Chapter 21

Dynamic Self-Reliance: An Important Concept for Work in the Twenty-First Century

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THE IMPORTANCE OF SELF-RELIANCE IN TOMORROW'S JOBS

Self-reliance is to depend on and trust one's knowledge, skills and efforts (motivation). The most important components are that one is able to acquire knowledge and skills by oneself (self-training) and to self-start motivational processes (initiative). Self-training is important because the environment does not stand still; it changes, and therefore one has to rely on oneself to acquire knowledge and skills. Self-reliance is dynamic if it tends towards growth and higher mastery. I want to argue in this chapter that tomorrow's jobs will require a higher degree of self-developed knowledge, skills and motivation than today's jobs. Further, I would like to explicate the implications of self-training and initiative. Finally, potential misunderstandings and research questions will be discussed.

Tomorrow's Jobs—Trends

The following trends of how jobs will change are reasonable predictions:

1. *Global competition.* There is no doubt that there is a more global competition today than in the past and it is highly probable that this trend will increase. In the 1960s, in the US economy 7% of companies were exposed to international competition, while in the 1980s this number climbed to above 70% (Gwynne, 1992). Global competition will not only reign on the company level but more and more also on the individual level. With better communication devices, software developers in India compete for work with software developers in Holland or Switzerland. The most forceful competitors of German construction workers are British, Portuguese, and Polish workers who work as small-scale entrepreneurs in Germany, selling their labor power.

2. *Faster rate of innovation.* There will be more pressure to innovate (Kanter, 1984) because of the global market and because the time to create new products from new knowledge becomes shorter. Hamel & Prahalad (1994) have argued that the competition between firms will be more and more on opportunity shares (shares in future markets with products that may not exist yet). This is of particular importance for the European countries, which have fallen back against the USA and Japan in terms of innovativeness and patents.

3. *Increase of complexity.* While there is little effect of new technology *per se* (Frese & Zapf, 1987), changes in work organization interacting with new technology will make work intellectually more demanding (Davis, 1995; Womack, Jones & Roos, 1990). Moreover, since the rate of change is increasing, this implies that new knowledge has to be acquired constantly.

    The factors that contribute to an increase of work complexity are production for small niches, customization and customer orientation. Most car companies already work on a principle of demand, with each car being specified individually and separately. Complexity of work also increases because of increasing environmental turbulances and ever faster-developing fashions and global changes.

    A factor that leads to higher complexity in social skills is the higher cultural diversity of workers. Immigrant, minority and women employment increases in all Western countries. In the USA,Hispanics, Asians and African-Americans will grow to about 27% and females to about 45% of the labor force by 2005 (Howard, 1995).

4. *Increase of group work.* Ever since Womack, Jones & Roos (1990) showed that in Japan 69% of all automobile workers were working in groups, while the respective percentage was 17% in the USA and not even 1% in Europe, introduction of group work has been an important aspect of productivity improvement. Group work is being introduced, particularly in Europe (Germany and Holland), often relating it to the tradition and experiences that were made 15–20 years ago with semi-autonomous groups (Antoni, 1994).

Group work will be more frequent in the future. First, if production responsibilities are put back to the shop floor (as is common to all new production concepts), it will not just be single persons who can make decisions. Since there are dependencies among shop floor workers, team decisions have to be made. This implies that group participants should know something about each other's work, therefore there is a need for job rotation. Second, new production methods (like lean production) are geared towards reducing coordination costs by reducing the number of supervisors. Coordination is then done within production units (teams). Third, increasing complexity will increase the need for coordinated effort. Since high-complexity decisions require the input from sources of different disciplines, there will be a higher need for interdisciplinary team work. Interdisciplinary work is difficult because one has to be able to talk about one's own discipline in ways that other people understand, has to learn to understand the basics of another discipline quickly, and has to learn to appreciate the different approaches taken by various disciplines (which is as difficult as cross-cultural learning at times) (Baron, 1993). In interdisciplary teams, one has to be able to rely on each person within the group (and consequently the person has to rely on him/herself as well, because he/she may be the only expert for a certain area in this group). Finally, teams will have to react to environmental turbulence, since local shop floor teams are better regulators of such turbulence (cf. the sociotechnical system approach of Emery & Trist, 1969).

One implication of a higher degree of team work is the higher need for good social and communication skills. It is interesting that the automobile companies that invested in East Germany have selected even blue collar workers by assessment centers, in order explicitly to gauge the social skills of their newly employed blue collar workers, who are working in lean, team-based production systems.

5. *Change of the job concept.* Some authors have argued that the notion of jobs as we know it will evaporate (Bridges, 1995; Rifkin, 1995). First, there is a clear reduction of jobs in the traditional production and service industries. With every re-engineering attempt, the number of blue and white collar workers is reduced tremendously. Louisville's Capital Holding reduced its back-office staff from 1900 to 1100 while increasing business by 25% after re-engineering (Bridges, 1995). Technological innovation leads to a reduction of personnel, as well. For example, cashier jobs (the third largest clerical group in the USA) will be cut by 10–15% by new scanning equipment (Rifkin, 1995); this trend will probably be increased by electronic shopping. The reduction in jobs will lead to the knowledge that one cannot stay in this type of job; therefore there is higher pressure to develop one's knowledge and to show initiative to get jobs. Second, temporary and project work increases. A symbol of this is that a fast-developing company with a very high work force in the USA is Manpower—a temporary employment agency (Bridges, 1995). More and more companies are outsourcing, employing people only on a project basis, or they are even reducing the company to a virtual company

consisting of a network of small scale entrepreneurs. Third, even in companies that still provide jobs, the job concept is also changing. People are assigned to projects and not to jobs. For example, Microsoft has no regular working hours, people are accountable to their project team, which is again accountable to the larger project. When a project ends, employees move on to another project (Bridges, 1995). "The dejobbed systems lack the normal kind of 'edges' that tell workers when they have done a normal, satisfactory job. Since they are expected to do *anything necessary* to accomplish the expected results, they are no longer protected by the boundaries of a job" (Bridges, 1995, p. 42). Finally, there will be more telework and similar forms of work. For example, at Arthur Anderson in Paris one can register for an office at any time and plug in one's computer but one does not have one's own office any longer. In other companies, employees work from home or a hotel.

6. *Reduced supervision.* With the advent of lean production (Womack, Jones & Roos, 1990), management layers are taken out and responsibility for production is being given to the shop floor again. Therefore, supervisors' functions change; they should not intervene directly into day-to-day affairs but should rather be mentors of the groups they supervise (Cascio, 1995; Emery & Trist, 1969).

The Importance of Self-Reliance in Future Work

All of the above-mentioned trends increase the importance of self-reliance. To deal with global competition, employees have to be able to keep up with new knowledge and with new ideas. Moreover, new ideas have to be advanced. Self-reliance, that is being able to rely on one's knowledge, skills and motivation, enables one to stay in this race. Whenever employees are working outside a rigid structure, they have to motivate themselves, for example in telehomework. Reduced supervision also reduces the outside structure of the job.

Tayloristic jobs have tended to take away the authority from the people; they were given to the supervisor, the bureaucracy, the assembly line, etc. To realize the opportunities that exist now, one has to show a high degree of self-reliance ("It is worth saying . . . that these changes once again put a premium on the values of self-reliance and individualism", Bridges, 1995, p. 40). For example, getting another project after the last one is a matter of having a good reputation and initiative.

Thus, all of the above changes of the work place that can be projected into the future, are related to self-reliance (knowledge, skills and motivation). A good indicator of future trends in the work place are jobs at the forefront of modern technology that can already be empirically researched. The work place of software designers is such a job. In a careful study of the work situation of this profession, we have come to the conclusion that the following aspects are of primary importance in their jobs (Brodbeck, 1994; Frese & Hesse, 1993):

- A high degree of learning by oneself (e.g. new techniques and methods, etc.).
- A high degree of communication with co-workers.
- A high degree of interdisciplinary work (e.g. with customers who are experts in another area).
- A high degree of working in groups.
- A high degree to which the people determine, themselves, how they are solving problems.

These empirical observations reinforce the above-mentioned trends and they point again to the importance of self-reliance.

THE CONCEPT OF SELF-RELIANCE

The two major components of self-reliance are to acquire knowledge and skills by oneself and to motivate oneself. These two components will be discussed under the headings of self-training and self-initiative.

Self-Training

Self-training implies that there is no training plan outside oneself but that the plan is developed by the learning person. From an action theory perspective, self-training can be described by explicating the following components (cf. Frese & Zapf, 1994): learning goals, orientation and prognosis, learning strategies, feedback processing. In order to be useful for self-training, these components have to be self-reflective, self-sufficient, adequate and action-oriented. For each component, one can discuss environmental and person support factors.

Learning Goals

If one wants to acquire new skills, one needs to develop learning goals for self-training. Dweck & Leggett (1988) have contrasted pupils with learning goals and with performance goals. Those with learning goals learn better because such goals imply that one thinks of one's ability as flexible and that ability and effort are positively related. In contrast, pupils with performance goals perceive their effort negatively, because having to exert effort means that one's ability is low. The concept of a learning goal is of paramount importance because it means that problems and difficulties are seen as chances to learn rather than as bad aspects of performance. One implications of a learning orientation is that the learner is much less dependent on other people's impression of how well one does and, therefore, more self-sufficient. Thus, this orientation fosters self-reliance to a much higher extent. In terms of environmental support factors, all factors that increase exploration and active approaches will help to develop learning goals (active approaches to training are superior, Frese et al., 1988). Of particular importance are learning organizations (Argyris, 1993).

Orientation and Prognosis

Orientation here means that one develops a good mental model of the system in which one is functioning (e.g. the sociotechnical system of one company) and that one can predict the dynamic system's future behaviors well (Dörner et al., 1983). Issues here are the need to think dynamically, synthetically, within systems and laterally, instead of along simple linear lines (e.g. extending growth curves with-out taking into account breakdowns and accelerations).

The resulting mental model must be holistic and action-oriented. A holistic concept implies that one knows the important parameters of a task. If the task is too complex to learn in one sitting, an overall global idea of the task should be developed (Volpert, 1971). This global picture can then be used to develop hypotheses to be tested. This stands in sharp contrast to a sequential procedure. Here one just learns each step by itself—often by a sort of drill—and then adds the other steps to it. A mental model can be more or less action-oriented. In an observational study on computer users, only those parts of the mental model that had direct relevance to actions, were useful in solving problems (Lang, 1987).

In terms of environmental supports, everything that helps people to think about other people's jobs and concepts is important for developing a good orientation, for example, many horizontal relations between departments within organizations (Kanter, 1984) and group members being exposed to different viewpoints (Andrews, 1979).

Learning Strategies

The most important, successful, learning strategy for self-training is exploration (Greif & Keller, 1990). It is successful because it is an active approach to learning and it makes best use of one's experiences in the learning process. Empirical studies have shown that exploratory learning is superior to other forms of learn-ing that are not active (Frese et al., 1988; Greif & Janikowski, 1987). In one study (Dormann & Frese, 1994), two learning procedures were compared—one did not allow exploration (sequential training); the other one necessitated exploration. The most interesting finding was that some people in the sequential group actu-ally showed self-reliance and deviated from the instructions: in spite of the instruction not to explore, they explored, anyhow; we found that those subjects learned more than those who followed the instructions.

In terms of environmental support, again learning organizations provide sup-port for learning strategies.

Feedback Processing

There is a psychological truism that without knowledge of results, there can be no learning (Annett, 1969). Feedback tells a person whether or not he/she is still on the way towards a goal (thus, without an explicit goal, one cannot use feedback). Feedback connects us to the objectivity of the world and has a (self-) motivating

function. However, there are certain feedback functions that are not always useful. For example, augmented feedback (that is feedback that is only used for the purpose of training, such as a buzzer for good aiming when learning to shoot) actually leads to worse real-life performance because one becomes accustomed to the feedback in training (Volpert, 1971). Most importantly, feedback interven-tions, for example performance evaluation, are often detrimental to performance (Kluger & DeNisi, 1996), partly because they lead to state orientation (one thinks about oneself rather than about the task) and partly because they make one dependent on other people's judgment, thus reducing one's self-reliance.

The two most important naturally occurring causes of learning are first, a new task, and second, errors. Learning because of new tasks is one reason why complex jobs lead to more intellectual flexibility and to a higher degree of self-reliance (Kohn & Schooler, 1983). The issue of learning through errors is a bit newer and may be even more important. We will therefore discuss some research findings and ideas.

The Function of Errors in Learning

Errors tell us that we did something wrong. Thus, in principle, they are negative feedback and are, therefore, learning devices and of particular importance for self-training (Frese & Zapf, 1994). Errors are ambivalent because, depending upon personal orientations or environmental conditions, they may on the one hand lead to crippling self-derogatory thoughts and defensiveness or, on the other hand, they may be the prime material that stimulates learning.

Since errors are defined by not achieving a goal and by the feeling that one "should have known better" (Frese & Zapf, 1991), the typical first reaction to errors is negative. However, the real problem of an error is the negative error consequences (loss of time, loss of material or money, maybe even loss of life). Errors get their "bad name" from these negative error consequences. However, it is possible to distinguish the error action from the error consequence. Not every slipping leads to falling or even breaking one's arm. An error prevention ap-proach attempts to block the action error. An alternative is the error manage-ment approach, which attempts to block the negative consequences (as when one learns to fall in Jiu-Jitsu). More formally, "error management implies that error handling is supported with the goal of avoiding negative error consequences, of dealing quickly with error consequences once they occur, and of learning from the error to reduce the future occurrence of this type of error" (Frese & van Dyck, 1996). Thus, the error management concept is more positive towards errors, attempts to reduce the negative consequences rather than the error per se, and emphasizes learning from errors. Since errors are ubiquitous, this is a better strategy, in general, and it is of particular importance for self-training.

In an experiment, we attempted to demonstrate the positive function of errors for learning (Frese et al., 1991). The experiment used quite a radical approach: the error training group received only a list of commands to be used to solve the

given tasks. Otherwise, the trainees were on their own—a situation that produced many chances for errors. In order to reduce the frustrations that result from errors, the subjects were repeatedly given a set of "heuristics". These heuristics specified that errors should not be perceived negatively but as learning opportunities. Examples were "I have made an error. Great!" or "There is always a way to leave the error situation". In contrast, the error avoidance group received a training that mimicked commercial tutoring programs—a so-called sequential training. The subjects had to solve the same tasks as the other group, but they were told precisely how to go about it. Thus, they did not have the chance to make errors. The error training group did much better in performance tasks after the training than the other group—a result replicated several times (Frese, 1995).

Thus, the argument so far has been that errors have a positive function for learning. So it is possible and even better to make errors for the learning process. However, when we are talking about self-training, we assume, of course, that people are involved in their daily stream of actions and that errors should also help them to learn in this situation. Moreover, errors should be of paramount importance for the self-training process. In the following I shall argue that errors have a particular importance for self-training because they help to instigate learning (at least under certain conditions). This leads to the following points (which are developed further below): (1) errors disrupt premature routinization of actions; (2) errors instigate new learning, exploration and creative solutions; (3) errors may lead to higher motivation; (4) additional frustrations because of errors have to be reduced by learning how to deal with errors effectively; and (5) this positive function of errors appears more frequently given certain personal and organizational antecedents.

1. People have a tendency to develop routine and automatic patterns of dealing with the world when the environment is redundant. Errors usually lead to new thinking about one's actions (see Frese & Zapf, 1994). Therefore, errors *reduce the danger of routinization* of action strategies and help to make people think again. Inventors like Edison often reported that errors have helped them in making inventions.

2. Errors can *increase exploration*. When an error occurs the person may start exploring to find a better way of doing things. Exploratory behavior and performance indicators are highly correlated (Dormann & Frese, 1994). Pfeffer (1992) suggests that there is a difference in the way exploration is done in the different training groups: the error avoidance group used exploration more in a trial-and-error sense, while the error training group used exploration more specifically in an hypothesis-driven way.

3. Errors may increase the *motivation to learn*. This was suggested by some qualitative observations in our experiments. While the participants in the error avoidance group went away after the training without waiting much longer, it was difficult to persuade the trainees of the error training group to leave the computer room. They "bombarded" us with further questions and

seemed highly interested. This may have been due to a sort of Zeigarnik effect (Ovsiankina, 1928)—if an action is interrupted, it is more frequently resumed. An error always interrupts an action; therefore one is motivated to complete it.

Another factor is that an error always signifies a discrepancy between a given state and a goal. Since we know that a high discrepancy leads to high motivation (Locke & Latham, 1990), motivation arises from making an error. Of course, if the discrepancy becomes too high, people may actually give up or an error may lead to self-oriented thoughts and, thus, divert attention from the task. Therefore, errors are always a double-edged sword from a motivational perspective.

4. Errors are *upsetting and frustrating*. Thus, in order to learn, these negative feelings must be reduced by becoming more tolerant of one's errors. Making an error always holds at least two facets; losing time and being subjected to the additional frustration about oneself that one has "made such a stupid mistake". While time loss can only be reduced by good handling strategies, the additional emotional upset can be reduced by developing a more positive attitude towards errors. This refers again back to the issue of learning goals that perceive errors as a chance to learn something (Dweck & Leggett, 1988). Such an attitude also decreases the tendency to give up in case of an error.

    It seems that our use of heuristics in error training had indeed helped to defray the negative frustrations due to errors in the error training group. Thus, the emotionally toned heuristics on the positive notion of errors in the training process are important ("You have made an error. Great!"). One may actually learn better emotional strategies to deal with errors (Frese et al., 1991).

5. In order for errors to have positive effects, certain prerequisites must be met. First, making errors and learning from them has to be supported at the workplace. For this reason, Peters (1987) suggested that organizations should facilitate making errors—fast failure forward. People are encouraged to make their errors quickly. The rationale is that people will make errors anyway, therefore it would be better to speed up the error process under somewhat safer conditions, so that people can learn from their mistakes. Thus, a positive error culture is important (Frese & van Dyck, 1996). Second, error orientations contribute to learning from errors. With a newly developed Error Orientation Questionnaire (EOQ, Rybowiak et al., 1997) we have shown that people with a stronger tendency to learn from errors in work have more feelings of self-efficacy and self-esteem, are more ready to change things in their work and display more initiative. People who take more risks—even if taking risks means making more errors—are more qualified, have higher self-efficacy, take on more responsibility at work; they are also more interested to implement changes in their workplace and show more self-reported initiative. Finally, people who cover errors up have higher job uncertainty, more career stress, lower self-esteem and lower self-efficacy.

Thus, the orientation towards errors is important. Leeson, who single-handedly brought down Baring's Bank, may be a good example for a person who could not deal with errors well. For example, he was not willing and capable to anticipate errors. As a matter of fact, Rawnsley (1995) describes Leeson as being particularly harsh to employees who made errors. Moreover, the error culture of Baring's Bank was not one of allowing errors to appear and managing them adequately.

Let's come back to the issue of self-reliance. We are constantly in a stream of action: errors interrupt this stream and we become conscious of our ways, we think about them again, we explore alternatives, we come up with new solutions. But this is only true if certain prerequisites are met: the most important are that there is a positive error culture in the organization and that we believe that we can and should learn from our errors, that errors should not just lead to a feeling of catastrophe but to new learning. This then helps us to acquire new knowledge and skills in our daily work.

A Short Note on Defensiveness, Self-Reflection and Learning

A particular problem that hinders self-training is defensiveness. Defensiveness reduces the perception for an opportunity to learn something (e.g. in an error situation), because one is busy defending oneself (Argyris, 1993). According to Dörner's studies, defensiveness is one of the most important reasons why one persists in a wrong track and is not able to grasp the complexity of a system (Dörner et al., 1983; Dörner & Schaub, 1994). Defensiveness can be contrasted to self-reflection. Self-reflection in this sense should not be confused with lack of action orientation but it is related to being able to think freely about one's errors, faults and difficulties in order to overcome them. Self-reflection is necessary for knowing in which areas one has to advance one's knowledge and skills, where one has to rethink one's strategies and where one has to overcome problems due to one's personality.

Self-Motivation: Initiative

To be self-reliant, one has to be able to motivate oneself. Motivation oneself means initiative. I have studied initiative since the downfall of the East German communist republic in 1990 because I was interested to research the changes that came along with modern capitalism (Frese et al., 1996). As a matter of fact, it was this research and the concomitant research on software developers that convinced me eventually that self-reliance was of central importance in future companies. Therefore, both a questionnaire form and an interview-based "behavioral measure" of initiative have been developed (Frese et al., 1997).

The centerpiece of self-reliance and initiative is to be self-starting (Frese, in press). This means that people do not wait for orders, suggestions or ideas from

other people, but develop their own ideas and start acting themselves. Since at the workplace one is usually given tasks, initiative implies that one takes on extra-task activities that were not prescribed. Examples are a secretary checking the mail of his/her boss and responding to important letters during the boss's absence without having been asked to do that.

Personal initiative is a behavior syndrome of an individual's taking a self-starting, active and persistent approach to work. Additional aspects of the concept are that this behavior is consistent with the organization's mission, goal-directed and action-oriented (see Frese et al., 1996). While self-starting is the center, initiative also implies that one does not give up when new suggestions do not work out immediately or are blocked by opposition. Initiative, therefore, implies that one will deal with these obstacles actively and persistently.

Personal Initiative and Other Constructs

Personal initiative is related but not identical to other constructs, such as entrepreneurship/intrapreneurship, organizational citizenship behavior (Organ, 1988) and achievement motive (for details, see Frese et al., 1997). It is instructive to look at the differences to organizational citizenship behavior (OCB). Both concepts are similar because they go beyond direct role requirements and contribute indirectly to organizational effectiveness (Organ, 1988). OCB is more passive, however, as shown in the compliance factor ("does not take extra breaks", adherence to rules, etc.). In contrast, the concept of initiative often implies a certain rebellious element. Supervisors often fail to support initiative and even punish active approaches. A worker with high initiative contributes to *long-range* positive outcomes for the organization, but in the short term he/she may well be a nuisance factor to the boss because he/she is constantly pushing new ideas.

A Model of Personal Initiative

In our 5 year longitudinal study on initiative in East Germany we have slowly developed a model of personal initiative that helps us understand the antecedents of initiative (Figure 21.1). We differentiate between skills, a responsive environment (environmental supports), and orientations. There are distal and proximal antecedents (Kanfer, 1992)—the distal constructs being personality factors and the proximal constructs being orientations. From an occupational socialization perspective, environmental supports should have an influence on the orientations and on initiative (Frese, 1982; Frese et al., 1996). We assume that there may be interactions between orientations and personality prerequisites and between environmental support (and skills) and orientations. Personal initiative should in turn have an influence on organizational functioning.[1]

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[1] Actually, reverse paths are also possible; an example for the path from initiative to orientations is the path from initiative on self-efficacy.
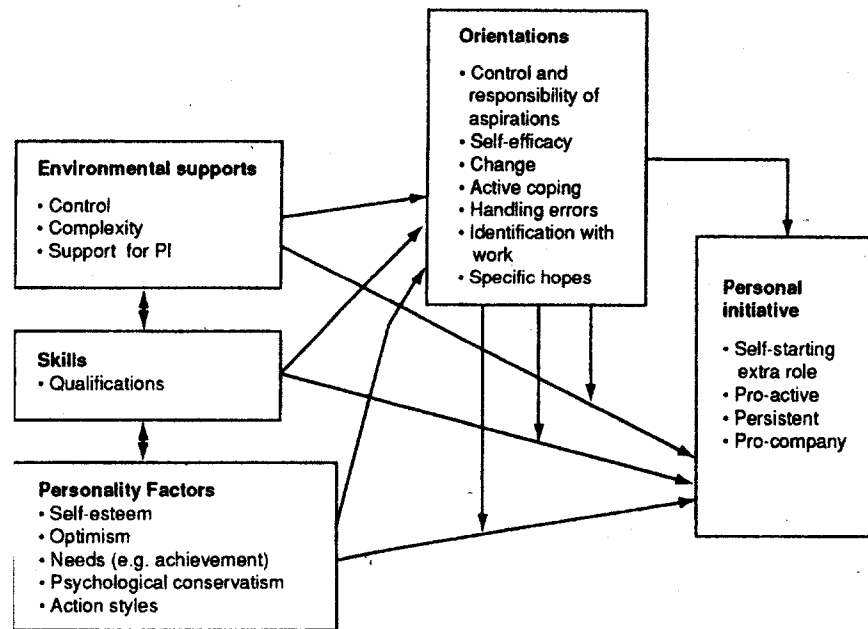
Figure 21.1 A model of the functioning of personal initiative (PI)

This model has not yet been tested in its entirety but various parts can probably be upheld under empirical scrutiny. We cannot go into detail here and therefore we would like to concentrate on two antecedents: control aspirations and self-efficacy.

Initiative should be influenced by a desire to "be on top of things". Control aspirations are hypothesized to be lowered or increased by control at work. If workers do not control their environment and their own behaviors at the workplace, their aspirations for control are frustrated and reduced because helplessness cognitions develop. Work control and complexity, indeed, influence control aspirations (Frese et al., 1994). Similarly, having higher control aspirations leads to job changes, because one attempts to get jobs that allow more control (Frese et al., 1994). This does not necessarily mean that one actually gets a new job formally; it may also affect informal task assignments.

Self-efficacy (Bandura, 1986) should be related to control and complexity of work, because these allow the employee to enact mastery and thus learn self-efficacy. At the same time, self-efficacy should influence initiative because one needs to be confident of one's competence to actually be self-starting and be persistent in spite of obstacles. Thus, self-efficacy should be a mediator between environmental supports (control and complexity) and initiative. This has been

shown to be true (Speier & Frese, 1997). However, self-efficacy may also function as a moderator of the relationship between environmental supports and initiative leading to a compensatory relationship. Having little control at work is not so important for people with high initiative; they will still show high initiative. In contrast, control at work has a stronger effect for low self-efficacious workers (Speier & Frese, 1997).

The discussion of these two antecedents may suffice to give the gist of what one can do with this model. The general idea is that initiative does not develop in a vacuum—it is related to long-standing personality and environmental characteristics. There are direct antecedents and long-range effects. In any case, a complex behavior syndrome like initiative can fruitfully be studied empirically, and it does give meaningful results (Frese et al., 1997).

POTENTIAL MISUNDERSTANDINGS

The most important potential misunderstanding assumes that environmental factors do not play any role for self-reliance. One could argue that, after all, the person is self-reliant and is therefore independent of the environment. This view is empirically wrong. Environmental factors do play a role in the development and in upholding self-reliance. Therefore, it is no surprise that control and complexity of work actually influence initiative. However, in the case of self-reliance, the effect of the environment is not linear and not short-term. Thus, people may show a high degree of initiative in spite of lack of control at work (and they do, if their self-efficacy is high; see Speier & Frese, 1997). But in the long run, their self-efficacy is reduced when control and complexity of work is low. Moreover, the environment presents opportunities given a high degree of self-reliance. We assume that self-reliance leads to active scanning of the environment, for example, in the case of the small-scale entrepreneur who looks for opportunities to sell and innovate. Obviously, the concept of using errors as a chance to learn relates self-reliance to environmental factors (errors are partly determined by the environment, being the result of an interaction of the person and the environment; see Frese & Zapf, 1991).

Another potential misunderstanding refers to the dynamic nature of self-reliance. Self-reliance could mean that the person is self-centered and does not really grow. Opportunities are not used, goals are not changed, etc. We do not want to imply such a viewpoint. For this reason, the title of this chapter refers to *dynamic* self-reliance. Since self-reliance is related to self-training, a dynamic viewpoint is implied. Moreover, self-reliance requires a long-term orientation—this again leads to a dynamic nature of self-reliance. We assume that self-reliance scans for opportunities and reacts quickly to environmental turbulence (using them as challenges, much like errors).

Further, one could assume that self-reliance is just old wine in new bottles. From this perspective self-reliance is just an instance of internal motivation or self-actualization. We do not think so. Internal motivation is task-driven (one is

motivated by playing the piano). But being task-driven does not necessarily mean that one also shows self-reliance (although we believe that internal motivation is an antecedent of self-reliance). A similar difference exists between achievement motive and self-reliance. While achievement motive is probably an antecedent (see Frese et al., 1997), it is not self-starting by itself.

RESEARCH ISSUES

Because of the future job changes, self-reliance with its concepts of self-training and initiative are of major importance for organizational psychology. Obviously, the concept of self-reliance as an umbrella term for self-training and initiative is new and needs to be explicated and researched. Thus, there are many issues that await conceptual and empirical answers. The most obvious ones are whether we can substantiate the issues raised in Figure 21.1. Which antecedents are operative? Which interactions exist? Which variables constitute the behavior syndrome?

Further questions are to look at related concepts and their correlations and causal relationships with self-reliance, concepts such as self-management, self-efficacy (Bandura, 1986), self-esteem, achievement motive, self-actualization, innovative behavior (West & Farr, 1990) and active coping (Lazarus & Folkman, 1984).

Surprisingly, we know more about how to make people *less* self-reliant, e.g. how to make them helpless (Seligman, 1975). Helplessness is the opposite of self-reliance. Recently Seligman (1991) has talked about optimism as being the opposite of helplessness. I do not agree. Helplessness is a behaviour syndrome (Seligman, 1975), similar to self-reliance. The latter may be related to optimism, but self-reliance is the better antonym for helplessness (empirically, there is also no significant correlation between Seligman's attributional style questionnaire and initiative).

Similarly, the relationship between OCB and self-reliance has to be empirically established. We assume that continuous dynamic self-reliance is often (but not always) fed by dissatisfaction with a certain situation (and possibly with the supervisor). In contrast, it is assumed that OCB should be related to a "feel-good" factor (Organ, 1988).

The relationship of group work and self-reliance is complex and interesting. In principle, group work could have a negative effect on self-reliance (diffusion of responsibility, free-riding, etc.) but we know very little of how it is actually happening when group work is introduced in industry.

Leadership issues should be related to self-learning and initiative. Thus, charismatic and transformational forms of leadership should actually foster self-reliance by increasing standards, self-efficacy and intellectual curiosity. However, as far as I know, this has not been really studied (Bass, 1990), although Manz & Sims (1989) have opened up interest in this issue with their concept of superleadership (which is probably related to self-reliance). Often, the concept of

empowerment implies that organizations enhance self-reliance. However, people who show high self-reliance may be less dependent upon organizational empowerment than those who do not.

Organizations that provide degrees of freedom of action and empowerment should enhance initiative and self-training. For example, advantages of participation in decision-making have been mainly looked at from the perspective of enhancing motivation from the outside. Our thinking may reconceptualize this issue because we would assume that the major functions are to increase self-starting behaviors and self-training and exploration because people are able to participate in the error-making process. Moreover, it is useful to ask the question how certain kinds of ideal organizational designs (e.g. Mintzberg's, 1983, organizational forms) are related to self-reliance.

We know surprisingly little about self-training. While there is a fully developed literature on learning, there is little that describes the processes of self-training. There are obvious relationships to the concept of the learning organization (Argyris, 1993) that need to be explored.

An additional issue of self-reliance is how one deals with stress in terms of active coping strategies (Lazarus & Folkman, 1984). There is some evidence that initiative is related to active coping strategies and that people with high initiative are able to overcome the stressful situation of unemployment better (Frese et al., 1997).

Whatever the specifics, there is no doubt that behaviors that are called for in future workplaces will have to be studied intensely—and self-reliance will be one of them.

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