

Locus of control and its relation to working life: Studies from the fields of vocational rehabilitation and small firms in Sweden

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Abstract

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This thesis investigates in four studies the impact of the psychological construct internal versus external control of reinforcement on Swedish working life in two distinct areas. The first is that of vocational rehabilitation, explored in the first two studies; the second is that of leadership style in small firms. **Study I** had as its aim to describe the situation of individuals (n = 143) at the start of vocational rehabilitation in Sweden. An assessment was therefore carried out of the possible influence of the one contextual and five individual factors on health, duration of sick leave, and unemployment. Results: Locus of control was found to exert a notable influence on the differences between the individuals in the study sample, with persons of external locus of control having a less favourable point of departure at the start of vocational rehabilitation compared to other groups.

The main aim of **Study II** was to assess the impact of locus of control on vocational rehabilitation outcomes. The findings of the study suggest that the construct locus of control plays even here an important role. Perceived health status, the type of rehabilitation program, the accumulated duration of both sick leave and unemployment at the start of rehabilitation, and whether dwelling in an urban or a rural area are other factors that also influence outcomes. Further vocational rehabilitation programs were found to be negatively correlated to successful outcomes, meaning that workplace training with little or no involvement of professionals gives better results than other programs.

Study III explored the impact of locus of control on how leaders of small and medium-size businesses (n = 146) perceive network usage and value with respect to their own firms. Findings from this study suggest that the locus of control orientation of owner-managers of small and medium-size businesses influences participation in and usage of business networks and that membership in informal networks plays an important role for gaining and using attendant benefits. From a micro perspective, this result sheds light on the importance of leadership style for participation in and usage of networks.

Study IV investigates the effects of locus of control on financial performance and business strategy in small firms (n=146). In so doing, it was hypothesised that there exist bivariate associations between locus of control and financial performance of small firms, as well as three other factors that are assumed to influence financial performance. These three factors are: the style of management adopted by owner-managers, known as strategic posture; networking activities of owner-managers, and the business environment as perceived by owner-managers. Results give some support to the assumption that relations exist between locus of control and financial performance as well as business strategy. Findings even suggest that firms' branch of commerce moderates the impact of locus of control. Locus of control was further found to have relatively strong associations with the style of leadership adopted.

The conclusion drawn from the work presented here is that locus of control is a factor of some importance for the vocational rehabilitation process as well as the management of small firms, and as such has a definite role to play in working life. It is argued that differences found between persons of internal and those of external orientation in the four studies presented are well described in the general statement that 'internals' have a higher degree of generalized expectancy that reinforcements are contingent upon their own behaviour than 'externals' and that this is crucial to explaining the differences between the cognitive processes and behaviour of the two categories. Internals' attitudes create "spaces of action" that are in themselves opportunities that can be utilized for the achievement of goals. Externals, on the other hand, have greater difficulties in creating and utilizing "spaces of action". Important is the assumption that a person's locus of control can be changed, thereby making the concept suitable for application in practical situations in working life through suitable interventions in the environment. This is an area that needs to be researched more thoroughly, however.

Key words: Locus of control, vocational rehabilitation, sick leave, outcomes, owner-managers, small firms, networks, financial performance, business strategy

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Östersund, April 2005
Patrick Millet

List of original papers

This thesis is based on the followed studies, which will be referred to in the text by their Roman numerals.

I. Millet, P and Sandberg, Karl W. Individual status at the start of rehabilitation: Implications for vocational rehabilitation programs. *WORK: A Journal of Prevention, Assessment & Rehabilitation*. *Work* 20 (2003) 121-129

II. Millet, P and Sandberg, Karl W. Locus of Control and it's Relationship with Vocational Rehabilitation Outcomes of Unemployed Sick Leaves in Sweden. *Journal of Vocational Rehabilitation* 19 (2003) 59-66

III. Millet, P and Sandberg, K.W. Networking among Managers of Small and Medium-size Businesses in an Industrial Park in Rural Sweden: Locus of Control as an Indicator of Participation. *Arbetsliv I Omvandling* 2004:7 In Swedish. (Submitted for publication in English)

IV. Millet, P. Locus of Control and its Impact on Strategy and Financial Performance in Small Firms. *Submitted for publication*.

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1 Introduction

Working life is a process of constant change. New technological and business economic developments introduce new sets of complexities that differ widely in terms of levels of sophistication and subsequent demands, creating the need for new perspectives, models and methods to address the need for understanding.

In investigating the impact of the psychological construct internal versus external control of reinforcement on Swedish working life, this thesis spans over two distinct areas. The first is that of vocational rehabilitation, represented in two studies (papers I and II). The second is that of leadership style in small firms as this affects financial performance and thus a vital part of the Swedish economy (papers III and IV).

1.1 Vocational rehabilitation

Lately, many official reports and research results have shown a disturbing acceleration in the number of persons on sick leave, along with notable increases in duration. Statistics further show that the number of people leaving the labour market for early retirement is also rising, facts that together are causing great concern both about the country's steadily deteriorating ability to meet the growing costs of social welfare and its future economic development. The situation has also occasioned discussion and debate concerning the general health status of the Swedish population, as well as the effectiveness of existing vocational rehabilitation programs, which has developed into a major public issue.

The present negative trend of development was first brought to general attention in the latter part of 1997, when the first alarms were sounded about the substantial increases both in the number of persons on sick leave and the duration of such leave (SOU 2000:78). National Insurance Authority figures show that the average number of sick days of persons aged 16-64 increased from approximately 33.6 million in 1998 to just over 42.4 in 2004, an increase of approximately 8.8 million sick days in six years (Social insurance Sweden 2005). In 1997, roughly 110,000 people had sick leave periods of over 60 days (Social insurance Sweden 2004); in 2004 that figure had grown to approximately over 240 000 persons (Social insurance Sweden 2004). The statistics also show that increases are not only in the 60-day interval but represent a general trend; for no matter what the interval of measurement, the same negative pattern appears. Sick leave duration exceeding 365 days has risen from approximately 45,000 cases in 1999 (SOU 2002:5) to 110,000 in 2004 (Social insurance Sweden 2005). The situation is further exacerbated by the recent increases in the numbers of people gaining early retirement, which climbed from 423,000 in 1997 to over 450,000 in 2001 (SOU 2000:5), and to today's all-high figure of over 540 000 and rising at a high rate (Social insurance Sweden 2005).

Findings show that some groups of the Swedish population are more encumbered in terms of poor health, often the result of physically demanding jobs, leading to sick leave and a subsequent need for vocational rehabilitation services. The unemployed, however, are one group that is at a clear disadvantage when it comes to getting the help they need to find and remain in employment, or sometimes to at all enter the labour market, where research findings indicate that persons not yet in the labour market receive a poorer quality of assistance than persons already in employment (Selander, 1999). Clearly this

group needs to be focused upon much more than is the case today if they are ever to be able to contribute to the welfare of the country. Other groups with a weak position when it comes health status and labour market adjustment services are women (SOU 2002:5), rural dwellers (Selander et al., 1998), and persons over the age of 45 (SOU 2002:5). However, recent figures also indicate that the 16-29 age group is currently the one with the most rapid growth of sick-leave takers (*Arbetslivsfakta*, 2002), revealing that the problem is one of some complexity.

This alarming situation of rising numbers of sick-leavers and early pensioners has forced the intervention of the national government, which has now set up quantitative goals to be reached no later than June, 2008. There are signs, however, that these goals will not easily be attained. Social Insurance Office prognoses at the start of 2005 have indicated negative results for the reduction goals set for this year (Social insurance Sweden 2005). This announcement emphasizes the need, among other suitable measures, for more effective vocational rehabilitation services.

An exacerbating factor is an insufficiency of knowledge and resources in the field. Several studies to date have pointed out the need to better our knowledge of the rehabilitation process and to step up research (Agency for Administrative Development 1998; Birke & Nygren, 1994; Marklund, 1998; SOU 2000: 78). So far, very little has been done in this direction, however. The research emphasis of most previous studies has mainly been descriptive, detailing results of the rehabilitation programs offered, but often limited to specific aspects of the field and to current status. There is, in other words, a great lack of systematic empirical inquiry into what actually takes place in vocational rehabilitation programs and what factors are truly important for a return to employment. Yet this is a requirement if the trend of large numbers of persons leaving the labour market because of sickness or early retirement is to be reversed.

Here is where the psychological construct of internal versus external control of reinforcement is of interest, as it introduces a relatively unused theory of social learning as a basis for empirical inquiry into working life and in particular, the aspects of vocational rehabilitation and small-firm success. The aim of this research, then, is to suggest new models and methods that on the one hand might help to reduce the insufficiency of knowledge within the field of vocational rehabilitation, and on the other impart further understanding of the importance of leadership personality in small firms for development and performance.

1.2 Leadership

A general opinion that is supported by research results is that leadership style in a firm exerts a major influence on the structure, strategy and the well being of the firm. This is the second focus of this thesis. In the context of the (entrepreneurial) small firm this is very evident (Daily et al 2002). It can also be argued that because of the small size of the firm and the fact that many small firm leaders are not only CEOs but even owners/founders, they operate from a unique position of power (Begley & Boyd 1987). It is therefore no surprise to find that much research has been carried out on the subject of leadership and what makes a successful leader (Yukl, 1994). One conception that has received much attention in research is the view that a relationship exists between leadership and certain personality traits (House & Aditya 1997), and from this various theoretical perspectives have developed. However, there are a number of “key personality traits” that have been found to have an impact on leadership behavior

without making their way into the mainstream of leadership literature (Howell & Avolio, 1993), one such “key personality trait “ is that of internal versus external control of reinforcement.

Thus two studies of leadership are presented in this thesis, where the focus is on the impact of internal versus external control of reinforcement on leadership in small firms. Small firms play an important role for the sustainment of economic welfare the world over. In Sweden, they account for approximately 99 % of the number of workplaces (Statistics Sweden, 2005 and for approximately 50 % of employment during the late 1980s and early 1990s (Wiklund 1998), which prompted the government in 1991-1992 to introduce new taxation and social insurance legislation to support the expansion and stability of small enterprises, underlining the importance of small firms both in working life and generally in the Swedish economy.

It is no surprise, therefore, to find increased attention being given to small businesses in many behavioural studies, all expounding some facet of this important subject with the aim of attaining a deeper and clearer understanding of the workings of the small firm. And one factor clearly motivating the interest in small-firm research is the results previously found that suggest the existence of a relationship between general economic benefits and the small enterprise (Storey, 1994).

A main object of the many studies pursued both in Sweden and internationally is to shed light upon and identify the factors that are related to business start-ups, business stability and eventually, business success. This naturally leads to the area of entrepreneurship. A focal point for scholars, therefore, is research investigating the factors that motivate the small business owner to start up an enterprise, the subsequent process of developing that enterprise, and the strategies implemented to achieve the goal of a prospering business.

In this thesis, managerial strategies and the results of these are the focus of two studies. Moving away from the normal macro perspective to a micro perspective, the first study looks at business networking, where the influence of the independent variable, locus of control, forms the nucleus of an enquiry into the extent of participation in and use of networks, the implementation and adaptation of managerial strategies to deal with the business environment. The work begins with a description of some aspects of the relationship between networking and leadership styles, aimed at illuminating the complexities of business networking and the importance of leadership personality in the building and usage of networks.

This aim is based on earlier research suggesting that the usage of networks offers a great potential to make available to firms information, e.g. on market trends and developments in technology, as well as a forum for learning, along with access to other resources (Kale *et al.*, 2000). Placed in the context of business strategy, firms enter into relationships/ networks with other firms for a number of reasons. These may be the reduction of production costs, the acquisition of knowledge, or an increase in market power (Kale *et al.*, 2000). In the work presented here, the following areas of networking are examined: level of networking activity, effects on production costs, effects in terms of learning, and the strategic importance of networks, with the main hypothesis that locus of control will exert some influence on the participation in and usage of networks.

The small firm exists in a world that is seriously challenging, with high levels of competitiveness and uncertainty, making the success of the firm a process of greater or lesser difficulty. The first prerequisite is survival, which in turn means the ability to turn a profit. The focus of the second study, thus, is financial performance, seen from the aspect of leadership style and enquiring into related factors, specifically the relationship between internal versus external control of reinforcement, business strategy, the business environment, and financial performance.

The common linkage between the four studies presented is that of the psychological construct Internal versus External Control of Reinforcement or locus of control as it is generally referred to. It is argued that the construct provides a perspective that first brings the individual and his/her interaction with the environment into focus, thereby creating the possibility for interventions that are assumed to create benefits in working life. It is further argued that the construct helps to highlight potential individual initiative and dynamic in two completely different areas of working life, thus emphasizing the usefulness of the construct.

2 The Concept of Internal versus External Control of Reinforcement

Perception of control has been shown to be a most powerful concept within the field of psychology over the last fifty years. Many behavioural studies bear witness to this, with findings revealing that the individual's perception of control impacts upon any endeavours pursued. This influence has been found both in the many areas of working life and outside of it, making the concept one of the most studied in psychology the world over (Lefcourt 1991), where the many scales of measurement have been translated into a number of languages as scholars investigate differences in individuals' perception of control.

There are six theories at the centre of the many empirical works that have been published; the "self-efficacy" of Bandura (1977), "causal attributions" of Weiner (1974), "learned helplessness" of Seligman (1975), "perception of control" of Langer (1983), "personal causation" of De Charms (1968) and the theory that is the focus of this thesis, "internal versus external control of reinforcement" (Rotter, 1954, 1966), or "locus of control", a term that will be used throughout in the following. It is worth underlining that the first five theories are very closely linked to locus of control despite their different theoretical backgrounds (Stickland, 1989; Skinner, 1995; Lefcourt, 1991). Lefcourt (1991) posits that a main difference between these constructs is that some are based on motivational terminology while others, such as locus of control, are based on expectancy terminology. Another aspect that separates locus of control from other control theories is that its use is mainly as an attribute of personality, which, it is assumed, encompasses strong elements of stability and generalization. However, all of these concepts have a common interest in seeking to explain the degree to which people believe they can bring about positive events and avoid negative ones (Peterson & Stunkard, 1992)

2.1 Social Learning Theory

The concept of internal versus external control of reinforcement was developed by Julian Rotter and colleagues (1966) and is based on Rotter's (1954) social learning

theory (SLT), which is based on the principles of heurism. The development of the concept grew out of attempts to explain the tendency of some individuals to ignore reinforcement contingencies. The behaviour of these individuals in not responding as was predicted to rewards and punishments was attributed to a “generalized expectancy” (Phares, 1976).

The foundation on which SLT builds is that the development of an individual’s personality is highly dependent on interaction with a meaningful environment (Rotter 1966). The environment is thus of fundamental importance. At the same time, behaviour is assumed not to be directly dependent upon responses to an objective set of stimuli in the environment. Instead, Rotter (1954) postulates that behaviour is most effectively studied and understood by taking both the individual (which includes learning paradigms and previous experiences) and the environmental conditions that determine behaviour (the various stimuli in the environment to which the individual is responding) into consideration. Thus the integration of two main theories of psychology, that is to say, the stimulus–response and cognitive theories into a single theory that attempts to explain some of the complexity of human behaviour.

Needs and goals are two concepts that are related to social learning and the determination and outcome of behaviour. The goals of the individual direct the behaviour engaged in, while the decision as to the direction of the behaviour is related to personal needs. This argument facilitates the concept of motivation, as it is assumed that the value of needs is in itself a factor motivating behaviour.

Important for SLT is the postulation that human behaviour is changeable, i.e. that individuals can be expected to alter their common evaluation of causal attributions, provided that they are conscious of the contingencies between behaviour and expected results (Lefcourt, 1982). This generally means that it is possible to change behaviour by changing the environment (environmental stimuli), or the thinking process of the person, thereby making SLT a useful tool in real life situations such as working life.

Other important assumptions regarding SLT are that it is based on learned social behaviour, or has a “field approach” as Rotter (1966) defines it. This approach deviates from other psychological theories, for example the instincts and entities of mind postulated by Freud (1936), the constitutional types put forward by Sheldon (1942), or the subjective determinants of behaviour of the phenomenologists. At the same time, it is not to be interpreted as that human behaviour cannot be described in other ways, or that learning explains all of the complexities of human behaviour.

The theory of SLT provides a model that is used in the prediction of behaviour. This model, comprised of the following four components, behavioural potential, expectancy, reinforcement value, and the psychological situation, assumes that in order to predict behavioural states, all four components of the model must be taken into consideration. This requirement makes behavioural predictions somewhat complex, but the assumption is that human behaviour changes over time due to new experiences that lead to new expectancies or changes in the values that the individual perceives to be caused by reinforcements.

A short description of the four variables/components and their importance follows.

Behavioural potential is defined as the probability of an individual using a specific behaviour in a defined situation. The behaviour used is the one with the highest potential for reinforcement, thus the postulate that when predicting behaviour the determining factor is reinforcement value.

Expectancy is defined as an individual's subjective assessment of the probability that a given behaviour will result in a particular reinforcement in a specific situation, or as Rotter (1954) defines it, "a probability or contingency held by the subject that any specific reinforcement or group of reinforcements will occur in any given situation or situations." It should be noted that as expectancy is subjective and can be both over- and underestimated, which is assumed in the SLT theory, irrational expectancies can result in pathology. Another aspect of expectancy is that it is independent of the value allocated to the reinforcement by the individual. The theory further postulates that a relationship exists between expectancies and reinforcements. Since expectancies are the result of reinforcements, the expectancy of a specific behaviour can either be increased or decreased. As behaviour takes place, SLT assumes that in situations interpreted as being similar to other situations; a pattern of behaviour will develop, based on a generalization of expectancies (Rotter, 1954). In unique situations, generalization of expectancies is assumed to play a major role in the determination of behaviour since there is no reinforcement history. Generalization of expectancies plays a less significant role as the individual gains experience in that specific environment.

Reinforcement Value is defined as the individual's degree of preference and desirability for that specific outcome/reinforcement to occur. Reinforcement value is of major importance in research and understanding behaviour, as SLT proposes that prediction of behaviour assumes that the person values the expected outcome (s) of the particular behaviour. Thus, the higher the degree of preference for just that particular reinforcement, the higher the value it will be given by the individual; the lower the degree of preference, the lower the value.

Psychological Situation: SLT proposes that the individual's subjective interpretation of the environment is an important determinant of behaviour. This is in contrast to theories that imply that dependable predictions can be carried out when the fundamentals of personality are known.

2.2 Locus of control

As stated in the section on expectancy, the concept of internal versus external control of reinforcement is a generalised problem-solving concept, reflecting the degree to which an individual perceives reinforcement as contingent upon his or her own behaviour or on some other person and/or external force. Rotter (1966) for his part defined locus of control as a generalized expectancy of perceived internal or external control or the degree to which an individual perceives events as being contingent upon his or her own behaviour or own relatively permanent characteristics, which are assumed to be more or less stable under varying conditions. Individuals who believe that they can influence outcomes through their own abilities, efforts, skills and characteristics are designated as of internal orientation (internals). Those who perceive that outcomes are contingent upon external forces such as luck, chance, fate and powerful others or are of the belief that events are unpredictable because of the many complexities in the environment are

designated as of external orientation (externals). People are then classified along a spectrum of very internal to very external.

It is important to note that locus of control is not about a specific reinforcement, but instead is a problem-solving (i.e cognitive process), generalized expectancy that addresses the issue of whether behaviours are perceived to be directly related to the attainment of needs, no matter what the goal or reinforcement. It should also be noted that in some particular situations or environments, individuals of an external orientation can (and do) exhibit internal behaviour; this occurs because they have learned from earlier situations that they have control of the reinforcement.

3 Locus of control and working life

This section discusses locus of control and its relationship with working life behaviour, with the aim of presenting a boarder view of the many areas of working life to which the construct can be applied, thus underlining its potential as a variable of considerable interest.

3.1 Locus of control and organizational behaviour

In this section the specific relations between locus of control and job satisfaction, job stress and job performance are presented. In investigating the many facets of locus of control in working life, it is argued that the assumption that an individual's locus of control can be altered is of particular importance for the use of the concept. This assumption is empirically supported by a number of studies (see e.g. Phares, 1976; Partridge & Johnston, 1989; Hansemark 1998), thus allowing empirical research not only to enquire into possible individual differences that may be found, but even to develop methods and models that are capable of enhancing workers' abilities, or indeed the ability of persons seeking to enter or re-enter the labour market to deal successfully with obstacles encountered in working life, as well as designing work environments, work tasks, and organizational learning.

3.2 Job Satisfaction

A widely used definition of job satisfaction is that presented by Lock (1976), which is conceptualised as an employee's affective response to different facets of the job or organization, implying a personal evaluation of one's job. Another way of putting this is to say that employees experience job satisfaction if they perceive that their abilities, competence, and values are put to use in the organization and if they receive both rewards and further opportunities from the organization, based on their perceived abilities and performance.

From the theory of locus of control, a logical hypothesis would be that those of internal orientation are more inclined then those of external orientation to a higher level of job satisfaction. For example, an employee with a low belief in his/her own efforts and skills having any influence upon outcomes would be unlikely to be always willing to engage with much enthusiasm and dedication in achieving goals at the workplace; while the contrary is to be expected of persons who believe that outcomes are contingent upon their own efforts and skills.

This assumption is supported by Lefcourt's (1982) statement that one can probably see locus of control as more of a diagnostic indicator of a person's likelihood to seek to accomplish their goals in life. This should lead to internals being more active than externals in seeking ways of creating situations where their actions will be rewarded, and if not, they may be expected to pursue other forms of action. Spector (1982) suggests, for example, that internals will then leave a dissatisfying job. Further suggestions by Spector (1982) that support why internals more than externals should have a higher level of job satisfaction are that internals can be expected to perform better than externals and therefore to receive the benefits of a better performance, such as faster promotion and better pay, thereby increasing their job satisfaction.

The hypothesis put forward here is supported by the research findings presented below. Rothmann (2000), in a cross-sectional study using 624 employees from 7 different organizations in South Africa, found that job satisfaction was related to an internal locus of control orientation and a sense of coherence, which in turn was found to be related to internal control. Muhonen and Torkelson (2004), using a sample of 281 in a Swedish telecom company, reported that externals were less satisfied with their jobs than internals. Spector (1986), in a meta-analysis using 101 samples from 88 studies, found that a high perception of control was related to job satisfaction. Other studies that support this result are Petersen (1985), Garson & Stanwyck (1997), and Newton & Keenan (1990).

One can even assume that the level of job satisfaction will influence other areas of working life behaviour. One example of this is in the area of organisation commitment, where a relationship between commitment and locus of control has been found to exist (Luthans *et al.*, 1987; Spector, 1982). Another area of organizational behaviour that locus of control has been reported to influence is organizational frustration (Storms & Spector, 1987). Logically, one would expect that both commitment and frustration should have an impact on employees' job satisfaction. The conclusions drawn from the evidence is that locus of control influences employee perceptions of job satisfaction in organizations.

3.3 Job Performance

Many researchers argue that job performance can and should be judged from the point of view of the role employees see themselves as having. These roles are seen as being either of a compliant nature or of an initiatory nature, whereof the terms compliant performance and initiative performance. These two roles are the point of departure for the discussion below.

There is quite a lot of empirical evidence that connects cognitive ability with job performance (Hunter & Hunter, 1984; Ree *et al.*, 1994). The proposal here is that locus of control can be expected to play an important role in work performance. Some empirical evidence would seem to support this assumption. Lefcourt (1982) notes that externals seem to have a greater need for task structure before and during the performance of tasks; that they do not readily question the need or reason for carrying out tasks, and that as a result they may not take part in the performance of tasks with enthusiasm until they receive information on the benefits of their task. They are generally therefore more dogmatic in carrying out tasks, that is to say, give a more compliant performance. They also tend to show less interest in the entrepreneurial skills that might enable them to take greater control of situations or to produce new structures

or organizations that might enable them to gain better results from their efforts (Lefcourt 1982).

Internals, on the other hand, tend to show much more curiosity in the reasons for task performance and to spend more time seeking information about the various tasks they are required to perform. Here one can indeed speak about initiative performance (Lefcourt, 1982), for having acquired information, internals are inclined to use that information in a more advantageous way than externals (Lefcourt, 1982). Internals also tend to have greater interest in entrepreneurial skills; and seem to be quicker and more willing in the extraction of cues from information and the different situations that they find themselves in, which makes it possible for them to produce new structures or organizations that might enable them to gain better results from their efforts.

They even tend to show greater variability and are more deliberate and confident when making decisions than externals. Research shows that internals are more verbally fluent than externals and use verbal abilities to greater advantage. The general conclusion that can be drawn from the research into locus of control and cognitive ability is that there is a clear tendency for internals to show a higher level of alertness in many cognitive activities than externals. They also seem more willing to search for and find information that they interpret as helpful for controlling and coping with different situations and in the performance of tasks (Phares, 1976; Lefcourt *et al.*, 1984; Skinner, 1995, Erbin-Roesemann & Simms 1997).

The proposed relationship between locus of control and job performance has received empirical support; for example in the results found by Broedling (1975), and Hyatt & Prawitt (2001). Spector (1982, 1986), after reviewing research pertaining to job performance and its relation to locus of control, concludes that there is scientific evidence that internals tend to produce a better job performance than externals. Blau (1993), using a sample of 146 bank employees, found support for the proposal that an internal locus of control is related to higher initiative performance and that externals exhibited a more compliant performance.

An important dimension of job performance is motivation, or as Skinner (1995) puts it, motivated action, which is defined as “intentional goal-directed behaviour” and consists of three components, behaviour, orientation, and emotion. Skinner argues that perceived control influences both motivation and volition. Spector (1982, 1986) supports this proposed relationship of locus control–motivation–job performance in organizational settings, arguing that persons of internal orientation will show more job motivation, since they are more task and goal oriented. Other empirical support can be found in studies looking into the relationship between locus of control and achievement motivation (Rotter, 1966; Lefcourt & Ladwig, 1965).

In conclusion, the arguments and research finds presented here support the existence of a relationship between locus of control and job performance. Similar to the research carried out into locus of control and job satisfaction, the instruments used for investigating locus of control–job performance are both domain-specific and general; populations used are of both western and non-western origin, and all races are represented.

3.4 Job Stress

The research finds give good support to the hypothesis that locus of control is a moderator of life stress and a common symptom of stress and specifically that external control is positively correlated with stress and depression (Lefcourt, 1982). Job stress can be interpreted as a result of the interaction between the individual and the workplace. This means that in the workplace, demands, constraints, and change present situations that the individual may perceive as threatening beyond his/her capabilities to handle (Mcgrath, 1976). Another way of understanding job stress is by looking at the level of work pressure in the workplace, where work pressure is defined as a constant perceived high level of work load (Carayon & Zijlstra 1999).

A lot of research has been done in the area of work stress, where findings seem to support the hypothesis that a lack of control in the workplace plays an important role in the employees' perceived level of stress. That is, gaining control over the job situation is seen as a way of reducing job stress (Frese, 1989; Karasek & Theorell, 1990). This emphasizes the general importance that perception of control is assumed to play within the area of work stress.

Research into job stress and its relationship to locus of control supports the existence of a relationship (Evers *et al.*, 2000; Spector & O'Connell, 1994; Newton & Keenan, 1990). The studies presented above all found that externals seem not only to have higher perceived levels of stress than internals but also appear to be more negatively affected. Parks (1991), using two studies, one cross-sectional (n=617) and one longitudinal (n=147), and looking at stress from a demand-discretion perspective, got results that showed a relationship between work demands and locus of control, with externals showing that in situations where work demands and discretion were not in balance, stress levels were high, while this was not the case for internals.

These results suggest that externals tend to have greater difficulties than internals in dealing with the imbalances between demands and control in a variety of work related situations. This supports the idea that the construct definitely has a role to play in this area of working life.

4 Measurement and psychometric problems of locus of control

Many of the studies that have investigated the locus of control construct have applied the measurement scale developed by Rotter (1966). However, in the last two decades a number of new tools of measurement have been developed with an emphasis on criterion-specific scales, thereby increasing the measurement's validity (Lefcourt, 1984). The development of these new scales is in line with the advice given by Lefcourt and even by Rotter (1975). Today there are quite a number of scales that are either sphere-specific or multidimensional.

There are, however, still a number of important questions being asked about the measurement of locus of control. Coombs & Schroeder (1988) concluded that the assumption that locus of control has strong generalized expectancy properties does not hold up when analyzing data with the use of factor analysis. They even suggest that more goal-specific scales should be used, if the locus of control is to have any great value in predicting the individual's expectancies. Rotter (1990) addressed this critique

in his paper “Internal Versus External Control of Reinforcement”, where he clearly points out that the construct is heuristic, an important aspect when discussing the validity of the measurement. In replying to the criticism, he presented four propositions, of which three will be taken up here, as the forth is in many respects merely an extension of the arguments in the second proposition.

The first of Rotter’s propositions is the importance of having a “precise definition”, essential for a heuristic construct. This definition needs to be carefully worded in formulations that are precise and lead to mutual understanding. These statements should also include criteria that are both logical and generally accepted (Rotter, 1990).

The second proposition emphasizes the importance of having the construct embedded in a strong and extensive theory of behaviour. In the case of the locus of control construct the theory of human learning is its principal influence. It is from this proposition that Rotter offers explanatory arguments in his discussion of generalized expectancies. He counters by stating the following: “The theory does not specify independent traits, faculties, or types, *but* numerous psychologists have taken a 23–item test, subjected it to an orthogonal factor analysis, and concluded mistakenly that the concept had no generality because some specificity could be demonstrated. Generality-specificity is a matter of degree, not kind.” This statement emphasizes the fact that the learning theory principle is comprised of both generalization and gradient generalization.

The third proposition put forward by Rotter states that “measurement principles should be derived from psychological theory.” In particular it is argued that the surety of achieving acceptable predictive value from a scale increases “if the principles of measurement are derived from the same theory as the constructs to be measured”

Leone and Burns (2000) take on two other controversies concerning the measurement of locus of control. They point to the general content validity of the measurements; and also to whether or not sphere-specific scales are more reliable than multidimensional scales in predicting behaviour. To investigate these problems they carried out a study using three different measurements of locus of control, as well as applying nine scales to assess perceived behaviour-outcome contingency, interpersonal power, and self-efficacy. Their results showed construct validity problems with the three measurements and that it is possible that locus of control is confounded with interpersonal power or self-efficacy or both. At the same time, Leone and Burns caution that their results might benefit from more inquiry, both psychometric and theoretical, that may give better explanations and identification to the assumed relations between locus of control and other psychological phenomena.

The argument that locus of control may be confounded with other constructs is rebutted by Lefcourt (1991), who points out that perception of control, personal causation, personal competence, helplessness, causal attributions, and efficacy are seen as cognates of locus of control, thus strong relations should be found between these constructs.

Concerning whether sphere-specific scales are more reliable than multidimensional scales in predicting behaviour, it would seem that this question is still the subject of debate among many researchers (Furnham & Steele 1993). However, both Rotter (1975) and Lefcourt (1991) have suggested that it cannot be rejected that sphere-

specific scales would enhance the prediction of behaviour; an assessment that this author is in agreement with, despite the fact that the scale used in this work is not sphere-specific. This gives rise to the question of whether the relations found in the work presented here between locus of control and the various dependent variables would have appeared stronger if a sphere-specific scale had been used. Further research concerning this matter is necessary to give answers of this question.

4.1 Measurement scales used in work related situations

When it comes to the field of working life and organizational behavior, commonly used instruments can be recognized as having been developed for three main purposes. The first is to identify individuals who differ in their perception of the causation of events, that is to say, separating the persons of an internal orientation from those of an external one. Second is to investigate whether the behavior of internals and externals differs in any way in carrying out their various tasks within the domain of working life and organizational behavior. Third is to gain support for the existence of a normative criterion between the opposing traits of locus of control orientation, that is, persons of internal or external persuasion (Dubois 1997). These instruments have been developed and targeted to specific areas of working life; however, as reported by Furnham and Steele (1993), the number of these scales is limited.

Researchers have mainly depended on the Rotter Scale, the Adult Norwick-Stickland Scale, and the Macdonald-Tseng Scale (Dubois, 1997). The scale probably most used in the field of work and organizational behavior, whether in its original or in its abbreviated form, is the Rotter scale (1966). This scale has been used by a number of researchers, e.g. Valecha and Ostrom (1974), and Elangovan and Xie (1999). In Sweden an abbreviated version of the Rotter scale was developed by Andersson (1976) and has been used by researchers in work settings in Sweden, for example, Persson (1991), and Brenner and colleagues (1983). This scale is also used in this thesis.

4.2 Specific working life scales in use

Scales developed for use in work life settings have existed for about twenty years. Recently, a new trend has developed in that researchers have started the development of what is termed “work-related internality questionnaires” (Dubois, 1997). These questionnaires are designed to support the existence of a normative partiality for individuals with an internal orientation. A number of these are presented here, both the scales for locus of control and internality questionnaires.

The Work Situation Scale (Glisczynska, 1984) was the first specific work and organization scale developed and is used to assess the ability of employees to relate to each other (Dubois, 1997).

The Safety Locus of Control Questionnaire (Jones & Wuebker, 1985) is used to predict the occurrence of employee caused accidents. This scale has been found to have good reliability and validity in that test scores correlate with actual accidents and injuries (Furnham & Steele 1993).

The Driver Internality and Driver Externality Scale, developed by Montag and Comrey (1987), has been found to have predictive validity for motor accidents (Furnham & Steele 1993).

The Work Locus of Control Scale, developed by Spector (1988), is a scale of cause intended for use in organizational and work settings. This scale has been found to have good internal reliability and concurrent validity (Furnham & Steele 1993,).

The Economic Locus of Control Scale developed by Furnham (1986) is a scale to measure economic and work-related beliefs. This scale has been found to have good internal reliability and concurrent validity (Furnham & Steele 1993).

The Career Locus of Control Scale was developed by Trice *et al.*, (1989) for use in job search and selection (Furnham and Steele 1993).

The Occupational Attributional Style Questionnaire, developed by Furnham *et al.*, (1991), is used to assess how a person makes causal attributions for occupational outcomes (Furnham & Steele 1993).

4.3 Internality Questionnaires

Internality Questionnaire, developed by Beauvoir and LePoultier (1986) to assess whether managers adhere more to the internality norm than other employees (Dubois, 1997).

Internality Questionnaire on Work Situations developed by Pansu (1994). This questionnaire is designed to verify and generalize the results of the Internality Questionnaire and to show that while all employees are aware of the fact that internal explanations are valued, persons who are responsible for evaluations are more aware of this than others (Dubois, 1997).

There is a difference in the usage of these two types of instrument. When the individual in organizational settings is in focus, then locus of control scales are generally used. When a normative criterion is in focus, on the other hand, then the internality questionnaires are assumed to be best suited. It should too be remembered that these specific working life and organization locus of control scales were developed even with the aim of increasing the predictability of individual behaviour in these settings. However, when reviewing research carried out with these sphere-specific scales, it is argued here that it is still unclear as to whether these scales are better instruments of prediction than for example the Rotter scale. Yet it does seem that the new specific work and organization scales, internality questionnaires, and the older scales have an acceptable level of reliability and validity (Levenson, 1981).

5 Locus of control and vocational rehabilitation

A field where locus of control has been used internationally is that of vocational rehabilitation, although not previously in Sweden. In fact, while reviewing vocational rehabilitation in 2000 at the start of two studies on the subject, this author found no Swedish studies in publication that had used locus of control as either an independent or a dependent variable (the author is aware that some studies have been started and possibly completed since 2000). A few studies in the closely related field of medical rehabilitation have been carried out and published in Sweden, however.

In the following section, a theoretical model is presented that attempts to explain the influence of locus of control on the vocational rehabilitation process.

A number of studies have shown that locus of control influences rehabilitation outcomes as well as the return to work of individuals after sick leave. Norman & Norman (1991), studying the relationship between progress in rehabilitation and locus of control, found that individuals designated as of internal orientation made faster progress than those designated as of external orientation. Partridge and Johnston (1989) found that individuals with a higher level of perceived control had shorter recovery periods than others. Krause *et al.*, (1998) found that locus of control was correlated with a number of aspects of life adjustment after spinal cord injury, with internality being positively correlated with subjective well-being and general recovery. Duvdevany and Rimmerman (1996) found that disabled persons with an internal locus of control had more favourable attitudes to work and participation in vocational rehabilitation than counterparts with an external locus of control. Tseng (1970) found that under the vocational rehabilitation process, differences occur between persons of external and persons of internal orientation in the areas of self-reliance, reliability, work tolerance, knowledge and need for achievement, all of which are important for the outcome of vocational rehabilitation programs. These findings clearly indicate that locus of control has a relationship with rehabilitation.

As vocational rehabilitation is about returning to the labour force, and since the ultimate goal is for the rehabilitated individual is to find and above all to hold employment, even study of the field of work and organisational behaviour is important to the process. The conclusion here is that locus of control is a doubly interesting factor for vocational rehabilitation, influencing the individual's motivation, resource mobilisation, learning, and work adjustment.

In the words of Lefcourt (1976, p.144), "it is fairly safe to conclude that the perception of control has some profound effects upon the manner in which organisms come to grips with adversity." Researchers from many areas of psychology, for example learning theorists studying fear and stress, social psychologists investigating attribution processes and clinical psychologists inquiring into coping behaviour, have all contributed to the empirical evidence available today on the construct of perceived control (Lefcourt 1982).

In short, as summarised by White (1965), perceived control is in part a reflection of the individual's generalized sense of confidence and experience of self, either as a hopeful causal individual in the world, or as a despairing victim of the world in the control of others with little power to alter her/his predicament. Rotter (1992) argues that locus of control is influential in the important area of problem solving techniques, and thus is related to planning, coping, persistence, practice, and analysis, making the concept a central part of human functioning in everyday situations that are new or ambiguous, similar to what many unemployed persons with disabilities experience daily.

There are a number of psychological constructs related to perceived control, as mentioned above (Seligman's "learned helplessness" (1975), Langer's "perception of control" (1983) and the "self-efficacy" of Bandura (1977)). These constructs are very closely linked to locus of control despite their different theoretical backgrounds (Stickland, 1989; Skinner, 1995; Lefcourt, 1991). Lefcourt (1991) posits that a main

difference between these constructs is that some are based on motivational terminology while others – like locus of control – are based on expectancy terminology. However, all of these concepts have a common interest in seeking to explain the degree to which people believe they can bring about positive events and avoid negative ones. (Peterson & Stunkard, 1992)

5.1 The Vocational rehabilitation Process

In Sweden there is no single definition of vocational rehabilitation or of what is included in the process. But since the various forms that have evolved are expressions of both political and rehabilitation ambitions, this might explain the ambiguity (Agency for Administrative Development, 1998). However, the lack of clarity is certainly responsible for a number of other problems. One of these is a certain amount of friction between the two main public-sector actors in vocational rehabilitation, the National Insurance Board and The National Labour Market Administration, where a major source of disagreement is in assessment of when vocational rehabilitation should be initiated and when it is appropriate to consider the process complete. Another is in appraisal of individual working capacity. When has the individual re-attained full working capacity? Alternatively, what quantity of work capacity has been restored? The uncertainties and conflicts increase the complexity of the vocational rehabilitation process and compound the difficulties of those working to produce good, reliable services, as well as possibly throwing up obstacles to research and development in this field.

There is no doubt, however, about the main goal of vocational rehabilitation. Whatever the definition and content, the goal is helping people with various forms of disabilities to regain an occupation and to be in a position to take part in activities conducive to gainful employment such as training/education and job seeking.

In order to gain a proper understanding of the vocational rehabilitation process, a break down into separate perspectives is suggested – say, the societal and the individual – in order to achieve better clarity and draw distinctions between the many interacting levels that make up the vocational rehabilitation chain. To give a summary of various rehabilitation processes from three different perspectives the following three models are therefore presented, all based on long-term individual sick leave. Models I and II have been presented earlier. Model III, however, is a new explorative model proposed by the author.

Model I: The vocational rehabilitation process for unemployed long-term sick leaves

The vocational rehabilitation process for an unemployed person presented in Figure 1 below is based on work by Trygghed (1998), with some added modifications by the author, and shows the ‘normal’ chain of events. The model also shows which public authority is responsible for investigating, coordinating and initiating the process, the expected service offered to the individual, and possible outcomes. However, while this model fills an important function, little light is shed on the individual perspective, that is to say, nothing is indicated of the pressures, demands and challenges affecting the individual during the vocational rehabilitation process. No suggestions are given as to what type of cognitive process and behaviour may best be applied to meet the situation or that would contribute to achieving set goals. It is therefore proposed that an understanding of how the individual may utilise internal resources is fundamental to

vocational rehabilitation, and that models need to be developed that clarify and facilitate this process.

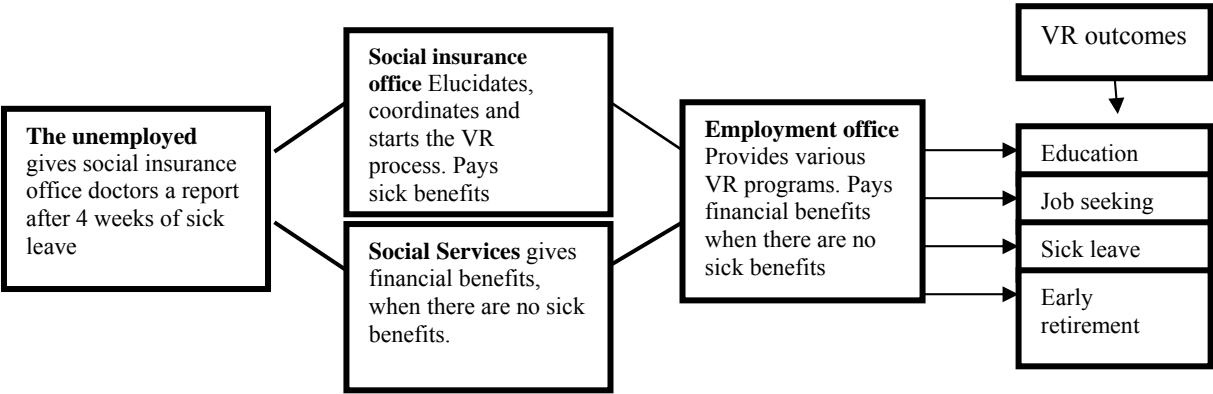


Figure I. The vocational rehabilitation process for unemployed long-term sick leaves

Model II: The individual’s progress from incapacitation to the labour market

The vocational rehabilitation process represents the individual’s progress from incapacitation back to the labour market. The model below is taken from Ekholm *et al.* (2002) and the process is assumed to be basically the same for both the employed and the unemployed. Figure 2 shows the vocational rehabilitation process starting before sick leave, with the person suffering illness/injury and going on to receive medical treatment/medical rehabilitation followed by vocational rehabilitation, and ending with possible outcomes (employment or disability pension). This model gives a good picture of the structure of vocational rehabilitation and what can be assumed to be included in the process, a necessity for developing rehabilitation models.

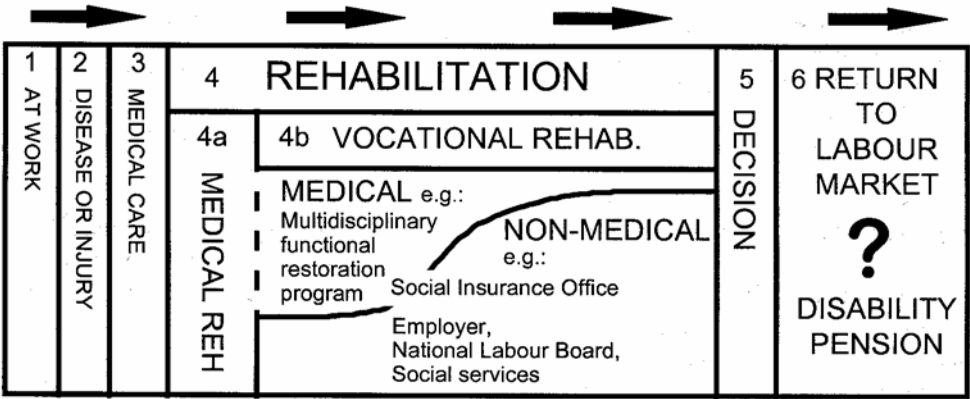


Figure 2. The sick-listed individual’s progress back to the labour market

However, this model does not either cover the individual perspective, that is, show what capabilities and competencies are important for the individual in meeting and dealing successfully with the various problems, demands and pressures inherent in the vocational rehabilitation process. Since in this work such characteristics are assumed to play an important role for how the individual uses the assistance and opportunities

offered during the vocational rehabilitation process, the following explorative model has been developed, proposing a number of individual qualities assumed to be advantageous during the vocational rehabilitation process.

5.2 Locus of control in the rehabilitation process Model III

The model presented below is intended to show how a person through the mobilisation of internal resources and competencies can employ those resources to achieve set goals. The model hypothesises that a relationship exists between the psychological concept known as locus of control and the vocational rehabilitation process, where the psychological concept exerts a profound influence on the outcomes of the process. In Lefcourt's words (1991), "Locus of control refers to assumed internal states that explain why certain people actively, resiliently, and willingly try to deal with difficult circumstances, while others succumb to a range of negative emotions... (leading to) failure to act on one's own behalf to remedy an unpleasant situation in the face of potential stress, or to bring about rewarding outcomes." (p. 413). It is argued that these individual qualities (states), as indicated by Lefcourt, are precisely what are essential to the process of individual utilisation of internal resources, motivating the hypothesised relationship between locus of control and the model.

Even if an individual succeeds in regaining complete work capacity, there is no guarantee that s/he will succeed in returning to her/his original workplace and tasks, or in the case of the unemployed, of finding a job. It is assumed that the reason for this is that the process of going from unemployment to employment requires a number of employment characteristics and competencies that the person may or may not possess at that time. It is therefore suggested that apart from the necessary support and assistance that should be offered in vocational rehabilitation programs, there is greater probability of achieving rehabilitation goals if the individual can command certain internal states, and that these should be utilised both by the individual and the vocational rehabilitation counsellor effectively.

The characteristics (internal states) assumed to increase the individual's chances of achieving a positive vocational rehabilitation outcome are presented in the model. The nucleus of these internal states in the vocational rehabilitation process is argued to be the individual's capability to gain control and indeed to create a state of empowerment during the vocational rehabilitation process. The individual's perception of control and empowerment is therefore seen as being of great importance for the probability of success of the vocational rehabilitation process (Emener, 1991; Feigi, 1995; Ekberg, 2000).

The model represents an environment of change, since vocational rehabilitation is a process of change (Ekberg 2000). The individual starts the process from a position of inactivity and/or unemployment and moves through a series of activities that should lead to employment. This movement is seldom linear, however, as there can be variations in both tempo and direction, forcing the individual to constant shifts and adaptations. The process thus requires some degree of coping ability to handle the changes taking place.

Locus of control and motivation

Motivation to take part in the rehabilitation program and to return to work is vital for the success of the exercise (Ekberg 2000; Hennessey 1997; Marklund, 1998; Salomon, 1972). A desire to return to employment must be present at the start, but motivation also plays an important role in the work adjustment phase of rehabilitation, that is to say, the individual's reorientation towards work and the demands that follow (Hershenson, 2001).

A number of studies support the association between locus of control and motivation and the need for achievement (Riipined, 1994). Theories of intrinsic motivation also show that internal locus of control is related to intrinsic motivation. Individuals' need-for-achievement related behaviour can be considered a conceptualisation of intrinsic motivation since the need for competence and self-determination is characteristic of this motivation (see Deci & Ryan, 1991). Lefcourt (1982) presents the same argument, stating that locus of control can probably be seen as a diagnostic indicator of a person's likelihood to become involved with enthusiasm and dedication in the accomplishment of her/his goals in life. Several other studies support this (see for example Ward, 1995; Fazey & Fazey, 2001, and Colquitt *et al.*, 2000). Spector (1982) argues that persons of internal orientation can be expected to show more motivation in a work situation than those of external orientation, as they generally perceive themselves as having greater control over their environment and normally exert considerably more effort in their attempts to achieve goals. The conclusion drawn here is that locus of control influences individual motivation.

Locus of control and the mobilization of internal resources

Having established that the individual's ability to mobilise and develop internal resources is of great importance for the vocational rehabilitation process (Ekberg, 2000; Åberg, 1996; Anthony *et al.* 1996), internal resources can then be characterised as individual coping skills (Lazarus, 1981) or cognitive strategies (Pollack *et al.*, 2000), where the aim is to create a form of "general competence" leading to a normal lifestyle, i.e. showing an acceptable level of control and decision-making abilities in as many life situations as possible. This of course applies to the rehabilitation situation. It is now put forward that another dimension of internal resources is social competence, that, knows the appropriate social codes both in and outside the workplace, alongside whatever vocational competencies the individual may possess.

Internal resources are important ingredients that facilitate coping, adjustment to change and the learning process during vocational rehabilitation. These resources can be assumed to influence the individual's self-confidence as well as perceived level of competence in a rehabilitation context. By mobilising internal resources the individual gains better ability to face the many challenges that arise during the vocational rehabilitation process and the chances are thereby increased of attaining set goals, where the main goal is returning to the work force.

There is no simple one-to-one relationship between locus of control and the mobilization of internal resources, but general findings from locus of control studies make it logical to assume that some form of relationship exists. This assumption is based both on studies showing that locus of control is associated with coping and cognitive strategies and on its general underlying theory of individual expectation as to

what different behaviours will lead to. Applied in the context of vocational rehabilitation, this should result in behavioural differences between persons of external and those of internal orientation. This can be seen in the complex processes of cognition, decision-making and imagining, where persons of internal orientation seem to use the cognitive process in a more advantageous way than persons of external orientation. Indeed, psycho-physiological research suggests that locus of control is associated with specific cerebral functions. That is to say, in the performance of tasks, persons of internal orientation have been found to use more functions of the left brain hemisphere for sensory motor control than persons of external orientation appear to do (Boone *et al.*, 1998).

In the area of coping, findings point to the use of different strategies depending on whether a person is of external or internal orientation. Gueritault *et al.*, (2000) found that external coping strategies (fatalistic attitudes, negative expectations and reliance on faith, etc.) were related to an external locus of control. Other studies that support the argument for differences in coping strategies are for example Sørli & Sexton (2001) and Chan (2000).

Research also shows that persons of internal orientation seem more to seek out relevant information and to learn more from feedback and early experiences than persons of external orientation (Boone *et al.*, 1998). Phares (1976), in summing up behavioural differences between persons of internal and persons of external orientation, found not only differences in information seeking and learning, but that persons of internal orientation seem to be more concerned with the information acquired than with the social demands of the situations in which they find themselves, and even make greater attempts to control their environment. In a vocational rehabilitation context, one may then expect that persons of internal orientation will be more reliant and achieve better mobilisation of their own internal resources as they can be expected to have a higher level of perceived competence.

Locus of control and learning

The individual's ability to learn new tasks (Hennessey, 1997), to seek, to obtain and to use information during the vocational rehabilitation process is fundamental to the success of regaining employment and developing skills that enable the individual to remain employed.

The idea that locus of control can influence learning has been studied quite intensively in classrooms. The objectives have been to study differences in learning styles or abilities between persons of internal and persons of external orientation. Dollinger (2000), studying incidental learning in a sample of 535 American college students, found that those of internal orientation were more inclined to be aware of relevant information in their environment. Dollinger's studies, three in number, used different scales to measure the subjects' locus of control, but in all cases arrived at the same results. Cassidy and Eachus (2000), studying learning styles and academic belief systems among 130 British undergraduates, produced results supporting Dollinger's. Cassidy's and Eachus results also showed that persons of internal orientation had higher academic self-efficacy, higher academic self-confidence and were more likely to adopt a deeper strategic learning approach, where Cassidy describes the learning approach of those of external orientation as "surface learning" or "apathetic."

A number of other studies also support the Dollinger and Cassidy research results. VanZile-Tamsen (1997) found that locus of control is related to the use of resource management, a component of self-directed learning. Biggs (1997) found that higher grades were associated with an internal locus of control. Martin and Knight (1985) showed that persons of internal orientation performed equally well on verbal learning tasks, regardless of whether the tasks were set by computers or by humans. These results all point in the direction that differences exist between persons of external and persons of internal orientation in the learning process. This would imply that when facing situations during vocational rehabilitation that require taking the initiative to learn, persons of internal orientation will be more inclined to do so, thereby increasing their probability of learning new tasks and presenting themselves as competent, and thus bettering their chances of (re)employment.

Locus of control and work adjustment

The concept of work adjustment is taken from Hershenson's model (2001). This work adjustment model has its main focus on the post-placement process in vocational rehabilitation; that is to say, what happens on the job when the individual returns to or gains employment. The focus here is on the individual abilities that influence this phase. According to Hershenson, work adjustment is the interaction of three subsystems (work personality, work competencies, and work goals) with environmental elements in work settings (behavioural expectations of the workplace, skills required to meet and accomplish the tasks of the job, and utilisation of the rewards and opportunities offered). Hershenson (1996) argues that the work adjustment process is of great importance for people with disabilities and a central part of vocational rehabilitation. It is therefore important that services and methods are provided to meet these needs.

Many studies also show that locus of control is associated with a number of behavioural patterns that should facilitate the 'person element' (work personality, work competencies and work goals) in the theory of work adjustment. Spector (1998) argues that persons of internal orientation would be expected to have greater work motivation, as they are more likely to have greater belief in their own efforts and own competence and also that these efforts and competencies will lead to rewards. In the area of organisational commitment, a relationship has been found to exist between commitment and locus of control (Luthans *et al.*, 1987; Spector 1982). Another area of organisational behaviour where locus of control has been found to have an influence is organisational frustration (Storms & Spector 1987). Logically, one would expect both commitment and frustration to affect employees' job satisfaction, as Rothmann (2000) found in his study. Thus, one would expect these behaviours to influence individual working habits.

When it comes to research on the direct relationship between locus of control and job performance, a number of studies have found that one does exist, e.g. Broedling (1975) and Majumder *et al.*, (1977). Spector (1982, 1986), after reviewing research on job performance and locus of control, found support for the view that persons of internal orientation gave a better job performance than those of external orientation. Blau (1993), using a sample of 146 bank employees, found that an internal locus of control was related to higher performance in situations involving initiative while an external locus of control was related to higher compliant performance. All of this evidence tends to support the assumption that locus of control should be related to work adjustment, as shown in findings by Strauser *et al.*, (2002). The conclusion here is that there is

scientific evidence relating influence of locus of control to employee perceptions of job satisfaction.

Model III shows the competence and psychological frames of mind assumed to be required of the individual in the vocational rehabilitation process. The model proposes that motivation, resource mobilisation, work adjustment, and learning placed in a context of change are fundamental for the individual in meeting and coping with the pressures, demands and challenges encountered during the vocational rehabilitation process, thus increasing the probability of a successful outcome.

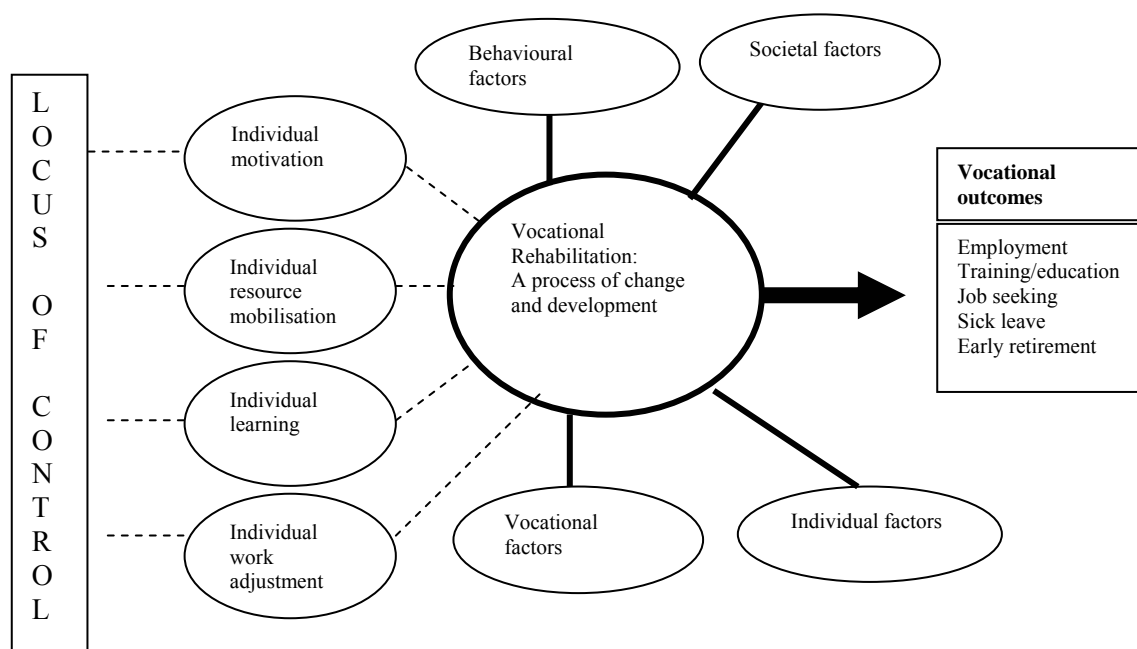


Figure 3. A full model of internal resource model within the framework of locus of control showing the internal resources that may be utilised by the individual during the vocational rehabilitation process. The dotted lines represent hypothetical relations; the non-dotted lines known relations.

6 Locus of control and Leadership

Another field in working life where locus of control has been used in studies internationally as well as in Sweden (though of a limited number) is that of leadership. The following section presents a brief summary of research in the area and ends with a theoretical model that aims to explain the impact that locus of control is assumed to have on leadership strategies in small firms.

A lot of research has been done on what constitutes effective leadership in organizations, along with employee reactions to supervisor behaviour or leadership style, and the various leadership strategies adopted (Spector, 1982; Kinicki & Vecchio, 1994), some of which have employed the locus of control concept.

Spector (1982) found that a relationship exists between locus of control and leadership in that leaders of internal and leaders of external orientation had different leadership

styles, where internals seem to rely on a more persuasive approach and were more goal oriented than externals.

Howell and Avolio (1993), using a sample of 78 managers, found that locus of control was related to a transformational leadership style (see Burns, 1978; Yukl, 1994), and even related to business-unit performance. Ward (1993), studying 88 small business managers from four countries — India, Honduras, USA and Ireland — found that an internal locus of control was positively correlated to the success of small firms

Boone *et al.*, (1996) carried out a study with a sample of 39 small business managers in Holland. They found that locus of control does have a direct influence on the performance of small firms, with managers' locus of control orientation having predictive validity for success or failure of small businesses.

Chebat *et al.*, (1992), studying the relation between marketing managers' beliefs about what causes commercial success or failure and these managers' perceptions of the probability of personally being able to influence success or failure, reported finding a direct relation between the managers' locus of control and their beliefs about causes of commercial success.

The results presented above suggest that a relationship exists between leadership and locus of control, with an internal locus of control being the preferable orientation for successful leadership in organizations. From this follows the question: what explanations can be offered for these differences in behaviour that result in greater or lesser success of firms, and specifically smaller firms?

It is suggested here that it is of particular importance that managers with an internal locus of control tend to believe that they can exercise a greater degree of control over situations in their environments — whether a work setting or their operating environment — through their own initiative and independence of action than externals do (Strickland, 1989). This is in line with the theoretical assumptions in which the construct locus of control is embedded, i.e. the proposition of expectancy and reinforcement value found in SLT. Placed in the context of business management and leadership style, it is logical to assume that a leader of an internal orientation will have higher expectations of his/her behaviour resulting in a particular reinforcer than a leader of external orientation; which in the context of this thesis indicates a successful business strategy.

One can therefore expect that if business networking is seen as a 'good' strategy, it is reasonable to assume that managers of internal orientation will attempt to achieve more business contacts that can lead to new information and better control (inter-firm networking) than managers with an external locus of control. That is, if managers of internal orientation assume that such business contacts and control will lead to desired outcomes (i.e., have reinforcement value).

This is in line with results reported on by Seeman (1963, 1967) and Phares (1976), where it appears that there are differences in the cognitive process between externals and internals; also with the prediction of Spector (1982) and findings from Blau (1993) that persons of internal orientation attempt to control their environments and performance outcomes through initiative-based behaviour. In the context of this thesis, the assumed differences in the cognitive process are argued to be fundamental for the

overall differences that can be predicted between internal and external managers. Further, it is suggested that it is at this early point, as the seeking of knowledge and the analysis and use of new information begins, that the process of separation and differentiation between internals and externals begins. This suggestion is well in line with earlier results such as Phares (1976), Lefcourt (1976) and Dollinger (2000).

Initiative-based behaviour may include scanning a business environment for relationships that offer information or potential opportunities and then attempting to build on accumulated knowledge and relationships that are perceived as likely to be positive and lead to success in business performance.

Research results suggest that internals show more curiosity and spend more time seeking information about the various tasks and environments in which they have to perform, so here one can speak of taking initiatives in the performance process. When they acquire information, internals are inclined to use that information in a more advantageous way than externals. Internals also seem to have a greater interest in entrepreneurial skills, a trait of paramount importance for the start-up and development of small firms (Hansemark, 2003); and seem to be quicker in the extraction of cues from available information and the different situations in which they find themselves, making it possible for them to produce new structures and knowledge that will enable them to gain better results from their efforts, and in the long run a better business performance.

Persons of internal orientation even show greater flexibility but are more deliberate and confident in decision making than externals. Internals also tend to be more verbally fluent than externals and able to use such abilities to greater advantage in situations where communication is important. This is a very important factor for leaders of small firms, where owner/manager influence can be expected to have a greater impact on the direction of the firm as well as the process of strengthening and developing business ties.

A related field to small firm performance is that of goal achievement. General findings from investigations of the connection between locus of control and goal achievement makes it logical to assume that individuals of a more internal orientation are more likely to be high achievers, since they perceive success as contingent on their own behavior. One may therefore view locus of control as a diagnostic indicator of a person's likelihood to seek and accomplish their goals in life (Lefcourt 1982).

Empirical support for the above arguments is given by Tseng (1970), who using a population of 140 unemployed individuals found that internals tended to show a greater need for achievement than did externals. Broedling (1975) found in his study of naval personnel in the USA that internals not only showed greater need of achievement, but worked harder to achieve their goals. Bar-Tal and Bar-Zohar (1977) reported that of 36 studies devoted to finding a relationship between locus of control and achievement, 31 reported finding a positive relationship. Recently, a further number of studies have been published supporting the hypothesis of a relationship between the variables internal locus of control and achievement, for example, Hansemark (2003) on a sample of Swedish subjects, and Carden, Bryant & Moss (2004).

The general conclusions that can be drawn from the research into locus of control and cognitive activity are that there is a clear tendency for internals to show a higher level of alertness in cognitive activities than externals. They also seem more willing to search for and find information that can help them to gain control of different situations and to cope with the performance of tasks (Anderson, 1977; Lefcourt et al., 1984; Skinner 1995, Tseng 1970). The proposal here, then, is that the internally oriented owner/manager of the small firm, having a more positive assessment of her/his ability to reach and accomplish the goals set for the firm, is also more likely to do so, since the behaviour and ultimately the strategies adopted are more offensive in dealing with the surrounding business environment, in contrast to the owner/manager of external orientation, who is less entrepreneurial in style, less active in the finding and analysis of information and thus tends to adopt a less offensive business strategy.

A theoretical model explaining the hypothetical relations between locus of control and small firm leadership strategy is presented below. The model hypothesizes that the *process* is basically the same for internals and externals, the fundamental difference in *behaviour* depending on the cognitive process, where the essential and dividing factors are generalized expectancies and problem solving.

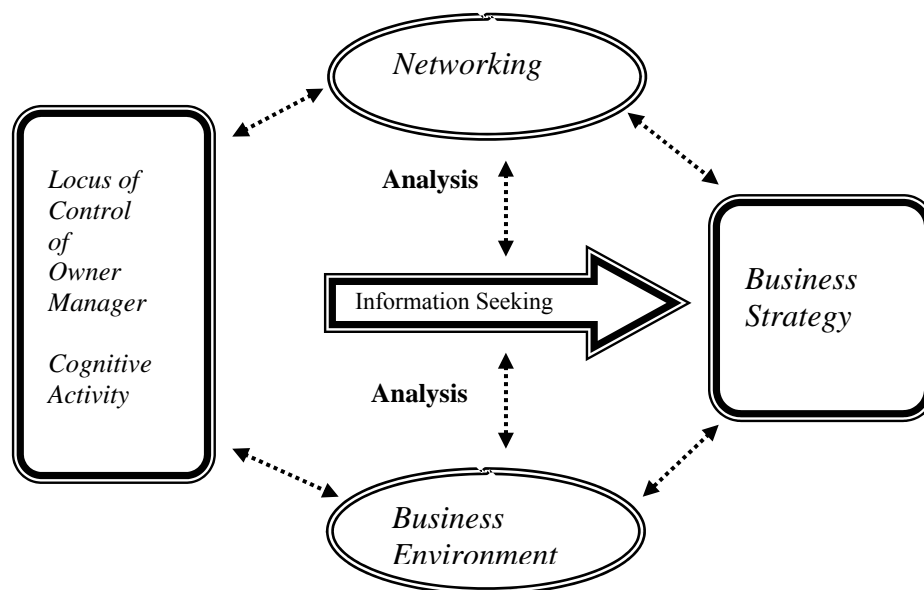


Figure 4. Theoretical model showing the relations between owner– managers’ locus of control, cognitive activity, information seeking, networking, business environment and business strategy.

7 The aim of the study

In this thesis four studies are presented. The general aim is to shed further light on the relationship between the psychological construct locus of control and working life from two separate perspectives, the first, vocational rehabilitation for unemployed sick

beneficiaries in Sweden. To do so, the first study (paper I) inquires into individual status at the start of vocational rehabilitation and the ways in which locus of control may influence individual differences and status at the outset, where it is hoped not only to see the true influence of locus of control, but also to gain a good picture of the status of individuals at the start of their rehabilitation. The second study (paper II) investigates the impact of locus of control on outcomes of vocational rehabilitation.

The second perspective is that of leadership of small firms, focusing on business strategy and financial performance. To achieve these aims, two further studies were carried out using data from 2002 and 2003, and a sample of 83 small firms in a small industrial park in a rural county of Sweden. The first study in this area of working life (paper III) investigates the relationship between locus of control and how leaders of small and medium-size businesses perceive and value their own firms' use of networking. The second study (paper IV) enquires into the effects of locus of control on business strategy and financial performance in small firms. This span is intended to indicate the potential breadth of application offered by the locus of control concept for research and development in working life.

8 Methods

The methods used in the first two papers are presented under sections 8.1 to 8.4. The methods use for papers III and IV are presented under sections 8.5 to 8.7

8.1 The sample (papers I and II)

The sample of papers I and II consists of 143 persons of both sexes aged 18 to 55 who were unemployed or had ended a sick leave period immediately prior to beginning the vocational rehabilitation programme. The sample exhibited various forms of disabilities. However, persons registered at the employment offices as having an intellectual handicap, immigrants experiencing trouble with the Swedish language, and persons over the age of 55 were excluded from the population.

The subjects were randomly selected from 10 employment offices in five counties: Stockholm, Västra Götaland, Gävleborg, Västernorrland and Jämtland, giving a spreading over two main geographical locations, urban or rural.

The results presented here are from 143 respondents in the first study and 126 respondents in the second of an initial sample population of 200. It is judged, however, on grounds of the pressures and sensitivity of vocational rehabilitation, that the number of completed questionnaires is acceptable; there are no systematic misses of data in this study.

8.2 Data collection and measurement

In both studies, locus of control was measured using an abbreviated version of the Rotter scale (1966) as developed by Andersson (1976) for use in Sweden, mainly in work settings. The scale has a minimum score of eight and a maximum of 40, with a low score representing an external locus of control orientation and a higher score representing an internal locus of control orientation. The mean score for the sample was 25. The score is dichotomised with the cut-off point set at 25. Individuals who scored 25

points or less were designated as having an external locus of control while individuals who scored 26 points or over were designated as having an internal locus of control.

For the measurement of health, the Swedish version of the EUROQOL-5D was used. This scale is divided into two separate sections, giving a health index that measures general health status, with a maximum score of 1.00, indicating a very high level of health, and a minimal score of -0.594, indicating a very low level of health.

The second section deals with a visual analogue scale (VAS) of an individual's subjective health status between 1.00 (poor health) and 10 (very good health).

Apart from these two instruments, a questionnaire was developed to collect data on each subject's background, sick leave and unemployment history. Sick leave was measured by asking subjects to give as correct an assessment as possible of their accumulated length of sick leave in months. The length of unemployment reported was confirmed by comparison with the records kept by the National Labour Market Board. The classification of disabilities is based on the Labour Market Board standard classification.

In paper II, to assess the outcome of the vocational rehabilitation programs as well as the types of programs used, a questionnaire was developed to collect data on each subject's outcome. The data received via the questionnaires were then cross-checked against the National Labour Market Administration records.

8.3 Procedures

In paper I, Vocational rehabilitation counsellors working in the employment offices of each county selected subjects from the employment offices records under a 3-week period. Who were then informed about the study and asked whether they would care to participate. If the answer was positive, they were handed the questionnaire in an envelope and asked to fill in and return it to the counsellor before leaving the office. It was possible even for the subject to fill in and return the questionnaire to the author's office.

In paper II, to assess the outcome as well as the type of vocational rehabilitation program used, a questionnaire was developed to collect data on each subject's outcome and the type of program or programs participated in. The data received via the questionnaires were then cross-checked using the National Labour Market Administration records. This second measurement took place about 16 months after the first, at the start of the vocational rehabilitation programs. It should be noted that no information was given to counsellors about locus of control.

The general procedure used for the (vocational program) interventions is as follows. Subjects meet with their counsellors a number of times to discuss their background, health status, employment history and vocational goal(s). This information is then used as the basis for choosing the type of vocational rehabilitation program (VR) suitable to each client.

Five different types of programs were identified for the interventions, classified in this study as follows: *VR program 1* = work place training in real work environments only, where the subject is placed in one or more workplaces to train and practice various skills. *VR program 2*, where the subject is placed in one or more real workplace

environments to train and practice various skills followed by vocational educational courses. *VR program 3* = workplace training in real work environments and vocational educational courses as in program 2 with the addition of VR experts (mainly a psychologist or physiotherapist) besides counsellors. *VR program 4* = program 3 minus the educational courses. *VR program 5* = sheltered workplace training, that is, no training in real work environments or vocational educational courses.

8.4 Statistics

In paper I, median scores analysed by two-sided Chi² test were used to determine the relationship between five individual factors, one contextual factor, and the three main factors, health status, duration of sick leave, and duration of unemployment in months. Correlation analyses were carried out using point biserial correlation this in order to gain a good knowledge of the various relationships of the variables used. The model was tested with regression analysis.

In paper II, different categories of outcomes of vocational rehabilitation programs in relation to different groups were tested using the Kruskal-Wallis test. Correlation analysis was carried out using Pearson's correlation (*r*). In order to determine which variables are predictive of outcome, backward logistic regression onto outcome was performed with the five variables (the health variable was divided into two variables, thus there are 6 variables entered) that significantly correlated with outcome.

8.5 The sample (papers III and IV)

The sample for papers III and IV consists of owner-managers of 146 small and medium-size businesses in a small industrial park in rural Sweden, which is the total population of small and medium-size firms in the park (Odenskog Industrial Park). A total of 83 firms responded, yielding a response rate of 57 per cent. Among those responding, four different branches of industry were identified. The number of employees per firm was 3-50 (all firms with less than 3 or more than 50 employees, 17 in number, were excluded). For paper IV, a further 17 respondents were excluded due to unavailability of financial performance data for some or because the *owners/managers* did not meet the criterion of having occupied the position of either *owner* or *manager* during the relevant period (2002 and 2003). The final sample of 49 was then grouped and designated as the total sample. Thereafter two sub-groups were identified: the metal branch consisting of 21 firms, and the trade branch, made up of 28 firms in wholesale and retail trade.

Procedures

A research questionnaire was mailed to owner-managers of 146 firms, followed by a letter with repeat questionnaire to all non-respondents. The questionnaires were coded and the data from them entered into a database in the computer program SPSS 11.5.

8.6 Measurement

In paper III all the scales used to measure networking activity were partially or completely developed by the author for use in this study. The following is a description of the scales used to measure networking activity in various areas.

Number and types of networks

This study advances the idea that networks can be categorized as either formal or informal. Formal networks are defined as networks that are based on membership; examples of such networks are cooperative organisations, professional organisations and unions of various kinds. Informal networks are defined as networks based on social relationships where membership is not a prerequisite for participation. In this study, respondents were asked to specify whether they belonged to formal or informal networks by giving a yes/no response.

The level of network activity

It is assumed in this study that number and types of network involvement are accurate descriptors of the level of network activity that a firm has at local, regional, national and international levels. Also assumed is that the amount of network activities a firm participates in, the time allotted to building and maintaining networks, and the number of projects that a firm has started with the help of other network partners are related to outcome of activities. A scale (in Swedish) comprising nine questions was developed by the author to measure network activity, with a minimum score of 9 and a maximum score of 45. A low score represents low network activity and a high score high network activity. The aim here was to measure the level of a firm's activity when it comes to networking in general rather than any specific area of networking.

Reduction of production costs

To measure the reduction of production costs, a scale (in Swedish) was developed by the author that comprised 6 questions with a minimum score of 6 and a maximum score of 30. A low score represents low activity aimed at reducing production costs while a high score represents a high level of activity. The aim was to measure the level of a firm's activity with regard to the reduction of production costs in general.

Learning

To measure learning, a scale comprising 8 items was used, where four of the items are based on the scale developed by Inkpen and Beamish (1992) and Tsang (2002) and where for the sake of this study, an additional four items were added. A high score represents high learning activity and a low score low learning activity. The aim was to measure the degree to which an owner-manager perceived that their firm used participation in networks as a way to learn new business techniques and strategies.

Strategic importance of networks

In measuring the strategic importance of networks, a 5-item scale was used. Low scores represent a lower subjective perception on the part of an owner-manager of the strategic importance of networks to the firm. A higher score represents a higher subjective perception by an owner-manager as to the strategic importance of networks to the firm.

All the scales that were developed to measure networking (partially or completely) by the author were tested for consistency using Cronbach alpha. The results show

Cronbach alpha coefficients ranging from 0.72-0.94 and for the locus of control scale 0.85; these are assumed to be good to high as they exceed levels recommended by Nunnally & Bernstein (1978).

Locus of control was measured using an abbreviated version of the Rotter scale (1966) as developed by Andersson (1976). The scale has a minimum score of 8 and a maximum of 40, with a lower score representing an external locus of control orientation and a higher score representing an internal locus of control orientation. In this study, individuals who scored 30 points or less were designated as having an external locus of control while individuals who scored 31 points or higher were designated as having an internal locus of control. The locus of control scale was tested for consistency using Cronbach alpha. The result shows a coefficient 0.85, well in line with the recommendations of Nunnally & Bernstein (1978).

For paper IV, to measure financial performance the Deloitte & Touche firm of accountants was consulted to provide the measures from accounting databases that are available at the Swedish Companies Registration Office. Two measures were selected. The first is return on assets, a measure generally used in research investigations of small firm performance (Boone et al., 1996). The second is operating margin, which is the operating profit before items affecting comparability divided by net sales. This measurement is recommended by Statistics Sweden for use in small and middle-size firms in Sweden as crucial for the assessment of how well the business is doing and the stability of the firm. As the performance of small firms can vary (Boone et al., 1996), two-year averages of these measurements were compiled into an index by Deloitte & Touche.

Strategic posture

The strategic posture scale used is that developed by Covin and Slevin (1989), translated into Swedish for the use of this study. The scale consists of 9 items with a minimum score of 9 and a maximum of 63, where a higher score represents a more entrepreneurial strategic posture. This scale has subsequently been used in other studies.

Environmental hostility

A three-item scale developed by Khandwalla (1976/77) is used, where the scores are averaged to reach a single hostility of environment index. The higher the index score, the more hostile the firm's environment.

Networking activity

To measure networking activity for this study (paper IV) an index was build using *three scales* that were used to measure specific areas of networking in paper III. The scales are: 1) *The level of network activity*, 2) *Reduction of production costs*, 3) *Learning*.

Locus of control

Locus of control was measured using the abbreviated version of the Rotter scale (1966) as developed by Andersson (1976) and used in studies 1-3. The mean score for the entire sample for this study is 30. In this study, the score is dichotomised with the cut-off point set at 30. Individuals who scored 30 points or less were designated as having an external locus of control while individuals who scored 31 points or over were designated as having an internal locus of control.

8.7 Statistics

For paper III all statistical analyses were carried out using the statistical program SPSS version 11.s for Windows. When carrying out statistical analysis, indexes (possible range 1-5) were formed for all dependent variables and the mean of the variables were used in the analysis in accordance with the procedures put forward by Nunnally & Bernstein (1978).

Chi-square testing was used to test for differences of membership in both informal and formal networks (using frequencies of membership). To test for differences in the level of network activity and quantity of use of networks t-test was used. Pearson product-moment correlation was used to test for correlations.

For paper IV all statistical analyses were carried out using the SPSS statistical program version 11.5.1 for Windows. In carrying out statistical analysis, indexes were formed for all dependent variables with the mean of the variables used in the analysis in accordance with the procedures put forward by Nunnally & Bernstein (1978).

To test for differences in financial performance, networking activities, strategic posture and business environment between internal-locus and external-locus owner-managers, Mann-Whitney U was used. Spearman Rho correlation was used to test for correlations. Hierarchical linear regression analysis was used to test for models that best fit the data. This approach to multiple regressions is appropriate for use when high correlations exist between the independent variables (Cohen & Cohen, 1983).

9 Study 1: Individual status at the start of rehabilitation: Implications for vocational rehabilitation programs

The aim of this study was to describe the situation of sick-listed individuals at the start of vocational rehabilitation in Sweden. To do so, an assessment was carried out of the possible influence of the one contextual and five individual factors on the three main ones. It was assumed that if it was found that the three main factors were influenced, then it would be essential to consider these relationships when designing, selecting and matching vocational rehabilitation programs in the future.

The five individual factors (gender, age, disability, education, and locus of control) and the contextual factor (geographical location) were tested for differences in relation to the three main factors health, sick leave and employment using two-sided Chi².

Results for the health factor show that women, persons with physical disabilities, and persons with an external locus of control have significantly lower scores on the health index than men, persons with 'other' disabilities, and persons with an internal locus of control. Analysis of the sick-leave factor revealed that geographical location and locus of control varied significantly in relation to length of sick leave. Subjects residing in urban areas had shorter sick-leave periods than subjects residing in rural areas, with a median score of 11 to 21 months. The other significant finding is that subjects with an internal locus of control had shorter sick-leave periods with a median score of 14 to 21 months. The third main factor, unemployment, showed one significant result: persons between the ages of 18 and 25 have a significantly shorter period of unemployment than older persons, with a median score of 6 months.

Correlation analyses were carried out using all ten factors in the study, the aim being to test for relations between the factors. Results showed the age factor to be significantly correlated to both sick leave and unemployment, where the older the individual the longer the duration of sick leave and unemployment. Gender and disability were found to be significantly correlated to the health index, while locus of control and geographical location are both significantly correlated to sick leave. Significant correlations found between the three main factors are: health index with health self-rating, health self-rating with sick leave, and sick leave with unemployment. The strongest correlation coefficient was between unemployment and length of sick leave (.645).

Regression analysis was used on the model employed in the study with the dependent variables self-reported health status, length of sick leave, and unemployment. Results revealed that the degree of prediction (R^2_{adj}) of the model is very low (4-8 %), meaning that in this study there are other factors that have stronger influences on health, length of sick leave and unemployment than the factors suggested here. Results even show that locus of control has the highest portion of variance of all three main factors, however it is only the sick leave factor that is significant ($p = 0.038$).

It was concluded that individual differences exist in health status, length of sick leave and unemployment at the start-up of vocational rehabilitation. Locus of control was found to exert an important influence on differences between the individuals in the study sample, with persons of external locus of control having a less favourable point of departure at the start of vocational rehabilitation compared to other groups. *It is therefore suggested that these persons will be in greater need of support during the vocational rehabilitation process.* The level of unemployment within a geographical area was also found to influence the length of sick leave, suggesting that some relationship exists between the factors.

10 Study II: Locus of control and its relationship with vocational rehabilitation outcomes of unemployed sick leavers in Sweden

The aim of study II was partly to assess the impact of locus of control on vocational rehabilitation outcomes, partly to see how the design of the rehabilitation programs themselves influence outcomes. To do this, data was collected and analysed after an intervention, i.e., after the subjects had participated in various vocational programs. The main findings in study II are presented below.

To access the differences in outcomes of the various vocational rehabilitation programs, analyses were performed using the two-sided χ^2 test. Results reveal four significant results. Individuals with an external locus of control have a much higher rate of incapacitation and/or going on to earlier retirement when compared to those with an internal locus of control. This group also showed a much lower frequency of regaining employment or starting a new education after vocational rehabilitation. Results showed differences as well between the three disability groups. Individuals with physical disabilities had a lower rate of gaining employment or of taking up some further education than individuals from the other two groups. Individuals from the group of 'other' disabilities had a lower rate of remaining on sick leave or going on to early retirement than the other two groups. Individuals living in rural areas had a higher rate of remaining on sick leave or going on to early retirement than individuals living in

urban areas. Correspondingly, this group also had a lower rate of regaining employment or taking up an education than individuals living in urban areas. Vocational rehabilitation programs based on workplace training gave the highest rate of (re)employment or enrolment in an education after rehabilitation. Programs comprising only sheltered training with vocational rehabilitation experts gave the highest incidence of individuals remaining on sick leave or going on to early retirement.

Correlation analyses were carried out using the Pearson (two-tailed) correlation analysis. The main aim of this analysis is to access what factors are correlated to the vocational rehabilitation outcomes. The analysis gave the following results. Vocational rehabilitation programs have the strongest correlation coefficient with outcomes (-.392). Length of sick leave and unemployment, locus of control and health were all moderately correlated with vocational rehabilitation outcomes. Vocational rehabilitation programs were negatively correlated to outcomes, meaning that workplace training gives better results than other programs. Locus of control is positively correlated, meaning that the more 'internal' the individual, the more likely it is that s/he will move on after vocational rehabilitation, either to employment or to an education. Persons who rated their health as good at the start of vocational rehabilitation achieved more successful outcomes than persons who rated their health as poor. Both length of unemployment and duration of sick leave are negatively correlated to outcome, meaning that the more prolonged the period of sick leave and unemployment, the greater the likelihood that those individuals will remain on sick leave or have to be granted early retirement.

In order to determine which variables are predictive of outcome, backward logistic regression onto outcome was performed with the five variables that significantly correlated with outcome. Two of the variables were removed, leaving locus of control, health (VAS) and vocational programs. The values of the regression analysis results are as follows. The degree of prediction (R^2_{adj}) is moderately high (36 %), meaning that the three factors isolated in this study of vocational rehabilitation have some predictive value. Results even show that locus of control has the highest portion of variance; it is also significant ($p=0.010$). The other remaining factors, vocational programs and health (VAS), are also significant at $p=0.022$ and $p=0.004$ respectively.

The conclusion is that the construct locus of control plays an important role in the outcomes of vocational rehabilitation. Perceived health status, the type of rehabilitation program, the accumulated duration of both sick leave and unemployment at the start of rehabilitation, and whether dwelling in an urban or a rural area are other factors that also exert an influence on outcome.

Following on this, the suggestion is that methods and models that increase the individual's internal locus of control, that is, that give the individual a greater sense of control and power during the rehabilitation process, should be developed for use in vocational rehabilitation programs in Sweden. Programs should also use workplace training as often as possible as this also increases the likelihood of success. It is nevertheless important to point out that the entire vocational process in Sweden is heavily influenced by other variables; for example, regulations governing the social insurance system and political considerations. To increase effectiveness of the process it cannot be ruled out that changes will have to be made at these levels.

11 Study III: Networking among managers of small and medium-size businesses in an industrial park in rural Sweden: Locus of control as an indicator of participation.

Understanding the impact of business networks upon business operations has become an important area of study in several academic disciplines. The emphasis in paper III is on psychological aspects of networking.

In order to gain a complete picture of the networking process in small and medium-size businesses it is necessary to know and understand the influence of different leadership characteristics upon managerial style, as well as the extent of participation in and use of networks. The work reported on here is an attempt to describe some aspects of the relationship between networking and leadership styles in order to illuminate the complexities of business networking and the importance of leadership personality in the building and usage of networks.

Findings from this study show that there is a significant difference between owner-managers in network usage, with persons of internal orientation having higher frequencies of participation in both informal and formal networks. This result confirms the hypothesis that the number of networks in which a firm participates is positively related to its owner-manager's locus of control. There are three significant results all showing that the usage of networks differs between persons of internal orientation and persons of external orientation, where persons with an internal orientation have higher levels of general network activity, use networks to a higher degree for learning, and place a higher value on the strategic importance of networking.

Correlation analysis shows that locus of control is significantly correlated with five of the six factors presented. The strongest relationship to locus of control is found with the learning factor, meaning that persons of internal orientation reported that they use networks to a higher degree for learning than persons of external orientation. There were also significant correlations among most of the six network factors, e.g. high correlations between general network activities and the learning factor, which is interpreted to mean that learning is a main activity of networking in this study. Learning was also found to be highly related to the value placed on the strategic importance of networking, again showing its importance relative to a firm's overall level of networking.

Locus of control orientation of owner-managers clearly plays an important role for gaining and using the benefits of business networks. From a micro perspective, this result sheds light on the importance of leadership characteristics for participation in and usage of networks. The conclusion that manager personality (in the form of locus of control orientation) has a significant influence upon business strategy is recognized as important in today's marketplace. If more owner-managers can learn to adopt an internal locus of control orientation, then an improved business economy is a likely outcome. It is suggested that further research needs to be carried out from a micro perspective if all the complexities of the use of business networks are to be fully understood.

12 Study IV: Locus of control and its impact on strategy and financial performance of small firms

This study has two main aims; the first is to investigate the bivariate associations between locus of control on the financial performance of small firms, as well as on three other factors that are assumed to influence financial performance. These three factors are: the style of management adopted by owner-managers, also known as *strategic posture*, the *networking activities* of owner-managers, and the *business environment* as perceived by owner-managers. The second aim is to examine simultaneously the multivariate relationships in an analytical model that takes into consideration the combined impact of these independent variables on the dependent variable, the financial performance of the business.

Results show that there is a significant difference in the financial performance of firms in the metal branch, with firms run by owner-managers of internal orientation having a much higher rate of performance (14,56) than their external-locus counterparts (8,33). For the total sample there is no significant difference; but owner-managers of internal orientation (27,85) show a higher mean rank than externals (23,03). In the firms in the trade branch, on the other hand, owner-managers of external orientation have a slightly better result than owner-managers of internal orientation ($p=0,963$). These results partly support the hypothesis that differences exist between firms managed by externals and those managed by internals. However, as there is no unequivocal support for hypothesis 1 it must be rejected.

Findings on the adoption of an entrepreneurial strategic posture and leadership style show owner-managers of internal orientation reporting a significantly higher inclination towards an entrepreneurial strategic posture than external-locus counterparts, both for the total sample and the metal branch. The trade difference was not significant at $p < 0,073$. This means, however, that since the hypothesis is not totally supported it has to be rejected.

For networking activities the results show that owner-managers of an internal orientation have a significantly greater amount of networking activities than owner-managers of an external orientation, both for the total sample and the trade branch. There was no significant difference for the metal branch, although owner-managers of internal orientation clearly participated in more activities. These results are mixed, not either giving total support to the third hypothesis, which suggests that it is false.

Results on how owner-managers perceived the business environment showed significant differences both in the total sample and the trade branch with external-locus owner-managers reporting higher perceived levels of environmental hostility, whereas the differences found between owner-managers in the metal branch were not significant. The mixed results mean that the hypothesis of differences in perception between managers is not either supported in its entirety, and as such is false.

The correlation results in table 3 show that *for the total sample* an internal orientation was found to be significantly correlated with an entrepreneurial strategic posture, which result supports hypothesis 2. Internal locus of control was found to be significantly correlated to networking activities, with internal-locus owner-managers having higher levels of activity than external-locus ones, thus supporting hypothesis 3. External locus

of control was found to be significantly related to a higher perceived environmental hostility, which supports hypothesis 4.

Other results for the total sample show that higher levels of network activities were related to a more entrepreneurial strategic posture and management style, higher levels of networking activities were shown to be significantly related to lower perceived levels of environmental hostility. Higher levels of the entrepreneurial strategic posture were also significantly related to lower perceived levels of environmental hostility.

For the metal branch, locus of control correlated positively and significantly with financial performance, meaning that an internal orientation was related to better financial results, which result partly supports hypothesis 1. Higher levels of entrepreneurial strategic posture were significantly related to an internal locus of control, supporting hypothesis 2. Networking activities were strongly related to higher levels of entrepreneurial strategic posture, and management style and higher levels of entrepreneurial strategic posture were significantly related to lower perception of environmental hostility. No support was found for hypotheses 3, 4 and 5 in this branch.

In the trade branch, networking activities were positively related to an internal orientation, again supporting hypothesis 3. Relatively strong and significant correlations between locus of control and perception of the environment appeared, with owner-managers of an internal orientation perceiving lower levels of environmental hostility, giving further support to hypothesis 4. Other significant findings in this subgroup showed that higher levels of networking activities and higher levels of entrepreneurial strategic posture were both related to lower perceived levels of environmental hostility. No support was found for hypotheses 1, 5 and 2. However, it should be noted hypothesis 2 lies just inside the region of rejection at $p < 0.072$.

Regression analysis

Regression analysis (hierarchical) was carried out to test the analytical model of financial performance, $x_1 + x_2 + x_3 + x_4 = y_1$. The analysis showed that the amount of variance attributed to various models ranged from R^2 0.02 - 0.03 for the total sample, for the metal branch sample R^2 0.04 - 0.08 and for the trade branch R^2 0.14 - 0.21, however none of these results were significant, thus hypothesis 5 is rejected. Of note is that the only independent variable found significant among the three groups is locus of control for the trade group with a p value ranging from 0.026 – 0.060.

13 Discussion of results

The results of the four empirical studies will be discussed in the light of the main aim of this thesis, which is the investigation of the impact of the psychological construct internal versus external control of reinforcement on Swedish working life, with focus on two distinct fields of interest, vocational rehabilitation and leadership of small firms.

The findings support the general hypothesis that was presented in the thesis,

- that locus of control exerts an influence on vocational rehabilitation outcomes, including those of interventions carried out during the process

- that the locus of control orientation of owner-managers is related to the management strategies and leadership style adopted in small firms as well as to financial performance.

Following the structure of the thesis, the two areas of working life investigated will be discussed separately, followed by a short discussion of the locus of control concept.

13.1 Vocational rehabilitation

The focus for studies I and II is to investigate the extent of influence of locus of control on the entire vocational rehabilitation process. In the first study the main results showed locus of control to exert an important influence on differences between the individuals in the study sample, with persons of external locus of control having a less favourable point of departure at the start of vocational rehabilitation compared to other groups. Externals were found to have longer periods of unemployment and sick leave, and worse health status than internals, important factors for the vocational rehabilitation process. Other results from this study show that subjects residing in urban areas had shorter sick-leave periods than subjects residing in rural areas.

The main results of the second study revealed that individuals with an external locus of control have a much higher rate of incapacitation and/or going on to earlier retirement when compared with those of an internal locus of control. This group also showed a much lower frequency of regaining employment or starting a new education after vocational rehabilitation. Results showed differences as well between the three disability groups. Individuals with physical disabilities had a lower rate of gaining employment or of taking up an education than individuals from the other two groups. Individuals living in rural areas had a higher rate of remaining on sick leave or going on to early retirement than individuals living in urban areas. Correspondingly, this group also had a lower rate of regaining employment or taking up an education than individuals living in urban areas. Vocational rehabilitation programs based on workplace training gave the highest rate of (re)employment or enrolment in an education after rehabilitation. Programs comprising only sheltered training with vocational rehabilitation experts gave the highest incidence of individuals remaining on sick leave or going on to early retirement.

The important question then is: why does locus of control have the impact we find in both studies?

To answer this question let us look at what explanations we find in the ideas of SLT, e.g. the discovery by Rotter and colleagues that some individuals tend to ignore reinforcement contingencies. That is, placed in the context of being unemployed and on sick leave, a person has a choice of starting some type of activity/behaviour that is aimed at understanding the situation (unemployment/sick leave), and then initiating some type of activity that may lead to an appropriate result or goal (ending sick leave, returning to work). In doing so, the person's generalized expectancies that any form of reinforcement (s) will or will not be contingent upon their own behaviour is the starting point for all action in the pursuit of goals. It is here, in this cognitive process, that the differences between externals and internals are to be found.

Persons of internal orientation can be expected to be more inclined to seek information relating to the situation, and to utilize this information in a more meaningful and aggressive manner directed toward the attainment of their goal(s) (ending sick leave and

returning to work) than externals; thus influencing the direction of the vocational rehabilitation process. This argument is well in line with the proposals and research findings of, for example, Phares (1976) and Lefcourt's (1982).

It is further argued that internals' cognitive processes and activities/behaviour, when applied in a situation of being unemployed and on sick leave, creates 'spaces' that allow them greater opportunities for pursuing activities that will further their goals, e.g. attaining a successful vocational rehabilitation, where the person of external orientation will have greater difficulty in arriving at these "spaces of action".

To further underline the above argument, let me quote the following statement by Lefcourt (1991), "Locus of control refers to assumed internal states that explain why certain people actively, resiliently, and willingly try to deal with difficult circumstances, while others succumb to a range of negative emotions... (leading to) failure to act on one's own behalf to remedy an unpleasant situation in the face of potential stress, or to bring about rewarding outcomes." (p. 413). It is argued that these individual qualities (states), as indicated by Lefcourt, are precisely what are essential to the process of individual utilisation of internal resources, thus motivating the hypothesised relationship between locus of control and the model presented under section 5.2.

13.2 Concluding remarks on vocational rehabilitation

The main aim of this explorative study has been to investigate the influence of the psychological construct locus of control on the vocational rehabilitation of unemployed sick leavers in Sweden. Findings from studies I and II show that the construct exerts some degree of influence. Findings even show that other factors such as type of vocational program, health status, length of sick leave and unemployment, gender, age and geographical location all play a role for the success or not of the vocational rehabilitation process.

The fact that locus of control explains some of the differences between the individuals in the study sample, with persons of external locus of control having a less favourable point of departure at the onset of vocational rehabilitation and often achieving less favourable outcomes than persons with an internal locus of control, supports the argument that the construct is important in the area of vocational rehabilitation.

It is therefore suggested that while there are other factors that have been shown to have an influence on the process as well, e.g. gender, age, and employment level, these are factors that are hardly possible to change. This is not the case, however, with locus of control and type of vocational program. Research shows that change can take place in a person's perception of control or psychological empowerment, meaning that vocational programs should be developed to facilitate such change, which should result in a higher probability of successful outcomes. Future research should therefore investigate and develop new programs that enable the individual to increase a sense of control and empowerment during the vocational process. Changing the design of vocational programs to make greater use of work training in real work environments is also a very viable option.

Further research using interactive research methods should be undertaken to access the relationship between locus of control and the four proposed psychosocial factors; motivation, resource mobilisation, learning and work, as well as the relationship

between the four psychosocial factors and the vocational rehabilitation process and outcomes. By doing so, greater knowledge will be gained in the field of vocational rehabilitation from an individual perspective as well as in the field of psychology.

13.3 Leadership of small firms

Results from this study suggest that the locus of control orientation of owner-managers of small and medium-size businesses influences their management strategies. Owner-managers with an internal locus of control orientation tend to adopt a more entrepreneurial strategic style of management than external-locus counterparts. However, no significantly positive relations between entrepreneurial style and financial performance was found for firms in this study, in contrast to earlier studies by, for example, Covin (1991), Wiklund & Shepherd (2005), and Zahra & Covin (1995).

Enquiring about financial performance, support was found for locus of control having a direct relationship with performance. There is a significant difference in the financial performance of firms in the metal branch, with firms run by owner-managers of internal orientation having a much higher rate of performance than their external-locus counterparts.

That this relation was not found for the trade branch, in spite of the fact that very little difference exists in the levels of locus of control for those with an internal orientation in the two groups, is explained by the proposition that the trade branch in *Östersund* may be one that is culturally and commercially different from the metal branch, thus moderating the influences of locus of control.

This suggests that the commercial branch itself may be a factor of some importance for how locus of control impacts on financial performance, that is to say, the influence of locus of control upon financial performance in small firms may not be as universal as hypothesised in this study, or as found in others studies (such as Ward 1993; Boone *et al.*, 1996).

Nevertheless, the interpretation is that in adopting a more entrepreneurial management style, manifesting itself in more innovative, pro-active and risk-taking behaviour, internals attempt to gain control of the direction and development of their businesses, by taking an approach that is aggressive in addressing the demands of the external business environment.

The behaviour of internals described above is generally the opposite of the behaviour that can be expected of externals, who tend to be more conservative, less entrepreneurial, non-innovative, and more inclined to risk avoidance, thereby supporting the claims of Rotter (1966) that locus of control is about a problem-solving, generalized expectancy (i.e. cognitive process) that addresses the issue of whether behaviour is perceived to be directly related to the attainment of needs and goals. The argument is generally the same as presented earlier in this section with regard to vocational rehabilitation. That is, the differences found between owner-managers of internal and of external orientation can be deduced from the proposals stated by Rotter concerning expectancies. Placed in a leadership position, those of internal orientation will to a higher degree than externals, by virtue of the difference in their cognitive processes and consequent activities/behaviour, attempt to gain control of the business environment,

and in so doing create the opportune “spaces” that will allow them to pursue and attain their goals for a successful business.

It is important to point out, however, that in applying psychological approaches and theories in the effort to understand the various processes or phenomena in the field of entrepreneurship and small businesses, we must be very aware of that these two fields of academic study are heavily influenced by other factors in the economy, in the sphere of politics, and in the society in general. As Hirsch (2000) argues in discussing entrepreneurship and the role of psychology, “Researchers should keep in mind that, overall, psychological approaches are questionable since they tend to establish too simple a correlation between micro personality variables and macroeconomic and sociological variables. In addition, these approaches tend to focus too heavily on one or more personality traits, making the economic activity of the entrepreneur too much a function of personality. This underplays the role and importance of a myriad of important external structural influences.” The same can be certainly applied to small businesses and their relation to psychology (as stated in this thesis, the study of entrepreneurship and small businesses overlap each other). Nevertheless, as has been shown in studies III and IV, psychology through locus of control (and many other constructs) does have a role to play in the greater understanding of leadership and small firms.

13.4 Concluding remarks on leadership of small firms

Studies III and IV adopt a micro perspective. The results shed light on the importance of leadership characteristics in small firms. But the results are mixed, although they do give some support to the assumption that relations exist between locus of control and business strategy and financial performance. It appears that the branch of commerce moderates the impact of locus of control, and as such the relation between locus of control and financial performance may not be as universal as was hypothesised in this study or found in earlier studies.

It further appears that the complexities of business itself and the business environment of the small firm can have moderating effects on the assumed impact of locus of control. There are also other important factors that are assumed to have a greater impact on the financial performance of a firm than locus of control.

However, the conclusion is that manager personality (in the form of locus of control orientation) has a significant influence upon business strategy and therefore financial performance and should be recognized as important in today’s world of business. If more owner-managers can be persuaded to adopt a locus of control orientation that is more internal, then an improved business economy could be a likely outcome. It is therefore suggested that further research needs to be carried out with the aim of creating schemes that can promote a more internal locus of control in leaders of small firms.

13.5 Concluding remarks on locus of control

The conclusions from the work presented here is that locus of control is a factor of some importance for the vocational rehabilitation process as well as the management of small firms, and as such has a role to play in working life. It is argued that differences found between internals and externals in the four studies presented are to be found in the general statement of SLT, that internals have a higher degree of generalized expectancy

that reinforcements are contingent upon their own behaviour, and that in this manner their cognitive processes and behaviour differs from externals. 'Internal' attitudes create "spaces of action" that are in themselves opportunities that can be utilized for the achievement of goals. Externals, on the other hand, have greater difficulties in creating and utilizing "spaces of action".

Important is the assumption that a person's locus of control can be changed, making the concept suitable for application in practical situations in working life through the application of interventions in the environment. This is an area that needs to be researched to a greater degree than today.

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Individual status at the start of rehabilitation: Implications for vocational rehabilitation programs

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Abstract. This research investigated the situation of 143 unemployed sick leavers at the start of vocational rehabilitation in Sweden. It is argued in this paper that in order to gain a meaningful picture of the vocational rehabilitation process it is necessary to know and understand something of individual differences and status at the onset. In doing so, assessment was carried out of the possible influence of one contextual factor and five individual factors on health, duration of sick leave and unemployment. Findings suggest that individual differences exist in health status, length of sick leave and unemployment, at the upstart of vocational rehabilitating. Locus of control was found to exert important influence on the differences between the individuals in the study sample, with persons of external locus of control having a less favourable point of departure at the start of vocational rehabilitation compared to other groups. It is therefore assumed that these persons will be in greater need of support during the vocational rehabilitation process. The level of unemployment within a geographical area was also found to influence the length of sick leave.

Conclusions: Our suggestion is for rehabilitation programs to be developed and selected to match the special needs and differences whether they are of individual or of social nature.

Keywords: Vocational rehabilitation, health, sick leave, unemployment and locus of control

1. Introduction

A review of rehabilitation studies carried out in Sweden shows that the research emphasis has been mainly on three areas. The first is the social insurance perspective, centering on the effects of social policy. The second deals with the results of specific work-place projects. The third has its base in medical rehabilitation [1]. We have found few studies that focus on the vocational rehabilitation process as such or that consider the make up of individuals or their particular situations at the start of rehabilitation.

It is argued in this paper that in order to gain a meaningful picture of the vocational rehabilitation process it is necessary to know and understand something of individual differences and status at the onset. It is further argued that better knowledge and understanding of individual differences and status at start will help improve the quality of selection and the matching of programs to individual needs, as well as furthering the appropriate redevelopment of existing programs and creation of new ones. The aim of this study is to describe the situation of individuals at the start of vocational rehabilitation in Sweden. An assessment is therefore carried out of the possible influence of the one contextual and five individual factors on the three main ones. If it is found that the three main factors are influenced, then it is essential to consider these relationships when form-

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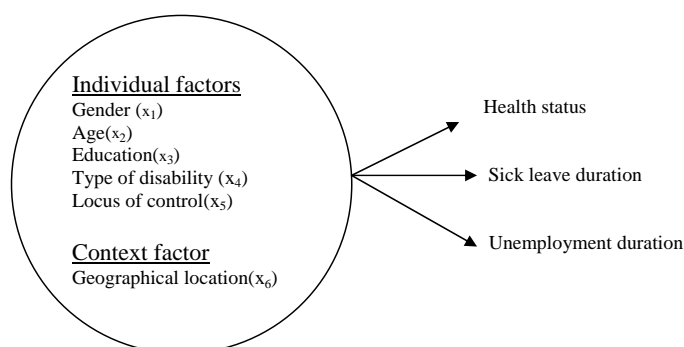


Fig. 1. Summary of the model used in study.

ing, selecting and matching vocational rehabilitation programs

2. Analysis model

Vocational rehabilitation is a complex process in which many different factors affect the outcome, compounding the difficulties of research in this field. The model guiding this study is presented in Fig. 1. The conceptual links between the factors chosen are further developed below. The objective of the model is to present the factors in the study. This model is further used as a basis for the statistical analysis.

To limit the complexity the model we present focuses on three main factors—health status as perceived by the individual, the duration of sick leave and the duration of unemployment—and their interaction with an additional five individual factors and one contextual factor. The model is an explorative one and the intention to lay the ground for the development of new models and programs for the vocational rehabilitation process from an individual perspective.

2.1. Health

We use self-reported measures of health and propose that within the vocational rehabilitation context it is advantageous to do so, as one obtains the subjective assessments of the subject's health status and well-being. This inclines towards a holistic definition, taking into consideration such aspects as quality of life, general well-being and social adjustment [2]. Thus defining health in such different contexts as the social and working environments, as well as from the medical perspective in order to gain a broader, more profound understanding of the initial position of the individual.

The focus is thus shifted away from the purely medical treatment of illness towards taking account of the individual's own resources and encouraging the mobilisation of these resources. Ekberg's [3] submission that a holistic view of health is important when assessing individuals about to enter rehabilitation points in the same direction.

In Sweden, the social insurance authorities view the improvement of health as essential for a return to employment. The individual's attainment of good health is therefore a primary goal of rehabilitation. This idea is also put forward by Ekberg [4] and the argument is well supported by other studies showing that poor health is related to inability to find employment, and that long duration of sick leave similarly reduces employment chances [5–8]. These arguments and research results establish that health status is vital in vocational rehabilitation, where poor health has clearly negative effects. Health is therefore the first main factor used in the analysis model for this study.

2.2. Sick leave duration

Studies have also shown that the duration of sick leave greatly affects the probability of returning to work [1,9,10]. Swedish social insurance surveys [11] have established that the longer the duration of sick leave, the higher the probability of individuals not returning to the labour market but of going on instead to receive early pensions. Duration of sick leave therefore clearly has a major part to play for the return to the labour market of individuals with disabilities.

2.3. Unemployment duration

It has further been demonstrated that the longer an individual has remained unemployed and on sick leave,

the greater the probability of not being able to find a job [8,11]. It has also been shown that persons who have a job to return to have greater success in returning to work after rehabilitation than persons previously unemployed [12,13]. There appears to be a strong relationship between ill health and unemployment, as well as studies that show poor health reduces the probability of an individual finding a job [5,7,8,14–16]. Swedish researchers [17] have found that the rate of dropout from the labour market into early pensioning was three times as high among unemployed persons as among persons in employment. Other studies show that the unemployed appear to get less help and support from social insurance offices than the employed [17–19] aggravating the difficulties for unemployed persons attempting to return to the labour market.

Thus it is assumed that the longer the duration of unemployment the more difficult it is to return to the labour market in Sweden.

2.4. *Individual and contextual factors*

Five individual factors and one contextual factor (geographical location) have been identified and are included in the model. Research results show that these six factors exert influences not only on health, sick leave and unemployment but also on vocational rehabilitation outcomes. Marklund [1] have shown that age, gender, education and geographical location are related to sick leave duration in Sweden. Others studies support Marklund's results [20–24]. Relations have also been found by Omarsson [25] between the individual factors (excepting locus of control) and unemployment. These results are supported by investigations carried out by Högård [26]. Studies by Sweden's public health authority [27] reveal that health is correlated to the individual factors as well as the context factor. The locus of control factor was not included – nor for that matter any other psychological factor – in those studies. Surveys carried out by the Swedish National Labour Market Board, have found that persons who live in geographical locations with high employment have longer employment durations than persons who live in areas with lower employment rates [28,29]. These results have populations consisting of both persons with and without working handicaps.

2.5. *Locus of control*

Many researchers and other professionals in the field of rehabilitation both in Sweden and internationally

have pointed out the importance of a psychological approach in vocational rehabilitation.

We have therefore included locus of control to complete the individual factors. This is based on the argument that the mobilisation and use of individuals' own resources to advance the rehabilitation process is fundamental for success, an idea that is gaining ground the world over [3].

Since Rotter [30] presented his theory of social learning, much research has taken place on the construct locus of control. This can be defined as the degree to which individuals perceive outcomes to be consequences of their own behaviour, where those who believe that they can influence outcomes through ability, effort or skills are designated as of internal orientation, and those who believe that external forces have greater influence over outcomes are designated as of external orientation. Empirical studies show perceived control to be correlated to rehabilitation outcomes [31–35].

As vocational rehabilitation is about returning to the labour force, and since the ultimate goal is for the rehabilitated individual to find and above all, to hold employment, field of work and organisational behaviour are also important to the process. Research into work and organisational behaviour have shown locus of control to be important even in this regard, [36,37] making locus of control a doubly interesting factor for vocational rehabilitation.

3. *Method*

3.1. *The sample*

Our sample consists of persons of both sexes aged 18 to 55, who were unemployed and on sick leave or had recently ended a sick leave period immediately prior to beginning a vocational rehabilitation programme.

The sample exhibited various forms of disabilities. However, persons registered at the employment offices as having an intellectual handicap, immigrants experiencing trouble with the Swedish language, and persons over the age of 55 were excluded from the population.

The subjects were randomly selected from 10 employment offices in four counties in Sweden; with a spreading over the two geographical (urban/rural) locations. At the time of the measurement, the rural unemployment level was around 7%, compared to 4% in urban areas.

The results presented here are from 143 respondents out of a population of 200, meaning that 71.5 % of the

Table 1
The five individual factors and one contextual factor in relation to the three main factors
health status, duration of sick leave and duration of unemployment in months

| | Health (index) | Health (VAS) | Sick leave | Unemployment |
|---------------------------|----------------|--------------|------------|--------------|
| <i>Individual factors</i> | | | | |
| <i>Gender</i> | | | | |
| Male | 0.62* | 5.73 | 14 | 16 |
| Female | 0.53* | 5.16 | 21 | 23 |
| <i>Age</i> | | | | |
| 18–25 | 0.55 | 5.50 | 11 | 6* |
| 26–33 | 0.58 | 5.29 | 18 | 16* |
| 34–41 | 0.56 | 5.53 | 16 | 15* |
| 42–49 | 0.55 | 5.34 | 22 | 21* |
| 50–55 | 0.57 | 5.27 | 36 | 24* |
| <i>Education</i> | | | | |
| Primary school | 0.59 | 5.49 | 20* | 20 |
| Secondary school | 0.56 | 5.25 | 17* | 18 |
| University | 0.56 | 5.50 | 11* | 32 |
| <i>Disability</i> | | | | |
| Physical | 0.46* | 5.06 | 18 | 21 |
| Psychological | 0.64* | 5.28 | 14 | 24 |
| Other | 0.63* | 5.69 | 16 | 15 |
| <i>Locus of control</i> | | | | |
| External | 0.54* | 5.21 | 21** | 23 |
| Internal | 0.60* | 5.64 | 14** | 16 |
| <i>Context factor</i> | | | | |
| <i>Geographical area</i> | | | | |
| Rural area | 0.58 | 5.14 | 21** | 22 |
| Urban area | 0.56 | 5.21 | 11** | 16 |

*Significant at 0.05; **Significant at 0.01.

questionnaires were properly completed and returned, though with a lower rate of return in urban areas. It is judged, however, on grounds of the pressures and sensitivity of vocational rehabilitation, that the number of completed questionnaires is acceptable.

3.2. Data collection and measurements

Locus of control was measured using an abbreviated version of the Rotter scale [39] as developed by Andersson [40] for use in Sweden mainly in work settings (for example, Persson [41] and Brenner and colleagues [42]). The scale has a minimum score of eight and a maximum of 40, with a low score representing an external locus of control orientation and a higher score representing an internal locus of control orientation.

For the measurement of health, the Swedish version of the EUROQOI-5D was used. This scale is divided into three separate sections, giving a health index that measures general health status, with a maximum score of 1.00, indicating a very high level of health, and a minimal score of –0.594, indicating a very low level of health.

The second section deals with a visual analogue scale (VAS) of an individual's subjective health status between 1.00 (poor health) and 10 (very good health).

This instrument has been extensively used in Sweden in more recent research (for example [43,44]). Apart from these two instruments, a questionnaire was developed to collect data on each subject's background, sick leave and unemployment history. Sick leave was measured by asking subjects to give as correct a measurement as possible of their length of sick leave in months. The length of unemployment reported was confirmed by the records kept by the Swedish National Labour Market Board. The classification of disabilities is based on the standard classification at the Swedish National Labour Market Board.

3.3. Procedures

Vocational rehabilitation counsellors working in the employment offices of each county carried out a random selection of the subjects, who were then informed about the study and asked whether they would care to participate. If the answer was positive, they were handed the questionnaire in an envelope and asked to fill in and return it to the counsellor before leaving the office. It was possible even for the subject to fill in and return the questionnaire to the author's office.

Table 2
Correlation matrix of all the factors used in the study

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------|---------|--------|--------|----------|---------|--------|---------|---------|---------|------|
| 1. Age | 1.00 | | | | | | | | | |
| 2. Gender | −0.118 | 1.00 | | | | | | | | |
| 3. Education | −0.041 | 0.023 | 1.00 | | | | | | | |
| 4. Disability | −0.093 | 0.097 | 0.133 | 1.00 | | | | | | |
| 5. Locus of control | 0.055 | −0.032 | 0.109 | −0.076 | 1.00 | | | | | |
| 6. Geographical area | −0.174 | 0.013 | −0.123 | −0.018 | −0.023 | 1.00 | | | | |
| 7. Health index | −0.052 | 0.171* | −0.054 | −0.269** | 0.059 | −0.006 | 1.00 | | | |
| 8. Health (VAS) | −0.001 | 0.14 | −0.023 | −0.106 | 0.093 | 0.070 | 0.383** | 1.00 | | |
| 9. Sick leave | 0.172* | 0.013 | 0.016 | −0.013 | −0.207* | 0.172* | −0.140 | −0.220* | 1.00 | |
| 10. Unemployment | 0.292** | 0.041 | 0.103 | −0.007 | −0.023 | 0.070 | −0.122 | −0.141 | 0.645** | 1.00 |

*Correlation significant at 0.05; **Correlation significant at 0.01.

Note: Biserial correlation used.

Table 3
Analysis model. The dependent variables are self reported health status, length of sick leave and unemployment.

| Analysis mode | Health | | | Sick leave | | | Unemployment | | |
|-----------------------|--------|---------|---------|------------|---------|---------|--------------|---------|---------|
| | b | SD | p-value | b | SD | p-value | b | SD | p-value |
| Gender | 9.540 | (0.59) | 0.110 | 6.624 | (3.987) | 0.099 | 4.595 | (8.641) | 0.596 |
| Age | −4.389 | (0.24) | 0.156 | 4.079 | (1.572) | 0.011 | 9.963 | (3.367) | 0.004 |
| Education | −4.389 | (0.221) | 0.852 | 6.517 | (3.057) | 0.035 | 11.004 | (7.012) | 0.120 |
| Type of disability | 8.318 | (0.034) | 0.017 | −0.476 | (2.314) | 0.837 | 6.414 | (5.087) | 0.211 |
| Locus of control | 8.494 | (0.058) | 0.148 | −8.191 | (2.314) | 0.038 | −12.719 | (5.087) | 0.140 |
| Geographical location | −3.682 | (0.63) | 0.561 | 7.695 | (4.217) | 0.071 | 11.004 | (8.803) | 0.215 |
| R^2 | | 0.089 | | | 0.129 | | | 0.138 | |
| R^2_{adj} | | 0.042 | | | 0.083 | | | 0.080 | |

The values of the regression analysis results in the table are the non-standardized (b) regression coefficients, with the standard deviations in parentheses. R^2 = the proportion of the variation which is explained by the independent variables (individual factors and context factor). R^2_{adj} = R^2 adjusted for the number of independent variables.

4. Results

4.1. Background

Women made up the majority of the sample with 85 individuals, while the men amounted to 57. Forty-five individuals were from urban areas and 98 from rural areas. In age range, 50% of the subjects were over the age of 39, while 50% were under that age. Concerning education, 55% had finished secondary school, 32% had only primary school and 12% had been to universities.

Disabilities were grouped into three categories following the system used within the National Labour Market Administration: physical disabilities (36%), psychological disabilities (24%), and a residual group of other disabilities (29%). This included medical ailments such as heart and lung conditions and the various forms of substance abuse. Eleven per cent remained unidentified as unsuited to be placed in any of the three groups.

On the locus of control scale, the sample showed a mean score of 25 with a standard deviation of 3.82. There was little gender difference in locus of control

orientation. The health index for the sample showed a mean score of 0.57, with a maximal score of 1.00. The VAS mean score was 6.40 with a maximal score signifying very good health of 10.00. Length of sick leave for the sample showed a mean of 35 and a median of 19 months, while unemployment had a mean of 24 and a median of 17 months.

Table 1 shows the five individual factors and context factor their differences in relation to the three main factors health, sick leave and employment. Two sided χ^2 test is used.

4.2. Health

Women, persons with physical disabilities, and persons with an external locus of control, were found to have significantly lower scores on the health index than men, persons with other disabilities and persons with an internal locus of control. The results of the health index are supported to some extent by the results found for the VAS. However none of the VAS results are significant.

4.3. Sick-leave

Two factors in this study have been found to show significant differences with regard to the length of sick leave. These are geographical location and locus of control. Subjects residing in urban areas tend to have shorter sick-leave periods than subjects residing in rural areas, with a mean score of 11 to 21 months. The other significant finding is that subjects with an internal locus of control tend to have shorter sick-leave periods with a mean score of 14 to 21 months.

4.4. Unemployment

We found only one significant result for the unemployment factor, that persons between the ages of 18 and 25 have a significantly shorter period of unemployment than older persons, with a mean score of 6 months.

The results in Table 2 show the correlations between all the factors in the study. Age turns out to be significantly correlated to both sick leave and unemployment, where the older the individual the longer the duration of sick leave and unemployment. Gender and disability are significantly correlated with the health index, while locus of control and geographical location are both significantly correlated with sick leave. Significant correlations between the three main factors found are health index with health self-rating, health self-rating with sick leave and sick leave with unemployment.

Table 3 shows the results of the analysis model. The degree of prediction (R^2_{adj}) of the model is very low (4–8%), meaning that in this study there are other factors that have stronger influences on health, length of sick leave and unemployment, than the factors used here. Results even show that locus of control has the highest portion of variance of all three main factors, however it is only the sick leave factor that is significant ($p = 0.38$).

5. Discussion

The aim of this explorative study was to describe the status of individuals at the start of their vocational rehabilitation (programs). The findings suggest, not surprisingly that there exist differences in health status, length of sick leave and unemployment, and that these differences were found to be related to locus of control, gender, age and geographical location.

5.1. Health status

The sample mean score on the health index was found to be 0.57 and the health VAS to be 64, which is low compared to the normal Swedish population. Ekberg [42] found a mean score for health index of 0.84 and a VAS score of 80. Thus, the study sample reported a poorer level of health than the normal Swedish population. In a rehabilitation context, this can be interpreted to mean that individuals making up this sample at the start of their vocational rehabilitation were not fully recovered from their illnesses or that they have too despondent a perception of their own health status.

To address this situation, in selecting vocational rehabilitation programs thought should be given to both the actual and the perceived health status of the participating individuals. Programs may prove to be more beneficial if designed to start from a low or medium intensity before moving on to a higher intensity, which should increase the probability of a smooth transition from sick leave and low activity to participation in the vocational rehabilitation process.

Significant results in the area of health showed that women reported a notably lower health status than men; and individuals with physical disabilities reporting poorer health than the two other disability groups, which confirms results from earlier Swedish studies for example by the National Board of Health and Welfare [43].

A third significant result is that individuals with an external locus of control orientation reported a lower health status than persons with an internal locus of control. This result is in line with earlier research on the influence of locus of control on individual health status. For example Boey [44] and Pastor et al. [45] research results are in line with results found in this study. The interpretation of this can be that internals perceive themselves of having a higher level of control than externals and therefore are more optimistic [46] and indeed may have behaviours that are supportive of good health. This in contrast to externals who perceive themselves of having a lower lever of control, and in turn somewhat more pessimistic than internals [46] in a sick leave situation.

These differences in health status that exist within the vocational rehabilitation population, should be considered at the onset when designing and selecting vocational rehabilitation programs. It can be assumed that individuals whose own opinion is that their health status is low may not be as highly motivated as they could be when participating in the rehabilitation process, thus undermining the chances of success.

5.2. Sick leave

Five factors significantly influence the duration of sick leave. These are locus of control, geographical location, age, education and unemployment. Results showed significant differences between those with external and those with internal locus of control. Locus of control was also found to correlate significantly with sick leave duration. Individuals with an internal orientation had much shorter periods of sick leave than individuals with an external orientation.

Explanations of these differences can be found in the work of Lefcourt et al. [47] and Tseng [34] which showed that persons with an internal locus of control showed a higher level of alertness in their activities than those with an external orientation and seemed to be more willing to find information that they interpreted as useful in controlling and coping with different situations. This pattern has been found even in the area of achievement-related behaviour, where persons with an internal locus orientation show greater likelihood to seek and accomplish their goals in life [48,49]. Put in the context of sick leave, persons with an internal locus should exhibit behaviour that increases the probability of their exiting sick leave earlier than persons with an external locus. This argument is supported by Partridge and Johnston [32], Norman and Norman [49], and Johnston et al. [50], who found that those with an internal locus made more rapid progress in recovering from disability.

Geographical location is the second factor that shows a significant relation to sick leave. Individuals living in urban areas had shorter periods of sick leave than individuals living in rural areas. This result is in line with earlier research [1]. The argument is that urban areas provide greater opportunities for employment, and thus individuals there tend to return earlier to the labour market than in rural areas. Statistics from the different locations at the time of the study show that unemployment in the rural areas was approximately 7 per cent compared to 4 per cent in urban areas. There is also a strong correlation between sick leave and unemployment, thus lending support to the argument that the duration of sick leave for persons with disabilities can partly be attributed to the level of unemployment in their living area. This argument is further strengthened by the fact that very little differences in health status were reported by individuals living in the two areas of this study, rural areas and urban areas.

The age factor showed a significant correlation with sick leave; the older the individual the longer the sick

leave duration. This result is in line with other earlier studies [1,21] and is indeed expected.

Individuals with a primary education were found to have longer sick leave periods than individuals with higher levels of education, again in line with earlier studies [1,21]. But unemployment levels and lack of job opportunities may be contributing factors here, as it is likely that individuals with a lower level of education will have greater difficulties in finding employment because of job qualification demands in Sweden.

5.3. Unemployment

There is one significant result concerning differences in length of unemployment and that is related to age. It was found that the 18–25-year olds had much shorter periods of unemployment than the other four age groups. Significant correlation between age and unemployment were found for the sample in this study. However, this result should be interpreted with care. The population of this group is normally expected to show shorter periods of unemployment because their age puts limits on the length of their participation in the labour market.

6. Conclusions

The results presented here are seen as giving a good picture of the status of persons at the start of their vocational rehabilitation programs in Sweden. Our findings suggest that there exist differences in health status, length of sick leave and unemployment, at the start of vocational rehabilitating.

That locus of control exerts an important influence on the differences between the individuals in the study sample, with persons of external locus of control having a less favourable point of departure at the start of vocational rehabilitation compared to other groups. It is therefore assumed that these persons will be in greater need of support during the vocational rehabilitation process.

Our suggestion is for rehabilitation programs to be developed and selected to match the special needs of this group of individuals. Another important result suggests that the level of unemployment within a geographical area influences the length of sick leave, again emphasizing the need of creating programs that are designed to meet differences whether they are of individual or of social nature.

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Locus of control and its relationship with vocational rehabilitation of unemployed sick leaves in Sweden

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Abstract. The purpose of this study is to assess the impact of locus of control on vocational rehabilitation. To do so, 143 persons on sickness leave were followed for 16 months during and after participation in a vocational rehabilitation program, where the psychological construct, locus of control, was used as a main variable to investigate the success of the program. The findings of the study suggest that the construct locus of control plays an important role in the outcomes of vocational rehabilitation. Perceived health status, the type of rehabilitation program, the accumulated duration of both sick leave and unemployment at the start of rehabilitation and whether dwelling in an urban or a rural area are other factors that also influence. The outcomes development of methods and models that give the individual a greater sense of power and control during the rehabilitating process is indicated, therefore, to increase the individual's internal locus of control. Rehabilitation programs should also use workplace training as often as is possible, as this also increases the likelihood of success.

Keywords: Locus of control, vocational rehabilitation programs, outcomes

1. Introduction

The goal of vocational rehabilitation is to assist individuals to attain as much as is possible of renewed independence, integrity and ability to return to the work force.

The entire process of regaining a good health status and returning to employment is complex and can be both time and resource consuming. To increase the probability of success, it is essential to apply a variety of perspectives (including the individual and the social) and to integrate into the rehabilitation process knowledge drawn from as varied disciplines as psychology, medicine, law and economics, in order to create the multifaceted scientific foundation necessary for the construction of effective models and methods [6].

The study presented here was carried out in Sweden, where the rate of people exiting the labour market for reasons of ill health has increased dramatically in recent years. Investigations show that also the number of sick days per person has risen to record proportions and is continuing to rise [35]. This situation can also be assumed to influence the sharply rising number of persons receiving early pensions [35].

The increase in sick leaves and early pensioning is not limited to employed persons alone; the same trend being found among the unemployed who are eligible for sick benefits. This suggests an urgent need of scientific investigation and development in the academic field of vocational rehabilitation, to help turn around this negative slide.

Investigators into the situation of unemployed persons on sickness benefit estimate their numbers to be around 160,000 or 13% of all the unemployed persons registered at employment offices in Sweden [17]. Research findings also show that the unemployed sick listed receive less assistance and support from the public

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authorities than those in employment, thus aggravating their problems of re-entry into the labour market [24, 32]. Studies concentrating on this group are therefore seen by many professionals to be of utmost significance for the effort to reduce both the waste of human resources and the costs to society resulting from the high rate of labour market exits.

A fundamental purpose of this study is to assess the impact of locus of control on vocational rehabilitation. To do so, 143 unemployed persons on sickness benefit were followed for 16 months during and after participation in a vocational rehabilitation program, where the psychological construct, locus of control, was used as a main variable to investigate the success of the program. It is assumed that the application of psychological theory to the study of the process of vocational rehabilitation can contribute to a better understanding of certain aspects of the field [22]. The argument is that as the vocational rehabilitation process is focused on the individual and the regaining of resources and working abilities, introducing psychology along with other disciplines creates a multidisciplinary perspective that adds strength and depth to the vocational rehabilitation process thus underlining the fact that the process is multidisciplinary, thereby enhancing the chances of success, measured at its optimal level, means that the individual's health and work capacity are improved to a degree that will allow a return to work.

2. Locus of control

Since Rotter [30] presented his theory of social learning, much research has taken place on the locus of control construct. The belief in internal or external control of reinforcement concerns the degree to which an individual perceives events as being contingent upon his or her own behaviour, which is assumed to be more or less stable under varying conditions. Individuals who believe that they can influence outcomes through their own abilities, efforts or skills are designated as of internal orientation, and those who believe that external forces have greater influence over outcomes are designated as of external orientation. There are a number of psychological constructs related to perceived control, such as the "learned helplessness" put forward by Seligman [33] and the "self-efficacy" of Bandura [3] that are very closely linked to locus of control despite their different theoretical backgrounds [19,34,38]. Important to note is that these constructs are not personality traits, but rather beliefs constructed by the individ-

uals themselves, meaning that they can be influenced and changed by new situations and experiences [19, 34].

A number of studies have shown that locus of control influences rehabilitation outcomes and the return of individuals to work after sick leave. Norman and Norman [26], studying the relationship between progress in rehabilitation and locus of control, found that individuals designated as of internal orientation made faster progress than those of external orientation. Partridge and Johnston [27] found that individuals with a higher level of perceived control had shorter recovery periods than others. Duvdevany and Rimmerman [12] found that disabled persons with an internal locus of control had more favourable attitudes to work and participation in vocational rehabilitation than counterparts with an external locus of control. Tseng [39] found that in the course of the rehabilitation process, differences occur between those with external and those with internal orientation in the areas of self-reliance, reliability, work tolerance, knowledge and need for achievement, all of which are important for the outcome of vocational rehabilitation. These findings indicate clearly that locus of control has a relationship with rehabilitation and vocational rehabilitation.

As vocational rehabilitation is about returning to the labour force, and since the ultimate goal is for the rehabilitated individual is to find and above all to hold employment, the field of work and organisational behaviour is also important to the process. Research into work and organisational behaviour has shown locus of control to be important even in this regard [15,36, 37]. The conclusion here is that locus of control should prove to be a doubly interesting factor for vocational rehabilitation.

3. Method

3.1. The sample

The subjects were randomly selected from 10 employment offices in five Swedish counties, with a spreading across two types of geographical location, urban/rural, and therefore with two different levels of unemployment.

The sample consisted of persons of both sexes aged 18 to 55 who were unemployed and sick listed or who had ended a sick leave period immediately prior to beginning a vocational rehabilitation program and all these persons had various forms of disabilities. Disabil-

ities were grouped into three categories following the system used by the National Labour Market Administration: physical disabilities, psychological disabilities, and a residual group of other disabilities. This included medical ailments such as heart and lung conditions and the various forms of substance abuse. Eleven per cent remained unidentified as unsuited to be placed in any of the three groups. Excluded from the sample, however, were persons registered at the employment offices as having an intellectual handicap and immigrants experiencing difficulties with the Swedish language.

The results presented here are from 136 respondents out of the original sample population of 143 who received questionnaires at the start of their vocational rehabilitation. The missing data appears to be of random nature.

3.2. *Data collection and measurement*

To collect and measure the data needed for this study we used the following instruments.

Locus of control was measured using an abbreviated version of the Rotter [31] scale as developed by Andersson [1] for use in Sweden, mainly in work settings [8, 28]. This scale has a minimum score of eight and a maximum of 40, with a low score representing an external locus of control and a high score representing an internal locus of control.

For the measurement of health, the Swedish version of the EUROQOI-5D was used. This scale is divided into three separate sections, the first giving a health index measuring general health status, with a maximum score of 1.00, indicating very good health, and a minimal score of -0.594, indicating very poor health. The second section is a visual analogue scale (VAS) giving an individual's subjective health status from 1.00 (poor health) to 10 (very good health), an instrument that has been extensively used in Sweden in more recent research [13]. The third section is a questionnaire to collect data on each subject's personal background and sick leave and unemployment history, where sick leave was measured by asking subjects to give as correct an estimation as possible of the accumulated length of their sick leave in months. The duration of unemployment reported was cross-checked and confirmed by the records kept by The National Labour Market Administration, where even the subjects' names and gender, age and education were checked and confirmed. The classification of disabilities is based on the standard classification of The National Labour Market Administration.

3.3. *Procedures*

To measure at the base line, vocational rehabilitation counsellors working at employment offices in each county carried out a random selection of subjects. This was done by randomly selecting subjects from the employment offices records under a 3-week period.

Each subject was informed about the study and asked whether they would participate. If willing, they were handed the questionnaire in an envelope and asked to complete and return it to the counsellor before leaving the office. For the second measurement to assess the outcome as well as the type of vocational rehabilitation program used, a questionnaire was developed to collect data on each subject's outcome and the type of program or programs participated in. The data received via the questionnaires were then cross-checked using the National Labour Market Administration records. This second measurement took place about 16 months after the first, at the start of the vocational rehabilitation programs. It should be noted that no information was given to counsellors about locus of control.

3.4. *Vocational program interventions*

The general procedure used for the (vocational program) interventions is as follows. Subjects meet with their counsellors a number of times to discuss their background, health status, employment history and vocational goal(s). This information is then used as the basis for choosing the type of vocational rehabilitation program (VR) suitable to each client.

Five different types of programs were identified for the interventions, classified in this study as follows: VR program 1 = work place training in real work environments only, where the subject is placed in one or more workplaces to train and practice various skills. VR program 2, where the subject is placed in one or more real workplace environments to train and practice various skills followed by vocational educational courses. VR program 3 = workplace training in real work environments and vocational educational courses as in program 2 with the addition of VR experts (mainly a psychologist or physiotherapist) besides counsellors. VR program 4 = program 3 minus the educational courses. VR program 5 = sheltered workplace training, that is, no training in real work environments or vocational educational courses.

4. Results

4.1. Background

At the time of the study, the rural unemployment level was around 4.5 per cent, compared to 3.1 per cent in urban areas.

The majority of the sample, 85 individuals, were women, while males amounted to 57, with 45 individuals from urban areas and 98 from rural areas. In the age range, 50% were over 39 years old and 50% under this age. In education, 55% had completed secondary school, 32% had only primary school and 12% had attended universities.

Disabilities were grouped in three categories following the system used by the National Labour Market Administration: physical disabilities (36%), psychological disabilities (24%), and other disabilities (29%).

On the locus of control scale, the sample showed a mean score of 25 with a standard deviation of 3.824. The mean score on the health index was 0.57, with a maximum score of 1.00. The VAS mean score was 6.40 with a maximum score signifying very good health of 10.00. The mean of length of sick leave was 35 months and the median 19, while the mean of duration of unemployment was 24 months and the median 17.

Figure 1 shows the outcomes for the sample in the study ($n = 136$). These outcomes are divided into three categories. Category 1 comprises the individuals that remained on sick leave or who were granted early retirement. Category 2 is individuals no longer on sickness benefit, but still unemployed. Category 3 is individuals in employment or who had been employed for at least four weeks after the end of the vocational programs, as well as individuals pursuing some form of education.

As the figure shows, 45% of the sample had gone on to employment or taken up an education and were no longer on sickness benefit. This group is judged as having achieved successful outcomes. A less successful outcome group is the 26% of the sample who were no longer sick listed, but who were unable to gain employment. The third group – 29% of the sample – is judged as being entirely unsuccessful in their attempt to abandon the sick list and gain employment.

4.2. Outcome differences in relation to various independent variables

The following table shows the outcomes after intervention with the various vocational rehabilitation pro-

grams. Outcomes are placed in three categories. 1) Subjects remaining on sick leave or given early retirement. 2) Subjects no longer sick listed, but still unemployed. 3) Subjects in employment or who had been employed for at least 4 weeks, as well as individuals pursuing some form of education.

Table 1 shows the differences in outcome between the different groups in the sample. There are four significant results. Individuals with an external locus of control have a much higher rate of incapacitation and/or going on to early retirement than those with an internal locus of control and also show a much lower frequency of regaining employment or starting a new education after vocational rehabilitation. Results also show differences between the three disability groups. Individuals with physical disabilities have a lower rate of (re)gaining employment or taking up an education than individuals from the other two groups. Individuals in the “other disabilities” group show a lower rate of remaining on sick leave or going on to early retirement than the other two groups. Individuals living in rural areas have a higher rate of remaining on sick leave or receiving early retirement than individuals living in urban areas. Correspondingly, rural dwellers have a lower rate of regaining employment or taking up an education. Vocational rehabilitation programs based on workplace training gave the highest frequency of employment or enrolment in education after rehabilitation. Programs comprising only sheltered training with vocational rehabilitation experts gave the highest incidence of individuals remaining on sick leave or going on to early retirement.

4.3. Correlation analysis

Correlation analyses were performed to find which of the independent variables correlate with the outcomes after intervention with the five vocational programs.

The results presented in Table 2 demonstrate that vocational rehabilitation programs have the strongest correlation with outcomes (-0.392). Length of sick leave and unemployment, locus of control and health were all moderately correlated with vocational rehabilitation outcomes. Vocational rehabilitation programs are negatively correlated to outcomes, meaning that workplace training gives better results than other programs. Locus of control is positively correlated, meaning that the more ‘internal’ the individual, the more likely it is that s/he will move on after vocational rehabilitation, either to employment or to an education. Persons who rated their health as good at the start of vocational rehabili-

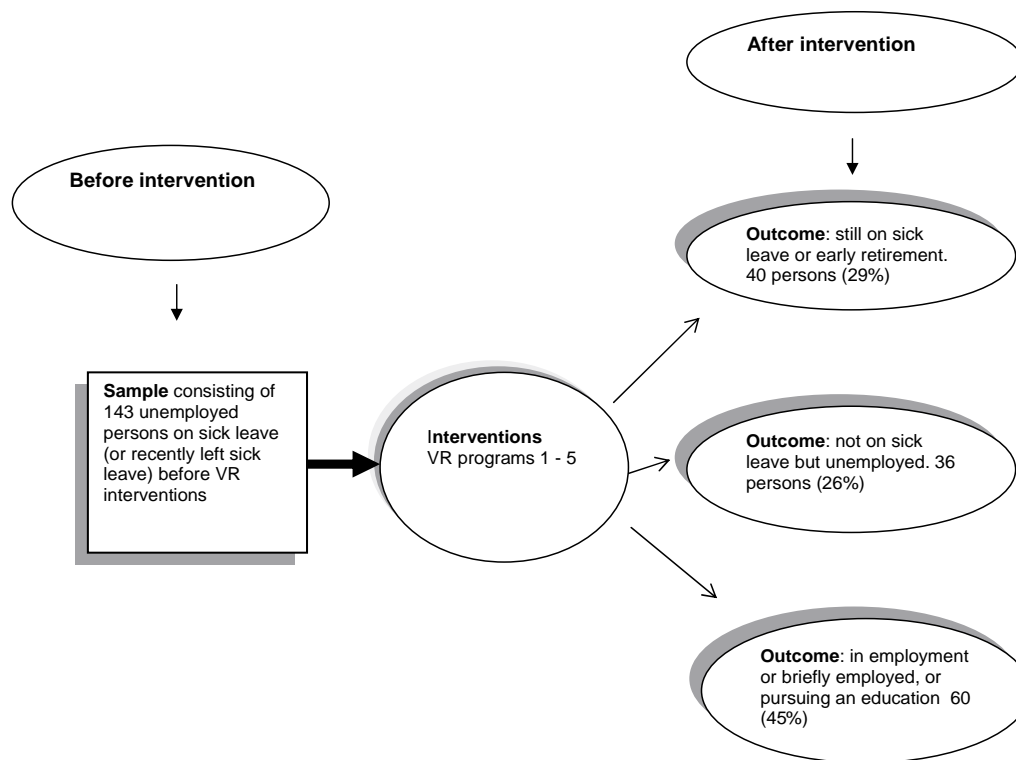


Fig. 1. Outcomes for the sample in the study after interventions ($n = 136$). Programs 1–5: VR program 1 = workplace training in real work environments; VR program 2 = workplace training in real work environments with vocational educational courses; VR program 3 = workplace training in real work environments, vocational educational courses and VR experts besides counsellors; VR program 4 = workplace training in real work environments and VR experts besides counsellors, no VR courses; VR program 5 = sheltered training and VR experts besides counsellors.

tation showed more successful outcomes than persons who rated their health as poor. Both length of unemployment and duration of sick leave are negatively correlated to outcome, meaning that the more prolonged the period of sick leave and unemployment, the greater the likelihood that those individuals will remain on sick leave or qualify for early retirement.

4.4. Logistic regressions

In order to determine which of the variables are predictive of outcome, backward logistic regression on-to outcome was performed with the six variables that significantly correlated with outcome. Three variables were removed, leaving locus of control, health (VAS) and vocational programs. The values of the regression analysis results in the table are the non-standardized (b) regression coefficients, standard errors.

The table shows the results of the analysis model. The degree of prediction (R^2_{adj}) is moderately high (36%), meaning that the three factors isolated in this study of vocational rehabilitation have some predictive

value. Results even show that locus of control has the highest portion of variance; it is also significant ($p = 0.010$). The other remaining factors, vocational programs and health (VAS), are also significant at $p = 0.022$ and $p = 0.004$, respectively

5. Discussion

The findings of the present explorative study suggest that the construct locus of control plays an important role in the outcomes of vocational rehabilitation. Perceived health status, the type of rehabilitation program, the accumulated duration of both sick leave and unemployment at the start of rehabilitation and whether dwelling in an urban or a rural area are other factors that also exert an influence on outcome. These results are in line with earlier studies [2,23] both in Sweden and internationally and were expected. New findings for Sweden is the impact of locus of control on the outcomes of vocational rehabilitation; this despite the fact that research carried out in the closely related fields of

Table 1
Different categories of outcomes of vocational rehabilitation programs in relation to different variables after interventions with vocational programs (using Kruskal-Wallis test)

| Variables | % Sick leave or early retirement (<i>n</i> = 40) | % No longer sick but unemployed (<i>n</i> = 36) | % Employed or pursuing an education (<i>n</i> = 60) |
|-------------------|---|--|--|
| Gender | | | |
| Male | 35 | 27 | 39 |
| Female | 30 | 24 | 46 |
| Age | | | |
| 18–25 | 33 | 33 | 33 |
| 26–33 | 24 | 28 | 48 |
| 34–41 | 31 | 22 | 47 |
| 42–49 | 36 | 25 | 39 |
| 50–55 | 35 | 24 | 41 |
| Education | | | |
| Primary school | 32 | 23 | 46 |
| Secondary school | 31 | 30 | 39 |
| University | 38 | 13 | 50 |
| Disability | | | |
| Physical | 35* | 31* | 33* |
| Psychological | 36* | 15* | 49* |
| Other | 28* | 28* | 45* |
| Locus of control | | | |
| External | 40** | 26** | 34** |
| Internal | 19** | 24** | 57** |
| Geographical area | | | |
| Rural | 35* | 28* | 37* |
| Urban | 256* | 18* | 57* |
| VR program | | | |
| Program 1 | 21*** | 5*** | 74*** |
| Program 2 | 14*** | 43*** | 43*** |
| Program 3 | 25*** | 62*** | 13*** |
| Program 4 | 9*** | 33*** | 48*** |
| Program 5 | 63*** | 25*** | 13*** |

*Significant at 0.05; **Significant at 0.01; ***Significant at 0.001.

Table 2
Correlation matrix between the different groups and vocational rehabilitation outcomes (Pearson correlation)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------|--------|--------|---------|---------|----------|---------|----------|--------|----------|------|
| 1. Age | 1.00 | | | | | | | | | |
| 2. Education | −0.01 | 1.00 | | | | | | | | |
| 3. Disability | −0.085 | 0.117 | 1.00 | | | | | | | |
| 4. Locus of control | 0.072 | 0.088 | −0.085 | 1.0 | | | | | | |
| 5. Health index | −0.004 | −0.036 | 0.237** | 0.089 | 1.00 | | | | | |
| 6. Health index (VAS) | −0.028 | −0.020 | −0.128 | 0.116 | 0.394** | 1.00 | | | | |
| 7. Sick leave | 0.185 | 0.106 | −0.002 | −0.193 | −0.112 | 0.225** | 1.00 | | | |
| 8. Unemployment | 254** | 0.143 | −0.135 | −0.135 | −0.052 | −0.147 | 0.558** | 1.00 | | |
| 9. VR Programs | −0.052 | −0.121 | −0.135 | −0.117 | −0.301** | −206 | 0.021 | 0.162 | 1.00 | |
| 10. VR outcomes | −0.040 | −0.015 | 0.098 | 0.257** | 0.209* | 0.257** | −0.289** | −270** | −0.392** | 1.00 |

*Correlation significant at 0.05; **Correlation significant at 0.01.

medical rehabilitation and work behaviour show that locus of control exerts an influence in both those fields. A small number of American studies also show results that point in the same direction [4,5], but these studies differ in design and population studied, which might exertain discrepancies between our results and theirs.

Other indications of the influence of locus of control

can be found in studies that show differences in cognitive activity between persons with an external versus an internal locus of control. It appears that those with an internal locus tend to demonstrate a higher level of cognitive alertness then those with an external locus [9, 20]. Persons with an internal locus seem to be more willing to search for and find information that they in-

Table 3

Backward logistic regression onto outcomes of all variables significantly correlating with outcome

| Variable | B | std. Error | p-value |
|------------------|--------|------------|---------|
| Locus of control | 0.545 | 0.204 | 0.010 |
| Health (VAS) | 0.146 | 0.040 | 0.004 |
| VR programs | -0.148 | 0.063 | 0.022 |

$R^2 = 0.395$; $R^2_{adj} = 360$.

interpret as helpful to themselves in understanding, controlling and coping with difficult situations or the pursuit of goals. Lefcourt [19] interprets locus of control as a diagnostic indicator of a person's likelihood to seek and accomplish goals in life. When this argument is placed in a vocational rehabilitation context, persons with an internal locus can be expected to be more alert and active in the search of information and other assistance, yet always remaining conscious of their goal of achieving a successful rehabilitation. Persons with an external locus, on the other hand, can be expected not to be as active in the same situations, thus reducing their probability of success.

Other studies show that Persons with an internal locus cope better than persons with an external locus in the areas of life stress and depression [10,21], both symptoms associated with unemployment and ill health and that make returning to the labour market more difficult and complex [11,18,40,41]. These symptoms, while not measured in this study, can be assumed present in the studied sample. In this study, length of sick leave and unemployment were found to be related to outcome and it is interesting to note that the individuals were measured at the start of their vocational rehabilitation [25]. Results from that measurement show a relationship between locus of control and sick leave, persons with an external locus of control having longer periods of sick leave than those with an internal locus, who also reported a perceived better health status. This again emphasises the role of locus of control in the vocational process.

Another important factor found in this study that turned out to influence outcome is the type of program into which an individual is placed. Workplace training in real work environments proved to be the most successful which is in line with studies done by Platt [14, 16,29]. The authors suggest that one explanation for this may lie in the individual's level of self-confidence. Participating in a work situation can lead to greater self-confidence as the individual realises the extent of his own ability and degree of competence. It also allows the individual to meet employers and to again become acquainted with working life and its demands, thereby

increasing ability to find and return to work. This is in contrast to programs carried out in sheltered workplaces where the rehabilitation process is built around the special competencies of rehabilitation specialists. Such programs tend to result in higher frequencies of continued sick leave and early retirement. One can therefore question the aim and use of sheltered workplaces in Sweden and the methods applied there.

6. Conclusions

Findings from this study suggest that methods and models that increase the individual's internal locus of control, that is to say, that give the individual a greater sense of control and power during the rehabilitating process, should be developed and used to increase the probability of success for vocational rehabilitation programs in Sweden. The authors therefore suggest methods that result in a higher degree of participation of clients in the vocational process should be used, thus increasing a sense of control and empowerment.

Programs should also use workplace training in real work environments as often as is possible, as this also increases the likelihood of success. These two areas are possible to develop and incorporate into the rehabilitation process. Future research should therefore make these important areas for study and improvement if the very high rate of long-term sick leaves and early retirements are to be turned around in Sweden.

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Networking among Managers of Small and Medium-size Businesses in an Industrial Park in Rural Sweden: Locus of Control as an Indicator of Participation.

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This investigation deals with the impact of locus of control on how leaders of small and medium-size businesses perceive network usage and value with respect to their own firms. We find evidence that owner-manager locus of control influences the use of business networks, with those having an internal locus of control appearing to be more active in networks and rating the benefits of networking higher than those with an external locus of control. This finding supports the general research direction of this study that owner-managers with an internal locus of control are more likely to view networking as a tool they can use to influence their business environment.

Introduction

Understanding the impact of business networks upon business operations has become an important area of study in several academic disciplines, e.g. economics, strategic management, organizational science and psychology. Our emphasis in this paper is on some of the psychological aspects of networking.

To gain a complete picture of the networking process in small and medium-size businesses it is necessary to know and understand the influence of different leadership characteristics upon managerial style, as well as the extent of participation in and use of networks. The work reported on here is an attempt to describe some aspects of the relationship between networking and leadership styles in order to illuminate the complexities of business networking and the importance of leadership personality in the building and usage of networks.

A requisite for these arguments is, of course, the introduction of a psychological theory that can be applied to descriptions of the relationship between management style and network participation. A search of the literature on business networking turned up no material directly linking networking with leadership attributes. We found this surprising, since descriptions of business networking are generally based on ideas found in social networking studies (e.g. Gustavsen & Hofmaier, 1997; Ebers, 2001). Research into interorganisational networks has grown out of three research traditions. All three have looked separately at networking and at leadership. The first research tradition, business research, involves the investigation of forms of collaboration between organisations and how these relationships influence the respective organisations. Those who most often work in this area are researchers of strategic management and organisational science. The second tradition, social network analysis,

normally takes a social-psychological or sociological perspective, focusing on how structural patterns formed by organisational and individual relationships affect individual behaviour and performance. The third tradition has its base in economics, economic geography and sociology. Here, the focus is on clusters of organisations, with the aim of highlighting and understanding the emergence and functioning of such clusters (Ebers, 2001). As can be seen from the above, the discipline of social psychology does and has investigated business networks. However, this past research has focused mainly on the embeddedness of actors in networks of relationships and has not—as this paper attempts to do—placed any focus on individual psychological makeup or attributes.

A key component in this study is the exploration of the relationship between locus of control and how leaders of small and medium-size businesses perceive and value their own firms' use of networking. The assumption behind this component is that differences between leaders' perceptions and styles of usage, and their subsequent assessment of the worth of networking, are related to organisational structure and economic performance. Of particular interest is using the findings about leadership styles to gain a better general understanding of the processes and structural patterns of interorganisational networks.

With this aim in view, we studied 146 small and medium-size businesses in Odenskog, a small industrial park in rural Sweden, using the psychological construct locus of control as a main variable to investigate the perceived usage and value of networks.

The Concept of Locus of Control

In the words of Lefcourt (1991, p.413), “Locus of control refers to assumed internal states that explain why certain people actively, resiliently, and willingly try to deal with difficult circumstances, while others succumb to a range of negative emotions.” Otherwise expressed, the concept can be used to explain why some individuals fail to act on their own behalf to create situations that are advantageous to themselves or to bring about rewarding outcomes in various areas of life.

Researchers in many areas of psychology—learning theory (Dollinger, 2000, Cassidy & Eachus 2000), leadership and other organisational behavior (Spector, 1982, 1986; Boone, van Olffen & van Witteloostuijn, 1998), and entrepreneurship (Hansemark, 2003; Mueller & Thomas, 2001; Boone & de Brabander 1997)—have all contributed to the empirical evidence available today on the construct of locus of control. The concept was, however, first developed by Rotter and colleagues (1966) based on Rotter's (1954) theory of social learning. This grew out of attempts to explain the tendency of some individuals to ignore reinforcement contingencies. The behaviour of these individuals in not responding as predicted to rewards and punishments was attributed to a “generalized expectancy” that their own behaviour should lead to neither avoidance of punishment nor the attainment of rewards (Phares 1976).

For his part, Rotter (1966) defined locus of control as a generalized expectancy of perceived internal or external control. The belief in internal or external control of reinforcement concerns the degree to which an individual perceives events as being contingent upon his or her own behaviour or own relatively permanent characteristics. This belief is assumed to be more or less stable under varying conditions. Individuals who believe that they can influence outcomes through their own abilities, efforts, skills and characteristics are considered internally oriented. Those who perceive that outcomes are contingent upon external forces such as luck, chance, fate and powerful others, or are of the belief that events are

unpredictable because of the many complexities in the environment, are described as externally oriented. It is important to note that locus of control is not about a specific reinforcement, but instead is a ‘problem-solving’, generalized expectancy that addresses the issue of whether behaviours are perceived to be directly related to the attainment of a goal, no matter what the goal or reinforcement.

In short, as summarised by White (1965), perceived control is in part a reflection of the individual’s generalized sense of confidence and experience of self, either as a hopeful causal individual in the world, or as a despairing victim of the world in the control of others, with little power to alter her/his predicament. Rotter (1992) argues that locus of control affects the important area of problem-solving techniques, and thus is related to planning, coping, persistence, practice, analysing situations, and finding and using new information and knowledge with the aim of attaining goals. The concept thus describes *a central part of human functioning in everyday situations that are new, ambiguous or changing*; which is what business leaders experience daily, or for the purpose of this paper, the experience of managing a small business firm in a rural community.

There are a number of psychological constructs related to perceived control, such as the “learned helplessness” put forward by Seligman (1975), Langer’s (1983) perception of control, and the “self-efficacy” of Bandura (1977). These constructs are very closely linked to locus of control despite their different theoretical backgrounds (Stickland, 1989; Skinner, 1995; Lefcourt, 1991). Lefcourt (1991) observes that a major difference between these constructs is that some are based on motivational terminology while others—such as locus of control—are based on expectancy terminology. However, all of these concepts have a common interest in seeking to explain the degree to which people believe they can bring about positive events and avoid negative ones (Peterson & Stunkard, 1992).

There is some overlap between theories of attribution and locus of control; the difference being that attribution is based on past events while locus of control is concerned with expectations regarding future events. Further, it is important to note that these constructs are not personality traits but rather beliefs constructed by the individual that new situations and experiences can be influenced and changed (Skinner 1995 and Lefcourt 1982). This author suggests that this is of great importance for organizational behaviour and in particular for managers of small firms, as their behaviour can have significant influence on their firm’s relations with other firms and important actors.

Leadership Behaviour and Locus of Control

Research has shown locus of control to be an important construct for explaining leadership behaviour. Spector (1982) found a positive relationship between locus of control and leadership. He noted that internally and externally oriented leaders had different leadership styles, where persons of internal orientation seemed to be more goal oriented than persons of external orientation. Howell and Avolio (1993), using a sample of 78 managers, found a locus of control relationship with transformational style and even with business unit performance. Ward (1993) studied 88 small business managers from India, Honduras, USA, and Ireland. He found that an internal locus of control was positively correlated with success. Boone & De Brabander (1996) carried out a study with a sample of 40 small business managers in Holland and found that locus of control did have a direct influence on the performance of small firms, and indeed that a manager’s locus of control is an important predictor of small business

success or failure. Chebat *et al.*, (1992) studied the relation between marketing managers' beliefs of what causes commercial success or failure and their perception of whether or not they could influence success or avoid failure. They discovered a direct relation between managerial locus of control and beliefs about causes of commercial success.

Of particular importance is that those with an internal locus of control tend to believe that they can exercise a degree of control over situations and environments (Strickland, 1989)—for example a work setting or their operating environment—through their own initiative and independence of action. With respect to networking, it is reasonable to assume that such persons will attempt to achieve more business contacts and control (inter-firm networking) than persons with an external locus of control, if they believe that such business contacts and control will lead to desired outcomes. As Spector (1982) predicted and Blau (1993) reported, persons of internal orientation attempt to control performance outcomes and their environments through initiative-based behaviour. In the context of this article, initiative-based behaviour may include scanning a business environment for relationships that offer potential opportunities and then attempting to build relationships that are perceived as likely to be positive. In this context, persons of internal orientation may be more likely to analyse relations and draw benefits from them. Benefits might include learning new ways of reducing production costs, sharing risk with a partner business, or making it possible for employees to acquire new skills. Should efforts result in economic and social gains, owner-managers with an internal locus of control would be expected to view inter-firm relationships more positively and value them higher than managers with an external locus of control.

Networking

There appears to be no commonly agreed upon Swedish definition of the term “business network” (Svensson *et al.*, 2001; Lind, 2002). However, as noted earlier, the study of interorganizational relationships and networks has become a major area of research in Sweden as in other parts of the world. It is evident that businesses, the subject of the research, are reminded that the building and usage of networks is economically beneficial (Klint & Sjöberg, 2003; Alvarez & Barney, 2001; Barringer & Harrison, 2000). In this paper, business networks are defined as voluntarily initiated, cooperative, inter-firm activities—whether formal or informal, long or short-term—that involve sharing, exchanging and/or co-developing resources with a wide range of motives and goals, and which can occur across both vertical and horizontal boundaries. The present study draws upon Johannisson's (1987) social network theory as a theoretical framework. Social network theory emphasises personal relationships, a fact of some significance when studying small and medium-size businesses, where successful cooperation often requires that the owner-managers of two or more firms get along with each other and build a social relationship that then becomes a network. As Strokman (2001) puts it, “social networks are the cause of and the result of individual behaviour.” It is important to note, however, that network structures are often the outcome of unintended rather than planned action.

What then are the rewards and value of a social network? Coleman (1990) points to social capital and suggests that social capital gives individuals access to a variety of resources they can exploit to help realize their goals. The amount of social capital used depends on the amount of available resources, the value placed on those resources, and the willingness to mobilize resources for the benefit of others (Flap 1999). This means that social capital can operate as a productive resource to attain goals. This is achievable by exploiting network

structures that lead to learning and gaining control over rewarding opportunities that finally result in business profits (Ebers 2001).

The findings discussed in previous paragraphs tend to support the central point of this paper; namely, that small and medium-size businesses' social networking and utilization of social capital is strongly influenced by the locus of control orientation of owner-managers. The prediction is that owner-managers with a high internal locus of control will tend to place a greater value on business networks and be more likely to use networks strategically to develop their operations.

The Strategic Use of Networks

Research has described the potential of networks to make available to firms information, markets, technologies, learning, and other resources (Kale *et al.*, 2000). When considered as a business strategy, firms enter into relationships/networks with other firms for a variety of reasons, such as the reduction of production costs, the acquisition of knowledge, and the increase of market power (Kale *et al.* 2000). In the study presented here, the following areas of networking have been examined: level of network activity, reduction of production costs, learning, and strategic importance of networks.

The level of network activity: The number and types of networks define the level of network activity of a firm at local, regional, national and international levels. This is activity aimed at creating profits through external social network contacts. Powell and Smith (1994) propose that this is represented by economic action being embedded into the social network of an enterprise. An essential part of this embeddedness is the idea that the pursuit of information will significantly contribute to the reduction of any uncertainty in a firm's everyday operations, e.g. through network learning. The search for information has been identified as central for organization activity (Granovetter, 1985). Evident from this is that planned, effective social networking is an extremely efficient means by which a firm can satisfy its information needs. Therefore, when firms build networks that can successfully address their needs they must be aware of potential partners and how reliable those partners might be (Gulati 1999). To this end, owner-managers need to be active in the pursuit of potential partners, which involves allotting time and resources to the building and maintaining of networks. One may assume that successful networking activities raise the priority given to the building and maintenance of networks and that once a firm has learnt the economic potential of such relationships, networking as a business strategy eventually becomes an integral part of the firm's business practices.

The amount of network activities a firm participates in, and the time and other resources allotted to building and maintaining networks are related to outcome. The aim here is to measure the level of the firm's activity when it comes to networking in general, thus:

Hypothesis 1a: The number of networks a firm participates in is positively related to its owner-manager's internal locus of control.

Hypothesis 1b: Higher levels of networking activity will be positively related to owner-manager internal locus of control.

Reduction of production costs: There is much evidence that a major motivation for network involvement is that network partners can help reduce production costs Kale *et al.*, 2000; Lind,

2002). For many small and medium-size firms, the sharing of manufacturing resources has proven to be an essential business strategy (Cleland & Bidanda 1995). Where in a production system or at what stage of the process cooperation takes place can vary by firm or network (Lu 2000). The general aim of networking cooperation is the identification of ways to reduce production costs. For small and medium-size firms, cooperation to reduce costs can be a vital element in areas such as transport, state-of-the art technologies, equipment, and management systems. Lind (2002) reports that there is evidence that the building of networks by small and medium-size firms in Sweden is often based on cost reduction goals, thus

Hypothesis 2: Greater use of networks for the reduction of production costs will be positively related to owner-manager internal locus of control.

Learning from networks is assumed to be of great importance and is a common motivation to participate (Kahanna *et al.*, 1998; Svensson *et al.*, 2000). Recent research on networks has begun shifting focus towards learning from networks (Kale *et al.*, 2000). This research emphasis is both because of the need for greater understanding of the many factors that interact to result in a learning process and the importance of the acquisition and accumulation of knowledge in organisations.

The definition of learning used in this study is the acquisition of vital information and know-how from network partners, where the actual learning process is defined according to Huber (1996): “An organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization.” This means that a firm must possess the ability to internalize recognized knowledge gained from partners into its own organization (Yoshino & Rangan, 1996), thereby completing the learning process.

What is this ‘vital information’ and ‘know-how’ that firms strive to acquire from network partners? Kogut and Zander (1992) define vital information as knowledge that can be passed on to others without loss of the principles needed for deciphering it. They maintain that information consists of facts, axiomatic propositions and symbols. Know-how, they state, is knowledge that allows a firm to carry out a task effectively and correctly. Know-how meets all required standards needed to produce products and services that are marketed or used within an organisation.

In Sweden, there is growing interest in the topic of learning within the network context. Research indicates that small and medium-size firms can gain significant benefits from network-related learning and development (Svensson *et al.*, 2001). It is felt that this potential needs to be made known and more efficiently used if small and medium-size firms are to be further strengthened and developed.

We are assuming that the firms that participated in this study had the opportunity to pursue learning from existing networks. If correct, this means that the firms acquired technical and administrative knowledge vital for day-to-day operations and future development. The importance the owner-managers in the study placed on network participation as a learning tool is associated with owner-manager outlook, thus:

Hypothesis 3: Higher levels of network usage for learning purposes will be positively related to owner-manager internal locus of control.

Strategic importance of networks: It is generally accepted that small and medium-size firms that build and participate in networks gain benefits that would otherwise be difficult and

costly to acquire. These benefits range from coordinating activities to sharing and transferring skills and/or resources (Scott, 2003). Granovetter (1994) argued that "firms do not conduct business as isolated units, but rather form cooperative relations with other firms, with legal and social boundaries of variable clarity around such relations. In no case do we observe an economy made of atomized firms doing business at arms length with other firms across a market boundary." For small and medium-size business, networks offer the possibility of competing successfully against larger organisations (Scott 2003) or generally enhancing and fostering competitiveness (Klint & Sjöberg, 2003; Varamäki 2001). We surmise that the firms that participated in the study have been active in networks as a way of enhancing financial, production and marketing strategies as well as an overall strengthening of operations. Svensson et al. (2000) drew attention to the argument that networks played a strategic role in the rapid industrial development of both Italy and the south of Sweden; again supporting the idea of the strategic importance of networks in the development of business.

Determining the strategic importance of networks can differ depending on whether judgment is factually based or, as in this study, uses more subjective criteria. However, the degree to which an owner-manager views networking as important will be evident in the level and quality of network activities and possibly in the economic status of a firm.

Hypothesis 4: The more internal an owner-manager's locus of control, the greater will be his perception of networks as strategically important.

Data and Methods

The sample

A research questionnaire was mailed to owner-managers of 146 small and medium-size businesses in a small industrial park in rural Sweden, which is the complete population of small and medium-size in the park (Odenskog Industrial Park). A follow-up letter with repeat questionnaire was sent to all non-respondents. A total of 83 firms responded which is a response rate of 57 percent. Among those responding, four different branches of industry were identified. The number of employees per firm was 3-50 (all firms with less than 3 or more than 50 employees were excluded 17 in number). A majority of the population receiving the questionnaire—owner-operators of small and medium-size businesses—were not motivated to respond. For the purpose of the research reported upon here, it is felt that the data still provides useful information. A second study with follow-up including multiple contacts and several follow-up strategies may be appropriate.

The measures

All the scales used to measure network activity were partially or completely developed by the author for use in this study. The development process began with a review of the relevant literature and was followed by minor fieldwork (interviewing two owner-managers) carried out by the author. The aim of the literature review and fieldwork was to gain additional and indepth knowledge about the various areas and uses of networking in addition to developing scales that would address the aims of this study.

All the scales developed (partially or completely) by the author were tested for reliability. The results show Cronbach alpha coefficients ranging from .72- .94 and for the locus of control scale .85; these are assumed to be good to high as they exceed levels recommended by Nunnally & Bernstein (1978).

Locus of control was measured using an abbreviated version of the Rotter scale (1966) as developed by Andersson (1976) for use mainly in Swedish work settings. The scale has a minimum score of 8 and a maximum of 40, with a lower score representing an external locus of control orientation and a higher score representing an internal locus of control orientation. In this study, individuals who scored 30 points or less were designated as having an external locus of control while individuals who scored 31 points or higher were designated as having an internal locus of control.

Number and types of networks

This study advances the idea that networks can be categorized as either formal or informal. Formal networks are defined as networks that are based on membership; examples of such networks are cooperative organisations, professional organisations and unions of various kinds. Informal networks are defined as networks based on social relationships where membership is not a prerequisite for participation. In this study, respondents were asked to specify whether they belonged to formal or informal networks by giving a yes/no response.

The level of network activity

It is assumed in this study that number and types of network involvement are accurate descriptors of the level of network activity that a firm has at local, regional, national and international levels. Also assumed is that the amount of network activities a firm participates in, the time allotted to building and maintaining networks, and the number of projects that a firm has started with the help of other network partners are related to outcome of activities. A scale (in Swedish) comprising nine questions was developed by the author to measure network activity, with a minimum score of 9 and a maximum score of 45. A low score represents low network activity and a high score high network activity. The aim here was to measure the level of a firm's activity when it comes to networking in general rather than any specific area of networking.

Reduction of production costs

To measure the reduction of production costs, a scale (in Swedish) was developed by the author that comprised 6 questions with a minimum score of 6 and a maximum score of 30. A low score represents low activity aimed at reducing production costs while a high score represents a high level of activity. The aim was to measure the level of a firm's activity with regard to the reduction of production costs in general.

Learning

To measure learning, a scale comprising 8 items was used, where four of the items are based on the scale developed by Inkpen and Beamish (1997) and Tsang (2002) and where for the sake of this study, an additional four items were added. A high score represents high learning activity and a low score low learning activity. The aim was to measure the degree to which an owner-manager perceived that their firm used participation in networks as a way to learn new business techniques and strategies.

Strategic importance of networks

In measuring the strategic importance of networks, a 5-item scale was used. Low scores represent a lower subjective perception on the part of an owner-manager of the strategic importance of networks to the firm. A higher score represents a higher subjective perception by an owner-manager as to the strategic importance of networks to the firm.

Statistical analysis

All statistical analyses were carried out using the statistical program SPSS version 11.s for Windows. When carrying out statistical analysis, indexes (possible range 1-5) were formed for all dependent variables and the mean of the variables were used in the analysis in accordance with the procedures put forward by Nunnally & Bernstein (1978).

Chi square testing was used to test for differences of membership in both informal and formal networks (frequencies of membership was used). To test for differences in the level of network activity and quantity of use of networks t-test was used. Pearson product-moment correlation was used to test for correlations.

Results

Descriptive statistics of background variables are presented in Table 1.

Table 1

| Variable | N | Mean | SD | Observed range |
|-----------------------|----|------|-------|----------------|
| Locus of control | 66 | 30 | 5,11 | 15-40 |
| Age | 66 | 49 | 0,95 | 37-64 |
| Number of chief years | 66 | 12 | 8,79 | 1-30 |
| Working years | 66 | 36 | 41,15 | 14-30 |
| Number of employees | 66 | 14 | 14,57 | 3-50 |

One variable not presented in the table is gender (there were 4 females, 57 males and 9 non-reporting of gender). The educational level reported is the highest level attained by the participants (primary school 6, secondary school 38, university graduate 18, and unstated 4).

The main results of this study are shown below. It should be noted, however, that analyses using the background variables number of working years, number of years as owner-manager and branch category were carried out with no significant results, so are not included in the results.

Figures 1 and 2 show the frequency of membership in formal and informal networks. To test for significant differences in membership the chi square test was used.

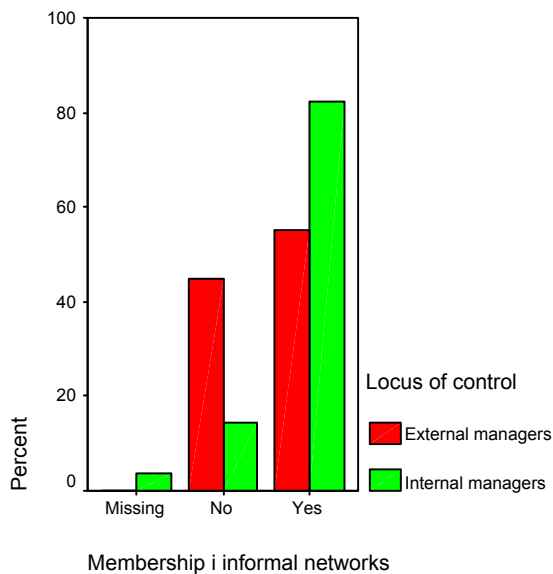
Figure 1 - Membership in formal networks with locus of control as the independent variable



Significant differences between internal and external owner-managers * $p < 0,05$
 $n=66$ External: no 6; yes 32 Internal: no 0; yes 28

Figure 1 shows that the locus of control orientation of owner-managers influences participation in formal networks. There is a significant difference between internal and external owner-managers, with persons of internal orientation having higher frequencies of participation. This result confirms Hypothesis 1a which states that the number of networks in which a firm participates is positively related to its owner-manager's internal locus of control.

Figure 2 - Membership in informal networks with locus of control as the independent variable



Significant differences between internal and external owner-managers *** $p < 0,001$
 $n=65$ External: no 18; yes 20 Internal: no 4; yes 23

Figure 2 shows that the locus of control orientation of owner-managers influences participation in informal networks, with persons of internal orientation having significantly higher frequencies of membership in informal networks. This result confirms *Hypothesis 1a*, which states that the number of networks in which a firm participates is positively correlated to its owner-manager's internal locus of control.

Perceived usage of networks and the importance of networking

Table 2 shows the differences between owner-managers of network activity and the degree of usage of networks, with t-test used to assess the level of significance.

Table 2 - Differences in the level of network activity and quantity of use of networks.

| Owner-managers with an | Internal locus of control | | External locus of control | |
|---------------------------------|---------------------------|-------|---------------------------|-------|
| | Mean | Std. | Mean | Std. |
| Network activity | 2,98** | 0,574 | 2,56** | 0,583 |
| Reduction of production costs | 3,00 | 1,16 | 2,68 | 1,03 |
| Learning purposes | 3,12* | 0,894 | 2,59* | 0,697 |
| Strategic importance of network | 3,53* | 1,419 | 2,89* | 0,995 |

* p< 0,05

** p< 0,01

Table 2 shows the differences in the use of networks between owner-managers with external and internal orientation. There are three significant results all showing that the usage of networks differs between persons of internal orientation and persons of external orientation, where persons with an internal orientation have higher levels of general network activity, use networks to a higher degree for learning and show that they place a higher value on the strategic importance of networking. This tends to confirm *Hypotheses 1b to 4*.

Table 3 presents the correlations between locus of control, two background variables (age and education) and network usage

Table 3 Correlation matrix of locus of control and background variables, and 4 networking variables used in this study

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------------|---------|--------|--------|---------|---------|---------|------|
| 1. Locus of control | 1.00 | | | | | | |
| 2. Age | 0.289* | 1.00 | | | | | |
| 3. Education level | 0.070 | 0.110 | 1.00 | | | | |
| 4. Learning | 0.438* | 0.100 | -0.072 | 1.00 | | | |
| 5. Production cost | 0.290* | -0.099 | -0.065 | 0.642** | 1.00 | | |
| 6. Network activity | 0.367** | 0.108 | -0.117 | 0.606** | 0.498** | 1.00 | |
| 7. Network strategic importance | 0.273* | 0.141 | -0.078 | 0.509** | 0.297* | 0.409** | 1.00 |

* p< 0,05

** p< 0,01

Table 3 shows correlation coefficients for the main factors used in the study. Locus of control is significantly correlated with five of the six factors presented. This supports the main hypothesis of the study that owner-managers' locus of control orientation is related to the use of networks. The strongest relationship to locus of control is found in the learning factor,

meaning that persons of internal orientation reported that they use networks to a higher degree for learning than persons of external orientation.

There were significant correlations among most of the six network factors, e.g. high correlations between general network activities and the learning factor, which is interpreted to mean that learning is a main activity of networking in this study. Learning was also found to be highly related to the value placed on the strategic importance of networking, again showing its importance relative to a firm's overall level of networking.

Discussion

This study was undertaken to investigate the impact of locus of control on how leaders of small and medium-size businesses perceive network usage and value with respect to their own firms. The results suggest that owner-manager locus of control influences the use of business networks with persons with an internal locus of control appearing to be more active in networking and rating the benefits networks higher than persons with an external locus of control. This finding supports the general research direction of this study that owner-managers with an internal locus of control are more likely to view networking as a tool they can use to influence their business environment.

That more owner-managers with an internal locus of control reported membership in more networks than those with an external locus of control can be interpreted to mean that persons of internal orientation have a greater understanding and appreciation of the economic potential of networks. This interpretation is further supported by the finding that persons of internal orientation have a significantly higher participation in informal networks; that is, networks that can be assumed to demand a greater quantity of time and effort than formal networks. For example, according to Lind (2002), informal network participation requires a higher level of social interaction, especially since such networks tend to use complex unwritten rules and structures. Table 2 shows that of the four dependent variables, persons of internal orientation have a higher activity or place greater importance on these variables than persons of external orientation. Correlation results in Table 3 support this position as they show that the main independent variable, locus of control, is correlated with the four dependent variables.

The social network theory referred to in this study emphasises personal relationships in the building and maintaining of networks (Johannisson, 1987, Lind, 2002, Strokman, 2001). The data suggests that it is in the relation-building process and in an understanding of the opportunity potential of networks that the differences between those of internal and those of external orientation is at its most crucial and decisive; that is, the ability to read the environment and enter into relationships that offer potential business opportunities.

This leadership behaviour can be compared to an entrepreneurial style of leadership (see Covin & Slevins, 1988) where the entrepreneur in pursuit of innovation, profitability and growth attempts to exploit the environment for such opportunities; in this case, the environment is networking and the opportunities found within. Extensive research findings show a strong correlation between an internal locus of control and entrepreneurship (see Hansemark, 2003; Ward, 1993; Shapero, 1975), where persons of internal orientation seem to have greater amounts of perceptual alertness (Gilad, 1982), which, researchers agree, leads to learning and the discovery of opportunity (Gilad, 1982). Research also shows that persons of

internal orientation are more likely to seek out relevant information and to learn more from feedback and early experiences than persons of external orientation (Boone et al., 1998). Phares (1976), in summing up behavioural differences between persons of internal and persons of external orientation, described such differences in information seeking and learning behaviour. He also noted that persons of internal orientation seem to be more concerned with the information acquired than with the social demands of the situations in which they find themselves, and that they make greater attempts to control their environments. In the context of this study, then, one can expect that owner-managers with an internal orientation will be more observant of their business and social environments, and show greater ability to analyse and take advantage of the benefits that networks offer. By so doing they also indicate that they place a higher value on networks than owner-managers with an external orientation. Several studies suggest that participation in and use of business networks are economically important for small and medium-size businesses (Klint and Sjöberg, 2003; Varamäki, 2001). From this follows that firms managed by persons of internal orientation may be expected to be more successful due to the higher level of networking activities and the ability to take advantage of the opportunities presented.

Other findings show that membership in informal networks has greater influence on the four dependent variables studied than membership in formal networks. This is an interesting result, which is interpreted as giving support to the idea put forward by Johannisson (1987), Lind (2002) and Strokman (2001) that the informal meeting/relationship is the cornerstone in the development of business networks, and that it is within these networks that the greater amount of business opportunities are found and vital information obtained, resulting in learning. It would appear from the results of this study that formal networks play a much less important role when it comes to such networking benefits as those described above. It is important to observe that persons of internal orientation have a much higher rate of participation in informal networks than persons of external orientation, again underlining the role of an internal locus of control.

Conclusions

Findings from this study suggest that the locus of control orientation of owner-managers of small and medium-size businesses influences participation in and usage of business networks and that membership in informal networks plays an important role for gaining and using the benefits of business networks. From a micro perspective, this result sheds light on the importance of leadership behaviour on participation and usage of networks. The conclusion that manager personality (in the form of locus of control orientation) has a significant influence upon business strategy is recognized as important in today's marketplace. If more owner-managers can learn to adopt an internal locus of control orientation, then an improved business economy is a likely outcome. It is suggested that further research needs to be carried out from a micro perspective if all the complexities of the use of business networks is to be fully understood and to gain a deeper understanding of the relationship between leadership behaviour on participation and usage of networks.

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Locus of Control and its Impact on Strategy and Financial Performance in Small Firms

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Abstract

This study investigates the effects of locus of control on financial performance and business strategy in small firms. In doing so it was hypothesised that there exist bivariate associations between *locus of control* and *financial performance* of small firms, as well as three other factors that are assumed to influence financial performance. These three factors are: the style of management adopted by owner-managers, known as *strategic posture*, *networking activities* of owner-managers, and the *business environment* as perceived by owner-managers. In an attempt to gain greater understanding of small firm performance an analytical model was tested for its impact on financial performance. Results are mixed, but give some support to the assumption that relations exist between locus of control and financial performance as well as business strategy. Findings even suggest that firms' branch of commerce moderates the impact of locus of control. Further, locus of control was found to have relatively strong associations with the style of leadership adopted.

Introduction

Small firms play a vital role for the sustainment of economic development and welfare in many societies. In Sweden, this business category accounts for approximately 70 % of employment during the late 1980s (Statistics Sweden 2004), thus making the existence and well-being of small firms an important part of the overall Swedish economy. This significance of small firms in their ever expanding role as motor in the process of national economic development is global (Storey, 1996).

Very much a part of the small firm is the idea of entrepreneurship; that the individual takes upon him-/herself to use — among others factors — all available personal resources in pursuing the goal of becoming a successful business owner. The importance of the entrepreneurial process for small firms puts focus on the role of the owner-manager and the managerial skills and strategies applied to running and developing firms into prospering business ventures. Achieving a prospering business naturally relates to a number of factors, among them — it is posited here — the specific psychological makeup of the individual owner-manager. This factor has been found to impact on both leadership style (Miller and Toulouse 1986, Cragg and King 1988; Cromie 2000; Markman and Baron 2003) and the general direction given to the firm (Miller and Toulouse 1986 Storey, 1994, Jennings and Beaver 1997; Lee and Tsang 2001), and somewhere to success or not in enterprise, as the case may be.

For the small firm to be called a successful business venture, obvious major requisites are survival and profitability. However, the world of the small firm is one of high

competitiveness and uncertainty where firms are “born and die easily” (Hu, 2003). This observation — borne out by Wiklund (1998) who also points out that “many small firms die during their first years of operation” — underlines the difficulties that the small firm must face in its struggle to survive and eventually grow.

One could summarise the world of the small firm as one full of strains and demands, with the achievement of a positive outcome dependent on many factors. This adds up to a number of questions that demand resolution, e.g. what are the specific factors that affect or determine the financial performance of the small firm? Some are found within the firm, such as managerial skills and strategies, while others arise from the business environment, such as pressure from competitors and legal regulations.

The underlying complexity can be judged from the wide range of studies carried out within a number of academic disciplines — economics, strategic management, organizational science, sociology, and psychology — all expounding some facet of this subject with the aim of attaining a deeper and clearer understanding of that vital small-firm performance. It is therefore arguable that any knowledge that furthers our understanding of the factors that influence the successful performance of small firms is of value, if the renewal and sustainment of such an important business stratum is to be facilitated.

A recent trend in the research on small firm performance is the use of a combination of variables (Miller 1988 and Dess *et al.*, 1997) to take into consideration the complexity of the field and in so doing to increase the probability of gaining meaningful knowledge.

This study has two main aims; the first is to investigate the bivariate associations between *locus of control* on the financial performance of small firms, as well as on three other factors that are assumed to influence financial performance. These three factors are: the style of management adopted by owner-mangers, also known as *strategic posture*, the *networking activities* of owner-mangers, and the *business environment* as perceived by owner-mangers.

The second aim is to examine simultaneously the multivariate relationships in an analytical model that takes into consideration the combined impact of these independent variables on the dependent variable, the financial performance of the business. I have found no study that has investigated these relationships simultaneously in an analytical model, nor considered the relationships that may exist between locus of control and the other independent variables.

This paper builds on the hypothesis that a direct relationship exists between locus of control and the financial performance of small firms on the one hand, and on the other between locus of control and the other independent variables detailed above. It is suggested that locus of control, viewed as an independent variable and analysed simultaneously with the three independent variables, will turn out to have influenced the financial performance of the firms studied. The sections that follow describe the theory and hypotheses upon which the study is grounded.

Theoretical Background

Locus of Control and managerial behaviour

Rotter (1966) defines locus of control as a generalized expectancy of perceived internal or external control. The belief in internal or external control of reinforcement concerns the degree to which an individual perceives events as being contingent upon his or her own behaviour or own relatively permanent characteristics, a belief assumed to be more or less stable under varying conditions. Individuals who believe that they can influence outcomes through their own abilities, efforts, and skills are considered to be internally oriented. Those who believe that outcomes are contingent upon external forces such as luck, chance, fate or powerful others, or feel that events are generally unpredictable because of the many conflicting forces at work in the environment are described as externally oriented. It is important to note, however, that locus of control is about a “problem-solving, generalized expectancy” that addresses the issue of planning, coping, persistence, practice, analysis of the situation, and finding and using existing knowledge as well as new information for the attainment of goals. The concept thus describes a fundamental aspect of normal human everyday functioning in situations that are new, ambiguous or changing, which are what business leaders in small firms experience on a daily basis due to the continuous fluctuations and demands of the business environment.

As to be expected, locus of control has indeed been used as an independent variable in other studies of organisational and managerial behaviour (e.g. Spector, 1982; Miller *et al* 1982; Blau 1993; Millet & Sandberg, 2005) as well as entrepreneurship (Mueller & Thomas, 2000; Lee & Tasang, 2001), three areas of organisational science that are of particular interest for this study.

Findings from such research have shown that there is a connection between locus of control and choice of managerial style (Spector, 1982; Howell & Avolio, 1993; Chebat *et al.*, 1992) as well as the business strategies adopted (Miller, *et al.*, 1982; Boone and De Brabander 1996; Millet & Sandberg, 2005). It is therefore not surprising that locus of control has been used as an independent variable in the investigation of small firms to assess its impact on performance (Miller & Toulouse, 1986; Khan & Manopichetwattana, 1989; Hansemark, 2003), with main results supporting the proposal that locus of control has predictive validity.

The interpretation is that the concept of locus of control can be used to explain the use of various business strategies, which develop into a style of management, which directly or indirectly impacts upon the firm's performance.

Miller and Droge (1986) suggest that the manager's role and leadership style should be expected to be critical, decisive and overwhelmingly influential in the life of the small firm; an argument of great pertinence for the small organization as management philosophy and behaviour should significantly mark the entire firm, far more so than in larger firms. It is therefore proposed that the personal characteristics of the owner-manager of the small firm is paramount among factors that influence small firm performance; therefore the inclusion of the psychological construct locus of control in this study as a main variable. This leads us to

Hypothesis 1; which contends that higher levels of economic success will be positively related to owner-manager internal locus of control for both the sample in its totality and the two branches that make up the total sample, explicitly the branches of metal works and trade.

Strategic posture

The increasing demand in the trend-conscious, competitive world of business for a sensitive ear to market modifications and for production flexibility constantly presents new and greater challenges for most organisations (Dess *et al.*, 1997), but most so, perhaps, for the owner-manager of the small firm (Millet & Sandberg, 2005). To deal with this situation, a number of managerial theories have been developed over the years that offer a range of useful leadership strategies to address these demands. Many management scholars carrying out investigations in this field have arrived at the conclusion that the managerial styles best suited to dealing with today's demands are those based on a clearly entrepreneurial standpoint (Dess *et al.*, 1997; Sadler-Smith *et al.*, 2003).

This means a style of management that closely follows the ideas put forward by Joseph Schumpeter in 1934, when he remarked on the existence of a small number of persons in every society that attempt to “revolutionize” production techniques, invent new products and generally pursue new ideas within each business community. This observation of Schumpeter's is seen by many as the cornerstone of entrepreneurial activity.

Using Schumpeter's ideas as a foundation, then, but also building on the work of Khandwalla (1977) and Miller & Friesen (1982), Covin & Slevin (1989) have developed what they call the “strategic posture” of the enterprise. This they roughly define as a firm's overall competitive orientation, which presented as a scale spans from a purely entrepreneurial outlook at one end to a thoroughly conservative one at the other. Firms that adopt a strategic posture at the entrepreneurial end of the scale are accordingly defined as entrepreneurial firms, where owner-managers pursue an entrepreneurial management style, observable through the decisions made and the general management philosophy propounded (Covin and Slevin 1989).

Firms that eschew the entrepreneurial style of management are designated by Covin and Slevin (1989) as conservative, since exhibiting non-entrepreneurial, risk avoidance, non-innovative and passive behaviour. The strategic posture adopted by an organisation determines the style of decision making at the organisational level, where policies are formulated and carried out with the aim of creating a productive relationship between the firm and its environment in order to better performance.

Key components in the entrepreneurial strategic posture as described by Covin and Slevin (1989) are innovation, pro-activeness and risk-taking; all of which manifest themselves in a management style that is aggressive in addressing the demands of the prevailing climate of the external environment. This also includes a clear policy of innovativeness, which implies the continual modification of existing products and canny

introduction of new ones, along with the tendency to take chances where other more cautious persons may tend to take a wait-and-see attitude.

A number of studies (Miller 1988, Covin & Slevin, 1989; Dess et al., 1997; Zahra 1993, Wiklund & Shepherd, 2005) propose that adopting a management style based on the entrepreneurial strategic posture is an important factor for the small firm in mastering its external environment. Other research results also give support to this proposal (e.g. Covin, 1991; Wiklund & Shepherd, 2005; Zahra & Covin, 1995), having found a positive relationship between the entrepreneurial style of management and business performance.

It is important to note, however, that not all research supports this contention, see for example Smart & Conant (1994) as well as Hart (1992), who argue that adopting an entrepreneurial strategic posture can under certain circumstances be proven to be negative to business performance, and that this factor should therefore not generally be assumed to have a positive effect on performance.

Despite the differences in opinion as to whether an entrepreneurial strategic posture is the correct style of management to be used in less supportive environments, it is nevertheless suggested here that this strategic posture, when manifested in the managerial style of owner-managers of small firms, can be expected to be beneficial, especially for firms operating in difficult environments, as suggested by Covin and Slevin (1989).

It is here that the issue of choice of management strategy becomes important, as the owner-manager attempts to exploit the opportunities present in the business environment with the aim of maintaining or increasing business performance. The choice at hand is either to take an entrepreneurial strategic posture or a more conservative one, and the proposal put forward here is that firms that adopt an entrepreneurial strategic posture will be owned or managed by persons with an internal locus of control. This would entail having an approach that is more pro-active, innovative and risk-taking, or all in all a greater task and action orientation than persons with an external locus of control would adopt. This proposition is based on the facts and arguments presented earlier in the section entitled “Locus of control and managerial behaviour” as well as on scientific evidence that directly supports the assumption of the existence of a relationship between locus of control and the use of an entrepreneurial style of leadership presented in a number of studies (see e.g. Miller, et al 1982; Miller & Toulouse, 1986; Khan & Manopichetwattana, 1989; Lee and Tasng 2001), which leads us to

Hypothesis 2; which proposes that owner-managers with an internal locus of control will show a level of entrepreneurial leadership style not found in owner-managers with an external locus of control, this both for the total sample and the two branches that make up the total sample.

Networks and their strategic uses

The study of inter-organizational relationships and networks has become a major area of research in Sweden as in other parts of the world. It is evident that businesses, the subject of the research, are reminded that the building and usage of networks is economically beneficial (Klint & Sjöberg, 2003; Alvarez & Barney, 2001; Barringer & Harrison, 2000; Ireland et al., 2002). For the purposes of this paper, business networks are defined as voluntarily initiated, cooperative, inter-firm activities — whether formal or informal, long- or short-term — that involve sharing, exchanging and/or co-developing resources with a wide range of motives and goals, and which can occur across both vertical and horizontal boundaries. The present study draws upon Johannisson's (1987) social network theory. This theory emphasises personal relationships, a fact of some significance when studying small and medium-size businesses where successful cooperation often requires that the owner-managers of two or more firms get along with each other and build social relationships that then become a network. As Strokman (2001) puts it, "social networks are the cause of and the result of individual behaviour." It is important to note, however, that network structures are often the outcome of unintended rather than planned action.

Coleman (1990) discusses the value of 'social capital' which, he suggests, gives individuals access to a variety of resources they can exploit to help realize their goals. The exploitation of network structures leads both to learning and access to rewarding opportunities that may finally result in tangible business profits (Ebers, 2001). Research results have described the potential of networks to make available to firms information, markets, technologies, learning, and other resources (e.g. Gulati et al., 2000). When considered as a business strategy, firms enter into relationships/networks with other firms for a variety of reasons, such as the reduction of production costs, the acquisition of knowledge, and the increase of market power (Kale et al., 2000). In the study presented here, the following areas of networking have been examined: level of networking activity, perceived strategic importance of networks, and effects in terms of reduction of production costs and learning. These three areas are further discussed in the following paragraphs.

Level of networking activity: The number and types of networks define the level of networking activity of a firm at the local, regional, national and international levels. This is activity among external social network contacts aimed at finally generating profits of some kind. Powell & Smith (1994) describe this as economic action being embedded into the social network of an enterprise. An essential part of this integration is the idea that the pursuit of information will significantly contribute to the reduction of any uncertainty in a firm's everyday operations, e.g. through network learning. The search for information has been identified as vital for organization activity (Granovetter, 1985). Evident from this is that planned, effective social networking is an extremely efficient means by which a firm can satisfy information needs directed towards increased economic success. Therefore, when firms build networks that can successfully address their needs they must be aware of the value of potential partners and how reliable those partners might be (Gulati, 1999). To this end, owner-managers need to be active in the pursuit of potential partners. This involves allotting time and resources to the building and maintaining of useful networks. A reasonable assumption is that

successful attempts at networking raises the priority given to the building and maintenance of networks and that once a firm has learnt the economic potential of such relationships, networking as a business strategy eventually becomes an integral part of the firm's business practices as an indirect strategy for the bettering of performance.

Reduction of production costs: There is much evidence that a major motivation for network involvement is that network partners can help reduce production costs (Gulati, et al., 2000; Lind, 2002). For many small and medium-size firms, the sharing of manufacturing resources has proven an essential business strategy (Cleland *et al.*, 1995). Where in a production system or at what stage of the process cooperation takes place can vary by firm or network (Lu & Beamish 2000). The general aim of network cooperation is the identification of ways of reducing production costs. For small and medium-size firms, cooperation to reduce costs can be a vital element in areas such as transport, state-of-the-art technologies, equipment, and management systems. Lind (2002) reports that there is evidence that the building of networks by small and medium-size firms in Sweden is often based on cost reduction goals, thus making this area an important component in the firm's pursuit of maximum economic returns for the products or services produced.

Learning from networks is also assumed to be of great importance and is a common motivation to participate (Kahanna *et al.*, 1998; Svensson *et al.*, 2000); and recent network research has begun shifting focus towards the learning engendered in networks (Kale *et al.*, 2000). The definition of learning used in this study is the acquisition of vital information and know-how from network partners, where the actual learning process is defined according to Huber (1996): "An organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization." This means that a firm must possess the ability to internalize recognized knowledge gained from partners into its own organization (Yoshino & Rangan 1995), thereby completing the learning process.

What is this 'vital information' and 'know-how' that firms strive to acquire from network partners? Kogut and Zander (1992) define vital information as knowledge that can be passed on to others without loss of the principles needed for deciphering it. They maintain that information consists of facts, axiomatic propositions and symbols. Know-how, they state, is knowledge that allows a firm to carry out a task efficiently and correctly. Know-how meets all required standards needed to produce products and services that are marketed or used within an organisation.

In Sweden, there is growing interest in the topic of learning within the network context. Research results indicate that small and medium-size firms can gain significant benefits from network-related learning and development (Svensson *et al.*, 2001). It is felt that this potential needs to be made known and more efficiently used if small and medium-size firms are to be further strengthened and developed.

Here it is assumed that network participation is a strategic choice, as networks are seen to provide both business opportunities and vital information that will hopefully lead to better business performance. It is further proposed that the development of, participation in, and most importantly the effective use of networks will be a part of management strategy as the primary method of increasing control over the business environment. In

the development of and participation in networks, is it proposed that a pro-active and innovative style is necessary. It is further proposed that owner-managers with an internal orientation will be more active in the building and usage of networks; thus the proposition in

Hypothesis 3; Owner-managers with an internal locus of control will show a higher level of networking activities than owner-managers with an external locus of control, this both for the total sample and the two branches that make up the total sample.

Business Environment

There are many processes present and evolving in the organisation's external environment that either directly or indirectly influence the shaping of organizational structures and the making of strategic decisions, and that set the stage for further development or, in the worst event, non-survival.

With often limited resources at its disposal, the small firm is in an exposed position and at risk of being negatively affected by its external business environment; generally one that can be termed both uncertain and hostile (Covin & Slevin, 1998; Özsomer et al., 1997; Dess et al., 1997). This is a situation brought about and characterized by the constant changes and developments in industry and the unpredictability of the behaviour of market actors. The degree of threat to the firm from its "hostile environment" is often described in terms of the intensity of the competition and a noticeable lack of business opportunities (Covin and Slevin, 1998; Özsomer et al., 1997).

To address any negative impact in the environment, owner-managers must select a strategy that enables the firm to develop and improve performance. Two such strategies at their disposal are to apply an entrepreneurial style of leadership as suggested by (Zahra and Covin 1995) and to engage in high levels of networking activities as proposed by (Klint and Sjöberg, 2003). Thus it appears that the use of an entrepreneurial leadership style along with participating in and effectively using available networks can help modify a hostile environment.

These two strategies have been hypothesised in this study to be related to an internal locus of control. Consequently, it is assumed that owner-managers with an internal locus of control will perceive the business environment in which they operate to be less hostile than their externally oriented counterparts. Thus:

Hypothesis 4; Owner-managers with an internal locus of control will report a perception of the business environment as less hostile than owner-managers with an external locus of control.

An analytical model

This model is based on the idea of a number of specific factors that are assumed to have an impact on the financial performance of small firms. Therefore an effective model that can explain this complex phenomenon should consist of a simultaneous analysis of

these factors. The independent variables chosen are: locus of control, strategic posture, networking activities, and business environment. The analytical model for financial performance (y) may then be expressed as: $y = x_1 + x_2 + x_3 + x_4 + e$ with y representing the dependent variable financial performance of small firms; x_1 the reported level of the owners-managers locus of control; x_2 the degree of strategic posture adopted by owners-managers, x_3 the level of networking activities pursued by owners-managers and x_4 owners-managers perception of the business environment and error e .

Summarised in the figure below are the theoretical relations assumed in the analytical model.

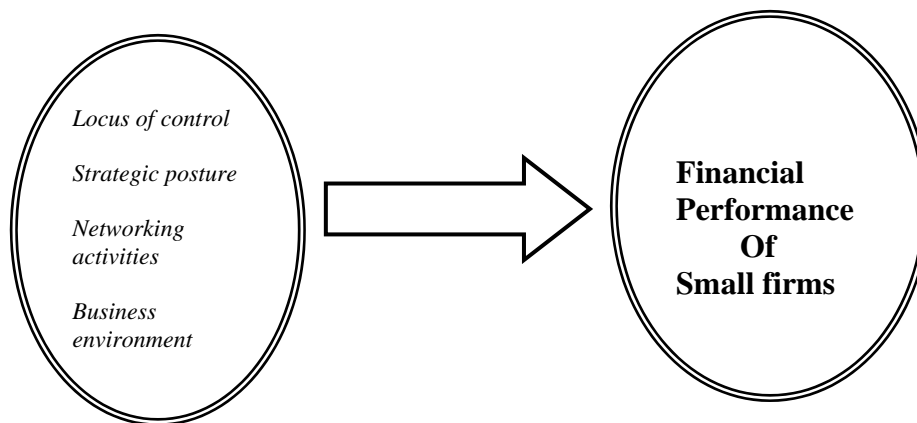


Figure 1. Showing the assumed relations in the analytical model and tested in hypothesis 5.

Hypothesis 5; Differences in financial performance will be found between the firms that are managed by leaders with an internal locus of control who adopt an entrepreneurial strategic posture, maintain high levels of networking activities, and perceive the business environment as less hostile, and the firms managed by leaders with an external locus of control.

Data and Methods

The sample

A research questionnaire was mailed to owner-managers of 146 small businesses in a small industrial park in rural Sweden, the complete population of small and medium-size firms in the park (Odenskog Industrial Park). A follow-up letter with repeat questionnaire was sent to all non-respondents. A total of 83 firms responded giving a response rate of 57 per cent. All firms with less than 3 or more than 50 employees, 17 in number, were excluded as not fitting the criteria in the EU definition of small and medium-size firms. A further 17 firms were excluded due to unavailability of financial performance data or because the owners/managers did not meet the criterion of having occupied the position of either owner or manager during the relevant period (2002 and 2003). This left a final sample of 49 firms. Although the sample is heavily reduced, it is well in line with the great majority of studies where owners/managers participate

(Boone & De Brabander, 1996). The final sample of 49 was then grouped and designated as the “total sample”. Thereafter two sub-groups were identified: the “metal branch” consisting of 21 firms, and the “trade branch”, made up of 28 firms in wholesale and retail trade.

It is unfortunate that a majority of the population receiving the questionnaire sent to owner-managers of small and medium-size businesses were not motivated to respond. Nonetheless, for the purpose of the research reported upon here it is felt that the data received still provides useful information. A second study including multiple contacts and several follow-up strategies may be appropriate, however.

The measures

Financial performance

To measure financial performance the Deloitte & Touche firm of accountants was consulted to provide the measures from accounting data bases that are available at the Swedish Companies Registration Office. Two measures were selected. The first is return on assets, a measure previously used in research investigations of small firm performance (Boone & De Brabander, 1996). The second, operating margin, is a key ratio that shows the operating profit before items affecting comparability divided by net sales. The use of both “return on assets” and “operating margin” as a measurement for financial is assumed to be valuable if not necessary when studying firms that represent two separate branches as is the case in the study. Both are used in Sweden when studying small and midsized firms (see Statistics Sweden 2004). As the performance of small firms can vary (Boone & De Brabander, 1996) two-year averages of these measurements were compiled into an index of percentages by Deloitte & Touche.

Strategic posture

The strategic posture scale used is that developed by Covin and Slevin (1989), translated into Swedish for the use of this study. The scale consists of 9 items with a minimum score of 9 and a maximum of 63, where a higher score represents a more entrepreneurial strategic posture. This scale has subsequently been used in other studies.

Environmental hostility

A three-item scale developed by Khandwalla (1976/77) is used, where the scores are averaged to reach a single hostility of environment index. The higher the index score, the more hostile the firm’s environment.

Networking activity

To measure networking activity an index was built using scales that measured three specific areas of networking. These are

- 1) *the level of networking activity*. It is assumed in this study that number and types of network involvement are accurate descriptors of the level of networking activity that a firm has at local, regional, national and international levels. Also assumed is that the amount of network activities a firm participates in, the time allotted to building and

maintaining networks, and the number of projects that a firm has started with the help of other network partners are related to outcome of activities.

A scale (in Swedish) comprising nine questions was developed by the author to measure networking activity with a minimum score of 9 and a maximum score of 45. A low score represents low networking activity and a high score high networking activity. The aim here was to measure the level of a firm's activity when it comes to networking in general rather than any specific area of networking.

2) *Reduction of production costs.* To measure the reduction of production costs, a scale (in Swedish) was developed by the author that comprised 6 questions with a minimum score of 6 and a maximum score of 30. A low score represents a low level of activity aimed at reducing production costs while a high score represents a high level of activity. The aim was to measure the level of a firm's activity with regard to the reduction of production costs in general.

3) *Learning.* To measure learning, a scale comprising 8 items was used, where four of the items are based on the scale developed by Inkpen and Beamish (1992) and Tsang (2002), and where for the sake of this study an additional four items were added. A high score represents high learning activity and a low score low learning activity. The aim was to measure the degree to which an owner-manager perceived that the firm used participation in networks as a means to learning new business techniques and strategies.

All three scales were tested for consistency using Cronbach alpha. The results show coefficients ranging from 0.72- 0.94. These results are assumed to be good to high as they exceed the levels recommended by Nunnally & Bernstein (1978).

Locus of control

Locus of control was measured using an abbreviated version of the Rotter scale (1966) as developed by Andersson (1976) for use mainly in Swedish work settings. This scale has a minimum score of 8 and a maximum of 40, with a lower score representing an external locus of control orientation and a higher score representing an internal locus of control orientation. The mean score for the entire sample is 30. In this study, the score is dichotomised with the cut-off point set at 30. Individuals who scored 30 points or less (the mean score or under) were designated as having an external locus of control while individuals who scored over the mean score, i.e. 31 points or over, were designated as having an internal locus of control.

The locus of control scale was tested for consistency using Cronbach alpha. The result shows a coefficient 0.85, well in line with the recommendations of Nunnally & Bernstein (1978).

Statistical analysis

All statistical analyses were carried out using the SPSS statistical program version 11.5.1 for Windows. In carrying out statistical analysis, indexes were formed for all dependent variables with the mean of the variables used in the analysis in accordance with the procedures put forward by Nunnally & Bernstein (1978).

To test for differences in financial performance, networking activities, strategic posture and business environment between internal-locus and external-locus owner-managers, Mann-Whitney U was used. Spearman Rho correlation was used to test for correlations. Hierarchical linear regression analysis was used to test for models that best fit the data, thus this approach to multiple regressions is appropriate for use when high correlations exist between the independent variables (Cohen and Cohen 1983)

Results

Table 1 shows the results of the descriptive statistics on the background variables used in the study. The three groups are shown that comprise the total sample along with the two sub-groups, metal branch and trade branch.

Table 1. Descriptive statistics of background variables

| Variable | N | Mean | SD | Observed range |
|---------------------------|----|-------|-------|----------------|
| Total sample | | | | |
| Locus of control | 49 | 29 | 4.66 | 21-40 |
| Financial performance (%) | 49 | -0.86 | 41.82 | -283-22 |
| Number of chief years | 49 | 12 | 8.83 | 3-26 |
| Working years | 49 | 37 | 45.24 | 14-30 |
| Age | 49 | 47 | 0.88 | 37-64 |
| Number of employees | 49 | 13 | 14.21 | 3-48 |
| Metal Branch | | | | |
| Locus of control | 21 | 30 | 5.74 | 21-40 |
| Financial performance (%) | 21 | -8.55 | 63.02 | -283-17 |
| Number of chief years | 21 | 112 | 8.83 | 3-26 |
| Working years | 21 | 29 | 9.77 | 14-30 |
| Age | 21 | 47 | 0.88 | 37,64 |
| Number of employees | 21 | 13 | 14.21 | 3-48 |
| Trade Branch | | | | |
| Locus of control | 28 | 30 | 3.74 | 22-39 |
| Financial performance (%) | 28 | 4.91 | 9.31 | -17-5 |
| Number of chief years | 28 | 9 | 8.09 | 3-25 |
| Working years | 28 | 29 | 7.15 | 14-40 |
| Age | 28 | 47 | 0.88 | 37-64 |
| Number of employees | 28 | 13 | 14.21 | 3-48 |

One variable not shown in Table 1 is gender, the reason being that there are no females in the entire sample. The financial performance for the total sample under the two-year period of measurement is slightly negative (-0.86 %), the metal branch is shown to have the highest negative result (-8.55 %) with wide deviation within the branch (63.02 %), while the trade branch shows a positive result (+ 4.91 %). The mean period of tenure for owner-managers in the total sample as well as the metal branch is 12 years, while for the trade branch it is 9 years.

Table 2 shows the results of the analysis for differences in financial performance, network activities, strategic posture, and business environment between internal-locus and external-locus owner-managers using the Mann-Whitney U test.

Table 2 - Differences in financial performance, networking activities, strategic posture and business environment related to owner-managers' locus of control orientation for the total sample studied.

| Owner-managers with an | | internal locus of control | | external locus of control | |
|---------------------------|------------------|---------------------------|------------------|---------------------------|---------|
| Total sample n=49 | Mean Rank | Sum of Ranks | Mean Rank | Sum of Ranks | p-value |
| Financial performance (%) | 27,85 | 557,00 | 23,03 | 668,00 | 0,129 |
| Strategic posture | 31,78 | 574,50 | 20,33 | 650,50 | 0,006 |
| Networking activities | 29,68 | 593,50 | 19,80 | 534,50 | 0,015 |
| Business environment | 18,40 | 368,00 | 29,55 | 857,00 | 0,006 |
| Metal Branch n=21 | | | | | |
| Financial performance (%) | 14,56 | 131,00 | 8,33 | 107,50 | 0,023 |
| Strategic posture | 14,61 | 123,50 | 8,29 | 107,50 | 0,018 |
| Networking activities | 13,00 | 117,00 | 9,50 | 114,00 | 0,219 |
| Business environment | 9,50 | 114,00 | 12,13 | 145,50 | 0,345 |
| Trade Branch n=28 | | | | | |
| Financial performance (%) | 14,36 | 158,00 | 14,59 | 248,00 | 0,963 |
| Strategic posture | 17,95 | 164,00 | 12,26 | 242,00 | 0,073 |
| Networking activities | 17,23 | 189,50 | 10,77 | 161,50 | 0,032 |
| Business environment | 9,09 | 100,00 | 18,00 | 306,00 | 0,004 |

Table 2 shows that there is a significant difference in the financial performance for firms in the metal branch, with firms managed by internal-locus owner-managers having a much higher rate of performance (14,56 %) than their external-locus counterparts (8,33 %). For the total sample there is no significant difference, however internal-locus owner-managers (27,85 %) show a higher mean rank than external-locus ones (23,03 %). The firms in the trade branch show on the other hand that external-locus owner-managers have a slightly better result than internal-locus owner-managers (p=0,963). These results partly support hypothesis 1, in that differences were found in the metal branch. However, as there is no unequivocal support for hypothesis 1 it must be rejected.

Differences were found in adoption of the entrepreneurial strategic posture and leadership style, with internal-locus owner-managers reporting a significantly higher degree of use of an entrepreneurial strategic posture than external-locus counterparts, this for the total sample and the metal branch. The trade difference was not significant at $p < 0,073$. This means, however, that since the hypothesis is not totally supported it has to be rejected.

For networking activities the results show that internal-locus owner-managers have a significantly greater amount of networking activities than external-locus owner-managers; this both for the total sample and the trade branch. There was no significant difference for the metal branch, although internal-locus owner-managers clearly participated in more activities. The results, taken in their entirety, do to some degree support the contention that differences exist based on locus of control orientation.

Results on how owner-managers perceived the business environment showed significant differences both in the total sample and trade branch with external-locus owner-managers reporting higher perceived levels of environmental hostility, whereas the differences found between owner-managers in the metal branch were not significant. The mixed results mean that hypothesis 4 is not either supported in its entirety, and as such is false.

Results of the analysis of correlation matrix using spearman Rho is shown in Table 3

Table 3.

| Total sample | 1 | 2 | 3 | 4 | 5 |
|--------------------------|---------|--------|---------|---------|------|
| 1. Locus of control | 1.00 | | | | |
| 2. Financial performance | .167 | 1.00 | | | |
| 3. Strategic posture | .399** | .125 | 1.00 | | |
| 4. Networking activities | .360* | -0.077 | .478** | 1.00 | |
| 5. Business environment | -.399** | -.088 | -.438** | -.345 | 1.00 |
| Metal Branch | | | | | |
| 1. Locus of control | 1.00 | | | | |
| 2. Financial performance | .509* | 1.00 | | | |
| 3. Strategic posture | .519* | .202 | 1.00 | | |
| 4. Networking activities | .286 | -.025 | .545* | 1.00 | |
| 5. Business environment | -.220 | -.107 | -.473* | -.192 | 1.00 |
| Trade Branch | | | | | |
| 1. Locus of control | 1.00 | | | | |
| 2. Financial performance | -.014 | 1.00 | | | |
| 3. Strategic posture | .346 | .115 | 1.00 | | |
| 4. Networking activities | .427* | -.023 | .486* | 1.00 | |
| 5. Business environment | -.558* | -.083 | -.425* | -.500** | 1.00 |

* p< 0,05 ** p< 0,01

The correlation results in table 3 show that *for the total sample* an internal orientation was found to be significantly correlated with an entrepreneurial strategic posture, which result supports hypothesis 2. Internal locus of control was found to be significantly correlated to networking activities, with internal-locus owner-managers having higher levels of activity than external-locus ones, thus supporting hypothesis 3. External locus of control was found to be significantly related to a higher perceived environmental hostility, which supports hypothesis 4. No support was found for hypotheses 1 and 5.

Other results for the total sample show that higher levels of network activities were related to a more entrepreneurial strategic posture and management style, higher levels of networking activities were shown to be significantly related to lower perceived levels of environmental hostility. Higher levels of the entrepreneurial strategic posture were also significantly related to lower perceived levels of environmental hostility.

For the metal branch locus of control correlated positively and significantly with financial performance, meaning that an internal orientation was related to better financial results, which result partly supports hypothesis 1. Higher levels of entrepreneurial strategic posture were significantly related to an internal locus of control, supporting hypothesis 2. Networking activities were strongly related to higher levels of entrepreneurial strategic posture and management style and higher levels of entrepreneurial strategic posture were significantly related to lower perception of environmental hostility. No support was found for hypotheses 3, 4 and 5 in this branch.

In the trade branch networking activities were positively related to an internal orientation, again supporting hypothesis 3. Relatively strong and significant correlations between locus of control and perception of the environment appeared, with owner-managers of an internal orientation perceiving lower levels of environmental hostility, giving further support to hypothesis 4. Other significant findings in this subgroup showed that higher levels of networking activities and higher levels of entrepreneurial strategic posture were both related to lower perceived levels of environmental hostility. No support was found for hypotheses 1, 5 and 2. However, it should be noted hypothesis 2 lies just inside the region of rejection at $p < 0.072$.

Regression analysis

Regression analysis (hierarchical) was carried out to test the analytical model of financial performance, $x_1 + x_2 + x_3 + x_4 = y_1$. The analysis showed that the amount of variance attributed to various models ranged from R^2 0.02 - 0.03 for the total sample, for the metal branch sample R^2 0.04 - 0.08 and for the trade branch R^2 0.14 - 0.21, however none of these results were significant, thus hypothesis 5 is rejected. Of note is that the only independent variable found significant among the three groups is locus of control for the trade group with a p value ranging from 0.026 – 0.060.

Discussion

The general aim of this study was to investigate the relationship between locus of control and financial performance, as well as its relationship to three other independent variables, strategic posture, networking activities, and business environment. It was hypothesised that when placed in a model together with the main variable of concern, locus of control, the three independent variables would significantly explain a higher proportion of variance related to financial performance. Another assumption was that perceptible differences would exist between owner-managers with an internal as against an external locus of control orientation.

Evidence from the findings in Tables 2 and 3 is that none of the five hypotheses when empirically tested was fully supported, thus the findings are mixed. However, the findings do lend some support to the contention that locus of control has a degree of predictive validity, suggesting that an internal locus of control positively influences some aspects of management strategy and therefore the performance of small firms.

The results from the metal branch support the hypothesis of a direct association between an internal locus of control and financial performance, with relatively strong differences between those of internal and those of external orientation and a significantly positive correlation between locus of control and financial performance; but no significant associations were found for the total sample or the trade branch, in spite of the fact that there exist very little differences in the levels of locus of control for those with an internal orientation in the two groups. In fact, results show no differences between those of internal and those of external orientation for the trade branch. This suggests that the branch itself may be a factor of some importance for how locus of control impacts on financial performance, that is to say, the influence of locus of control upon financial performance in small firms may not be as universal as hypothesised in this study, or as found in others studies (such as Ward 1993; , Boone, & De Brabander 1996, *Boone et al.*, 2000).

Naturally, it cannot be excluded that, depending on the type of commercial enterprise, the benefits assumed to be associated with having an internal locus of control may be moderated by other factors, such as business culture or simply legal terms.

However, other results support the assumed relations between locus of control and an entrepreneurial strategic posture, networking activities, and perception of the business environment. This support was most evident for the total sample with significant differences and correlations between owner-managers of internal and those of external orientation. For the metal branch, significant differences and correlations were found only for entrepreneurial strategic posture; while for the trade branch significant differences and correlations were found for networking activities and perception of hostility in the business environment.

The results of this study provoke further questions, such as how and why locus of control can be expected to influence management strategy and performance.

It is suggested here that a central argument in any explanation is the postulation put forward by Rotter (1966) that locus of control is about a problem-solving, that addresses the issue of planning, coping, persistence, practice, analysing situations, and finding and using new information and knowledge with the aim of attaining goals; which when placed in the context of the business environment is expected to result in differences in management strategy between owner-managers of internal and those of external orientation. The question of concern is whether or not the locus of control orientation of the owner-managers influences their perception of the business environment. The results here suggest that it does, which is in line with other research results (e.g. Miller et al., 1982).

Two explanations are offered for the differences found between owner-managers of an external and of an internal orientation in their respective perceptions of the business

environment. The first is networking. It is apparent from results found in this study that persons of internal orientation are more active in that context, which is interpreted as resulting in them perceiving the environment as less hostile and possible to cope with, as they seek and accumulate a greater store of information and knowledge. This explanation is supported by research results found in many literature reviews showing that internal-locus and external-locus persons differ in numerous ways, specifically in their cognitive activity and ambitions with respect to achieving mastery and control over their environment (Dollinger, 2002).

It is argued by some scholars (Lefcourt, 1976; Dollinger, 2000) that there is evidence that persons of internal orientation are more perceptive of their situation, and more able to exert control over their lives due to their knowledge of their environment. This is interpreted to mean that persons of internal orientation more readily acquire and utilize information that is relevant to their goals even when that relevance is not immediately apparent (Phares, 1976). Translated into the context of this study, this means that persons of internal orientation more than others will use their networks effectively for the acquisition of information that will be analysed and used, as well as for finding or creating opportunities that can be exploited. As Miller *et al.*, (1982) argue:

“Internals may perceive ‘constraints’ in the environment as loose and malleable; they turn competitors challenges into opportunities for innovation. Externals may see their environments as having many rigid boundaries that cannot be violated. “

The second explanation is related to the first. One may conclude that as a result of networking influencing the perception of the business environment, a management style emerges with the aim of mastering and controlling that environment, based on the analysis of environmental cues, and leading to the implementation of various strategies to match the required aim. This internal attitude manifests into strategies that enable the owner-manager to generate opportunities, since the environment is judged as less hostile, that can be exploited for improving the firm’s performance (Miller *et al.*, 1982). These explanations are supported by findings found by Peng and Luo (2000) and Lee and Tsang (2001) while studying Asian populations, thus suggesting that the networking is related to firms performance.

Further, as Boone, DeBrabander (1996) suggest, it is the process of implementation of strategies that sets the internal-locus manager apart from the external-locus one. The results of this study support that argument. Further, it is proposed that the implementation of strategies is based to some extent on management’s ability to search out, analyse and use new information and knowledge, which increases the perception of opportunities in the environment and leads to the formation of more “pro-active” business strategies. Thus it is suggested that it is at this early point, as the seeking and analysing and use of new information and knowledge begins, that the process of separation and differentiation between internals and externals gets under way. This suggestion is well in line with earlier results such as (Phares, 1976; Lefcourt, 1976; Dollinger, 2000).

Finally, however, the analytical model was not supported. This may be due to the size of the sample, and as well results in the trade branch where very non-significant, low,

negative correlations exist between performance and locus of control, business environment and networking. Non-significant, low, negative correlations were also found between performance and business environment and networking both for the metal branch and the total sample.

Limitations of the study

The small sample size is assumed to have influenced the results of the study. The measurement of financial performance would appear not be as stable as was expected, and therefore other measurements of financial performance should be considered in the future. The advice given by Lumpkin and Dess (1996) of using a multidimensional measurement that takes into consideration aspects of financial performance, overall performance as well as other factors such as the firms development phase is suggested to be of importance for achieving a more complete measurement.

Conclusions

The results are mixed, but do give some support to the assumption that relations exist between locus of control and financial performance and business strategy of small firms. It appears that the branch of commerce of firms moderates the impact of locus of control, and as such the relation between locus of control and financial performance may not be as universal as was hypothesised in this study or found in earlier studies. Locus of control was found to have relatively strong associations with the style of leadership adopted, that is an entrepreneurial or conservative style. Findings supported the hypothesised differences between internal and externals, with internals having a more entrepreneurial style than externals. Further internals were found to have a more positive perception of the business environment than owner-managers with an external locus of control.

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