer observation has repeatedly been found capable of identifying psychopathic behavior provided encouragement about the reliability of its use in this research. Cronbach’s alpha is a measure of internal consistency and reliability, and an alpha coefficient measures how correlated each question is with each of the other questions in a scale, the logic being that if the items in the scale are all related then it is an internally consistent scale (Tharenou, Donohue & Cooper 2007). An alpha coefficient of 0.7 is considered an acceptable statistical measure of reliability (Norland 1990; Radhakrishna 2007), although some researchers report that a level as low as 0.6 is acceptable (Todd, Bieber & Grandjean 2004). With Cronbach’s alpha as the measure of internal consistency, the coefficient for the research construct of the Corporate Psychopath used here was very strong, at 0.93 for all responses.

This high coefficient is not surprising given the well-established nature of this type of psychopathy measure, even though the measure was used in a very new and much abbreviated form in this research. In this research the alphas for the Corporate Psychopath construct would not have been improved by the deletion of any of the eight individual items, and the inter-item correlations were all positive. This suggests that the Corporate Psychopath construct used is internally consistent and reliable. The coefficient for the construct of corporate social responsibility was also strong, at 0.87 for all responses. The alpha levels for the construct of corporate social responsibility would not be improved by the deletion of any of the four individual items in the construct, and again the inter-item correlations were all positive. This suggests that the construct of corporate social responsibility used is also internally consistent and reliable. Similarly encouraging indications of reliability were obtained for all the other measures used in this research.

The items used to identify Corporate Psychopaths in this research were those shown in Table 1. For the questions and scales to measure the other constructs of interest in this research, such as job satisfaction and conflict at work, existing scales were used wherever possible; any derivative scales were based on existing research modified for use in this research. These scales are described below. Items were chosen to meet minimum thresholds of reliability, with a Cronbach’s alpha of 0.6 or more where these alphas were reported.

<table>
<thead>
<tr>
<th>Characteristic (Boddy 2009)</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Are glib and superficially charming</em></td>
<td>Cleckley (1988); Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</td>
</tr>
<tr>
<td>Such behaviors as being friendly and extroverted on first meeting, being an entertaining speaker, being very smooth and being very persuasive when it suits them</td>
<td></td>
</tr>
<tr>
<td><em>Are accomplished liars</em></td>
<td>Cleckley (1988); Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</td>
</tr>
<tr>
<td>Such behaviors as being able to lie convincingly when they need to, being good at bullshitting and being able to talk themselves out of trouble when discovered to be lying</td>
<td></td>
</tr>
<tr>
<td><strong>Are manipulative and conning</strong></td>
<td>Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Such behaviors as being good at using people, being good at conning people, having well-developed political/networking skills and being good at seducing other people</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Have a grandiose sense of self-worth</strong></th>
<th>Cleckley (1988); Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Such behaviors as bragging about themselves, downplaying their personal problems and blaming others for them, and behaving as if they are above the rules</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Display a lack of remorse about how their actions harm other employees</strong></th>
<th>Cleckley (1988); Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Such behaviors as saying that they feel bad about their harmful actions but not acting as though they really do feel bad, blaming others for trouble they cause themselves and having no shame about their ruthlessness in pursuing their careers at any cost</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Are emotionally shallow, calculating and cold</strong></th>
<th>Cleckley (1988); Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Such behaviors as not being affected by someone close dying or suffering, making dramatic displays of emotion that do not look real or heartfelt, claiming friendship with you but being unconcerned about your welfare</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Display a lack of empathy; show no capacity to experience the feelings of others</strong></th>
<th>Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Such behaviors as openly making fun of others, being able to fire people without worrying about it, being selfish and being emotionally or verbally abusive</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Refuse to take responsibility for their own actions</strong></th>
<th>Cooke &amp; Michie (2001); Hare (1991); Hare (1999a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Such behaviors as always having an excuse when things go wrong, blaming others for their own mistakes and claiming responsibility for the good work that other employees do</td>
<td></td>
</tr>
</tbody>
</table>

Individual questions from these established questionnaires were selected on the basis of the judgement of the researcher based on theoretical knowledge, and a decision was made as to which questions were the most appropriate according to the objectives of this research study and the hypotheses to be tested. Tables 2 to 7 identify the sources of the individual questions used in this research.

The items in Table 2 relate to the hypotheses that ‘employees who work in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will report higher
levels of conflict at work than those who do not’ and that ‘employees in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will report higher levels of bullying than those who do not’.

Researchers have found that conflict at work can affect other personnel and the organisation itself, depending to some extent on whether the source of the conflict is seen as personal (usually a peer) or corporate (usually a superior). They have found that conflict originating with a superior is more likely to result in a reaction towards the organisation than in a reaction towards the person (Bruk-Lee & Spector 2006), manifested, for example, as counterproductive workplace behavior. The superior is assumed to be representing the organisation, and so the organisation is blamed for any unfairness perpetrated by the superior.

The four conflict at work questions include three items from Spector and Jex’s Interpersonal Conflict at Work Scale, which is designed to measure how respondents get along with others at work, with high scores representing frequent personal conflicts at work (Spector & Jex 1998). The researchers who invented the scale report a good level of internal consistency or reliability, with an average alpha of 0.74 across thirteen studies. The bullying question (fourth item) was a new item based on common definitions of workplace bullying (Dierickx 2004; Djurkovic, McCormack & Casimir 2004).

<table>
<thead>
<tr>
<th>Item</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do/did you get into arguments with others at work?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often do/did other people yell at you at work?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often are/were people rude to you at work?</td>
<td>Harvey et al. (2007);</td>
</tr>
<tr>
<td></td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often did you witness unfavourable treatment of one employee by another in this workplace?</td>
<td>Dierickx (2004); Djurkovic, McCormack &amp; Casimir (2004)</td>
</tr>
</tbody>
</table>

The items in Table 3 relate to the hypothesis that ‘employees who work in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will report lower levels of workplace corporate social responsibility than those who do not’. The items were developed for this study on the basis of recent literature on corporate social responsibility (Aupperle, Hatfield & Carroll 1983; Carroll 1983; Carroll 1998; Carroll 2000; Carroll 2004; Dong & Lee 2008; Ketola 2006; Laczniak & Murphy 2006; Verschoor 2008).

The items in Table 4 relate to the hypothesis that ‘employees who work in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will report higher levels of organisational constraints than those who do not’. This is the Organisational Constraints Scale made operational by Spector and Jex (Spector & Jex 1998). They do not regard the individual items in this scale as parallel forms of the underlying construct; rather, the items together constitute the
construct of organisational constraints. As such, the alpha coefficient is not deemed an appropriate index of reliability for the scale and is not given by the authors.

<table>
<thead>
<tr>
<th>Item</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organisation does/did business in a socially responsible manner</td>
<td>Carroll (2000)</td>
</tr>
<tr>
<td>The organisation does/did business in an environmentally friendly manner</td>
<td>Ketola (2006)</td>
</tr>
<tr>
<td>The organisation does/did business in a way that benefited the local community</td>
<td>Carroll (1998)</td>
</tr>
<tr>
<td>The organisation does/did business in a way that showed commitment to its employees</td>
<td>Verschoor (2008)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do/did you find it difficult or impossible to do your job because of...?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Poor equipment or supplies</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Organisational rules and procedures</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Other employees</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Your supervisor</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Lack of equipment or supplies</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Inadequate training</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Interruptions by other people</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Lack of necessary information about what to do or how to do it</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Conflicting job demands</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Inadequate help from others</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>Incorrect instructions</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
</tbody>
</table>
Table 5  Items for the workload construct

<table>
<thead>
<tr>
<th>Item</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often did/does your job require you to work very fast?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often did/does your job require you to work very hard?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often did/does your job leave you with little time to get things done?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often is/was there a great deal to be done?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How often do/did you have to do more work than you can/could do well?</td>
<td>Spector &amp; Jex (1998)</td>
</tr>
<tr>
<td>How many hours per week do/did you work in this job?</td>
<td>New item</td>
</tr>
</tbody>
</table>

The items in Table 5 relate to the hypothesis that ‘employees who work in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will report greater workloads than those who do not’. The five-item scale was designed to measure the quantity of work involved in a job rather than the qualitative difficulty of undertaking a job, and the designers report an average internal consistency (alpha) of 0.82 across fifteen studies (Spector & Jex 1998). The question about hours worked per week was included as an additional objective measure of workload.

Another hypothesis in this research was that ‘managers displaying the traits associated with being Corporate Psychopaths will be perceived to be more common at higher levels of management within workplaces than at lower levels’. This was deemed to be testable via the demographic analysis of the spread of psychopathy scores. This hypothesis therefore has no single construct associated with it apart from the construct of psychopathy itself.

The items in Table 6 relate to the hypothesis that ‘employees who work in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will experience lower levels of job satisfaction than those who do not’. Items were taken from Spector’s Job Satisfaction Survey (Spector 1985). Not all of the original thirty-six items were used; some were omitted in the interests of keeping the questionnaire to a reasonable length.

Psychologists debate whether job satisfaction is influenced by personal differences in response to situations or whether situations themselves are the most important factor in job satisfaction (Spector 2005), and probably both factors are at play. Working with a psychopathic colleague would be salient and memorable, as discussed above, and so it was assumed that working with a psychopathic colleague would affect job satisfaction. The items in Table 7 relate to the hypothesis that ‘employees who work in workplaces where managers are perceived to demonstrate the traits associated with being Corporate Psychopaths will report higher levels of withdrawal from the workplace than those who do not’. These four items are taken from the thirty-three-item version of the Counterproductive Work Behavior Checklist.
The thirty-three-item version produces five subscales: abuse (harmful and nasty behaviors that affect other people), production deviance (purposely doing the job incorrectly or allowing errors to occur), sabotage (destroying the physical environment), theft, and withdrawal (avoiding work through being absent or late). These were developed by Spector and colleagues (Spector et al. 2006). Withdrawal is reportedly linked to being upset and to working alongside someone who displays psychopathic behavior, and so these items were considered appropriate to use in this research (Clarke 2005). The alpha for internal consistency and reliability for these items was reported as 0.63 in Spector and colleagues’ research.

**Key statistical findings**

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Items for the job satisfaction construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Source</td>
</tr>
<tr>
<td>When I do/did a good job, I receive/received the recognition for it that I should receive</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>I like/liked the people I work with</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>Communications seems/seemed good within this organisation</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>My supervisor is/was unfair to me</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>I do not/did not feel that the work I do/did is/was appreciated</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>I find/found I have/had to work harder at my job because of the incompetence of people I work/worked with</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>My supervisor shows/showed too little interest in the feelings of subordinates</td>
<td>Spector (1985)</td>
</tr>
<tr>
<td>I don’t/didn’t feel my efforts are/were rewarded the way they should be/have been</td>
<td>Spector (1985)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 7</th>
<th>Items for the withdrawal construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Source</td>
</tr>
<tr>
<td>How often have you ... ?</td>
<td></td>
</tr>
<tr>
<td>Come to work late without permission</td>
<td>Spector et al. (2006)</td>
</tr>
<tr>
<td>Stayed home from work and said you were sick when you weren't</td>
<td>Spector et al. (2006)</td>
</tr>
<tr>
<td>Taken a longer break than you were allowed to take</td>
<td>Spector et al. (2006)</td>
</tr>
<tr>
<td>Left work earlier than you were allowed to</td>
<td>Spector et al. (2006)</td>
</tr>
</tbody>
</table>
Tables 8 and 9 show the key results for the research conducted. These are not commented on in any detail in this chapter but are referred to throughout the book as each topic is discussed. Table 8 shows summary reliability statistics and details of the key reliability measure for all the constructs used in this research. The alphas for the constructs measured in this research were all high, and the inter-item correlations were all positive, meaning that the research instrument as a whole can be successfully used as it is for management research. Researchers report that a measure of good internal consistency is a Cronbach’s alpha above 0.70 and mean inter-item correlations above 0.15 (Falkenbach et al. 2007). Against these criteria the measure used for identifying Corporate Psychopaths scored well, with an alpha of 0.93 and with all the inter-item correlations exceeding 0.15 (i.e. all positive).

Further, where comparisons were available, the alphas of the constructs used as dependent variables were also very much in line with what has been found in previous research. This logically suggests that there was nothing unusual about how they were used in this research, and this gives a further element of reliability to the results. Correlation is a measure of the relationship between variables (Garner 2005). Correlation analysis was undertaken using the corporate psychopathy score as a continuous variable from 0 to 16 and the total scores for the other constructs: withdrawal, workload, bullying, organizational constraints, conflict, corporate social responsibility and job satisfaction. The results are shown in the Pearson’s correlation matrix in Table 9.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s alpha</th>
<th>Inter-item correlations all positive?</th>
<th>Could Cronbach’s alpha be improved by deletion of any item?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate psychopathy (8 items)</td>
<td>0.93</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Withdrawal (4 items)</td>
<td>0.79</td>
<td>Yes</td>
<td>Yes, but only very marginally, in the case of one item</td>
</tr>
<tr>
<td>Workload (5 items)</td>
<td>0.88</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Conflict (including bullying) (4 items)</td>
<td>0.78</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Organisational constraints (10 items)</td>
<td>0.90</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Corporate social responsibility (4 items)</td>
<td>0.87</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Job satisfaction (8 items)</td>
<td>0.90</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
As might be expected from the literature, corporate psychopathy correlated significantly with all the constructs under consideration in this research. It can be concluded, therefore, that all the variables in this research are related to, and not independent of, the presence of Corporate Psychopaths. Corporate Psychopathy correlated most positively with bullying and most negatively with job satisfaction.

Regression analysis is commonly used for testing hypotheses and for prediction (Garner 2005). Regression analysis thus goes beyond correlation analysis, which tests the strength of any relationship between variables, and makes the stronger claim that it demonstrates the predictive properties of one or more variables for another variable. That is, one basic objective of regression analysis is to measure the extent to which change in one variable affects variations in another variable. This type of analysis is used to infer causal relationships between variables, although it is debatable whether regression analysis alone can be used to prove a causal relationship (Garner 2005). Some researchers suggest that it cannot be used to infer causality but can be said to predict a particular outcome. In this research, simple regression analysis was used to understand the extent to which the independent variable (Corporate Psychopathy) explained the variance in the dependent variables. Regression analysis was run using each of the constructs in turn as the dependent variable and Corporate Psychopathy as the predictor (independent) variable. The measure used in regression analysis to understand the fraction of the total variation in the dependent variable that is explained by the variation in the independent variable is called the coefficient of determination, known as R-squared (R²). The value can range from 1, where all the variation in the dependent variable is explained by the variation in the independent variable, down to 0. When it is 0, none of the variation in the dependent variable is explained by the independent variable.

**Seven reasons organizations should monitor employees who are Corporate Psychopaths**

The research presented in this book indicates that the presence of Corporate Psychopaths has significant negative impacts on organisations. It identifies seven main reasons organisations should monitor the Corporate Psychopaths who work within them, although there are probably many others. The research measured the perceived incidence of exposure to Corporate Psychopaths, captured critical incident reports and measured the impact of corporate psychopathic behavior on organisational outcomes. Corporate Psychopaths are the 1 per cent or so of people who work in corporations who may be classed as psychopathic according to a reliable measurement instrument for identifying psychopaths. Such an instrument has now been developed for use in managerial research. This research shows that nearly all the expected negative effects of Corporate Psychopaths are evident when Corporate Psychopaths are present in organisations.

**The six effects of Corporate Psychopaths on corporate outcomes**

This research, which is the first empirical management research in this area and as such is by no means exhaustive, indicates six main effects of Corporate Psychopaths being present in an organisation and a seventh outcome that magnifies the others. This provides organisations with seven reasons they should monitor the behavior of Corporate Psychopaths.

The first effect of Corporate Psychopaths in organisations is a heightened level of conflict. Corporate Psychopaths are said to adopt divide-and-conquer strategies that include abusing their subordinates, manipulating their peers and charming their superiors. They use their advanced political skills to play people off against each other. This can be expected to create conflict in an organisation – and according to this research it does just that. Where Corporate Psychopaths are present, conflict at work is both
much greater in incidence (i.e. conflict affects more people) and more frequent in occurrence (i.e. conflict also happens more often): arguments are more widespread and more frequent, yelling increases by a factor of ten, and rudeness and bullying increase dramatically.

Corporate Psychopaths have no emotional connection with others, no empathy or conscience, and they are totally ruthless. They can be expected secretly to find the whole notion of corporate social responsibility laughable. This research found a second effect of the presence of Corporate Psychopaths related to corporate social responsibility: perceptions that an organisation does business in a socially responsible manner and in a way that shows commitment to employees plummet dramatically.

Corporate Psychopaths are said to use organisational rules and procedures to their own advantage, and as they do not care at all about the welfare of those who work for them, they fail to look after the workplace needs of these employees. This is again exactly what was found. The third effect is that there are heavier than necessary organizational constraints in workplaces when Corporate Psychopaths are present. For example, the incidence of reported work difficulties due to organizational rules and procedures and to poor equipment or supplies is significantly higher where Corporate Psychopaths are present.

The fourth effect of having Corporate Psychopaths in an organisation relates to leadership and managerial competence, as reflected in workload. Psychopaths are known for their parasitic lifestyles, and in an organisation this can be expected to take the form of claiming others’ work and ideas as their own, neglecting their managerial and leadership responsibilities, and blaming others for their own mistakes and omissions. This behavior would be expected to lead to work difficulties for other employees, poor communication about what to do on the job and how to do it, and poor levels of training. This is exactly what was found in this research. Workloads were greater in the presence of Corporate Psychopaths. All of those respondents who worked in an environment where Corporate Psychopaths were present reported work difficulties due to a difficult supervisor. This compares with just 13 per cent of other employees. Those who worked in an environment where Corporate Psychopaths were present also reported, more often and more frequently than other employees, work difficulties due to inadequate training and lack of information about what to do or how to do their job. When Corporate Psychopaths were present, all employees reported difficulties due to incorrect instructions about six times more frequently, on average, than did employees who did not work in such an environment.

Corporate Psychopaths are reported to be selfish and emotionally uninvolved with others. They use others to their own advantage, have unemotional sexual relations with others in the workplace and cause emotional disturbances for the fun of watching others suffer. This can be expected to affect job satisfaction levels among those who work with them. The fifth effect of Corporate Psychopaths is significant negative impacts on multiple aspects of job satisfaction, including impacts on perceptions that employees get due recognition for a job well done and on employees liking the people they work with, reporting good communication within the organisation and reporting that their supervisor was fair to them. Their presence also negatively affects levels of feeling appreciated for work done and increases reports of having to work harder because of the incompetence of others, reports that supervisors show little interest in the feelings of others and feelings of not being properly rewarded.

Corporate Psychopaths create havoc around them, causing disputes, bullying and chaos and concomitantly low levels of job satisfaction. Employees who work with them might be expected to avoid such environments whenever possible. This research indicates that they do indeed do this. The sixth
effect on employees who experience Corporate Psychopaths is that they withdraw from the organizational environment. They take a day off sick when not really ill roughly five times more frequently than other employees, take longer breaks than allowed four times more frequently, and leave work early five times more frequently.

The seventh factor in assessing the impact of Corporate Psychopaths is that their incidence appears to be greater at higher levels of an organisation. This gives them power and influence that magnify their destructive capacity.

Conclusions

Corporate Psychopaths have an influence on organisations that is highly congruent with the negative expectations of leading theorists, researchers and psychologists in the field of psychopathy. Clearly the presence of Corporate Psychopaths in organisations has significant, measurable effects on corporate outcomes, costing corporations dearly in terms of lost employee time, suboptimal employee performance, increased workload, difficult working conditions, poor levels of job satisfaction and lower perceived levels of corporate social responsibility. Corporate Psychopaths need to be identified and monitored within organisations; otherwise, the negative outcomes of this behavior on other employees and on the organisations they work for are costly and problematic for the financial, social and operational well-being of the organisation. The following chapters of this book investigate each of these areas in turn and present the evidence from the main research study on which this book is based, together with similar findings from a smaller research study and other research.

4.b. How does the perception of entrepreneurs differ from those of non-entrepreneurs and how this might lead individuals to act entrepreneurially when others would not? 20

Reference:

It is said that entrepreneurs look at the world through different eyes, see the future better than others do, see opportunities that others do not see, do not see risks that others do see, and so on. But maybe it is not their eyes that make entrepreneurs different but the lenses through which they look. Lenses can change one’s view of the world, compensating for deficiencies in our visual acuity or helping us see things in a different way. Lenses bring objects into focus, make objects seem closer or further away, reduce or increase the amount of light admitted to the eyes, change the color of things, and so on. The analogy of looking through lenses can help us understand the thinking and the behavior of entrepreneurs, so in this chapter we examine the lenses that entrepreneurs (metaphorically) look through as they form the intention to behave entrepreneurially and as they exploit entrepreneurial opportunities. Perceptions are important at various points in the entrepreneurial process. At the beginning of this process, individuals form the intention to become entrepreneurs and enter the “exploration phase” (McMullen and Shepherd, 2006; Choi et al., 2008). The formation of entrepreneurial intentions might precede, or follow, the discovery of the specific entrepreneurial opportunity to be exploited. For some, the formation of the general intention to become an entrepreneur will trigger the search for a desirable entrepreneurial opportunity, while for others the discovery of a specific and desirable entrepreneurial opportunity might trigger the formation of entrepreneurial intentions. Bhave (1994) calls the former case “internally stimulated opportunity recognition” and the latter case “externally stimulated opportunity recognition.” In the former case the individual enters the exploration phase wanting to be an entrepreneur and may explore many entrepreneurial opportunities before settling on one to “exploit” (McMullen and Shepherd, 2006) when a sufficiently attractive opportunity
presents itself. The alternative case, where the individual discovers the opportunity first and subsequently decides to become an entrepreneur, is exemplified by the scientist who previously had no intention of becoming an entrepreneur, preferring instead to do research and publish papers, but who discovers a new technology and subsequently gains intellectual property protection for that technology. This individual might then be “pushed” (Smilor and Feeser, 1991) by members of his/her social network, and perhaps also by investors, to commercialize the proprietary technology, and consequently forms entrepreneurial intentions and enters the exploration phase of the entrepreneurial process.

In the exploration phase, individuals are “nascent entrepreneurs” meaning that they are actively planning to start their own business (Shaver et al., 2001). In this phase they conduct viability screening on one or more new venture opportunities they perceive. The viability screening process involves gathering information about the resources needed to exploit the specific new venture opportunity, considering whether or not these resources can be assembled to produce and sell the new venture’s product or service, and investigating whether there is a sufficient market for that product or service at a price level that will allow profits.

At some point in the exploration phase of the entrepreneurial process, nascent entrepreneurs will form the belief that they have collected enough information and subsequently make the decision to launch the new venture. At this point they enter the “exploitation” phase (Choi et al., 2008) and the nascent entrepreneur becomes an actual entrepreneur and realizes his/her entrepreneurial intentions. In the exploitation phase, the new venture may survive, prosper, and grow, or it may survive as a small-scale business without having any desire for further growth, or it may become bankrupt and not survive. The new venture’s subsequent fortunes will depend on the competitive forces that it experiences following its entry into the market, the entrepreneur’s (managerial) ability to cope with those competitive forces and the potential vagaries of customer demand, and the entrepreneur’s preferences for a growth or a no-growth (perhaps “lifestyle”) business (Barringer and Ireland, 2006, 13–14).

The entrepreneurial process takes place in a highly uncertain business environment. When introducing new products, new services, new business processes, and/or new “business models” (Morris et al., 2006) it is not possible to foresee accurately the outcomes of decisions that are made. Vagaries on both the cost and demand 1 Perceptions – Looking at the World Through Entrepreneurial Lenses 5 sides could deliver financial outcomes that range from fortune to ruin. In order to act decisively in a highly uncertain environment, entrepreneurs must act on what they see, or more correctly, on what they think they see, or what they think they will see as the scenario rolls out with the passage of time. So, entrepreneurs in a highly uncertain business environment must act upon their perception of reality (Krueger, 1993; Krueger and Brazeal, 1994; Forlani and Mullins, 2000). What entrepreneurs think they see might be an illusion, of course, and their new venture might consequently fail. Alternatively what they think they see, or think they will see, might prove to be an accurate vision of the future. Thus entrepreneurs’ perception of their entrepreneurial opportunity is critical to their subsequent exploration and exploitation decisions and to their later success or failure.

The process of entrepreneurship involves the nexus of a specific individual and a specific opportunity (Shane and Venkataraman, 2000), and we note that entrepreneurs not only tend to perceive opportunities differently but also tend to perceive themselves differently. They tend to see themselves as more competent than non-entrepreneurs see themselves. That is, they tend to have higher self-efficacy (Ajzen, 1991; Krueger and Dickson, 1994). Self-efficacy refers to a person’s confidence that he/she can accomplish a specific task or related set of tasks. Entrepreneurial self-efficacy relates to the tasks specific to the exploration and exploitation phases of the entrepreneurial process (Chen et al.,
This confidence may be based on their possession of superior knowledge about the entrepreneurial opportunity, due to their superior knowledge of market needs and/or the technological potential for serving those needs (Gifford, 2003; Gimeno, et al., 1997; Shane and Venkataraman, 2000). But, in addition, entrepreneurs tend to exhibit overconfidence in their abilities (Palich and Bagby, 1995). Overconfidence is a common human foible, of course, but entrepreneurs tend to be more overconfident than others (Busenitz and Barney, 1997; Simon, et al., 2000). And, of course, entrepreneurs may be different from non-entrepreneurs in their preferences for monetary outcomes and nonmonetary outcomes (Douglas and Shepherd, 2000).

Accordingly, in this chapter we examine a series of metaphorical lenses through which entrepreneurs perceive reality during the entrepreneurial process. Each of these lenses refers to perceptual differences between entrepreneurs and non-entrepreneurs that cause entrepreneurs to seek less information about potential new business opportunities and thereby causes them to proceed further and with greater speed along the entrepreneurial pathway. These individual differences thus serve to propel the entrepreneurial individual toward an entrepreneurial venture that may succeed or, alternatively, end in failure.

1.2 The Clear-Lens Effect – Differences in Human Capital, Including Knowledge

Do you wear glasses or contact lenses? In any case, you will appreciate that my glasses would most likely be inappropriate for your eyes – they would almost certainly blur your perception of the things around you, because visual acuity differs across human beings. If your eyes have less than perfect natural correction for refraction, you can have a set of lenses made up by an optometrist to a particular prescription that is exactly matched to your eyes so that you will see more clearly. Typically these will be clear lenses that correct your inability to focus on items at different distances.

How does the clear-lens analogy relate to entrepreneurs? The clear lens of the entrepreneurs refers to their ability to see and understand “things entrepreneurial” better than non-entrepreneurs do. That is, the clear lens of the entrepreneurs relates to their prior knowledge and experience of entrepreneurial situations and behaviors. Becker (1964) introduced the term human capital to encompass one’s knowledge and abilities, and we focus here on those aspects of human capital that are specific to entrepreneurship. Some people were born to entrepreneurial parents and learned entrepreneurial attitudes, abilities, and behaviors during their childhood. Others learned to be more entrepreneurial at school or university and/or learned from experience in the workplace or at play. In effect, entrepreneurial individuals have honed their own set of clear lenses that allow them to see entrepreneurial opportunities more clearly. The knowledge acquired is specific to entrepreneurship and does not necessarily cause the person to be better at maths or to play a musical instrument well, for example, which may be the forte of others.

Many studies have attempted to relate individual human capital to nascent entrepreneurship, entrepreneurial intentions, entrepreneurial behavior, and entrepreneurial performance (e.g., Aldrich, et al., 1998; Boden and Nucci, 2000; Evans and Leighton, 1989; Shane, 2003, 61–95, for a comprehensive overview). Gifford (1993) distinguished entrepreneurial ability (the ability to recognize a new profit opportunity and to acquire resources to exploit it) from managerial ability (the ability to maintain the profitability of current operations) and argued that possession of these skills in individuals will determine their choice of career as an entrepreneur, intrapreneur, or salaried employee. Gifford (2003) demonstrated that what might seem to be risk aversion or preference might instead be the result of different personal investments in knowledge acquisition. Shepherd et al. (2000) argue that differences in
new venture risk perceived by individuals might be due to individual differences between them in terms of their ignorance as producers and managers. In a similar vein, Shane and Venkataraman (2000) argue that entrepreneurs may have domain-specific knowledge that allows them to conclude that a particular new venture is not as risky for them as it would be for others. They argue that entrepreneurs who possess proprietary knowledge about new venture opportunities appear (to those who lack the information) to be willing to accept greater risk. Baron (2000) argues that entrepreneurs’ lower perceptions of risk relate to their lesser ability to engage in counterfactual thinking. Davidsson and Honig (2003) and Aldrich et al. (1998) argue that individuals have differing “general” human capital (such as age, gender, years of education, and work experience) and “specific” human capital (such as relevant education and industry experience, relatives who are self-employed, and social networks). More recently, Janney and Dess (2006) argue that entrepreneurs may possess specialized knowledge and idiosyncratic resources such that risks perceived by others do not apply to that entrepreneur because he/she has superior human capital.

Greater knowledge and experience in any context affects one’s perception of risk in that context. Those with more entrepreneurial knowledge and greater entrepreneurial experience might regard a specific new venture opportunity as relatively low risk, while those with little knowledge and relevant experience might regard the same opportunity as relatively high risk. Entrepreneurial risk can be largely traced to incomplete information (or ignorance) in the minds of consumers, producers, and managers (Shepherd et al. 2000). Shane and Venkataraman (2000) argue that entrepreneurs who possess proprietary knowledge about new venture opportunities appear (to those who lack the information) to be willing to accept greater risk. Janney and Dess (2006) argue that the entrepreneur may possess specialized knowledge and idiosyncratic resources so that risks perceived by others do not apply to this entrepreneur, who has superior human capital resources in that regard. Krueger and Dickson (1994) found that self-efficacy and entrepreneurial risk taking were positively related, indicating that entrepreneurs’ confidence in their knowledge and abilities leads them to undertake more risky ventures.

The impact of human capital differences on the perception of risk can be illustrated by two people wanting to jump across a muddy ditch. One is tall and athletic, and the other is shorter and less athletic. The first person was the long-jump champion at high school, while the second was the chess champion. For the first person, jumping across the ditch seems to involve little or no risk, but there is a high probability that the second person will land in the ditch and get muddy and possibly hurt as well. The physical ability and experience of the first person (including task-specific knowledge about how to run up and launch oneself into a long jump) cause that person to have relatively high self-efficacy concerning the task, while the ability, experience, and knowledge of the second person are likely to underlie relatively low self-efficacy for this task and therefore cause a relatively high perception of risk for that person.

Heterogeneity of social capital may also mean that the risk perceived by one nascent entrepreneur is less than that perceived by another nascent entrepreneur. Social capital includes the benefits derived from social networks including extended family, community, or organizational groups and individuals (Coleman, 1990; Aldrich et al., 1998). Social capital is expected to enhance the entrepreneur’s human capital by enhancing the individual’s ability to identify opportunities, gain access to resources, and so on (Birley, 1985; Greene and Brown, 1997). Davidsson and Honig (2003) found that while human capital variables (years of schooling, taking business classes, and work experience) had little or no impact on moving nascent entrepreneurs forward, social capital variables (having parents in business, being encouraged by friends, and having close friends or neighbors who are entrepreneurs) had substantial impact on progressing them from nascent entrepreneurship to launch. Having access to “better” social
networks would be expected to provide the nascent entrepreneur with risk-reducing information at little or no cost and thus reduce the perceived risk of the proposed new venture.

Krueger (1993), Krueger and Brazeal (1994), and Krueger and Carsrud (1993) argue that the two main factors underlying the formation of entrepreneurial intentions are the perceived feasibility and the perceived desirability of the entrepreneurial opportunity. McMullen and Shepherd (2006) argue that “knowledge” and “motivation” are the prime drivers of the subsequent decision to exploit the opportunity. In effect, McMullen and Shepherd posit knowledge as a proxy for perceived feasibility and willingness to bear risk as a proxy for perceived desirability in the nascent entrepreneur’s decision to exploit the new venture opportunity. Several other authors argue that the nascent entrepreneur’s possession of prior and proprietary knowledge and their consequent “alertness” underlies the formation of the intention to become an entrepreneur (Kirzner, 1973, 1979; Busenitz, 1996; Gaglio and Katz, 2001; Gifford, 2003).

The fact that a person has superior human and social capital will become apparent to that individual through interpersonal comparisons and formal or informal contests of various types, such that the person will form an opinion that his/her own capability to undertake and successfully complete specific tasks is superior to others. Accordingly, entrepreneurs tend to exhibit greater self-efficacy for entrepreneurial tasks based on their superior human and social capital that is relevant for the entrepreneurial tasks envisioned. Accordingly, they view the world through “clear lenses” that more clearly show them the outcomes associated with decision making under uncertainty in the context of specific entrepreneurial opportunities. By looking through these clear lenses the entrepreneur is able to form entrepreneurial intentions in the first place, and subsequently takes the decision to exploit and thereby move ahead with the entrepreneurial process, when others would still be seeking information.

The Rose-Lens Effect – Overconfidence

Humans are notoriously overconfident of their ability to accomplish specific tasks (Simon et al., 2000). Overconfidence in one’s abilities has been likened to wearing “rose-colored lenses” (Palich and Bagby, 1995, 443) whereby everything seems “rosy”—i.e., everything is bathed in a soft pink light that makes things look very attractive and/or easier to accomplish. Simon et al. (1999) distinguish between overconfidence, defined as the failure to know the limits of one’s knowledge (Russo and Shoemaker, 1998), and illusion of control, this being the overestimation of one’s ability to control future events in uncertain situations (Langer, 1975). Boyd and Vozikis (1994) argued that illusion of control will positively impact the entrepreneur’s formation of entrepreneurial intention. In this chapter, we are essentially rolling these two cognitive biases together and using the term “overconfidence” to mean the overestimation of one’s knowledge and abilities in relation to the successful completion of a specific task. Thus the tall athletic person might still fall into the ditch if he miscalculates the width of the ditch or overestimates his jumping ability, or if a headwind begins to blow during his run-up, or if his jumping point collapses as he begins to jump, and so on. The latter two issues are beyond the jumper’s knowledge or control, of course, and this parallels the entrepreneur’s launch of a new venture in an uncertain business environment.

Overconfidence is a cognitive bias that seems to afflict entrepreneurs more so than other business managers. Cooper et al. (1988) found that entrepreneurs exhibit higher self-efficacy than other managers, and consequently they think that they are better equipped to deal with risks than are non-entrepreneurs. Cooper et al. (1995) argued that higher levels of self-confidence were related to lower levels of information-search activity, and
therefore greater risk bearing, due to the entrepreneur’s ignorance of the risks being borne. They argued that “the entrepreneur is ‘blinded’ to the need for more information due to his/her overconfidence” (1995, 110). Palich and Bagby (1995) found that entrepreneurs exhibit overconfidence and tend to downplay the risk they perceive, expecting to triumph over any adverse situations that might arise. They found that entrepreneurs consistently viewed new venture opportunities more positively than others (see also Chen, et al., 1998; Forbes, 2005). Busenitz and Barney (1997) found that while all managers exhibit overconfidence, entrepreneurs exhibit greater overconfidence than do employed managers. Thus, although the actual risk might be perceived accurately, individuals who exaggerate their ability to cope with the perceived risk are more likely to take that risk.

So, in terms of the entrepreneurial process, individuals are more likely to form entrepreneurial intentions if they are overconfident about their ability to successfully accomplish entrepreneurial tasks, other things being equal. Subsequently, and as a nascent entrepreneur, the individual is more likely to want to hurry through the exploration phase (and undertake less information-search activity) due to his/her overconfidence that the venture is a viable business opportunity. Consequently, nascent entrepreneurs will tend to take the exploitation decision sooner than they would if they were not so overconfident, and as they progress in the exploitation phase we should expect their overconfidence to similarly cause lesser levels of information-search activity resulting in “hasty” and probably suboptimal decision making. These rose lenses metaphorically worn by entrepreneurial individuals cause them to perceive the probable outcomes of their decisions more optimistically and to thus induce them to enter and persist in the entrepreneurial process, whereas individuals with a realistic view of their own capabilities would either not enter the process or stall within the process or not take “life-saving” gambles within the process, and thus would not become practicing entrepreneurs, other things being equal.

The Blue-Lens Effect – The Use of Simplistic Decision Heuristics

The “blue-lens effect” is about sunglasses that cut down the light (and glare) that hits your retinas and thereby allows you to see more clearly the things that you are most interested in (like the road ahead, when driving, for example). Blue lenses cut down the red and green light that is admitted to the photoreceptors in the eyes and thus reduce the amount of fine detail that would be visible when the red, green, and blue lights are combined. (Think of a color (RGB) projector, where the red, green, and blue beams combine to make many other colors and thus convey the finer details to the viewer). The benefit to us of wearing blue lenses is that they cut down eye strain and allow us to concentrate on objects that would have been difficult to see because they are surrounded by too much (multicolored) light. Thus, the decision to wear blue lenses is effectively the decision to sacrifice visibility of the finer details of the overall scene in favor of having better visibility of some items, which seem to be more important at the time.

The analogy for nascent entrepreneurs is that the red and green light sacrificed are like detailed information that the entrepreneur chooses not to have. The entrepreneur is more concerned with charging ahead along a particular road and feels that he/she does not need to have more information about “minor details” that seem unimportant to progress along that road. In the context of the entrepreneurial process, these “unimportant” things might be detailed information about customer preferences, data on the new product’s reliability, predictions regarding competitor responses to the entrepreneur’s initiatives, and so on.
Fiet (1996) notes that entrepreneurs can undertake information-search activity to reduce the uncertainty and risks of a new venture. Brockhaus (1980) and Brockhaus and Horwitz (1986) found that entrepreneurs in general are no more likely than non-entrepreneurs to be risk averse or risk preferring. Busenitz and Barney (1997) found that entrepreneurs tend to make decisions with less information than other managers. But even if they continue to receive information, individuals are subject to cognitive biases that arise due to the utilization of three main simplified decision rules (or heuristics) (Shaver and Scott, 1991, 33). First, they tend to “anchor” their estimates on past outcomes and tend to not revise their estimates on the basis of new information, and thus they act upon inaccurate assumptions (Tversky and Kahneman, 1974; Busenitz, 1999). Second, they tend to base their decision making upon the most recently acquired or most easily recalled information. This is known as the “availability” heuristic, but of course such data may not be representative of the range of outcomes that should be expected. Third, the “representative heuristic” is the tendency to base decisions on a relatively small number of observations (Tversky and Kahneman, 1974). This apparent belief in the “law of small numbers” (Busenitz, 1999) whereby the decision maker places heavy reliance on a few observations (rather than a representative sample) introduces risk because the limited sample might not be representative of the range of probable outcomes. Thus, relying on a small sample causes the entrepreneur to underestimate risk (Shaver and Scott, 1991; Busenitz, 1999).

Shepherd et al. (2000) argue that the mortality risk of a new venture depends on the novelty of its product, its production technology, and the managerial requirements of the new venture. They explain the liability of newness (Stinchcombe, 1965) in terms of the ignorance (i.e., missing relevant information) in the minds of customers, producers, and managers. This is consistent with the human capital approach – the mortality risk existing in any new venture will depend on which particular entrepreneur or entrepreneurial team is managing the new venture opportunity (as well as the market conditions and technological possibilities). Following the “ignorance” view, Choi et al. (2008) examine the “stopping point” at which entrepreneurs stop exploring the new venture opportunity (i.e., truncate information gathering) and start exploiting the new business opportunity (i.e., launch the 1 Perceptions – Looking at the World Through Entrepreneurial Lenses 11 new venture). In effect, the decision to exploit is taken at that point in the viability screening process when the entrepreneur decides that sufficient information has been captured and that the new venture appears to be worth the gamble, and thus the intention to start the new business culminates in a new venture start-up. Thus, Choi et al. (2008) focus attention on the decision to exploit and argue that this decision will be made sooner for the entrepreneur for whom risk tolerance is greater, consumer, producer, and management novelty is lower, knowledge management orientation is explicit rather than tacit, and where potential rivals (followers) can more easily obtain the same information. In concert with the individual-opportunity nexus approach (Shane, 2003) Choi et al. (2008) argue that the decision to exploit occurs in a person–situation context, depending on both the personal characteristics of the entrepreneur and situational characteristics such as novelty and ease of access of followers to important information.

But each one of the lenses discussed in this chapter operates to truncate information-search activity. The blue-lens effect specifically relates to the avoidance of information search due to the decision maker’s preference to use simplified decision heuristics. Heuristics are simple “rules of thumb” that can be implemented quickly and inexpensively and which might generally produce an acceptable result. But since they eschew further information search, they may not incorporate relevant information that would improve the decision made and are thus more likely to result in suboptimal decisions being made. That is, heuristics allow quick decisions but these are not likely to be “rational” in the sense of maximizing expected value (Tversky and Kahneman, 1974). Busenitz and Barney (1997) and Busenitz (1999) found that entrepreneurs practice “bounded rationality”, using simplified decision heuristics
significantly more than do other managers. By using heuristics, entrepreneurs take greater risks than they think they are taking because the heuristic used actually introduces risk to the decision-making process by ignoring relevant information.

The Yellow-Lens Effect – Differences in Wealth Seeking

The yellow-lens effect is named in recollection of the author’s experience while skiing at Whistler Mountain in Canada many years ago. While riding the chair lift up the mountain, my ski goggles fell off my head and disappeared down into a ravine. This was surely unfortunate, since I had just made the confident statement that I could beat my skiing partner to the bottom of the mountain, which provoked him to bet me $10 that I could not. Skiing, and particularly racing down the mountain, would be much more dangerous without goggles – without the yellow lens in those goggles, the glare created by sunlight on the snow makes it difficult to see the moguls that have been carved out by previous skiers and snowboarders. Hitting a mogul unexpectedly may cause you to fall and possibly hurt yourself. Thus, yellowlens ski goggles are a risk-reducing accessory for skiers and snowboarders. But as the chair lift went higher my friend was having fun saying how he would easily win the race down the mountain, and so I decided to race against him anyway, without my goggles. Yes, it would have been more sensible for me to take the time to get off my skis and go inside the chalet and spend the money to buy a new pair of goggles, but my desire to win the bet was so strong that I stopped thinking rationally and raced down the mountain. I subsequently made my way to the bottom via a series of bone-jolting crashes over unseen moguls and lost the bet of course.

So, the yellow-lens effect for entrepreneurs relates to their urgency to get on with the wealth-making process rather than allocate a little more time and money to the exploration phase such that they gain more risk-reducing information. Both time and money are typically perceived as scarce by the nascent entrepreneur. First, consider the cost of information-search activity. Expenditure on search costs will reduce the net income of the new venture if that search does not result in the capture of additional useful information. Information that is expected to simply confirm the entrepreneur’s strongly held belief, for example, that consumers will actually buy the new product or service or that production will proceed smoothly without technical problems, will be perceived as wasted expenditure that simply reduces net income. Because the entrepreneur almost certainly has a preference for more, rather than less, income, such expenditures will be seen as reducing profits from the new venture and thus reducing the entrepreneur’s future wealth. Further, we note that the great majority of new ventures are “bootstrap” funded (Winborg and Landstrom, 2000), and thus the opportunity cost of the funds required for search activity is extremely high, competing with prototype development, the cost of manufacturing equipment, marketing expenses, and so forth. When these opportunity costs are added to the direct cost of search activity, it may be perceived as profit maximizing to truncate information-search activity and channel scarce funds into what is thought to be a better use for those funds. But also note that the entrepreneur may think that better-quality information about market demand, technological reliability, and managerial ability will be gained soon after launching the new venture. Thus, proceeding ahead in relative ignorance may be preferred because it consumes less cash prior to launch when cash balances are critical and because it is thought likely to provide better information and thus be a more effective use of the limited funds.

Second, information-search activity requires a significant period of time to set up, to undertake, and to analyze the data derived. The first impact of this is to delay the receipt of initial sales revenues and therefore to reduce the discounted present value of the revenue stream associated with the exploitation of the opportunity. Perhaps, more importantly, the time consumed with continuing to
explore rather than to exploit the new venture opportunity may be viewed as an obstacle to winning the race to be “first to market” and subsequently condemns the firm to an inferior profit stream as a follower rather than as a pioneer. The first-mover advantages (Lieberman and Montgomery, 1988) of the pioneer firm are commonly presumed (by nascent entrepreneurs) to provide unassailable competitive advantage, although most pioneers do not survive or even maintain market leadership (Tellis and Golder, 1996). Notwithstanding this reality, we are concerned with the a priori perceptions of nascent entrepreneurs here – the notoriously overconfident entrepreneur expects that pioneering will endow the firm with significant competitive advantages, so any delay due to information-search activity is perceived to negatively affect the net present value of the firm’s profits. Whether or not the nascent entrepreneur expects to be the pioneer, he/she may consider that the window of opportunity will soon close and that waiting to gain more reliable demand and cost estimates will mean that the profit opportunity will be lost or diminished. Entering as an early follower can be quite profitable, of course (Tellis and Golder, 1996), but in markets where the early entrants “lock up” strategic resources (Barney, 1991) entering later will be associated with lower profit streams and may even be associated with losses and bankruptcy. Thus the nascent entrepreneur may be expected to adopt a sense of urgency and to avoid time-consuming information-search activity in favor of an earlier decision to exploit and launch into the target market.

To summarize the yellow-lens effect, it is due to the nascent entrepreneur’s sense of urgency that the new venture should be launched sooner, rather than later, to gain higher profitability. The more wealth-seeking and materialistic is the nascent entrepreneur, that is, the more he/she values wealth and the goods and services that can be purchased from income, the more the entrepreneur will want to truncate information-search activity and rush ahead to exploit the entrepreneurial opportunity.

The Purple-Lens Effect – Differences in Intrinsic Motivation

Purple is a beautiful color that evokes visions of the rich robes of royalty, of the gowns of academic processions, and of fortunate people fulfilling their dreams and desires. People say they are having a “purple patch” when everything goes right for them. People use “purple prose” which excessively expresses their passions and emotions. Purple is the color of pleasant emotions, of good feelings, and of psychic satisfaction. Looking through purple lenses would make everything seem purplish, with the purple lenses interacting with the color of objects to become a lighter or darker purple, or some interesting new color – green things seen through purple lenses would look like chocolate brown, for example. Thus wearing purple lenses would change your perception of things and you would see these things in a psychologically more appealing light than otherwise.

The purple-lens effect for entrepreneurs is that they perceive more intensely the emotional benefits associated with an entrepreneurial opportunity, as compared with others who look at the same new venture opportunity. Although we commonly think of profit and growth as the main objectives of entrepreneurs, they pursue entrepreneurship for both monetary and nonmonetary gains. Thus entrepreneurs want to be entrepreneurs partly because of the psychic benefits associated with becoming and being an entrepreneur.

The most commonly cited psychic benefit of being an entrepreneur is “being my own boss” (see, for example, Barringer and Ireland, 2006, 6–7; Shane 2003, 106). All individuals want some degree of independence, manifesting itself in decision-making autonomy, but entrepreneurs seem to self-select on the basis of having a higher preference for decision-making autonomy. Various studies have shown that preference for independence is significantly and positively related to the formation of
entrepreneurial intentions (e.g., Douglas and Shepherd, 2002) and significantly distinguishes entrepreneurs from non-entrepreneurs (Shane, 2003, 106–108). Accordingly, entrepreneurs are expected to get more psychic satisfaction out of being their own boss, which is a nonmonetary corollary of becoming an entrepreneur.

Next, entrepreneurs have been shown to have a higher need for achievement (McClelland, 1961) than non-entrepreneurs. Achievement has been defined as follows: “To accomplish something difficult. To master, manipulate, or organize physical objects, human beings, or ideas. To do this as rapidly, and as independently as possible. To overcome obstacles and attain a high standard. To excel one’s self. To rival and surpass others. To increase self-regard by the successful exercise of talent” (Murray, 1938, as cited by Shaver and Scott, 1991, 31). Surely this is exactly what entrepreneurs do – entrepreneurship provides people who have a high need for achievement a suitable and accessible way to accomplish something difficult, to overcome obstacles, to excel one’s self, and so on.

Digging down a layer, what are the specific achievements that entrepreneurs might really prize? We contend that being recognized as the pioneer in a new market and/or industry may be an achievement of great personal significance to many entrepreneurs. Under the yellow-lens effect we considered the monetary aspects of being the pioneer and gaining first-mover advantages – now, with the purple-lens effect, we are concerned with the psychic benefits of getting to the market quickly and winning the title of pioneer, separate and distinct from any monetary benefits of doing so. Another psychic reward associated with entrepreneurship is recognition for being the intellectual source of great new ideas. Gaining patents has traditionally been a badge of achievement for inventors and many inventors subsequently become entrepreneurs to exploit their inventions. Other innovative ideas, perhaps not patentable, are also widely attributed to entrepreneurs, such as the “invention” of new business models by Michael Dell, by Sam Walton (Walmart), and by Home Depot hardware stores.

Next, being recognized as persons responsible for the rapid growth of their new ventures is personally rewarding for many entrepreneurs. Growth is fraught with risk, since rapid growth associated with new technologies might cause a financial crisis for the new venture if expenses must be paid contemporaneously while revenues are collected with a lag due to credit terms allowed and late payments by customers. Successfully managing the rapid growth of a firm can be expected to generate personal satisfaction for the entrepreneur, which is quite distinct from the satisfaction associated with making profits and/or becoming personally wealthy. Finally, taking a new venture to an initial public offering (IPO) is a huge achievement for entrepreneurs, since relatively few new ventures survive, fewer become highly profitable, and still fewer result in an IPO that allows the founder to realize substantial capital gains. Foreseeing such psychic benefits, and being attuned via their preference structures to gain greater satisfaction from such achievements, the nascent entrepreneur looks at the entrepreneurial process in a much more positive light than does the non-entrepreneur – the nascent entrepreneur sees the exploitation of entrepreneurial opportunity as a means to achieve these keenly desired emotional benefits.

©numerons
ability to cope with specific situations – here we are concerned with the typical entrepreneur’s overestimate of the profitability of the new venture and the associated underestimate of the time it will take to set up the new business, gain customers, get paid for sales, get down the learning curve, and so on.

Looking through telescopic lenses certainly gives the entrepreneur the broad picture, and the combination of telescopic and clear lenses may endow the entrepreneur with exceptional “vision” that may be the main reason for the discovery of the new venture opportunity in the first instance. But telescopic lenses compress the finer details of distant things, and these details may become the main impediments to gaining greater profits in a shorter time. As in most new situations, the broad visionary view seems relatively simple and manageable – the “devil is in the details” as people say. Acting upon a telescopic perception of the new venture opportunity will cause the decision to exploit to be taken before it would be if the opportunity was perceived through a single set of clear lenses, since the latter would allow perceptions of problem areas that would require more information search and problem analysis to be undertaken prior to the decision to exploit.

Now, if you were to reverse the telescope and look through the smaller end, objects would seem to be much smaller and to be much further away than they are in reality. But this is what entrepreneurs seem to do when they consider the risks facing the new business venture. They may see them, but they may mistakenly conclude that they are miniscule and far away. For example, entrepreneurs who say “no-one else is doing this, we have first-mover advantage, and therefore we will have sustainable competitive advantage” are likely to be looking through the telescope the “wrong” way. First, there may be others already doing it somewhere, but their cursory scan of the landscape, seen through the wrong end of the telescope, makes existing competitors hard to notice, causes first-mover advantages to appear to dominate smaller but potentially more problematic features of the landscape, and may not reveal as-yet small developments that are likely to grow and render the entrepreneur’s first-mover or other competitive advantages easy to copy or obsolete (Barney, 1991).

Note that overconfidence is not the same as overestimation of outcomes or underestimation of risks (Sitkin and Pablo, 1992). Overconfidence is concerned with self-efficacy that exceeds the individual’s capacity to successfully achieve the task at hand. The telescopic-lens effect, on the other hand, concerns the individual’s failure to correctly estimate the size and complexity of the entrepreneurial situation. In the rose-lens effect the perceptual error is about one’s own capacity, whereas in the telescopic-lens effect the perceptual error concerns the characteristics of the new venture opportunity and the competitive environment.

Framing the Lenses

While talking about looking through lenses, it would be remiss to ignore the role of the frames that hold the lenses, since they are also critical to how the entrepreneur perceives new venture opportunities. Frames are the structures which surround the lenses and which serve to align the lenses with the eyes such that a person can see through those lenses. Researchers have found that when eliciting information from others, such as in a survey, the way in which a question is “framed”, i.e., the context in which the question is considered, has a profound effect on the answer provided. Tversky and Kahneman (1979) introduced “prospect theory” in which the framing of a situation affected the risk behavior of individuals – when the decision maker is presented with a specific decision-making situation that is framed in a positive light, the decision maker would exhibit risk aversion, whereas when framed in a negative light, the decision maker would exhibit risk-seeking behavior. Positive framing of a situation
might be as simple as saying “there is a 50% chance of success” whereas negative framing of the same decision problem would be to say “there is a 50% chance of failure”. Researchers have found that when the situation is positively framed, the decision maker will tend to act conservatively to protect prior gains, whereas when framed negatively the decision maker will tend to gamble in an attempt to capture some gains from the situation (Tversky and Kahneman, 1974; Busenitz, 1999).

In the context of entrepreneurship, we see entrepreneurs practice “escalation of commitment” by increasing their investment into projects that are not doing very well and, conversely, by holding steady with strategies that have served well in the past, despite new information arising that indicates that the strategy undertaken may not be appropriate for the current circumstances (Tversky and Kahneman, 1974; Shaver and Scott, 1991). Both of these actions may jeopardize the entrepreneur’s chances of success, of course, yet the entrepreneur’s perception of the decision problem is effectively constrained by the frame through which he/she is looking at the problem, and the decision-making process is defective in that the entrepreneur’s perception is distorted because of the frame through which the decision problem is perceived (see, Sitkin and Pablo, 1992; Sitkin and Weingart, 1995).

4.c. Evaluate the role of goals and aspirations in making stressors stressful? How are the resilient persons different from vulnerable ones?

Reference:

Basically, stress has to do with appraisals of threat and/or loss (Lazarus, 1999). Threat or loss are appraised with regard to goals (cf. the dimension of ‘goal conduciveness’ in appraisal theories; Ellsworth & Scherer, 2003). An event or condition therefore should be worse to the extent that the goal it threatens is important for the person. Such goals may refer to different levels of generality, such as general motives (McClelland, 1987), (professional) identities (Semmer, Jacobshagen, Meier & Elfering, 2009), personal projects (Emmons, 1996) or current task goals (cf. the concept of performance constraints – see Leitner & Resch, 2005; Spector & Jex, 1998; Semmer et al., 1996). Since people differ with regard to the goals they pursue (Croppanzano, James & Citera, 1993), goals should be an important source of individual differences with regard to (occupational) stress (cf. Semmer, 2006). The first aspect that seems important is simply having goals and being committed to them. Pursuing goals in general is associated with higher wellbeing (Emmons, 1996), and commitment to personalwork goals is associated with higher job satisfaction (Roberson, 1990). However, not all goals are created equal. Thus, seeking positive goals is associated with better wellbeing than avoiding negative goals (Emmons, 1996), and the proportion of positive/negative work-related goals is associated with job satisfaction (Roberson, 1990). Furthermore, ‘extrinsic’ goals (e.g., money, good looks) are associated with well-being only to the extent that they are instrumental for achieving intrinsic goals (Diener & Fujita, 1995).

At the same time, however, being committed to a goal may increase vulnerability (Lavallee & Campbell, 1995). The two processes together may imply that people are better off on average when they are committed to a goal, yet suffer more when that goal is threatened. In line with this reasoning, Reilly (1994) reports that nurses who were more committed to their profession showed lower mean levels of emotional exhaustion (the core component of burnout). At the same time the relationship between the frequency of experienced stressors and emotional exhaustion was stronger for the more committed. Similarly, research by Brockner, Tyler and Cooper-Schneider (1992) shows that people who were highly committed to their organization reacted in an especially negative way to perceived unfair treatment. On the positive side, the importance placed on a given facet of one’s work (e.g., opportunity for promotion,
amount of decision making) moderated the relationship between the extent to which this facet is perceived to be present and overall job satisfaction in a study by Rice, Gentile and McFarlin (1991).

Motives represent rather general, and quite stable, goal strivings. There is some research on the implications of motives for stress, well-being and health. Thus, power strivings are associated with lower well-being (Emmons, 1991), and with stronger reactions to stressful events (Jemmott, 1987). Affiliation/intimacy strivings tend to be associated with positive indicators of well-being but with a stronger reaction to interpersonal stressors (Emmons, 1991, 1996). In line with such findings, women, who tend to be more committed to interpersonal goals than men, have been found to be more vulnerable to stress experienced by significant others (Kessler & McLeod, 1984). The main effect of need for achievement (nAch) is controversial (Veroff, 1982 vs. Emmons, 1991, 1996), which may be due to nAch having a ‘toxic’ and a ‘non-toxic’ component (Birks & Roger, 2000). Again, however, people high in nAch react more strongly to achievement-related events (Emmons, 1991). A high need for control (which is characteristic of people with the type A behavior pattern) may induce people to set too high goals (Ward & Eisler, 1987) and to react strongly to control being threatened (Edwards, 1991).

A special case refers to multiple goals, which implies the possibility that these goals come into conflict with one another (Kahn & Byosiere, 1992). Multiple goals have often been studied in relation to the combination of work and family roles, in many cases referring to women participating in the labor force, in addition to their role as spouse and parent. As with goal pursuit per se, the main effect of multiple roles on well-being typically is positive rather than negative, provided that the attitude towards the multiplicity of roles is positive (Amstad & Semmer, 2009). At the same time, work–family conflict is a well-established predictor of strain (Amstad et al., 2009). The conclusion from these considerations is that differences in vulnerability to stressful experiences often are to be found in people’s goals. It might be hypothesized that one way to reduce vulnerability is to reduce one’s goals. And, indeed, being able to reduce or give up unrealistically high goals is important for a person’s well-being (Wrosch et al., 2003). At the same time, however, reducing one’s aspirations is a double-edged sword (Hobfoll, 2001). Recall that the main effect of pursuing goals typically is positive. Giving up goals may therefore imply forgoing possible challenges that are experienced in a positive way and may entail positive consequences. Furthermore, giving up may have detrimental consequences. Especially if the goal in question is highly valued not only individually but also socially (e.g., achievement goals), giving up may have far-ranging negative social consequences. It is probably due to such negative consequences that people sometimes reduce goals in a resigned and resentful way, acquiescing themselves to the inevitable more than really giving up the goal. Wrosch et al. (2003) characterize this mechanism as ‘giving up effort, but remaining committed to the goal’ (cf. the concept of ‘resigned job satisfaction’; Bussing, 1992).

In line with these considerations, person-environment (P-E) fit research shows that ‘fit’ at low levels (e.g., having, and ‘wanting’ low complexity) is associated with more distress than fit at high levels (Edwards & Van Harrison, 1993). Frese (1992) reports similar results for people who reject, rather than aspire, control at work. The role of ‘fit’, therefore, cannot be assessed without considering absolute levels. Thus, it seems that aspirations and expectations cannot be reduced ad lib. Rather, they may in many cases be indicators of a ‘failed person–work interaction’ (Büssing, 1992, p. 254). Note that this implies that employing ‘stress-resistant’ people may be counterproductive if their resilience is based not on high resources but on low commitment to certain goals (especially in the interpersonal domain; cf. Cobb, 1973).

VULNERABLE VS. RESILIENT PERSONS
Beliefs about the World and a Person’s Relationship to it

People differ in their beliefs about the world and their relationship with it, especially possibilities to deal with it. Candidates for this kind of variables are hardiness (e.g. Kobasa, 1988) or sense of coherence (Antonovsky, 1991), locus of control (Rotter, 1966), self-efficacy (Bandura, 1989), optimism (Scheier & Carver, 1992), self-esteem (Brockner, 1988), or hostility (cf. Siegman, 1994a).

Popular concepts

Hardiness is conceived of as being composed of three components: commitment, challenge and control (see Maddi, 2002). ‘Commitment is the ability to believe in the truth, importance, and interest value of who one is and what one is doing; and thereby, the tendency to involve oneself fully in the many situations of life. . . Control refers to the tendency to believe and act as if one can influence the course of events. . . Challenge is based on the belief that change, rather than stability, is the normative mode of life’ (Kobasa, 1988, p. 101).

From this concept it follows that people high in hardiness should better be able to deal with stressful aspects of life. Research often shows the main effects of hardiness on physical and psychological health (Beehr & Bowling, 2005). Both stress appraisal and coping seem to be mediators of this relationship (Florian, Mikulincer & Taubman, 1995), as implied by the concept. However, evidence on moderator effects is mixed (Beehr & Bowling, 2005). Furthermore, recent longitudinal research also found a reverse relationship, showing that stress can have a negative effect on hardiness (Vogt et al., 2008). A basic problem with the hardiness construct is the confound with other constructs, such as neuroticism (or negative affectivity). Relations with such constructs are substantial, and associations with third variables usually drop considerably when controlling for these. In a number of studies, however, associations do remain even with these controls (Semmer, 2006).

Sense of coherence (SOC) also is quite a broad construct and overlaps with hardiness. Its three main features are that the environment is perceived as structured, predictable and explicable, and thus as comprehensible, that one perceives to have the resources necessary to deal with one’s environment, thus perceiving manageability, and that the demands posed by one’s environment are interpreted as challenges which are worthy to be taken up, leading to the perception of meaningfulness (Antonovsky, 1991).

Research on SOC shows relationships with a number of indicators of well-being and health (e.g. Antonovsky, 1993; S’oderfeldt et al., 2000). Main effects are predominant, but interactions with working conditions also are sometimes found (e.g. Feldt, 1997; Johansson Hanse & Engström, 1999; S’oderfeldt et al., 2000). Effects of SOC have also been demonstrated longitudinally for subjective health ratings (Suominen et al., 2001), diabetes (Kouvon et al., 2008), and reduced mortality (Surtees et al., 2006). Similar to hardiness, rather strong relationships with anxiety (Antonovsky, 1993), depression (Geyer, 1997), and other indicators of well-being (Eriksson & Lindström, 2005) have raised doubts about its distinctiveness from neuroticism, or negative affectivity (see Geyer, 1997).

Locus of control is one of the variables that has very often been shown to be related to well-being (Spector et al., 2002). Locus of control may also be a moderator of the interaction proposed by Karasek (Karasek & Theorell, 1990). Thus, Meier et al. (2008) found that job control had a buffering effect only among individuals with an internal locus of control. Like locus of control, self-efficacy has consistently been shown to be related to well-being (cf. Bandura, 1992) and both are part of a chain of convictions
regarding a person’s possibility to cope. The two convictions are not the same, but they do overlap (cf. Ng, Sorensen & Eby, 2006). A number of studies have found self-efficacy to buffer the effects of stressors (e.g., Jex et al., 2001; Jimmieson, Terry & Callan, 2004) or of resources like control (Jimmieson, 2000). Some recent findings suggest that the interaction between demands and control as specified in the Karasek model (Karasek & Theorell, 1990) might be valid only for people high in self-efficacy (e.g., Jimmieson, 2000; Meier et al., 2008; Schaubroeck & Merritt, 1997), resembling the pattern found for internal locus of control (see above). Self-efficacy not only has similarity with locus of control, but also with self-esteem. In its generalized form (general self-efficacy; Jerusalem & Schwarzer, 1992) it seems quite indistinguishable from self-esteem, at least from those parts of self-esteem that are related to a person’s perceived competences (cf. Judge & Bono, 2001).

Both self-efficacy and self-esteem seem especially important for dealing with negative feedback and failure in terms of distress as well as persistence (Bandura, 1989; Brockner, 1988). However, Cohen and Edwards (1989) are very sceptical about the moderating effect of self-esteem, although some more recent studies do show such interactions (Ganster & Schaubroeck, 1991; Jex & Elaqua, 1999; M¨akikangas & Kinnunen, 2003). A number of studies indicate that it is not simply the level of self-esteem that is important but also its stability (Kernis, 2005). Unstable high self-esteem reflects a fragile feeling of self-worth which is associated with more hostility and anger (Kernis, Grannemann & Barclay, 1989) and a heightened responsiveness to self-threatening events, such as negative feedback, or unfair treatment (Greenier et al., 1999). Maintaining self-esteem is an important goal (Lazarus & Folkman, 1984; Semmer et al., 2007) and threats to self-esteem are perceived as stressful. In line with this, two studies of our group showed that individuals with a fragile self-esteem are especially reactive to ego-threatening job conditions like unfair treatment (Meier, Semmer & Hupfeld, 2009) and effort–reward imbalance (Meier & Semmer, 2008).

Optimism is distinct from control-related concepts because it does not require that the course of events is influenced by one’s own actions. Rather, it includes the belief that things are likely to turn out reasonably well anyway (thus being related to a belief in a basically benign world). It has been shown to influence stress appraisals, well-being and coping strategies (Carver & Scheier, 1999). Optimists tend to employ more problem-solving strategies under controllable conditions, and more reinterpretation and acceptance under less controllable conditions (Nes & Segersstrom, 2006). Of special importance is the finding that optimists tend to accept failures better, which relates to the ‘circumscribed’ frustration as described by Hallsten (1993) and is indicative of the capability of putting things into perspective.

Hostility is often regarded as the major ‘toxic’ component of the type A behavior pattern (Adler & Matthews, 1994), but some authors treat hostility and type A as related but independent constructs (Myrtek, 2007). Conceptually, we can distinguish between: (i) a cognitive component, involving hostile beliefs and attitudes about others (cynicism, mistrust, hostile attributions) – this aspect is dominant in the most frequently used Cook–Medley–Ho Scale (cf. Myrtek, 2007); (ii) an emotional component, involving anger; and (iii) a behavioral component, involving physical or verbal assault (Buss & Perry, 1992). The accumulated evidence suggests that hostility is predictive of ill health coronary heart disease (CHD), and all-cause mortality (Miller et al., 1996), although a definitive conclusion cannot be drawn yet (Myrtek, 2007). Hostility is associated with vascular resistance during interpersonal stress (Davis, Matthews & McGrath, 2000) and stronger neuroendocrine, cardiovascular and emotional responses to interpersonal harassment (Suarez et al., 1998). Recent diary studies give interesting insight in the functioning of hostile people. Judge, Scott and Illies (2006) showed that among individuals high in trait hostility, perceived unfair behavior by their supervisor was more strongly related to state hostility. State hostility, in turn, was negatively related to job satisfaction, and positively related to workplace deviance.
However, hostile persons are not only particularly reactive to negative interpersonal but also to positive, supportive interactions: Vella, Kamarck and Shiffman (2008) showed that for people high in hostility (and only for them) instrumental social support increased diastolic blood pressure.

There has been quite some debate on the role of expressing anger as predictor of CHD, with some authors (e.g., Steptoe, 1996) regarding anger-in, and others (e.g., Siegman, 1994b) anger-out as the important component. Evidence seems to be more supportive for anger-out as predictor of CHD (Miller et al., 1996). Note, however, that the implication is not that components of hostility other than anger-out are irrelevant. They are weaker predictors only with regard to CHD, but they are good predictors of mortality from all causes (Miller et al., 1996). Anger-in may be especially important for the development of cancer (Siegman, 1994b) and being low in anger expression may be involved in the development of high blood pressure (Steptoe, 2001).

Expressing or not expressing one’s anger may, however, not be the most important aspect. Rather, it may be what expressing, or not expressing, one’s anger does to the person in terms of ending vs. prolonging the anger. Expressing anger can be constructive (e.g. explaining one’s feelings to a partner) or antagonistic (offending, blaming the partner). Likewise, not expressing the anger may be antagonistic if associated with ruminating, self-pity, dreaming about revenge etc., but it may be non-antagonistic by putting things into perspective, trying to see them from a humorous side, trying to understand the other’s perspective, etc. It may well be that it is the antagonistic vs. constructive way of dealing with anger that is most important, not the question of whether it is expressed or not (Davidson et al., 1999; cf. Semmer, 2006).

**Convergences**

Judging from one perspective, the different concepts and the findings related to them are rather confusing. Although there is some overlap between different concepts, it is unclear how many different constructs are involved and how they are hierarchically ordered. Certainly, more studies are needed to investigate the communalities and differences involved.

From another perspective, however, the picture is not so gloomy. There do seem to be some common elements that appear in different studies, and if we look at the ‘great lines’, we might come to a conclusion like the following:

People who are resilient:

- tend to interpret their environment basically as benign, that is, they expect things to go well (optimism) and people to not intend harm (trust, agreeableness). All this does not apply unconditionally but it is the ‘default’ interpretation as long as there are no reasons to believe otherwise.

- tend to accept setbacks and failures (and, thus, stressful experiences) as normal, not necessarily indicative of their own incompetence and lack of worthiness (secure self-esteem) or indicative of a basically hostile world (low hostility). Negative experiences are, therefore, put into perspective, as having meaning beyond the present situation, for instance, as aversive but necessary and legitimate experiences on one’s way to a more overarching goal. The comprehensibility and meaningfulness dimensions of the sense-of-coherence concept are relevant here, as is the commitment dimension of hardiness.
tend to see life as something that can be influenced and acted upon (internal locus of control), and to see themselves as capable to do so (self-efficacy, manageability dimension of sense of coherence, competence elements of self-esteem). Related to this is the tendency to see stressful events as a challenge (challenge dimension of hardiness; challenge aspect of the meaningfulness dimension of sense of coherence).

All this implies also that people who are resilient do show emotional stability and do not have a tendency to experience negative emotions (neuroticism, negative affectivity).

Theoretically, the concepts mentioned should influence coping strategies which would imply that they should act as moderators in the relationship between stress and outcome variables. Such findings are obtained quite often (see above) but not nearly as consistently as would be expected theoretically. One reason for this is certainly to be found in methodological difficulties, because moderated regression procedures tend to yield very conservative estimates of interaction effects (cf. Cohen & Edwards, 1989). A further reason for this might be that the resourceful belief system pictured here has an influence at a much earlier point, that is, changes the stress appraisal in the first place, as discussed in Section 6.2.2.

Is it only negative affectivity?

That resources in the sense of the belief systems discussed here are so often found to be directly related to symptoms points to another, very basic question. It is possible that all these measures are really indicators of NA (Watson, Pennebaker & Folger, 1987), or neuroticism (Dembroski & Costa, 1987). In fact, the measures discussed here are often found to correlate with one another, some have been combined to the larger meta-construct of ‘core self-evaluations’ (Judge & Bono, 2001), and controlling for NA often reduces associations between belief systems and symptoms (e.g., Schaubroeck & Ganster, 1991). Indeed, it would be quite strange if there were not a substantial relationship between the broad construct of NA and belief systems that have to do with an environment that is meaningful, basically benign and able to be influenced, and with a self-concept that involves the capability to actually influence this environment in accordance with one’s goals. Also, the etiology for the aforementioned belief system involves experiences of mastery, as well as experiences of failure that can be dealt with; these are conditions that we would also assume to influence NA. And, indeed, chronic stress conditions are found to influence changes in NA over time (cf. Spector et al., 2000).

Therefore, attributing an important role to NA in concepts of a disease (or health) prone personality does not imply that associations between stressors and health can be reduced to reflecting NA. Rather, NA would be seen as a factor that may influence the experience and perception of, as well as the reactions to, stress factors, but at the same time may be influenced by these factors (Spector et al., 2000).

A related issue refers to common method variance. Since most studies on stress at work use self-report, common method variance may account for the associations found (and the common factor behind that may, again, be negative affectivity; cf. Spector, 2006). This has, however, not gone unrefuted (e.g., Chen & Spector, 1991; Spector, 2006; Spector et al., 2000). Analyses with different indicators of job stressors (e.g., self-report and ratings by trained observers) in our research have consistently shown that correlations between stressors and symptoms are, indeed, inflated by common method variance but that substantive associations remain when this is controlled (e.g., Semmer, Zapf & Greif, 1996).
5.a. What has been the impact of new technologies on work stress? How would you minimize the negative effects of IT implementation in your organization?

Reference:

Technological innovation is important for industrial organizations trying to survive in competitive markets. However, innovation is never a simple or smooth process. Faced with major technological changes, people react differently; although some seem to relish the challenge, many show symptoms of stress. In the 1970s, new computer technologies started to change nearly every workplace, and also influenced private life. Since then the pace of computer hardware and software innovation has accelerated and the scope of technical change has increased (Clegg et al., 1997). Computer systems have become standard, at least in modern industries and administration, for some time now.

Ever since the beginning of this development, many people feared that stress and unemployment would be the future consequences of the technological revolution. Scientists conducted empirical research to either support or contradict these expectations. In the meantime, it has become evident that innovation and new technologies are not a source of unemployment or low qualification requirements per se (Welsch, 1989). The question is how people react to such permanent innovation, whether it results in stress and which practical psychological consequences should be drawn to help them cope with the consequences.

This chapter provides a summary of research into new technologies and stress. Initial basic concepts and research findings into the impact of new technologies on stress are presented. Following this, practical consequences concerning implementation strategies, job and software (re)design and employee training programs are discussed.

THE IMPACT OF NEW TECHNOLOGIES ON STRESS

Basic Stress Model

Faced with technological changes, not all people show stress reactions. According to the transactional stress model (Lazarus, 1976), an individual’s appraisal of the stressor, its resources and coping competences have to be considered in this context. Some people clearly seem to appreciate the challenge of technological novelty. Only subjects who expect a long-lasting aversive experience after the appraisal of the whole situation and its consequences will react with stress. Research into the impact of new technologies on stress, therefore, has to take into account many different factors and conditions of work systems that might affect the appraisal process and the stress reaction. In order to develop a systematic research overview we have to consider types of stressors, different resources, short- and long-term consequences of stress and the means to measure these consequences.

A Definition of Stress in the Context of New Technologies

We define stress as a state of intense and aversive tension, which the subject strongly wants to avoid. The sensation of stress depends on the expected persistence, closeness and lack of control of the situation (Greif, 1991a). The application of this definition implies several seemingly trivial, but often neglected, consequences. Stress is not suffered by people who neither show nor expect persistent aversive tension nor want to avoid the change before or after the implementation of new technologies. Most people, apparently, do not worry about technological changes that may or may not emerge in the
long run. At least people who are able to control technological problems, either by avoiding them or learning to manage them, will show no stress reactions. Stressors can be defined simply as factors that are assumed with a high probability to lead to stress reactions (Semmer, 1984). Technology itself, as well as the expected direct or mediated consequences of its implementation, may be a source of stress. Following the transactional stress model and action theory, Semmer (1984; see also Leitner et al., 1993; Frese & Zapf, 1994; Fay, Sonnentag & Frese, 2001) makes a distinction between three major groups of hypothetical stressors at work:

1. **Overtaxing regulations** are characterized by an overload of mental demands, such as high speed and intensity of regulation or high concentration, required to achieve goals. For example, time pressure due to long and unpredictable system response times or poor system handling may result in overtaxing regulations because it calls for working at high speed or intensity (Fay, Sonnentag & Frese, 2001).

2. **Regulatory uncertainty** means that the individual does not know how to achieve a goal due to a lack of knowledge or ambiguous feedback. Instances of regulatory uncertainty are qualitative overload, role conflict and role ambiguity (Fay, Sonnentag & Frese, 2001). In the field of new technology it may be caused, for example, by complex hardware and software systems, unclear wording and insufficient, delayed feedback, unclear error messages or incomprehensible manuals, as well as by the high complexity of tasks or the whole job, due to the implementation of new technology.

3. **Regulation obstacles** are events or conditions that impede or make it harder to pursue and achieve a goal. Regulation obstacles demand additional effort, such as repeated actions, detours or even starting anew to ensure task completion. Typical obstacles are interruptions due to computer breakdown or regulation difficulties caused by inadequate tools or a lack of information (Frese & Zapf, 1994).

A differentiation can be made between the short-term and long-term consequences of stress. Examples of short-term consequences include biochemical and psycho-physiological reactions, such as increased blood pressure, pulse rate and catecholamine excretion. Moreover, consequences such as eye or musculo-skeletal strain symptoms and lower performance efficiency (especially a higher rate of errors) are also short-term indicators that are found to be related to stress in some studies. Typical long-term consequences that have been examined within the scope of new technology and stress include reduced well-being, psychosomatic complaints and diseases. In the next section an overview of research results on sources of stress associated with new technologies is given. Studies on the overall consequences of both technology and the implementation process are summarized in Section 11.3.

**Research into Different Factors and Sources of Stress**

Several basic sources of organizational stress can be distinguished. Most of these sources have also been investigated in conjunction with work and new technologies: e.g. job demands, job control, job content, as well as human factor constraints and career/future concerns (Briner & Hockey, 1988; Carayon, 1993; Carayon et al., 1995; Frese, 1991a).

Human factor constraints are related to hardware and software properties of computing environments. Important hardware components that have been studied in experiments and field studies include workstation layout, input devices (keyboards, mice, etc.) and visual display units (VDUs). In the case of VDUs, results vary. Whereas Çakir (1981) and Zeier et al. (1987) found no properties directly related to
physiological reactions and musculo-skeletal discomfort, Sauter et al. (1991) reported an association between work with VDUs and musculo-skeletal complaints.

Furthermore, empirical evidence has been found on the impact of delayed or unpredictable system response times on stress (Johansson & Aronsson, 1984). In a summary of experimental research applying psycho-physiological measures, Boucsein (1988) infers that system response times that are either too long or too short may induce stress.

Additionally, there is also evidence of the impact of software design and of hardware reliability and performance on stress. Problems such as system failures, especially crashes, definitely appear to cause stress. In an investigation by Johansson and Aronsson (1984), white-collar workers showed significantly different adrenalin excretion and diastolic blood pressure during a breakdown compared to ordinary conditions. Carayon (1997, p. 330f) points out that the cumulative effect of so-called acute stressors, such as slow computer performance and computer breakdowns, can result in chronic symptoms of stress.

Another source of stress related to the software itself are human errors due to design flaws, software complexity or, more generally, to a lack of usability. Corresponding experimental results show that computer novices, unlike experts, make significantly more errors in higher level, consciously processed actions and inefficiencies (see Frese & Zapf, 1994) when working with highly complex software in contrast to working with low complexity software (Hamborg, 1996). Especially errors located at the intellectual level of action regulation give rise to emotional reactions such as anger or even helplessness (Krone et al., 2002). A field study conducted by Brodbeck et al. (1993) revealed that both novices and experts using standard software systems make mistakes or action slips every few minutes, and spend about 10% of computer working time handling errors. Since errors are strong ‘barriers to task fulfilment’ (cf. Semmer and Meier, this volume), they principally have to be considered as stressful events.

Regarding the increasing complexity of software systems in office work, errors will become even more likely in the future. This effect is probably strengthened by short update and implementation cycles, especially in conjunction with new releases, the quality and reliability of which often remain insufficient.

Stress may not only be caused by errors but by regulation obstacles, such as the frequent occurrence of minor malfunctions and hindrances due to bad design users have to deal with in their daily work with computers. Even though technology may not cause any difficulties, the anticipation of errors due to a lack of knowledge can, according to the above definition of stress, be enough to cause stress.

The designs of workstations, hardware and software components, the furnishings, and interior equipment are important factors related to stress. However, research shows that it is insufficient to consider human factors constraints and the ergonomic design of equipment as the only sources of stress. Several authors emphasize that the type of work carried out at VDUs, and the embedding organizational conditions, seem to be the main cause of health complaints and stress reactions (Agervold, 1987; Briner & Hockey, 1988; C. akir, 1981; Frese, 1991a). New technology may lead to changes in work structure and human–machine redimension of labour (Buchanan & Boddy, 1982; Levi, 1994; Turner & Karasek, 1984). This in turn may result in changes to work demands, e.g. work overload or underload, time pressure (Saupe & Frese, 1981; Schulz & H{"o}fert, 1981), task interruptions (Johansson & Aronsson, 1984; Leitner et al., 1993) as well as anxiety (Mohr, 1991), uncertainty (Saupe & Frese, 1981; Turner & Karasek, 1984), lack of job control (Buchanan & Boddy, 1982, Sauter et al., 1983) and career concerns, such as uncertainty of job future and career advancement (Carayon, 1993).
following section briefly describes the role of intervening or moderating variables. Field studies on the overall consequences of new technologies and their implementation are addressed in Section 11.3.

Resources

Resources can be thought of as characteristics of the person, the job and/or the organization that mediate or moderate the impact of the implementation of new technologies on the individual and that may help to compensate or balance out possible negative effects (Korunka et al., 2003). Control, technological knowledge and competence as well as social support are the major resources that have been studied in this field.

Job control

Job control, defined as the subjective probability of reducing stress reactions, is often mentioned as an important buffering resource (cf. Frese & Brodbeck, 1989; Greif, 1991a; Johansson, 1989). Control at work implies the possibility of successfully changing environmental conditions or one’s own activities (cf. Frese, 1989). Job control (Spector, 1998) ranges from autonomy (control over immediate scheduling and tasks) to participation in decision-making processes (control over the organizational decision-making process). Low decision latitude and little control over the scheduling of tasks may follow from the inadequate (re)design of jobs after the implementation of new technologies (Buchanan & Boddy, 1982; Frese & Zapf, 1987). Carayon (1993), however, ascertained that, while job demands and career/future concerns are related to stress outcomes in office work, job control is not. According to Jones and Fletcher (2003), the latter point does not seem to be a clear-cut issue.

Technological knowledge and competencies

Technological knowledge and coping competencies are very powerful resources in meeting the challenge of technological change. Such changes require intensive, adaptive effort. Briner and Hockey (1988) supposed that, in the short term, differences between old and new work demands and the lack of competencies are likely to be the main sources of stress. Training and development of the necessary technological knowledge and skills provide security and self-confidence. Expert knowledge and competencies reduce the probability of errors. Furthermore, the development of special error management competencies appears to be an important resource that prevents stress (Frese et al., 1991). For this reason, the implementation of new technologies should be accompanied by extensive training efforts. Methods of learning and error management training are considered in Section 11.4.

Social support and help

Social support and help by colleagues and experts is a well-known resource that moderates stress reactions (Frese & Semmer, 1991; Udris, 1989; Humphrey, Nahrgang & Morgeson, 2007). Accompanying the implementation of new technology, hardware and software retailers are expected to provide training programs and user support. Beyond this support, the development of a social support network within the work environment seems to facilitate individual learning, problem solving and error management (Briner & Hockey, 1988; Dutke & Sch`onpflug, 1987; Greif, 1986). Moreover several findings show that the implementation of new technologies may reduce social interaction (Buchanan & Boddy, 1982; Turner & Karasek, 1984; Stellman et al., 1987). For this reason, special investments in the development of personal help networks and a positive social team and organizational climate may be necessary to compensate for an impairment of such resources.
Finally, resources related to the organizational change process have been considered recently. Besides passive and active participation, which is related to job control (see above), and the perceived quality of training, they include the organization of the implementation process (Korunka et al., 2003).

RESEARCH INTO THE IMPLEMENTATION OF NEW TECHNOLOGIES

Cross-Sectional Studies

Studies on the overall influence of the implementation of new technologies show controversial results on strain and stress reactions. Some studies report an increase, others a decrease and several no differences in stress-related reactions linked to the introduction of new technologies.

The implementation strategy plays an important role in this context. Often a technology-led strategy is pursued and the impact on work characteristics is largely ignored (Clegg et al., 1997). In many cases, dealing with the associated problems of work design and organizational change follows the principle of ‘muddling through’ (von Benda, 1990; Greif, 1991b). As a consequence, the likelihood of unintended and negative outcomes increases and employees’ fear of negative job changes, unemployment, social isolation, role change and increasing supervision may arise (von Benda, 1990; Frese, 1991a; Frese & Brodbeck, 1989).

An increase in strain due to VDU usage, especially in connection with high workload and repetitious tasks, is reported by Stellman et al. (1987). The authors investigated more than 1000 female office clerical workers subdivided into five groups: part-time typists, full-time typists, clerical workers, part-time VDU operators and full-time VDU operators. Full-time terminal users reported higher levels of job and physical environment stressors than part-time VDU users, typists and other clerical workers. Musculoskeletal strain, symptoms such as eye strain and dissatisfaction were also highest among full-time terminal users. With regard to psychological symptoms (depression, anxiety, hopelessness, irritation), no consistent or significant differences were observed between the groups. Typists and clerical workers who also held supervisory positions reported fewer stressors and greater job satisfaction than workers with no supervisory tasks. However, there were no such differences between supervisors and non-supervisors engaged in full-time VDU work with terminals.

The authors suppose that the potential advantage of increased supervisory responsibilities may be annihilated when full-time VDU operators are involved in highly demanding, repetitive work. This group reported the highest levels of workload demands and repetitiousness, and also the lowest levels of decision-making latitude, ability to learn new things on the job and understanding of the overall work process. Furthermore, full-time users of terminals reported the highest level of ergonomic sources of stress, although they had a greater ability to adjust the height and back of their chairs compared to other groups.

The results of Stellmann et al. (1987) correspond with a study on insurance staff by Johansson and Aronsson (1984), which showed that the highest level of stress was found among those doing repetitive tasks and constant work with VDUs.

Differing from these results, in an investigation of a representative sample of 907 white-collar workers, Agervold (1987) found that the incidence of mental fatigue, stress and psychosomatic complaints was the same in the sub-groups working with or without new technology. The results of a close comparison
indicated that there was no correlation between the impairment of the psychological work environment and new technologies. On the contrary, there seemed to be some improvement in the quality of work, although this was combined with an increase in workload (pressure of work and mental strain). With regard to psychological strain, the only effect of working with new technology was a tendency of higher levels of mental fatigue. Stress and psychosomatic reactions, however, seemed to remain unaffected.

Agervold (1987, p. 149) concludes that new technologies seem to only have negative consequences in terms of stress if they are associated with changes in important psychological aspects of work (e.g. less personal influence, fewer cognitive demands, greater isolation, more pressure at work, higher mental and physical workload). The results of this study indicate that the consequences of the introduction of new technology concerning job content, quality of work, influence, satisfaction and stress are determined by the kind of job and the degree of change in the organization of work, combined with changes in work pressure.

In a study investigating the impact of computer technology on work content, feedback, job control and mental strain in text preparation in printing shops, Kalimo and Lepp´anen (1985) found that subjects working with the most advanced technology assessed their mental activity and self-determination at work more positively than subjects whose tasks involved less advanced technology. The former subjects were more satisfied with their work than the others. Their tasks demanded more decision making and were more complex.

Even for subjects with minimal initial task variety and challenge, however, Kalimo and Lepp´anen found that computer technology and the application of VDUs may increase performance feedback and quality control. Therefore, this kind of work was associated with a positive impact on the whole work setting and positive changes in the daily workload, too. The results of this investigation show that new technologies may diminish stress even when combined with simple tasks.

The reported findings demonstrate that the impact of new technologies on stress and its consequences can be extremely varied. We should be careful not to attribute observed increases of stress reactions to new technologies per se. Rather, issues such as task demands, performance feedback and other mediating organizational factors seem to be more important factors, which have to be considered carefully in work design and the implementation process (Briner & Hockey, 1988; Frese & Brodbeck, 1989; Greif, 1986).

Cross-sectional field research has often been criticized in that it can be misleading when it comes to causal inferences. Correlations between hypothetical stressors and stress reactions may result from hidden factors or even from a reversed causal relation (for example, a stress reaction may increase time pressure). The same is true for observed mean differences between groups. It is impossible to control all relevant conditions and factors that may influence the results of field studies. Controversial results should therefore be of no surprise.

In contrast, longitudinal studies are advantageous because they, at least partly, allow the chronological order of hypothetical causes and effects to be controlled. Although longitudinal studies demand higher and longer research investments, several studies of this kind have been conducted, especially in the past decade. The following section summarizes the results of several longitudinal studies on the consequences of implementing new technologies.

Longitudinal Studies
Frese and Zapf (1987) investigated the impact of new technologies on qualification demands, decision latitude and stress within a longitudinal design. The study used two measurement points, before and after the technological changes. In 1979, before the changes, 218 blue-collar workers in the German car and steel industry participated in a comprehensive survey. At that time, hardly any computer-aided machines or robots were used in the workplaces. Six years later, in 1985, 166 subjects of the first sample were studied again.

In the study the changes between five groups of technological demands were compared:

1. Traditional jobs that have not experienced technological changes.
2. Computer-supported work without programming tasks.
3. Computer-supported work with some influence on programming (but not practised by the employees themselves).
4. Computer-supported work with programming tasks.
5. Operators of industrial robots.

The authors found only minor changes and differences in job demands, stressors and hypothetical resources that may mediate stress reactions. One result was a low but significant increase in job decision latitude for all groups, from 1979 to 1985, and also a minor but significant general decrease in time pressure and concentration demands, with the exception of group 4. Job satisfaction increased significantly for groups 3 and 4 after the changes.

The results of the study show that job demands, stressors and resources have remained stable over time for the different groups, i.e. workers who had a high level of job discretion or complexity before the implementation of the new technology also had jobs with similar attributes after the change. The authors conclude that new technology has only a very low – if any – impact on stress and resources, although they concede that this finding may have been due to selection effects.

Comparing individual changes, Marjchrzak and Cotton (1988) have shown in a longitudinal study that stress reactions can be found only for subjects with unfavorable starting conditions who face major technological changes. In his longitudinal study, Kühlmann (1988) assessed individual attitudes of employees faced with the implementation of new technologies and their expectations of negative changes. Immediately before the change, most employees developed an optimistic attitude and seemed to underestimate potential negative job changes compared to their later observations. This tendency to simplify and belittle unpredictable future difficulties could be interpreted as a way of coping with future uncertainty and new, unpredictable situations. Kühlmann (1988) recommends that employees who are very concerned and worried about whether they will be able to master the changes before they occur should receive special psychological support.

While Frese and Zapf (1987), Marjchrzak and Cotton (1988) and Kühlmann (1988) investigated the impact of the change before and after implementation of new technologies, Korunka et al. (1993) also included a comparison of different styles of the initial implementation of new technology in a longitudinal study with three measurement points: (i) prior to implementation; (ii) during implementation; and (iii) one year after implementation. Strain reactions and satisfaction were assessed for all three times. In particular, stress induced by job content, organizational aspects and physical conditions of the environment were considered. The sample consisted of 279 employees either using computer-aided design (CAD) software, doing clerical work or carrying out telephone information tasks.
To assess the style of the implementation process, the authors used three criteria: (i) organization of the project; (ii) participation of employees; and (iii) training and supervision. The results of the study show a significant overall increase in subjectively experienced stress and physical complaints (presumably due to an insufficient provision of ergonomic furnishings) across all measurements. Paired comparisons between the measurement points revealed a significant increase in stress and physical complaints, as well as a significant increase in dissatisfaction between the first two measurement points (prior to implementation and during implementation). Additionally, physical complaints significantly increased between the first and the third measurements (prior to implementation and one year after implementation).

Results concerning the style of implementation revealed that stress after the implementation decreased significantly in those companies that practiced more active employee participation in the change process but not in companies with lower participation. Participation generally resulted in higher ratings of satisfaction with the technological changes, while the overall extent of physical complaints was attenuated by participation. Moreover, high participation led to a decrease, while low participation was associated with an increase in dissatisfaction. Furthermore, the authors differentiated between four job clusters with regard to qualification demands. Employees in highly ranked job clusters had more opportunities to participate in the implementation process than personnel from the less qualified clusters (Korunka et al., 1993, 1995). In the cluster with the lowest qualification (‘Extremely monotonous work’), most psychosomatic complaints and decreased job satisfaction were observed. This result corresponds to a similar outcome of the cross-sectional study by Agervold (1987), cited above. On the other hand, employees in the highly technological qualified cluster showed an increase in job satisfaction and only slightly increased psychosomatic complaints after the introduction of new technologies (Korunka et al., 1995).

Korunka et al. underline that their results match Karasek’s demand-control model (Karasek & Theorell, 1990), which postulates that the most strain is associated with high demands and low decision latitude. High employee participation in the implementation process appears to generate a higher level of acceptance and leads to a high degree of attenuation of subjectively experienced stress and dissatisfaction, while low participation results in an increase of these variables: ‘It seems to be that a participatory managerial style may counteract any negative effects of the new technologies’ (Korunka et al., 1995, p. 138).

In a follow-up study, Korunka, Zauchner and Weiss (1997) investigated the effects of continuous implementation (implementation in workplaces already equipped with computers) of new technologies on strain and dissatisfaction in 10 companies (N = 466). In contrast to a control sample consisting of five subsamples with pending implementation, employees in the implementation sample, including six projects, showed a significant increase in subjectively experienced stress but not in dissatisfaction two weeks after implementation, in contrast to pre-implementation data. Regarding the different implementation projects, changes in stress and dissatisfaction varied notably. Further analysis of job-related decision latitude and external workload shows that subjectively experienced stress seems to increase after implementation, especially in workplaces with low decision latitude and high external workload. This marked statistical trend corresponds with the results of the first longitudinal study (Korunka et al., 1993, 1995). However, it seems worth mentioning that, contrary to the conclusions of the above-mentioned study by Korunka et al. (1993), subjectively experienced stress in general was higher and dissatisfaction was lower for participants with high decision latitude in contrast to participants with low decision latitude. Concluding, the study suggests that not only the initial
introduction of new technologies but also the continuous change of information technologies affect employees’ strain and satisfaction.

An advanced analysis of the follow-up study by Korunka and Vitouch (1999) investigated the impact of personal (individual differences, external workload) and situational factors like job design (e.g. job complexity, decision latitude) as well as implementation content factors on strain (psychosomatic complaints, subjectively experienced stress) and satisfaction.

Implementation content factors were: (i) adaptational demands placed on employees due to the new technology (qualification, duration of training and changes in program functionality); (ii) ‘software-ergonomic changes’; and (iii) participation. Data were collected over a period of one-and-a-half to five-and-a-half months before implementation and three to six months after implementation of information technology. As expected, a significant influence of personal dimensions on strain and satisfaction was found: internal locus of control, higher self-esteem and positive attitudes towards information technologies were associated with job satisfaction and less strain. Implementation content factors revealed significant effects on the changes in users’ strain and satisfaction at the second measurement point. Furthermore, results show that participation, adaptational demands and the ergonomic quality of the software are relevant factors explaining employees’ reactions to technological change. While adaptational demands, such as changes in users’ qualification, duration of training and changes to the software’s functionality, are inversely related to strain measures. The opposite is true for the usability of software systems: it was found that software implementations retaining a character-based interface showed strong negative effects on strain and satisfaction compared to implementations changing graphical user interfaces.

The authors state that the study provides additional support for the positive effects of user participation in the case of the continuous implementation of new technologies and that during the implementation process increased attention should be paid to current developments of user interfaces. Slightly positive effects of the implementation of new technologies are reported in some longitudinal Scandinavian studies investigating the implementation process of new technologies. In his review of several longitudinal studies carried out in the field of the public service, a bank, a library and an insurance company, Huuhtanen (1997) summarizes a positive overall impact of new technology on work content experienced by employees in all occupation and age groups. He states that new technologies seem to have more often increased than decreased those characteristics that are important for mental well-being at work. ‘Compared with the expectations before the change, the work has become more interesting and the employees felt that they could use their abilities better’ (p. 397), although office tasks have become somewhat more difficult, and the work pace has increased.

Mixed results are presented by Järvenpää (1997), who conducted a longitudinal study over a four-year period on the implementation of office automation at a district court. After the implementation, office workers perceived their jobs as slightly more interesting than before the implementation. Short-term mental strain was also slightly lower after the implementation, but this positive effect seemed to decrease over time. On the other hand, a slight increase in office workers’ long-term strain (e.g. stomach symptoms, chest pain, restlessness, fatigue and eye symptoms) was observed, although no effect relating to job satisfaction was found.

An important aspect regarding the results of longitudinal studies on job design and stress was given by Carayon et al. (1995). The results of their three-year longitudinal study investigating the relationship between job design variables and strain of office workers from a public service organization indicate that
the relationship between job design and strain changes over time. At the first point of measurement, quantitative workload, work pressure and supervisor support were related to most measures of worker strain. At the second point, supervisor support was related to all of the strain measures as well as task clarity except for one, while job future ambiguity, quantitative workload and job control were related respectively to more than half or to half of the eight measures of worker strain. Eventually, at the last point of measurement, task clarity was related to seven, attention and job future ambiguity to five and job control to four measures of strain. The authors suggest that the lack of stability of the correlations between work stressors and worker strain may be due to changes in management or, more generally, that work environments and people may change over time. Following this assumption, they conclude that in theories of job design and worker strain we have to take into account the flexibility of working environments. To summarize the results of the cross-sectional and longitudinal field studies on the implementation of new technologies, there is no definite support for the simple assumption that computer technologies themselves may exert stress. A lack of usability of software, including malfunctions and usability problems, as well as the poor ergonomic design of hardware and ergonomic furnishings are problems, which in most cases can be reduced to a tolerable level by professional experts or by means of usability engineering. Where stress reactions are found, they seem to result from negative interactions between technology and job design (especially monotony and time pressure: Carayon, 1997, p. 325) or an inadequate technology-led implementation process. Most experts recommend the following as remedies: user participation during the implementation process (Briner & Hockey, 1988; Huhtanen, 1997; Karasek & Theorell, 1990; Korunka & Vitouch, 1999), and task and job (re)design, as well as training of employees to manage the complex technological changes (Korunka & Vitouch, 1999). Possible practical implications are presented in the following section.

PRACTICAL IMPLICATIONS

With respect to the reported findings, it seems to be reasonable to apply an integrated approach that addresses the prevention of major problems and risk factors, including: (i) an integrative and participative implementation process; (ii) participative task and job design; (iii) user-oriented hardware and software design; and (iv) an adequate training program as well as the establishment of personal help networks. The ideal vision is a learning organization whose members actively participate in current and future technological and job changes. In the following subsections, we will outline important aspects of the four components of our holistic approach.

Integrative and Participative Implementation Process

Field surveys and practical observations show that systematic implementation strategies of new computer technologies are rare (Bjørn-Andersen, 1985; Dzida et al., 1984; Hirschheim et al., 1985). Organizations often follow technology-led implementation strategies or simply buy and apply the ‘best’ technological system and ‘muddle through’ the resulting organizational problems.

We advocate the following strategy for implementation:

1. Detailed information in advance;
2. Active participation;
3. Learning to master the changes.

Detailed information in advance
Planned technological changes put many people into a state of uncertainty, which can be accompanied by strong emotional reactions (Kanter, 1985). Many questions arise concerning the consequences of the changes. Typical concrete questions are:

- Is my job still safe after the change or will technological rationalization render it obsolete?
- Will I be able to master or learn the new technology?
- Who will help me if I need help?
- What will happen if I am unable to adapt to these changes or less able than my colleagues?
- Which of my basic tasks and responsibilities will change?
- How about stress at work? How can I cope with problems whilst learning the new technology and doing my work at the same time?
- Will time pressure increase?
- Will the firm buy good ergonomic and usable systems?

Information received about the need for change and the changes themselves are predictive of higher levels of employee openness to the changes (Coch & French, 1948; Wanberg & Banas, 2000). Therefore these questions should be answered by credible and concrete information, which shows how the demands can be successfully mastered, step by step. The management should ensure clear and satisfactory answers to such questions at the start of the change process. Change anxiety and stress will not be reduced by information which is subjectively rated as unreliable. To attempt to hush up existing high risks is itself a risky strategy. People do not forget lip services or false promises in such situations and it is easy to lose long-term credibility. It would be better to give reliable information about possible risks in combination with an optimistic and encouraging personal statement that risks can be managed.

Hofmann and Bungard (1995) have demonstrated the advantages of giving concrete information in advance regarding car model changes in the automobile industry. Before the changes, workers were invited to inspect the new model and plans (after signing an obligation of secrecy). The results were very convincing. Nearly all workers turned up and were willing to participate in the change processes. Many were even very enthusiastic about the future changes. The whole process was less stressful, with fewer conflicts, and was substantially shorter than any previous technological change in the companies. This example demonstrates that investing in concrete information in advance pays off, reducing typical insecurities and negative attitudes of the people involved.

**Active participation of employees**

Active participation refers to the active involvement of organizational members who will ultimately use the new technology (Symon & Clegg, 2005). The benefit of involving future users is – among other things – that it helps to create better systems, increase user ownership and commitment to change, it provides an opportunity for users to influence the design of their own work processes and gives them an opportunity to gain control over the design process (Clegg et al., 1997; Symon & Clegg, 2005). Hence active participation in job and task redesign is a strategy that helps to avoid insecurity and resistance that may result from unknown future changes (Kanter, 1985). Participation is rarely an easy process, especially where the expected technological and organizational changes are large and where people see a risk of losing their achieved status. It is therefore recommended that change managers guide and monitor the change process (Bennebroek Gravenhorst, Werkman & Boonstra, 2003). They should try to help the participants to cope with stressful situations that are typical to many change processes: extreme complexity, high time urgency and role conflicts. A further task of change managers is to solve
communication problems and to create a team atmosphere that supports mutual information, trust, constructive communication and common problem solving. An open attitude of change managers towards employees’ ideas and experiences is supposed to stimulate active support (Bennebroek Gravenhorst et al., 2003).

**Learning to master the changes**

Research results on success and failure of change management projects show that the risk of failure is very high. Evidence on the introduction of new technologies and the consequences thereof point to low levels of success (Clegg et al., 1997; Waterson et al., 1999; Boonstra, 2000). An interview study with leading UK experts concerning the performance of IT investments found that 80% to 90% of IT investments do not meet their objectives (Clegg et al., 1997). The authors argue that the reasons for this are rarely purely technical in origin but are, among other things, due to the context of technical change, the ways in which the new technologies are developed and implemented, and a range of human and organizational factors. Failure can result in existential crisis situations and is always an extremely stressful threat to all those involved. Nevertheless, technological changes cannot be ignored. Therefore, learning to master urgent and complex periodical or continuous changes becomes a core competence of organizations and their members. Where possible, the organization should start with small, manageable pilot projects that serve as learning encounters for future changes to reduce stress reactions.

Even if concrete information is given in advance and active participation is realized, individuals may still remain anxious and may doubt whether they will be able to master the changes. Although there are no clear research results indicating substantial anxiety due to technological innovations (Kühlmann, 1988), people may be concerned about losing their jobs and may therefore hesitate to admit fears of making errors or of failure and avoid necessary training as long as possible. In Section 11.4.4 we describe learning approaches that have been successfully applied in training complex software systems and error management.

**Participative Task and Job Design**

The introduction of new technologies into work organizations usually affects task and work design and may – but need not – have unfortunate and unplanned implications that put people under stress. However, as pointed out above, the resulting effects are not merely due to the technology itself. Rather the versatility of new technologies often creates new options for the design and management of organizations (Blackler & Brown, 1986). Whether and how these options are tapped depends to a large extent on the way in which the technology is implemented and whether the consequences of technology on job design are systematically considered during the process of implementation.

Industrial and organizational psychology provides elaborate and well validated (e.g. Humphrey, Nahrgang & Morgeson, 2007) theoretical approaches to job and work design (for an overview, see Kompier, 2003), such as the Job Characteristics Model (Hackman & Lawler, 1971), Warr's Vitamin Model (Warr, 1987) or German Action Theory (Frese & Zapf, 1994), which have partly been integrated in expanded frameworks for work design recently (Parker & Wall, 2001; Morgeson & Campion, 2003).

Essential claims concerning task design in consideration of VDT-based information processing systems are condensed in ISO 9241-2, Guidance on task design (ISO 9241, 1992). The objective of this international standard concerning task design for users of 'VDT-based information systems' is to provide for 'optimal working conditions with regard to human well-being, safety and health, taking into account
technological and economic efficiency’ (ISO 9241-2, 1992, p. 1). Overload or underload, undue repetitiveness, time pressure and a lack of social contact should be avoided.

In terms of ISO 9241-2 tasks should (ISO 9241-2, 1992, p. 2):

- Recognize the experience and capabilities of user populations;
- Provide for the application of an appropriate variety of skills, capabilities, and activities;
- Ensure that the tasks performed are identifiable as whole units of work rather than fragments;
- Ensure that the tasks performed make a significant contribution to the total function of the system, which can be understood by the user;
- Provide an appropriate degree of autonomy to the user in deciding priority, pace and procedure;
- Provide sufficient feedback on task performance in terms meaningful to the user;
- Provide opportunities for the development of existing skills and the acquisition of new skills with respect to the tasks concerned.

While job design theories and guidelines for task design formulate characteristics and criteria that promote meaningful work and well-being, they do not directly address ‘how’ the work design should be and the processes involved in successfully designing or redesigning work (Parker & Wall, 2001). For this reason, methods are needed to support participative and integrative systems development in order for organizational requirements and options and critical work characteristics to be considered alongside technical opportunities (Eason, Harker & Olphert, 1996, p. 418).

Besides existing approaches of stress-oriented job analysis (Zapf, 1993) and comprehensive preventive health strategies (Bamberg et al., 1998; Winnubst & Diekstra, 1998), special methods supporting the integrated design of work systems have been developed and empirically evaluated in the recent past (e.g. Blyth, 1995; Carroll, 1995; Beyer & Holtzblatt, 1998; Nadin, Waterson & Parker, 2001; Waterson, Older-Gray & Clegg, 2002; Hamborg, Schulze & Sendfeld, 2007). These methods focus on the question of task and function allocation between humans and between humans and the new technologies. They share the following characteristics.

In the first step, the actual state of a given work system is evaluated by means of task, job and requirements analysis. Analysis mainly focuses on the identification of tasks, workflows and stakeholders. Second, a vision is generated representing the future work system in consideration of the technology to be implemented. The vision specifies how the system will work after the implementation of the new technology, the related job design implications and the associated organizational structure and the roles that exist within that structure and the organizational arrangements to be adopted (Waterson, Older-Gray & Clegg, 2002). The design methods outlined differ concerning the way in which the design vision is represented. While some of the methods use graphical representations (Blyth, 1995; Beyer & Holtzblatt, 1998; Waterson, Older-Gray & Clegg, 2002; Hamborg, Schulze & Sendfeld, 2007), others make use of narrative representations, especially scenarios (Carroll, 1995; Nadin, Waterson & Parker, 2001), or tabular representations (Waterson, Older-Gray & Clegg, 2002). The representation of the future work system is used to support problem-solving tasks associated with the design of a new work system (e.g. identify and decide on allocation options or job demands) as well as to communicate design ideas to the employees involved and to provide a means to evaluate the design ideas.
Most of the methods include participatory evaluation guided by work design criteria (Nadin, Waterson & Parker, 2001; Waterson, Older-Gray & Clegg, 2002; Hamborg, Schulze & Sendfeld, 2007). With regard to the theoretical background, some of the methods follow the socio-technical systems approach (Nadin, Waterson & Parker, 2001; Waterson, Older-Gray & Clegg, 2002) or action theory (Hamborg, Schulze & Sendfeld, 2007), while others are rather pragmatic approaches (Beyer & Holtzblatt, 1998).

**User-Oriented Hardware and Software Design**

Inappropriate hardware and software design may be considered an important instance of ‘barriers to task fulfilment’ (Semmer and Meier, this volume), causing ‘regulation obstacles’ and especially regulation difficulties (Frese & Zapf, 1994), as well as human errors, and consequently stress reactions. Therefore the design of usable software represents a means of stress prevention. The design of usable software is the topic of usability engineering (Nielsen, 1993).

*Usability engineering* is concerned with the systematic integration of methods and techniques of building usable software in the system development process. It can be characterized as a process that covers the definition and the measurement of product usability in general (Wixon & Wilson, 1997, p. 654). Usability engineering requires a software engineering model, which allows revisions and feedback loops. These models include prototyping approaches, iterative system design and user participation (Gould, 1988; Mayhew, 1999; Wixon & Wilson, 1997). Models of usability engineering are often subdivided into three phases (Gould, 1988; Mayhew, 1999; Nielsen, 1993).

**Phase 1: analysis and specification**

The first step – the ‘Gearing-Up Phase’ – starts with preparatory activities, such as choosing general principles for the design, for example, relevant standards, development models and tools. In the next step, the ‘requirements analysis’ focuses on the characterization of users and the set-up of user profiles; additionally, tasks and workflows have to be analyzed. The information obtained is used to plan the activities of ‘work re-engineering’ and for the design of the user interface. Analysis and design activities for job and software design have some overlap here (see previous section).

**Phase 2: iterative development**

The results of the preceding phase are used to design the organizational and workflow part of the system. In this phase, it should be remembered that the design and introduction of computer systems are considered part of the job design and should therefore be seen in an organizational context (Zapf, 1995, p. 72; see above ‘participative job and task design’). Conceptual models of the software are developed which can be used to produce early prototypes, for instance, paper and pencil prototypes or mock-ups. Using an iterative and participative design approach, the prototypes are evaluated and changed continuously by means of user testing (Rubin, 1994) or inspection methods (Nielsen & Mack, 1994). This helps to identify and remove major usability problems. The evaluation (re)design cycle is repeated until the goals of the user-centered design are met. It is recommended to utilize user participation in all phases of the design process (see ISO 13407, 1999). The product can be evaluated to ascertain whether it fulfills the user-oriented requirements and/or whether it is in accordance with other international standards, such as ISO 9241 (for an overview of software evaluation, see Gediga et al., 2002).

**Phase 3: system installation**

©numerons
The final phase concerns the system installation and user training. Furthermore, acceptance of the system has to be assured, and system support and maintenance must be organized. Software evaluation procedures in the application phase have to be planned in order to obtain feedback about the usability of the system. This information can be used to design new releases. It may be necessary to revise the system after a certain period of application. In such a case, a new version of the software should be designed corresponding to the principles of the phases of usability engineering.

Furthermore, the design of software and especially the human–computer interface should consider knowledge from the research field of human–computer interaction (Helander et al., 1997; Shneidermann & Plaisant, 2005). We cannot give a detailed overview at this time, but some important design aspects should be mentioned. The design – or redesign – of software systems should avoid too much complexity (Shneidermann & Plaisant, 2005). A reduction of complexity, while maintaining sufficient features of the system, may be achieved by the modularization of the system, for example, into task-related components. Complexity, moreover, may be decreased if software systems are adaptable to task and user requirements (Greif, 1994; Haaks, 1992). To anticipate and minimize errors, a consistent system structure and design, unambiguous and clearly available feedback about the state of the system, and the reversibility of actions should be realized (Brodbeck & Rupietta, 1994; Norman, 1983, 1988; Rasmussen & Vicente, 1989). Zapf (1995) emphasizes that tools supporting error handling can contribute towards coping with stress. In particular, he mentions backup files, undo functions and context-sensitive help.

Adequate Training Programs and Personal Help Networks

After implementing new technology, most organizations offer professional training programs for their employees. Participants are expected to acquire computer knowledge and skills through these training programs. Often the main principle of these training programs is to provide detailed instructions on correct task solutions and to prevent participants from making errors (cf. Keith & Frese, 2008). However, since human errors occur frequently in human–computer interaction (see above section 11.2.3), it is vitally important to train employees in the detection and management of errors (Frese, 1991b). Users should not always fall back on support hotlines or their team when they face a problem that they can try to manage themselves. However, if the problem is too complex or if the consequences of errors cannot be eliminated, novices in particular should seek personal help. Like Carroll and Mack (1983), we tried to activate self-organized exploratory behaviour in the learning process using minimal guidelines for self-instruction instead of handbooks and teacher-centered instruction methods. Since we concentrated especially on the exploration of error situations, we call our learning concept ‘exploratory error training’ (Greif, 1986, 1994). A similar approach called ‘error management training’ has been introduced by Frese and his co-workers (see Irmer et al., 1991).

The main characteristics of ‘exploratory error training’ are that participants are not only encouraged to choose learning tasks themselves and to explore software systems actively, but also to explicitly make errors. Heuristics for diagnosing and coping with errors are integrated systematically into the training program. Moreover, the concept intends to cultivate social support and establish personal help networks by encouraging trainees to ask colleagues for help in error situations.

In addition, we recommend the design of learning environments, which support active and successful self-organizing learning activities when interacting with new and often continuously changing technologies. For practical use, the initial design of exploratory learning environments that are well

©numerons
suited for different learners is a rather difficult task. Our solution is to combine the design of minimal guidelines for self-instruction and exploratory learning tasks. We allow for individual differences. Individuals can choose between learning resources and can determine the level of system and task complexity, as well as the individual speed of learning. According to theory (Greif & Keller, 1990), exploration should facilitate the development of skills and self-efficacy. This could encourage future exploratory learning, creativity and role innovation (Farr & Ford, 1990; Englehardt & Simmons, 2002).

Exploratory error training and self-organized learning approaches have been evaluated in several experimental studies, as well as in practice (Greif, 1994). The results show clearly that most computer novices, after exploratory error training, are able to perform complex tasks successfully. Evidence from a follow-up study demonstrates that, after training, most subjects were able to learn new complex software systems quickly on their own (Greif, 1994). One strength of self-organized learning is that it initiates personal help networks and social support between colleagues.

Error management training involving active exploration has also shown better effects on performance, and seems to be better suited for promoting the transfer to novel tasks in contrast to error avoidance training (Keith & Frese, 2008). There seems to be evidence that performance differences are mediated by emotion control and metacognitive activities (Keith & Frese, 2005).

5.b. What relationship do you see between leadership and workplace stress? What measures can be taken, in spite of people’s resistance to change, to manage organizational renewal? 15

Reference:

LEADERSHIP AND STRESS

Some of the external factors that can cause pain in organizations are threats from competitors, declining profits, decreasing market share, scarcity of resources, deregulation, technological demands, and problems with suppliers and customers. Examples of internal pressures are ineffective leadership, morale problems, a high turnover of capable people, absenteeism, labor problems, increased political behavior in the company and turf fights (Kets de Vries, 2001a).

Because of the importance of leadership to organizational functioning, we are going to focus on the relationship between leadership and stress and look at it from two different perspectives. First, we will talk about stress associated with playing a leadership role in an organization and then examine how the level of stress experienced by employees in an organization may be related to the way leadership executes its role. Stress at the individual level may transform into stress at the organizational level; dysfunctional leadership may convert into free-floating paranoid and depressive anxiety within the organization as a whole (Jaques, 1974). We start by looking at the psychological costs of ineffective leadership at the individual level and go on to explore how this translates into organizational stress.

Kets de Vries, Korotov and Florent-Treacy (2007) argue that recent changes in society and the world of work have contributed to a significant rise in the psychological pressures of leadership. For example, Coyne and Coyne (2007) suggest that “the mere arrival of a new organizational leader represents a high level of stress for the various constituencies in the organization including the new boss.” There are a number of factors that contribute to this:
1. **Loneliness at the top.** With an executive’s progression along the career and responsibility ladder, there is an inevitable change in the composition of his or her network. Old relationships become difficult to maintain, as the pressure of the position demands the establishment of many new connections without the luxury of time. The development of trust between people doesn’t happen overnight; it takes time.

2. **Feeling envied.** Inevitably, people at the top become objects of envy in organizations and societies. Recent discussions about the need to curb the earnings of the people at the top of organizations in Europe initiated by leaders and government members in a number of countries are welcomed by many, despite the fact that the pay gaps between the highest and lowest paid in Western European companies are among the smallest in the world (Thornhill, Milne & Steen, 2008). Some leaders may find being an object of envy highly disturbing and stress inducing.

3. **‘Now what?’** The race to the top requires a lot of effort and energy. However, when an executive reaches a position of significance, identifying the next goal can become a major headache. How much further do they want to go? How much more responsibility, fame, challenge, money, etc., do they want? Wondering whether enough is enough or whether they should go for more can be a major source of stress.

To the person in the executive corner office, the ‘now what?’ crisis is particularly acute, given trends in executive turnover at the top. A recent Booz Allen Hamilton study by Lucier, Wheeler and Habbel (2007) suggests that in the period from 1995 to 2006 there was a 59% growth in annual CEO turnover. Within the same period there was a dramatic 318% increase in performance-related involuntary turnover. In 2006 almost one in every three departing CEOs left involuntarily, a surge from only one to eight in 1995. The tension of high expectations and an unstable future is contributing to the stress levels of senior executives.

4. **Being watched.** Various social constituencies pay significant attention to the lives of people who run organizations. From paparazzi to government officials, from investment analysts to business school professors, and from journalists to stand-up comedians, lots of people make a living out of observing leaders of organizations. They are all very good at pointing out the mistakes these executives make and their and their organizations’ misfortunes. With every action under such severe scrutiny, leaders often find themselves having to check every word with their lawyers and public relations professionals before they open their mouth. Authentic behavior and actions become a luxury. Corporate scandals, and the dubious behavior of some of the world’s business elite, will only lead to increased attention being paid to people at the top in both the public and private domain.

5. **Fear of losing power.** High-level positions bring a lot of power and unprecedented opportunities. However, power soon becomes very addictive (Kets de Vries, 2006) and the fear of losing something that might have been difficult to obtain can be deeply stressful. In some cases, people threatened with potential loss of power engage in malevolent acts to hang on to it.

6. **Guilt.** At certain times in their career, many executives become aware that the important people around them – including close family members and friends – have made great sacrifices to get them where they are. Some of these sacrifices are often irreversible. The executive may feel guilty about the cost of his or her success. It may have alienated the family.

©numerons
7. **An ever-steeper learning curve.** In a knowledge-driven society, many learned competencies become obsolete at the speed of light. Executives often find it difficult to accept the need to learn new things, and, more importantly, to unlearn some of the things that brought them success in the first place. The challenge of unlearning old things and learning new ones is exacerbated by the fact that executives have less and less discretionary time as they progress along the leadership ladder. There are few structured learning opportunities for people at the top that simultaneously challenge the individual and create a safe environment for growth and development (Korotov, 2005).

All members of an organization are intimately affected by the actions or inactions of those at the top. Many senior executives are genuinely unaware of how their behavior may impede healthy functioning in the organization. Not only do they fail to realize how stress inducing their behavior can be, they often have no idea how to manage their own stress level. This lack of self-awareness can seriously affect performance throughout the organization (Kets de Vries et al., 2007).

Kets de Vries (Kets de Vries & Miller, 1984; Kets de Vries, 2006) has identified a number of constellations of neurotic executive behaviors contributing to elevated stress among followers:

1. **The dramatic leader** constantly seeks attention and craves excitement, activity and stimulation. Such a person is often touched by a sense of entitlement and tends toward extremes.

2. **The suspicious leader** is extremely vigilant, constantly on the watch for possible attacks and personal threats, and always prepared to counter a personal attack or an attack on the organization. Hypersensitive and distrustful, such leaders attempt to obtain the full control over what is going on in the organization and become overinvolved in analysis and decision-making processes.

3. **The detached leader** is withdrawn and uninvolved in the organization’s present and future. He or she reduces interaction with organizational members and the outside world to a minimum. Decisions are often vacillating and inconsistent.

4. **The depressive leader** often lacks self-confidence and is plagued with serious self-esteem issues. Self-involved, a depressive leader may be ignorant of the needs of followers, clients and suppliers. Lacking energy, force and drive, he or she may tolerate mediocrity and scare away dynamic and hopeful followers.

5. **The compulsive leader** dominates the organization from top to bottom, insisting that everyone conforms to strict rules developed at the top. Dogmatic or obstinate, a compulsive leader is obsessed with perfectionism, detail, routine and rituals.

Because organizational culture is highly susceptible to the influence of leadership behavior, neurotic leadership patterns lead to toxic organizational cultures – and vice versa. Neurotic leadership patterns trigger social defences in followers, diverting energy away from attaining organizational goals. Stress in the organization makes employees question the fundamental purpose of the organization. Existential anxiety of this kind accelerates all sorts of dysfunctional organizational processes, such as unrealistic ideals, toxic corporate cultures, neurotic organizations, or problems with motivation. Within such a work environment, people experience negative emotions, become alienated, and drift with no sense of direction. A dysfunctional culture like this can impede any remedial action on the part of senior executives. Even if they sincerely want to improve organizational health, they don’t know how to go...
about it. This kind of vicious circle can only be broken by creating a culture of purposeful performance – a concerted effort towards organizational renewal.

But even if most organizations accept that they must either change or die, a remarkable number of change initiatives fail (Beer & Nohria, 2000). The first critical step is to develop the leader’s awareness of the kind of leadership behavior that has a negative impact on the organization’s membership. But many leaders are sadly reluctant to seek and receive honest feedback about the impact their behavior has on their subordinates. What measures can be taken, in spite of people’s resistance to change, to manage organizational renewal? How can leaders take advantage of their adaptive capacity to turn their organizations into great places to work?

ORGANIZATIONAL CHANGE MANAGEMENT

Various authors (e.g. Beer & Nohria 2000; Palmer & Dunford, 2002) have suggested two approaches to organizational change. The ‘hard’ approach is where shareholder value is the only legitimate measure of corporate success; the ‘soft’ approach is to develop a corporate culture that enhances human capability through individual and organizational learning. According to Beer and Nohria (2000), change can be managed through engagement in controlling activities and shaping capabilities.

Drawing on this polarity, organizational change processes may be induced by transformations in the ‘real’ (external) world, such as modifying existing technology, or changing organizational structure and policies, as well as in the inner world of the individuals (Amado & Ambrose, 2001; Kets de Vries, 2001a, 2006). There is an identifiable continuum in this process, ranging from intended to unintended change outcomes (Palmer & Dunford, 2002). Intended change presupposes rational modifications. In this case, change agents assume that by introducing planned (and rational) changes, the entire organization will change in the intended direction. Unfortunately, changing organizational structure, policies or making rational decisions may generate only the illusion of order and control. Usually, the CEO and other influential executives assume that employees will internalize the new rules and regulations they prescribe and the organization will change. However, employees are not necessarily rational human beings but subject to a considerable amount of out-of-awareness behavior.

Organizational defensive patterns cannot be changed merely by making structural changes (Argyris, 1993; Kets de Vries, 2001a, 2006). The introduction of structural changes only scratches the surface of any transformation effort, because as we have already intimated, there are changes that cannot be easily and obviously manipulated by the power holders in an organization. These are changes in the employees’ inner world – the way they perceive reality. Considerable social interaction is needed among organizational participants to bring about mindset change. Because a large amount of behavior takes place at an unconscious level, mindset changes are not easily accomplished. If organizational leaders want to be effective, however, they have to pay heed to these processes.

The organizational change process that we are going to illustrate is based on a model (Kets de Vries, 2001a) that recognizes the interplay of a number of variables:

- Change implies intended outcomes, characterized by the introduction of directed actions in the ‘real’ world, such as introducing new technologies (including web-based ones), activities or structures.
- Change requires a new interpretation of events and the construction of shared meanings among participants at all levels of the organization, a process that can be facilitated through group coaching experiences.
To make organizational change effective, we need to explore the unconscious in daily work events. We need to understand what is really happening in the organization.

All too often, senior executives ignore the inherent tensions between the ‘hard’ and the ‘soft’ issues. Beer and Nohria (2000) and Kets de Vries (2001a) maintain that there are ways to resolve these tensions, and that they require goals that embrace the paradox between controlling activities and shaping capabilities. To enable organizational change, leaders must set directions from the top that engage all the people in the organization, and simultaneously address the ‘hard’ issues (structures, technology and systems) and ‘soft’ issues (corporate culture and values). In the next section we illustrate how such a transformation process can be implemented within an organization.

TRANSFORMATIONAL PROCESSES

The role of senior executives in leading organizational change processes is to provide supportive leadership that fosters a shared mindset and new behaviors. They must also ensure that changes are institutionalized in the daily social practices of the organization. Kets de Vries’s (2001a, 2006) model of change provides a roadmap that helps management overcome organizational resistance by using a participative approach to engage the entire organization in the change process. Referring to the model, we will examine the four stages of the organizational change processes – creating a shared mindset, changing behavior, institutionalizing change, and transforming the organization.

Creating a Shared Mindset

The first leadership task is recognizing the need for change. To get the process of change into motion requires a strong inducement in the form of pain or distress. At this point, leaders may face the unknown with multiple stress-inducing fears: am I doing the right thing? Will my team support my decisions? Am I able to make unpopular decisions? Am I able to lead the change process? How am I going to ‘sell’ my project? Even when the need for change has been acknowledged, people may still need a push that converts their fears into something actionable.

Bennis and Thomas (2002) use the term ‘crucibles’ to describe the often traumatic negative events (life-threatening episodes, periods of self-doubt) that leaders experience and which force them to confront change. Crucible experiences unleash deep self-reflection and a process of trial and error that helps them examine their distinctive leadership abilities. Astute senior executives will take advantage of the learning potential of ‘crucibles’ by making appropriate developmental interventions within the organization. But they cannot do it alone. Key power players need to build strong alliances and obtain social support with other power players in the organization. Social support has been identified as the single most important factor in helping an individual overcome barriers to change (Kets de Vries & Balazs, 1998). To provide social support, organizations may need to create safe environments for managing personal and organizational change. But before someone can change direction, he or she has to stop.

Executive coaching or transformational executive development programs provide safe environments for structured feedback. Such feedback tools, particularly 360-degree instruments that touch on psychodynamic processes, allow a leader to observe and reflect, to identify behavioral patterns that contribute to personal and organizational stress, and to start thinking about change. These transformational programs, which frequently take the form of in-company workshops, may foster behavioral change that helps executives become more effective in organizational and personal settings.
A significantly higher level of self-awareness is one of the usual outcomes of such programs (Kets de Vries et al., 2008). Change facilitators in these transformational programs are some social practices (such as group coaching, networking and 360-degree feedback processes), the elaboration of action plans, the exploration of new selves through a test-and-learn process and the creation of a learning community that supports results over the long term (Kets de Vries et al., 2008).

Members of the senior executive team should take the lead in participating in these transformational group interventions. They will have the opportunity to deal with otherwise ‘undiscussable’ issues and establish a shared leadership focus. In addition, these interventions may build a richer, deeper understanding of the leaders as individuals and the real reasons for their behavior. The main objective of participating in transformational workshops is to develop a shared mindset characterized by collective ambition, commitment and motivation. Participation by a group of senior executives may help them recognize the need for action and acquire an external focus, critical at this stage of the transformation process (Kets de Vries & Balazs, 1998). The programme can elucidate the organizational change agenda at several different levels:

1. A discussion of the core values and desired culture of the organization. In addition, a gap analysis will be needed, comparing what is desired and what is really practised in the organization. Effective organizational cultures are strategically appropriate, guide day-to-day employee behavior in a tangible way, and promote adaptability and change.

2. The development of a distinctive leadership brand. A leadership brand provides focused leadership through a combination of innovative skills, executives’ team dynamics and excellence in execution. It maintains and promotes the distinctive competencies of the organization.

3. Clarification of the developmental leadership work that needs to be done to make executives fit the corporate culture and to enhance and maintain the distinctive, competitive advantages of the organization.

Transformational programs must take place within a holding environment that helps lower defensive reactions, build mutual respect, foster transparency and establish trust. The interventions facilitate insights that illuminate hidden areas of the organization that need to be taken care of as a precondition for change. At the same time, they help build agreements about what needs to be changed and how the change process will be enacted. These transformational experiences have the following characteristics:

- Change agents create learning (Wenger, 1998) or transitional spaces (Winnicott, 1989; Korotov, 2005; Kets de Vries & Korotov, 2007) where executives have the opportunity to reinvent themselves, helping them to pick up the threads of stagnated development.

- Through reflection, change agents can bring to the surface and criticize the tacit understandings that have grown up around the repetitive experiences of a specialized practice and can make new sense of uncertain situations (Schön, 1983). A process of learning is promoted by the creation of meaning from past or current events, which serves as a guide for future behavior (Daudelin, 1996).

- The creation of transitional space (Kets de Vries & Korotov, 2007) allows executives the opportunity to play (Schrage, 1999). Innovative, creative thinking is not a rational or logical process; it is much more like playing, exploring and trying new possibilities.
In a transitional space, executives feel free and safe to express ideas and feelings. Public commitments consolidate the process of internalization and increase their motivation towards action.

Transformational group experiences of this sort bolster trust, collaboration and commitment among the organizational participants. There are three types of transitional experiences involved in the process: (i) relinquishing earlier, dysfunctional, but still valued roles, ideas and practices; (ii) creating, finding and discovering new, more adaptive ways of thinking and acting; and (iii) coping with the stress that accompanies the changing conditions derived from both outside and within the organizational system. These transitional experiences can help set directions through focused leadership and a new, more coaching-oriented mindset.

Effective leaders recognize that employees need support when they are in the process of reinventing the organization. Creating a coaching culture is the ideal way to align management behavior with business objectives and develop people’s emotional intelligence, encouraging continuous learning and recognizing achievements by providing constructive feedback. The major turning point comes when the organization’s leadership moves from being autocratic to authoritative. The role of the leader changes to that of being a more autocratic figure to that of a coach – a person who works with employees to help them discover the answers (Daudelin, 1996).

Changing Behavior

Employees’ participation and involvement are the key success factors for organizational commitment. People at all levels of the organization need to be involved in the change effort (Kets de Vries & Balazs, 1998). The next leadership task is to make sure that people at all levels of the organization have internalized the change.

Leaders recognize that the will to change is not enough; they have to work to promote the appropriate skills that will adjust the repertoire of behaviors of all organizational members. Changing behavior starts with consolidating new ways of doing things to gain competitive advantage.

A sense of direction will have been achieved through the reflection process described earlier. With this focus in place, the time has come to align the important players in the organization behind the leadership’s new vision for the future. Leaders need to engage and empower their subordinates by transmitting that vision, the core values and desirable new behavior patterns. Repetition of the change message and implementation of systems, structure and activities will aid the process of internalization. For a change process to be effective, executives have to be convinced both cognitively and emotionally of the advantages that the change effort will bring (Kets de Vries & Korotov, 2007). Change will be accompanied by many fears. Some executives may be fearful of uncertainty (do I need to do now?), obsolescence (everything I know is useless), self-doubt (am I capable of change?) and lack of significance (do I like these changes?). In the same way that the transformational workshop created a safe space for the transition process, the leadership of the organization needs to manage stress levels by making the organization a safe holding environment. The most salient role of leaders at this point is that of coach, enhancing the individual change process through trust and support (Kets de Vries, Korotov & Florent-Treacy, 2007).

Ambivalence is a key obstacle to change at this stage: people both want and don’t want change. Miller and Rollnick (2004) suggest motivational interviewing as a tool for helping people resolve their ambivalent feelings and move on. Leaders can help employees to explore the underlying cognitive and
affective processes that trigger commitment and effective change. Worst-case scenarios have to be explored. Confronting and resolving ambivalence may create a tipping point to bring the executive on board (Kegan & Lahey, 2001). Informal networks and symbolic actions are inseparable from social support. Leaders must make sure that people at all levels of the organization are committed to the new way of doing things and that everyone is working in the same direction. Outputs at this stage are a focused/coaching corporate culture, and setting up appropriate systems, technology and structure for its long-term sustainability. Symbolic actions, which integrate learning with sense-making (Schwandt, 2005), provide a framework for articulating the change initiative.

Institutionalizing Change: Building Competencies, Practices and Attitudes

Leaders need to institutionalize change by building new competencies and practices. Training and development are facilitated through skill-building exercises and other on-the-job practices (e.g. mentoring, job shadowing, job rotations or job assignments).

Practice is crucial at this point and leaders need to recognize the immense learning potential hidden in everyday experience. To what extent has change been actionable? What is actually happening in the organization? Leaders must keep abreast of the day-to-day effects results of the change effort. They have constantly to evaluate the desirability of outcomes and introduce corrective action if necessary. Desired outcomes must be rewarded in bitesize portions, making the overall task more palatable. Sanctions have to be put into place for undesirable behavior.

Transforming the Organization

At this point, the successful functioning of new behaviors and ideas should be apparent to all organizational participants. Obvious indicators of this are high levels of job satisfaction and productivity. But the good/bad news is that the change process is never-ending. Organizations need to build an innovation-driven culture that confronts change in a natural and incremental way: a coaching culture will facilitate the adaptability this implies. Leaders will need periodically to revise their assumptions and gather data from the organization to identify new requirements for change.

Having transcended the leadership crisis and established a focused, inspirational and coaching organization, participants will be bound in a compelling connective tissue of vision, mission, culture and structure. There will be clear leadership focus and the organization will be in the mood for change. At this point, organizations become authentizotic (coined from the Greek words for authenticity and vital to life) entities, a key quality of which is continuous self-renewal (Kets de Vries, 2001b). The action-reflection processes permit individuals and organizations to adapt continuously to the demands of change.

Reflective approaches require a coaching executive role (Daudelin, 1996). This supposes that the safe transitional space will, in the long run, be expanded to become a permanent feature of the system, part of its culture (Amado & Ambrose, 2001). The authentizotic organization finds meaning in work and invests trust in its people. It takes pride in what it is doing and the people who are doing it. It is this that makes the difference and makes an organization a great place to work.

5.c. If entrepreneurs are so reluctant to implement statistically grounded models, leading to optimal results, how can they ever make adequate decisions? Critically evaluate. 15

©numerons
Reference:

Cognition in Psychology and Entrepreneurship

“Why, you never just stop like this. I mean, if the initial investment hasn’t paid off and more money is required, you keep investing until you pull the project through; especially, if you feel confident about the whole thing.”

The entrepreneur spoke with deep conviction. I ought to have been surprised by the reasoning, but I was not. I was collecting data on a project concerning escalation of commitment and virtually every entrepreneur I had met told me the same thing; money already invested was never regarded as sunk costs. Entrepreneurs were quite prepared to invest additional funds, even if the future of a project was uncertain. According to the decision theories of rational choice, this was a demonstration of sunk cost fallacy; in other words, an irrational and erratic decision behavior, which subsequently leads to escalation of commitment. Instead of terminating a failing project, decision-makers continue investments, “throwing good money after the bad.” This is a common decision bias, which has been studied extensively (Arkes and Blumer, 1985; Staw and Ross, 1978; Staw, 1981; Brockner, 1992).

Thus my lack of surprise was based on solid grounds of empirical observation and explained by theories of rational choice. The only thing that could be surprising was the persistence of the bias. As I have mentioned earlier, all the participants in the study regarded their decisions to continue investments as perfectly sound. Since Socrates, Plato, and Descartes unaided decision-making was regarded as fault-prone and inconsistent (Cohen, 1993; Dreyfus and Dreyfus, 1989). Yet, if we look closer, this assumption may lead to a problem. Despite the existence of numerous, well-developed logical theories of decision-making, which ought to yield optimal results, decision-makers in real life almost never follow the prescribed procedures. Examples from all fields of human activity abound; people, even if they have received substantial training in applying statistical rules to decision-making, would fail to recognize a task as requiring statistical approach if this is not stated explicitly. This finding is confirmed by numerous studies of decision-makers being trained to use analytical models (cf. Payne et al., 1988; Zakay and Wooler, 1984), as well as studies on bias reduction training (cf. Bukszar and Connolly, 1988; Choo, 1976). Moreover, according to research in biases and heuristics rational decision-making is counterintuitive (Kahneman and Tversky, 1982).

Knowing all this, I could not help asking questions: what makes rational decision-making procedures counterintuitive and decision-makers reluctant to follow them? And if entrepreneurs are so reluctant to implement statistically grounded models, leading to optimal results, how can they ever make adequate decisions? Preparing for data collection, I have reviewed several broad theoretical perspectives concerning decision-making, such as theories of rational choice, the concept of bounded rationality, and naturalistic decision-making.

Theories of Rational Choice

One of the best known among the early normative models of choice is called maximization of subjective expected utility (SEU) created by De Finetti (1964) and Savage (1972). SEU does not imply procedures for decision-making; probabilities and utilities are defined by a decision-maker, according to a choice among gambles, and do not guide the choice (Cohen, 1993). In other words, the decision-maker is free to choose the desirable outcome of a gamble (utilities) and assign the probabilities of the desired outcome (weigh them) before making a decision.
The model was tested in laboratory experiments through the series of gambles in an artificial environment. It imposes mathematical consistency constraints on the participants’ judgments but make no reference to actual mental procedures. So, some psychologists have questioned the cognitive plausibility of SEU even when the model fits behavior. According to Lopes (1983), for example, the real decision-makers are less concerned with an option’s average outcome than with the outcomes that are most likely to occur.

Normative theories such as subjective expected utility was succeeded by another approach, most often called rational. It is critical of ordinary (intuitive, unaided) reasoning and promotes more valid methods of decision analysis, originating as a system of techniques for applying decision theory in management consulting (Ulvila and Brown, 1982). Unlike SEU that provides purely formal (mathematical) constraints for decision-making, decision analysis specifies procedures: Bayesian inference (for drawing conclusions or making forecasts based on incomplete or unreliable evidence), decision-tree analysis (for choices with uncertain outcomes), and multi-attribute utility analysis (for choices with multiple competing criteria of evaluation) (Brown, et al., 1974; Keeney and Raiffa, 1976). The problem-solving strategy is to deconstruct a problem into elements, to make the appropriate experts or decision-makers subjectively assess probabilities and/or utilities for the components, and then to recombine the components by the appropriate mathematical rule (Cohen, 1993).

The main attention within this approach is focused on classification of a constantly growing list of biases, defined as deviations from the normative theory (Anderson, 1990). Researchers hardly strive to provide alternative psychological explanations (Shanteau, 1989), to study systematically how and when the postulated biases occur (Fischoff, 1983), or to develop underlying theoretical principles and links with other areas of psychology, such as problem solving and learning (Wallsten, 1983). Few existing exceptions (cf. Klayman and Ha, 1987) do not affect the general trend.

As we can see, decision-making models of rational choice, being mathematically and statistically consistent, would indeed lead to optimal results. Also in this volume, Chapter 12 by Monsen and Urbig provides an interesting discussion related to rational choice theories and decision-making as seen from the economic perspective. Yet real-life decision-makers, including entrepreneurs, do not implement these models. Quite often their thinking is based on heuristics, i.e., cognitive shortcuts or “rules of thumb.” These are simple decision techniques, which make use of a limited number of cues and uncomplicated decision procedures.

**Bounded Rationality**

Decision-makers’ propensity to ignore complex analytical procedures in favor of relatively simple rules has been long known to the theorists. As I have already mentioned, such behavior has been mostly considered erratic; normative models discussed above would prescribe following the rules of mathematics and statistics in order to reach adequate decisions.

A brilliant, Nobel Prize-winning attempt to explain such seemingly irrational behavior was made by Herbert Simon (Simon, 1955). Introducing the concept of bounded rationality he postulated the following:
• Human computational capacity or intellectual ability is not unlimited. This makes use of statistically based theories of choice, which require processing the large amount of data through complex calculations quite problematic.

• Rational theories of choice and decision-making imply that (a) an optimal decision exists and (b) it can be found or calculated, usually through complex procedures. However, real-life decision-makers seldom strive for the optimum; quite often they are contented with the satisficing decisions. These options, although suboptimal, the “next best,” nevertheless satisfy the requirements of the decisionmaker’s or the decision task.

By introducing the concept of bounded rationality Simon has firmly stated that “natural,” unaided decision-making was not inherently erratic, but quite capable to produce adequate, good enough if not optimal, results. In the subsequent research Simon developed the idea of decision-makers’ expertise being intimately connected with their ability to make adequate decision, i.e., those meeting requirements of the decision situation (e.g., Chase and Simon, 1973).

**Naturalistic Decision-Making**

About 20 years ago study of decision-making had taken a new turn. Following Simon’s lead, researchers in cognitive psychology moved from normative theorizing (how decision-makers ought to think, as in the theories of rational choice) and compiling ever-growing lists of decision biases to investigating the contingencies and antecedents of real-life decisions.

Proponents of this approach named it naturalistic decision-making (NDM) to highlight its attempt to, first, faithfully describe the empirical process of decision-making and then to evaluate it as being adequate or non-adequate, depending on, e.g., decision-maker’s goals or requirements of the decision task.

NDM is versatile and incorporates numerous models. Lipshitz (1989) views decision as enactment of an action argument. Montgomery (1983) introduces a dominance search model, and Pennington and Hastie (1988) see decision-making as constructing a plausible explanatory model. Hammond (1988) is the author of cognitive continuum theory (CCT), and Noble (1989) discusses a situation assessment model. A decision-cycles model is introduced by Connolly (1988). All of these models were developed by different researchers using different methodologies to study quite different questions in a variety of realistic settings.

Despite the great diversity of models within the NDM paradigm, it is possible to distinguish a few themes that make a core of NDM approach, as described by Lipshitz (1993):

• Decisions in real world are made by many a way, which implies diversity of form within the approach. This diversity shows that the models agree on the futility of trying to understand and improve real-world decisions by means of a single concept, such as maximizing expected utility. On the other hand, diversity of forms is partly determined by the type of decisions studied.

• Situation assessment, or a “sizing up” and construction of a mental picture of a situation, is a critical element in decision-making. Unlike laboratory experiments, where problems are defined and presented by the researcher, the real-world problems have to be identified and defined by the decision-maker. Some researchers connect situation assessment directly to selections of actions; others suggest that it is a preliminary phase that initiates a process of alternatives’ evaluation. In general, the majority of models suggest that making decisions in real-life settings
is a process of constructing and revising situation representations as much as (not more than) a process of evaluating the merits of potential courses of action.

- Decision-makers often use mental imagery. The rational approach presents decision-making as a calculative cognitive process (that is, weighing the costs and benefits of alternative courses of action). NDM models emphasize different cognitive processes that are related to creating images of the situation, most notably categorization (for example, of the situation), the use of knowledge structures (for example, schema), and the construction of scenarios (for example, in the form of storytelling and mental modeling).
- As NDM is context-specific, understanding the context surrounding the decision process is essential.
- Normative models of decision-making must derive from an analysis of how successful decision-makers actually function, not how they “ought” to function.

According to the naturalistic approach, prescriptions cannot be separated from descriptions because (a) some of the methods used actually make a good sense despite their imperfections and (b) people normally find it difficult to apply methods that are too different from the ones they would customarily use. The last statement is, however, questionable for two reasons. First, even if decision-making processes are natural, they are not always successful, for example, prescriptions should be derived from best practice. Second, although NDM is context-specific, theoretical generalizing might make the best practice even better (cf. Hammond et al., 1987; Hammond, 1988).

Once again I tried to make sense from the studies I had read. Rational theories of choice are mathematically and statistically sound, but counterintuitive. Real-life decisions are made differently, and that for good reason. Human cognitive abilities do not suffice in making optimal decisions (Simon, 1955) because, unlike theoretical models or laboratory experiments real-life problems and tasks would be unstructured, messy, and complex. Decision goals can be unclear or competing, which makes weighting options (in order to create preference) very difficult. However, strategic management literature (especially its normative models) is often based on principles of rational decision-making and presupposes analytical, highly structured decision behavior through planning (Ansoff, 1987; Miles and Snow, 1978; Mintzberg, 1987). Even though several schools of thought within strategy focus on various aspects of decision-making (from power to emotions [Mintzberg et al., 1998]), departing from the strict, mathematically based models, rational approach is still highly influential.

Yet, as far as entrepreneurship context is concerned, I strongly believe that the applicability of the rational theories would be limited. This approach requires copious amounts of information to be collected. Further, the information obtained has to be processed in accordance with the established analysis techniques to eliminate potential flaws and biases and warrant optimal results. This can be a costly process, as Simon (1979) points out. Moreover, a decision-maker must possess substantial skills in order to perform the analysis correctly (cf. Abelson and Levi, 1985). These factors make it easy to understand the fact that managerial decision-making often falls short of the strict analytical approach (Simon, 1955).

Still, what of entrepreneurs? Moreover, what of cognitive studies within entrepreneurial context? I knew, from my previous research (Gustafsson, 2006), that entrepreneurs vary their cognitive models and far from always adhere to the statistically based models. I also knew that studies of entrepreneurial ways of thinking had already provided important insights, theoretical as well as empirical. Theoretical grounds for studying decision-making of entrepreneurs are now being amassed within the area of entrepreneurial cognition.
Entrepreneurial Cognition

This is a relatively new area within the field of entrepreneurship, based on cognitive psychology as well as on entrepreneurship theory and empirical research. The term “entrepreneurial cognition” was first used by Busenitz and Lau (1996). Some of the first works in entrepreneurial cognition were done in the areas of cognitive biases and heuristics in strategic decision-making (Busenitz, 1992), and in feasibility and desirability perception, planned behavior, and self-efficacy (Krueger, 1993). Almost at the same time entrepreneurial cognition-based concepts were first used to distinguish entrepreneurs from non-entrepreneurs (Mitchell, 1994). Then Palich and Bagby (1995) used cognitive theory to explain entrepreneurial risk-taking, and Mitchell and Chesteen (1995) demonstrated how a cognition-based entrepreneurial instruction pedagogy was superior to the traditional “business plan only” approach to teaching entrepreneurial expertise (Mitchell et al., 2002).

Since 2002 entrepreneurial cognition has become a more streamlined and structured approach within the field of entrepreneurship research. A milestone event was the first entrepreneurship cognition conference hosted by the University of Victoria, Canada. Since then the research agenda, methodology, challenges, and implications have been discussed at the 2005 Second Conference on Entrepreneurial Cognition hosted by the Ivey Business School, University of Ontario, Canada. Besides, Entrepreneurship Theory and Practice devoted three of its special issues to entrepreneurial cognition in 2002, 2004, and 2007.

From the very beginning, entrepreneurial cognition perspective was conceived of as providing a link between the entrepreneur and the new venture creation. Unlike earlier research streams, it focuses not on the personality traits, but on an individual’s cognitive behavior. It introduces a theoretically rigorous and empirically testable approach that systematically explains the role of the individual as well as the context in the entrepreneurial process. This perspective provides an effective tool for probing and explaining the previously unexplained phenomena within the entrepreneurship research domain (Mitchell et al., 2002). Following discussions at the first cognition conference the authors defined entrepreneurial cognitions as “the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation and venture creation and growth” (Mitchell et al., 2002, p. 97).

As entrepreneurial cognition perspective took shape, researchers within the stream were able to formulate its key research question; again summing up the discussions at the Second Entrepreneurial Cognition Conference, the main point of entrepreneurial cognition research was defined as “How do entrepreneurial context and individual cognitive mechanisms interact to create entrepreneurial attitudes, intentions and behaviours that drive new means-ends relationships?” (Mitchell et al., 2007, p. 17). Or, putting it in plain English, “How do entrepreneurs think?” (Mitchell et al., 2007, p. 2).

The 2007 Special Issue of Entrepreneurship Theory and Practice (Mitchell et al., 2007) also provides a comprehensive and up-to-date overview of the perspective. According to the authors, the research question becomes explored in the plethora of research streams within the frame of entrepreneurial cognition. What also unites these perspectives is the strong empirical evidence that, while making decisions, entrepreneurs tend to reject (whether consciously or not) the elaborate and complex procedures of collecting and analyzing data in order to archive the optimal result (as is required by the rational theories of choice, which I discussed earlier in this chapter). Quite to the contrary and not so surprisingly entrepreneurs seem to favor non-analytical cognitive activities. Mitchell et al. (2007) point
out that this way of thinking has now become a research agenda for such streams within entrepreneurial cognition as entrepreneurs’ use of heuristics (Busenitz and Barney, 1997; Simon et al., 2000); entrepreneurial alertness (Gagliò and Katz, 2001); the entrepreneurial expertise approach (Gustafsson, 2006; Mitchell, 1994; Mitchell et al., 2000, 2002); and the effectuation approach (Sarasvathy, 1999, 2001, 2008).

Driving inspiration and empirical foundation for research from the observations of entrepreneurs’ decision behavior in real life entrepreneurial cognition perspective has, in fact, very much in common with other approaches within the naturalistic decision-making paradigm. As we know now, naturalistic decision-making is (as goes from the name) a preferred cognitive approach for people in many areas of life; would entrepreneurs subscribe to it as well?

**Thinking “Naturally” – Thinking Entrepreneurially?**

Entrepreneurship research, especially research within entrepreneurial cognition, provides quite a number of empirical evidence, which testifies that this might very well be the case. Already in 1993 McCarthy, Schoorman, and Cooper found out that in investment decisions, which would seemingly induce rational decision-making, entrepreneurs were quite prone to escalation of commitment, often based on overconfidence. In 1995, Cooper, Folta, and Woo confirmed that while seeking information, entrepreneurs would, again, often depart from rational decision-making and follow principles of bounded rationality instead. Again, overconfidence played substantial role in this process.

Busenitz and Barney (1997) investigated potential differences between entrepreneurial and managerial way of thinking, concentrating on overconfidence and representativeness. Overconfidence is normally defined as decision-makers’ propensity to overoptimistic initial assessment of the situation and their difficulty to incorporate additional information about the situation due to this initial optimism (Fischhoff et al., 1977). Representativeness, in its turn, is a propensity to generalize based on a small, non-random sample (Tversky and Kahneman, 1971, in Busenitz and Barney, 1997), with personal experience being the most common basis for generalization (Kahneman and Tversky, 1982). Not surprisingly, the authors discover that entrepreneurs are much more prone to demonstrate decision biases than managers. In other words, entrepreneurs do think differently than managers and, subsequently, their behaviors differ as well (Busenitz and Barney, 1997).

Risk management is an area thoroughly investigated by rational approaches to decision-making; normative theories of decision-making under risky conditions abound and are widely used. Or are they indeed? Research shows that entrepreneurs, also in managing risks, would rely on different strategies, compared, e.g., to bank managers, as Sarasvathy et al. (1998) pointed out. When bank managers make use of the rational theories in their risk management strategies, entrepreneurs are reluctant to use them.

These findings were subsequently supported in the study of Keh et al. (2002). Here, again, illusion of control and belief in the law of small numbers (representativeness) seemed highly prominent when entrepreneurs evaluated opportunities under risky conditions.

I should also point out that entrepreneurs’ reluctance to use rational theories of choice seems to transcend national and cultural boundaries. Sarasvathy et al.’s (1998) study investigated American entrepreneurs, whereas Keh et al.’s (2002) research was conducted in Singapore. Despite cultural
differences, both studies came to similar conclusions, namely that entrepreneurs, while managing risks, are much more prone to use “non-rational” decision-making.

Before proceeding to discuss further evidence of entrepreneurs departing from rational (or analytical) theories of choice in their decision-making, I would like to give a thought to the following issues: Does entrepreneurs’ non-analytical way of thinking lead to adequate decisions? What factors would permit such “nonorthodox” decision-making to produce adequate results, nonetheless?

Baron (1998) confirms that, due to the peculiar characteristics of their environment (notably, high levels of uncertainty, novelty, emotions, and time pressure) entrepreneurs are apt to demonstrate decision-making biases. The list of these includes (a) counterfactual thinking – the effect of imagining what might have been; (b) affect infusion – the influence of current emotional state on decisions and judgments; (c) attributional style – a tendency to attribute various outcomes to either external or internal causes; (d) the planning fallacy – a strong tendency to underestimate the amount of time necessary to complete a given project, or the amount of work to be performed in a given time; and (e) self-justification – a tendency to justify previous decisions even if they produced undesirable outcomes.

In fact any (and all) of the cognitive processes investigated in Baron’s (1998) paper may be regarded as a harmful decision bias, leading to potentially disastrous consequences. Yet it may not. For example, mental simulations and counterfactual thinking were studied by Gaglio (2004). Following, e.g., Sanna (2000) the author defines mental simulations as “imitative cognitive constructions of an event or series of events based on a causal sequence of successive interdependent actions” (Gaglio, 2004, p. 537). Counterfactual thinking, following, e.g., Roese (1997), is defined as “thinking in a way which is contrary to the existing facts” (Gaglio, 2004, p. 539). Entrepreneurs are quite prone to use both cognitions. But are they harmful decision biases? According to Gaglio (2004) they are definitely not. On the contrary, she regards both mental simulation and counterfactual thinking as useful heuristics, which help entrepreneurs to control the unknown future and to start, at least mentally, shaping the desired outcome. According to Baron (2006) mental modeling plays a prominent role in entrepreneurial thinking; it also distinguishes cognitive processes of expert entrepreneurs from those of entrepreneurial novices. Models produced by expert entrepreneurs are deeper, much more varied, and incorporate cues relevant for the decision task.

The same theme, controlling of unknown and, according to Sarasvathy et al. (2003), even unknowable future, is germane for research on effectuation. Sarasvathy was first to recognize this specific cognition in entrepreneurial setting and is now extensively researching it (Sarasvathy, 1999, 2001, 2008). She posits that “effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means” (Sarasvathy, 2001, p. 245). Sarasvathy had first observed effectuation in 1999 while investigating entrepreneurial decision-making in non-existing markets. Being required to make marketing decisions in the non-existing markets, entrepreneurs would use effectuation, rather than the analytical model recommended by marketing literature (Sarasvathy, 1999, 2001, 2008). Through a given set of means entrepreneurs can pursue one (of several) possible scenario, without a necessity to predict often unpredictable future.

Once again, I have to conclude that entrepreneurs while making decisions are quite prone to depart from the norms of rational decision-making; or, at any rate, from the norms of rational decision-making theories. A cognitive psychologist, especially a proponent of the rational theories of choice, would call such behavior irrational and bias-prone. But is it inadequate? Indeed, although this question has been already asked, it is important and bears reiteration.
When Biases Become Heuristics

What are biases and what are heuristics? Proponents of rational decision-making, as discussed in the first part of this chapter, would define cognitive bias as unaided laymen’s decision-making, which departs from the standard performance as prescribed by, e.g., subjective expected utility model, Bayesian inference, and least squares regression (Mellers et al., 1998). Researchers within this paradigm would use the terms “bias” and “heuristics” interchangeably, to denote discrepancies between the natural cognitive process and the normative rational strategies (cf. Goldstein and Gigerenzer, 2002; Gigerenzer and Murray, 1987). Yet this usage of the term “heuristics” is essentially deterioration of its initial meaning. “Heuristics” is a Greek word, meaning “serving to find out or discover”; this meaning was preserved by Dunker (1945). In later times, researchers, most notably Herbert Simon (1955), would use the term “heuristics” to denote specific strategies of information search and modification of the problems in order to find solutions. Yet, since the end of the 1960s and especially the beginning of the 1970s, following the rise of statistically based models of decision-making, e.g., ANOVA, heuristics became perceived as a poor substitute of sophisticated (and rational) normative strategies of decision-making; at times heuristics was associated with cognitive illusions and irrationality (Goldstein and Gigerenzer, 2002; Piatelli-Palmerini, 1994).

So, are “bias” and “heuristics” essentially the same? Yes, both terms denote cognitive processes that depart from the norms of statistically based theories of choice. Yet, there are connotations and habitual usage. “Bias” has a negative connotation (especially in cognitive psychology literature). The use of heuristics, however, becomes regarded by the growing number of cognitive psychologists as general, common decision behavior; this especially concerns the proponents of the naturalistic decision-making paradigm.

People do engage in the non-rational decision-making, and entrepreneurs, probably, even more so. To this there is ample empirical evidence, as we have seen from the discussion in the previous section of this chapter. Now it is time to find out whether such behavior is adequate; in other words whether it leads to the desired outcomes. Unfortunately, the answer to this question is not straightforward and would depend on a number of factors:

**Theoretical Standing**

As the previous discussion demonstrated, the researcher’s theoretical standing plays an important role while determining whether the use of heuristics leads to adequate decisions. Proponents of statistically based theories of choice in psychology, economics, or strategy would regard any behavior, deviating from these norms, as suboptimal and inadequate.

**Simple Heuristics that Make Us Smart**

Ecological rationality is not an entirely new notion, but the ABC research group has infused it with a new meaning: ecological rationality now means that human decisions are usually fit to the cognitive requirements of a situation (Todd, 2007; Todd and Gigerenzer, 2003; Goldstein and Gigerenzer, 2002; Rieskamp and Hoffrage, 2008). According to the views of the ABC group, real-life, “natural” decision-making normally occurs in the environment, whose cognitive properties are specific. Information may be costly or difficult to obtain (Todd, 2007); benefits of a quick decision may outweigh the costs of making
Making decisions under such conditions people, as often as not, would perform quite well, without a necessity to resort to laborious and time-consuming data collection and complex statistically based analysis. Simple heuristics can perform quite well under such conditions, and they require less information and computation than more elaborate strategies (Gigerenzer et al., 1999). These heuristics are fast and frugal, because they are based on the limited search and non-optimized stopping rule (Goldstein and Gigerenzer, 2002). The ABC group has investigated a number of such fast and frugal heuristics, e.g., recognition heuristic and “take-the-best”; all these cognitive strategies would ignore most of the available information and rely on a few most important cues (at times on a single cue) (Todd, 2007; Todd and Gigerenzer, 2003; Goldstein and Gigerenzer, 2002; Rieskamp and Hoffrage, 2008). Yet despite being that “frugal” these heuristics can lead to surprisingly accurate judgments (Goldstein and Gigerenzer, 2002; Bröder and Eichler, 2006; Rieskamp and Hoffrage, 2008).

**Level of Expertise**

Although use of heuristics is a natural cognitive behavior, as we have seen from the discussion above, its results can (and do) vary. Heuristics made by novices in a field are hardly much better than a guess, whereas heuristically based decisions made by experts are most often adequate (Hammond et al., 1987). In general, experts’ and novices’ information perception and information processing differ immensely, with experts solving problems faster and with fewer errors (Read et al., 2003; Ericsson and Smith, 1991; Patel et al., 1996; Sweller and Cooper, 1985). Parallels in entrepreneurship research for this reasoning can be drawn using studies by Sarasvathy (2008) and Baron (2006). Baron demonstrated that heuristically based decisions in opportunity identification (creation of meaningful patterns or mental modeling), while performed by expert entrepreneurs, were much more refined and adequate than those of novices.

It is now possible to make a tentative conclusion that no decision is good or bad per se, but can be either adequate or non-adequate. This depends on the decisionmaker’s expertise in a field; an expert can depart from the strict norms of rational decision-making and nevertheless achieve adequate decisions. But can we, in all honesty, claim that heuristically based decisions, especially if performed by experts, are superior to decisions based on any other cognition? Not entirely; well, in fact, not at all. First of all, heuristics are often frugal; even if the decision-makers use the most salient decision cues (as experts do), significant part of the available information is ignored. This leads, as we have pointed out, to decisions that are usually good (enough) but very seldom optimal. For majority of real-life decision tasks satisficing decisions are adequate; however, not always. Heuristics are not general cognitive strategies; they are domain-specific, moreover, designed for a particular task (Todd and Gigerenzer, 2003). Apparently, some of the decision situations would prompt use of particular heuristics, but this is a skill which has to be learned.

It should be noted, though, that the champions of naturalistic decision-making paradigm (and research on heuristics by ABC group can be included in this approach) have never laid claims on heuristics-based decision-making being superior per se. Most comprehensive treatment of the potential fit between the properties of a decision task and required cognitions is presented in the cognitive continuum theory (CCT) (Hammond et al., 1987; Hammond, 1988). CCT introduces the concepts of task continuum, where tasks vary according to their uncertainty level (from very high to very low), and cognitive continuum, where cognitions range from intuition (one pole) to quasi-rationality/heuristics (middle) to analysis (the
other pole). According to the theory, every task within the task continuum would induce certain cognitive processes in order for the decision to be appropriate. Thus, highly uncertain tasks induce intuitive cognition, moderately uncertain tasks induce heuristics, and low uncertainty tasks induce analysis.

The correspondence-accuracy principle (CAP), which is a corollary to cognitive continuum theory, poses that no decision is good or bad per se; a decision can be solely regarded as adequate or inadequate depending on whether the cognitive processes employed correspond to the nature of the task for which a decision is made. According to CAP, the ability to make adequate decisions is a skill demonstrated by expert decision-makers.

The notion that different types of decision situations would induce different decision techniques starts taking hold also in entrepreneurship research. For example, Sarasvathy (2001, 2008) keeps pointing out that both effectual and rational (“causal,” in her terms) thinking are an inherent part of human reasoning. Distinguishing the circumstances when either process (or combination of both) would provide particular advantages or disadvantages is, in her mind, an important task of future research.

Relying on Sarasvathy et al.’s (2003) research, in an earlier study I investigated the connection between a task’s cognitive requirements and entrepreneurs’ use of different cognitions (Gustafsson, 2006); then the following conclusions could emerge:

- Situations of low uncertainty, when the information is relevant, neither redundant, nor lacking and time to make decision is not constrained, would call for rational (analytical) decisions. In entrepreneurial settings low uncertainty is associated with opportunities when both supply and demand exist and are known, e.g., opening a franchise (Sarasvathy et al., 2003).
- In situations of high uncertainty, when information is scarce (or redundant), unreliable, or dynamic, and time for making a decision is restricted, adequate decisions are made by non-rational techniques: heuristics or intuitive judgments. In entrepreneurial settings such conditions are associated with opportunities when either supply or demand is unknown or when neither is known or existent. This last case represents ultimate, or Knightian, uncertainty (Knight, 1921).
- Expert entrepreneurs do recognize the nature of the decision task and are able, to a high extent, to match their decision-making techniques with the nature of the task. This means that the skill of entrepreneurial decision-making is expressed through the adaptable behavior of experts.
- Being a skill, the decision-making behavior in entrepreneurial tasks is different for expert and novice entrepreneurs. As has been mentioned above, the experts’ behavior is adaptable and, in general, in compliance with CAP, i.e., expert entrepreneurs would make use of the ample array of decision-making techniques: analysis, heuristics, and intuition and match their cognitions with the requirements of the task. Novices, however, are to a high extent prone to analytical decision-making regardless of the nature of the decision task. This is especially true as far as students of business administration are concerned (they participated in the study as novice or aspiring entrepreneurs); we can, then, make a tentative conclusion that modern business education seems to be highly conditioning toward analysis.

**Methodology or Trekking Down the Entrepreneurial Mind**
In 1988, MacMillan called on the entrepreneurship research community to move away from exploratory studies (in entrepreneurship context meaning mostly case studies) and start concentrating on establishing causality. This admonition was avidly supported by Chandler and Lyon (2001).

According to Chandler and Lyon, in the last few years entrepreneurship researchers indeed started demonstrating a shift in the research methodology from exploratory, non-theory-driven studies toward ones investigating causal relationships, including experimental research.

Not surprisingly, experimental studies (though still rather rare) are mostly conducted in entrepreneurial cognition research (Mitchell et al., 2002). One of the best-known studies in the area, although it cannot be called strictly experimental, is one by Baron and Brush (1999), devoted to investigation of social skills in entrepreneurial success. The authors had videotaped a number of entrepreneurs giving presentations of their venture concepts; the videotapes were subsequently evaluated by expert judges. Another interesting and very recent study was conducted by Gatewood et al. (2002) on entrepreneurial expectancy, task effort, and performance. Most notably, this experiment utilized an Internet-based computer simulation as well.

In recent years entrepreneurship studies have greatly benefited from an array of qualitative (or somewhat “mixed”) research methods. For example, the present book provides an interesting and instructive discussion of cognitive mapping in Chapter 5 by Brännback and Carsrud. A broad array of qualitative methods, such as a lived experience using grounded theory, ethnographic, discourse, and narrative approaches, or, in other words, a toolbox of novel and established methods, is presented in the Handbook of Qualitative Research Methods in Entrepreneurship (Neergaard and Ulhøi, 2007).

Can We Teach Entrepreneurs Make Decisions? Conclusions and Implications

As I had to realize, decision-making is not a simple and straightforward matter as it might seem. First of all, decision tasks do differ in their cognitive nature. In some situations information is readily available (or can be collected at a low cost and during ample time, available for this collection) and salient cues are neither redundant nor missing; means and variables are independent (Todd and Gigerenzer, 2003). Under such conditions analytical (rational) decision-making is not only possible but indeed would provide the optimal results. According to CAP (Hammond, 1988) under such conditions as just described the cognitive properties of the task require analysis. An example in the entrepreneurial setting would mean that if both supply and demand are known (e.g., while introducing an incremental innovation to a mature market), entrepreneurs would do best, i.e., make an adequate decision by performing market, financial, etc., analysis.

Yet in the real world, such situations are far from forming a majority of decision environments. On the contrary, many a time decision-makers are faced with either lack or redundancy of cues; insufficient time to make decision (and especially to run an analysis); and correlations between means and variances, so that they can be seen as cues to infer each other (Einhorn and Hogarth, 1981). Under such conditions rational theories of choice cannot lead to optimal results; at times the costs of collecting data would make use of such theories prohibitive. The rational theories, as we have already discussed, are not commonly applied in the real-life decision-making. According to the notion of ecological rationality (Goldstein and Gigerenzer, 2002; Todd, 2007; Todd and Gigerenzer, 2003), there is a good reason for such behavior; when information is scarce and costly to come by, when time is a pressing issue, decision-makers would fall back to using “fast and frugal” heuristics – cognitive techniques that are based on simple procedures, few information cues, and avoid complex computations.
Experts in general and entrepreneurs in particular do possess a vast array of cognitive techniques (a “cognitive toolbox,” in terms of Baron and Ward [2004]) and are quite capable to match cognitive requirements of the task and appropriate decision-making techniques, as I found out in an earlier study (Gustafsson, 2006).

However, there is still an under-researched issue which is worth attention; namely the correlation between performance and entrepreneurial cognition. Heuristically based decisions, made by experts, are supposed to be adequate, because they are matched to the cognitive requirements of the entrepreneurial task and are, therefore, ecologically rational. Yet this is a theoretical inference. To my best knowledge no research has been yet made, in real life, on connections between entrepreneurial cognitions and the entrepreneur’s performance. Can we observe a single decision from the moment it is made, establish its cognitive nature (Is it heuristics? Is it analysis? Is it an intuitive flash of insight?), and trace it the whole way to the ultimate result? Would this result prove adequate? Would cognitive nature of the decision change, and how it would change? And, finally, could we by any chance watch another decision, in the same circumstances, to be made using different cognition and again trace it the whole way through and compare results?

Such a study would present substantial methodological difficulties; yet it seems to be desirable, especially if we think about providing normative advice to practitioners: students, aspiring and novice entrepreneurs. In general, development of normative advice for practitioners is an important and at times seemingly overlooked contribution. Entrepreneurship research is sometimes regarded as descriptive only; however, it should not be about mere investigation of the current practice. This is a very narrow and delimiting view that sentences entrepreneurship research to always lag behind entrepreneurship practice (Davidsson, 2002).

It is possible to argue that entrepreneurship research should take on a greater challenge than that; stop being entirely descriptive and start being (at least, to some extent) normative (Davidsson, 2002). Entrepreneurship research projects can ultimately provide important cues enabling researchers to predict what will happen in the market as a consequence of demographic, cultural, socioeconomic, and technological changes. Making a prediction of this kind is the same as pointing at entrepreneurial opportunities. To study what successful entrepreneurs have done is important, but an even more important and interesting question is what could be done right now, before somebody else pre-empts an opportunity that is open at this very moment. Entrepreneurship scholars should be able to answer this question and be able to translate the answer into normative recommendations for practitioners, and this is another implication of the present study. And, finally, but not the least important, entrepreneurship educators could emphasize developing such skills among their students. In the long run one more implication is to provide “hands-on” training that makes students not only smart critics but also competent actors (Davidsson, 2002).

With the above discussion in mind, I started considering the possible implications for education and practice. How, indeed, would I make use of my research results for students? For aspiring entrepreneurs without university education? For seasoned practitioners?

Theoretical side has now become more or less clear: Discussion on ecological rationality, taken together with the mindset of naturalistic decision-making paradigm, prompts theory-based inference that uncertainty is a powerful moderator, as far as real-life decision-making is concerned. Research on decision-making in entrepreneurship supports this view; studies by Baron (e.g., 1998, 2006), Gaglio...
(2004), Sarasvathy et al. (2003), Sarasvathy (2008), Gustafsson (2006) are but a few examples. Decision-making under uncertainty should be (and is) specific; decisions are made under more or less severe time and information constraints and are therefore based on heuristics or intuitive judgments.

Experts can produce adequate decisions under uncertainty; according to Hammond et al. (1987) and Hammond (1988) these decisions, though not entirely faultless, nevertheless produce more small mistakes with less severe consequences for each, compared with analytical decisions. On the other hand, novices do not yet possess this skill, and their decisions are hardly better than guesses. As such, both level of expertise and level of uncertainties pose as two powerful moderators. Development of expertise requires a lot of time (no less than 7–10 years [Ericsson and Smith, 1991]), substantial efforts, and a lot of mistakes in order for cognitive schema to be developed. The chapter by Mitchell, Mitchell, and Mitchell in the present volume provides a comprehensive discussion on development of cognitive schemata and their importance for practitioner-entrepreneurs; so far, it is enough to mention that well-developed and numerous cognitive schemata (such as expert entrepreneurs possess) provide them with a possibility to make quick and adequate decisions across a variety of entrepreneurial settings cf. Mitchell and Morse, 2002. One of the biggest problems is that the knowledge stored in cognitive schemata, or enabling use of appropriate heuristics, is tacit. How can it be taught to students and novice practitioners? In general, how can decision-making of practitioners be improved? Business plans are important and are taught extensively, but they provide adequate guidelines in situations of low to moderate uncertainty. High uncertainty settings are not dealt with in entrepreneurship education.

Is high uncertainty any common occurrence in entrepreneurship and business? According to Knight (1921) and Sarasvathy et al. (2003) – not altogether uncommon; entrepreneurs face this condition every time when “... neither supply nor demand exists in an obvious manner, one or both have to be ‘created’ and several economic inventions in marketing, financing etc. have to be made, for the opportunity to come into existence. This notion of opportunity has to do with the creation of new markets. Examples include Wedgwood Pottery, Edison’s General Electric, U-Haul, AES Corporation, Netscape, Beanie Babies, and the MIR space resort” (Sarasvathy et al., 2003, p. 145). Hence, high uncertainty ought to be dealt with in entrepreneurship education. People do make decisions under uncertainty in areas other than business. Examples would include testing airplanes and other machines; intelligence and warfare; and medicine. Could decision procedures used in medicine (e.g., emergency room decision tree) be used in entrepreneurship and business education? In this case key cues ought to be identified.

How to avoid making fatal mistakes while studying? Tacit knowledge and cognitive schemata are not normally transferred via textbooks. Yet there exists solutions, such as providing to students training in a variety of entrepreneurial settings through simulations. Another successful approach is mentoring by expert entrepreneurs, which provides students with the access to entrepreneurial scripts, thus enabling development of their own schemata with fewer mistakes and under shorter time (Mitchell and Chesteen, 1995).