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Small enterprise owners' accident causation attribution and prevention

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Abstract

Small enterprises have difficulty in the systematic prevention of accidents. This study explores how owners of small enterprises attribute accident causation and what they learn about accident prevention after an accident. Interviews were carried out with owners of 22 small (1–19 employees) construction and metal industry enterprises that recently had reported an accident with an expected injury absence of over two weeks. Data were analysed using thematic analysis. The results reveal that after a relatively serious accident the owners predominantly attribute the incident to unforeseeable circumstances, and secondarily to worker faults. A possible explanation is both self- and group-defensive attributions in order to avoid responsibility and blame. The reciprocal and close social relations between owners and workers make it difficult for the owners to be solely responsible for the accident. The study presents a paradox: learning from the accidents seems to be negative as the owners need to abstain from accident prevention in order to maintain that accidents are unforeseeable, and the injured worker returns to work under the same unsafe conditions as before the accident. The study indicates that efforts to improve accident prevention in small enterprises need to find ways to avoid defensive attribution in order to attain successful outcomes.

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Keywords: Defensive attribution; Construction industry; Metal industry; Injury; SME; Thematic analysis

1. Introduction

1.1. Owners of small enterprises

In most countries small enterprises constitute a large majority of all enterprises and account for a considerable share of all employees. At the same time it has become clear that small enterprises have a higher injury risk than larger enterprises (Fabiano et al., 2004; Mendeloff and Kagey, 1990; Stevens, 1999; Suruda, 1992, 1996), and it is difficult and expensive for preventive efforts to reach all small enterprises (Walters, 2001).

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A growing number of studies have focused on the ability of small enterprises to assess and control risks (For reviews see [Champoux and Brun, 2003](#); [Hasle and Limborg, 2006](#)). In comparison to larger enterprises, small enterprises are usually characterised by limited resources – both financially and on the management side. This characteristic has been a focus point in the business research literature for many years ([Beaver, 2003](#); [Goffee, 1996](#); [Martin and Staines, 1994](#); [Scase and Goffee, 1980](#)). The owner is often also the manager and has to deal with a number of different administrative and management issues such as sales, planning, human resources, finance, accounting and billing. On top of this, many owners in the smallest enterprises are involved in practical work as well. Due to their many different tasks the owner/managers tend to carry out on-the-spot problem solving with little consideration for the long term affects of their decisions. It is evident that these limited resources make it difficult to apply more systematic approaches to health and safety, as is found in larger enterprises. Health and safety legislation requirements are generally not followed, particularly regarding risk assessment and control, safety meetings are rarely held, problems are dealt with on an ad hoc basis, and little is written down ([Walters, 2001](#)). The owner is the key to understanding both risk control and the operation of the small enterprise, and is the dominant actor in relation to any changes made. The personal values and priorities of the owner are determinants of the culture, social relations and the attitude of the enterprise regarding the work environment ([Antonsson et al., 2002](#); [Eakin, 1992](#); [Hasle, 2000](#); [Stephens et al., 2004](#)). It is, therefore, important to explore the owner's understanding and approach to risk and risk control. This has been discussed in the literature in relatively broad terms, but with limited empirical support ([Antonsson et al., 2002](#); [Barbeau et al., 2004](#); [Mayhew, 1997](#)).

1.2. Accidents and defensive attribution in small enterprises

The owners' approach to risk control likely develops from practical experience in the daily operations of the enterprise, as well as prior work experience and experience shared with colleagues in the sector. Yet it is well known that written information about safety plays a minor role in small enterprises ([Hasle and Limborg, 2006](#)). The actual occurrence of an accident is likely to play an important role in the development of risk perception and the importance of risk control. The study of owners' interpretation of the causes of an accident in their enterprise, and their subsequent behaviour after the accident is a possible way to explore the owners' attitude towards risk. The process of investigating an accident involves not only the identification of internal (e.g. behaviour) and external (e.g. technical, environment and culture) rational elements, but also elements of responsibility, fault, and possible blame ([DeJoy, 1994](#); [Shannon et al., 1997](#)). Analyses of accident causal attribution, the importance of which in the safety and psychosocial literature is well documented, are relevant analytical approach for explorative and descriptive studies of the work environment ([DeJoy, 1990](#); [Gyekye and Salminen, 2006](#)). Self- or group-defensive attribution biases are common in occupational accidents, whereby people have a tendency to want to protect themselves or their group from blame or prejudice though the externalisation of causality. These causal attributions, rather than the actual causes, often determine if and what accident preventive measures are implemented ([DeJoy, 1994](#); [Woodcock et al., 2005](#)). There has been focus on the role of hierarchical and group level effects on self- and group-defensive attributions, but only in respects to fairly large sized enterprises with formal structures ([Gyekye and Salminen, 2006](#); [Kouabenan et al., 2001](#); [Lehane and Stubbs, 2001](#); [Salminen, 1992](#)). To date there are no studies that have looked at defensive attribution in small enterprises where formal structures and hierarchies are quite different from larger enterprises. Employers and employees tend to have closer social relations ([Hasle and Limborg, 2006](#)) which could strengthen self- and group-defensive attributions.

The metal and construction industries are two industries with a high risk of serious injury ([Flanagan et al., 1998](#); [Kines, 2001](#)), and subsequent lengthy work absence ([Kines et al., 2007](#)). Preliminary analyses to this study showed that in the period 1999–2003 30% and 36% of all the reported accidents by small enterprises in the Danish metal and construction industries, respectively, involved an expected injury absence of over 14 days. The data are unfortunately strongly biased by underreporting, but they do provide some indication as to the need for accident and injury absence reduction in the two sectors.

Enterprise size itself will also play a role for owners' risk perception and approach to risk control, as accidents occur relatively infrequently, in comparison to larger enterprises, e.g. small enterprises may never experience a serious accident or there may be several years between them. In the preliminary analyses to this study

an average of only one in every seven small enterprises per year reported an accident with an expected injury absence of over 14 days, whereas larger enterprises reported an average of 1.5 of the lengthy injury absences per year. Moreover, the severity of an accident/injury may play a role, as accidents resulting in minor injury may have little or no economic or organisational consequences for the small enterprise, whereas a more severe injury with several week's absenteeism, may lead the owner to consider aspects of risk control.

The purpose of this study was to explore accident causal attribution and prevention from the perspective of owners of small enterprises in relation to their experience with a recent long injury absence.

2. Method

2.1. Cases

The study is based on 22 case studies of injury-related work absence in small enterprises (1–19 employees) in the Danish construction and metal processing industries (Table 1). Cases were derived using purposeful criterion sampling (Patton, 1990) from a total of 91 accidents (73 in construction and 18 in metal industry) that were reported to the national authorities in 2004 and 2005. All accidents had an *expected* work absence of 14 days or more, as they could be expected to have an economic impact on the enterprise, and might lead the owners to consider some form of action in dealing with the workers' absence. All accidents were to have occurred during the six-month period prior to contact with the small enterprises, to assure that owners remembered them. Eleven cases each from the construction and metal industries were chosen, as this would provide enough in-depth information to fulfil the goals of the study (Kvale, 1996). Cases were not selected to meet the criteria of representative sampling, but were chosen successively, with the ones with the longest expected work absence first. The average expected absence was nine weeks and four weeks in the construction and metal

Table 1
Case descriptions of injury absent workers in the metal and construction industries

Case, branch injured workers' occupation	Number of employees	Accident type and injury	Absence
Metal 1. Chemical treatment of metal: no formal skills	3	Overextension of leg while walking: Sprain in groin area	4 weeks
Metal 2. Metal wire processing: no formal skills	15	Trip and fall: metal splint in hand	Did not return
Metal 3. Metal processing: blacksmith	4	Stumble on hose: broken ankle	7 weeks
Metal 4. Machine repair: blacksmith apprentice	5	Gas explosion: burnt face and arm	4 weeks
Metal 5. Metal processing: mechanic	9	Lifting overextension: back strain	3 weeks
Metal 6. Metal processing: owner	9	Fall from scaffold: Broken wrist and thumb	2 weeks
Metal 7. Metal processing: mechanic	12	Hit against bolt: Laceration of the hand	7 weeks
Metal 8. Metal processing: no formal skills	3	Caught in machine: Crushed thumb	4 weeks
Metal 9. Metal processing: blacksmith	11	Caught between gate and road: broken thumb	2 weeks
Metal 10. Metal processing: apprentice	10	Caught between two metal plates: crushed thumb	6 weeks
Metal 11. Metal processing: apprentice	10	Caught in roller machine: crushed finger	5 months
Construction 1. General construction: carpenter	7	Overextension: back strain	4 weeks
Construction 2. Painting: painter	4	Metal splint in hand	>6 months*
Construction 3. Landscaping: landscaper	10	Overextension of shoulder: dislocation	5 weeks**
Construction 4. Masonry: bricklayer	3	Fall from roof: broken leg	6–8 months
Construction 5. Plumbing: plumber	12	Fall from ladder: broken foot	11 weeks
Construction 6. Electrical: electrician	6	Fall from ladder: broken wrist	12 weeks
Construction 7. General construction worker	18	Fall from truck: broken shoulder	7 weeks
Construction 8. Painting: co-owner	19	Fall from ladder: internal head injury	>6 months*
Construction 9. Carpentry: carpenter	12	Fall from lift: broken arm	10 weeks
Construction 10. Painting: owner	8	Slip and fall on stairs: broken vertebra	13 weeks
Construction 11. Carpentry: apprentice	16	Fall from ladder: broken arm	5 weeks

* Was still absent at time of interview.

** Was subsequently fired.

industries, respectively. All owners and injured workers were male, except for one female painter, who was both the owner and the injury case. Four enterprise owners declined to participate in the study. There is no information indicating that these enterprises were any different than the enterprises participating in the study. It was not possible to statistically differentiate between those enterprises participating and those that chose not to participate, and it is unknown whether those that declined to participate had any impact on the findings or not. Analyses of the five years prior to the study showed that 13 of the 22 small enterprises had reported at least one (maximum five) accidents to the national authorities (minimum of 1 day of work absence beyond the day of injury). Most of them were minor injury accidents with less than two weeks of absenteeism.

2.2. Interviews

Semi-structured interviews of an average duration of 60 min were carried out with the owners of the 22 small enterprises. The second and third author of this paper carried out the interviews and transcriptions. Time was spent in the initial telephone contacts and in the beginning of the personal interviews with the owners to clarify that the interviewers were researchers and not labour inspectors. The interviews were held at the owners' offices and focused on how the small enterprises dealt with the injury related work absence, the attribution of the causes of the accident, whether any form of accident prevention measures were implemented, and if so, what type of measures. Following [Kvale \(1996\)](#) guidelines for conducting qualitative interviews, questions were developed to allow respondents to tell their stories in their own terms, to be unobtrusive and non-directive, e.g. "What are your thoughts regarding the causes of the accident?". Using this form of in-depth, semi-structured interview served the purpose of obtaining individual perceptions of the work conditions and of the work-related accidents. An interview guide was used for three reasons: firstly to ensure that all relevant themes were raised, secondly to ensure that the scope and direction of questioning followed the objectives of the study, and thirdly to provide probes when further information was necessary ([Kvale, 1996](#)). The overall purpose of the semi-structured format was to ensure that important questions were raised at the appropriate time in order to gain a meaningful understanding of the work and accident processes.

Interviews were arranged with the owners, as they were the primary target for the interviews, and where possible, the owner arranged for the injured worker to take part in an interview. The latter occurred in only five of the cases, as some of the workers were still on sick leave, had left the enterprise, or were working outside the enterprises. The purpose of including the injured worker in the interviews was to get their experience from the accident and injury process. As a consequence of the limited number of employee interviews, they are only used to clarify information in the five cases.

Informed consent was given to digitally record all interviews, and summaries were immediately written after the interviews. Major themes were organised into narrative summaries based on a study-specific coding framework, which provided detailed descriptions and illustrations from each case. Coding notes were made based on template analysis ([King, 2004](#)). Coding was carried out with the aid of a computer program (Nvivo 2.0 QSR International), and a coding tree consisting of three themes was constructed:

- (a) Accident attribution of the owner in relation to the injured worker's accident.
- (b) Actions/behaviours of the owner with regards to accident prevention.
- (c) Accident attribution of the owner in general.

3. Results

3.1. Case descriptions

A summary of the results from the 22 cases are provided in [Table 2](#). There were sector differences with longer injury absence in the construction industry (average 14 weeks) than in the metal industry (six weeks), and four times greater enterprise-tenure among the injured construction industry workers than the injured metal industry workers.

Table 2
Summary of results of injury absence cases in small metal and construction enterprises (<20 employees)

	Small enterprises	
	Metal industry	Construction industry
<i>Enterprise cases</i>		
Number of cases	11	11
Average number of employees	8	10
<i>Injured workers</i>		
Injured workers' average length of absence	6 weeks	14 weeks
Injured workers' average length of seniority in the enterprise	3 years	12 years
Owner works along side workers (not just in the office)	5 of 11	10 of 11
Owners gave a positive evaluation of injured worker	8 of 11	7 of 11
<i>Enterprise owners' injury incident causal attribution</i>		
Owners attributed injury incident in whole (or in part) to unforeseeable circumstances	6 (1 ^a)	4 (2 ^{a,b})
Owners attributed injury incident in whole (or in part) to injured worker	3 (1 ^a)	1 (3 ^{a,b,c})
Owners attributed injury incident in whole (or in part) to themselves	0 (1 ^b)	0 (1 ^c)
Owners attributed injury incident in whole (or in part) to third party, e.g. owner of enterprise where work was carried out	0 (1 ^b)	0 (0)
Missing causal attribution	0	3
<i>Enterprise owners' injury prevention</i>		
Subsequent safety promoting measures implemented	4	3

^a Attribution to both unforeseeable circumstances and injured worker.

^b Attribution to both owner and third party.

^c Attribution to both owner and injured worker.

3.2. Accident causal attribution

Almost all the owners' explanations of the accidents were very detailed, and included different contributing factors for each accident, such as organisational, technical, human and safety climate factors. One example, that illustrates an owner's explanation of an accident, occurred in metal case 11. The injured person was an apprentice and was rolling tubes together with a trained blacksmith, who was also the elected safety representative. They had to make 80 tubes during the work day and lacked only two tubes when the day was finished. The next day the apprentice had to make the last two pieces. He was instructed in the right way to do the task by the safety representative, and asked whether he had understood the instructions. He started rolling and at the same time two colleagues stood close by talking. The apprentice was apparently occupied by listening to them and suddenly his forefinger was caught by the rollers. Immediately after the accident the owner gathered all the workers for a meeting in the workshop in order to discuss the event and how to avoid its recurrence:

“When it comes to safety I want everything to be right in order for me to sleep during the night.” (Metal case 11)

In spite of the detailed account, over half of the owners ended up, as in the case above, attributing the accidents to unforeseeable circumstances, and in three of these cases in combination with workers' faults. In four cases the owners attributed the causes of the accident solely to the injured person, and in only two cases did the owners partly attribute the causes of the accident to themselves. Although only a few of the injured workers were interviewed, their attribution patterns reflected those of the owners.

The owners were initially not always very specific in their explanations, and it was often necessary to probe more deeply in order to get at the essence of their attributions. For three of the owners it was not possible from the interview to establish how they attributed the causes of the accident. In most cases neither a formal analysis nor an informal dialogue about accident causes in the enterprise had taken place. All but two owners looked for reasons entirely outside themselves, in terms of both causes and responsibility for preventing the accident. An example of an owner's causal attribution, in which he provided two explanations, yet in the end resolved to unforeseeable circumstances, was:

“This particular accident can’t be prevented. . . it was simply bad luck. He (the injured worker) wasn’t thinking properly. He handled the machine improperly. . . it wasn’t a matter of whether or not he used the machine. . . it was simply bad luck.” (Metal case 5)

In another example the owner explained how he agreed with both the injured worker and the safety representative about the impossibility of preventing the accident:

“I (the owner) went over to the machine and talked with the injured worker and safety representative about what happened, and how we could prevent it from happening again. We came to the conclusion that things could not have been any different.” (Metal case 6)

Even though some owners did not attribute any causes to themselves, some reactions could be interpreted as causal guilt for having not done more to prevent the accidents. This was expressed in their feelings of responsibility for the well being of the injured worker. In several cases the owners voluntarily supplemented the workers’ sick leave wage, encouraged and supported them to seek medical help, and provided modified work in conditions that otherwise would not stipulate such (Andersen et al., 2007).

The interviews revealed that most ($n = 15$) of the owners had close and reciprocal bonds to the workers, e.g. owners described how the professional and personal relationships in the enterprise are like being in a loyal family, where there is genuine concern for one another and their families. The owner in construction case 10 explained that he had a very personal relationship to his employees:

“They are people one is attached to and I want to ensure a secure a job for them. Employees are something one has on loan. They must be treated properly.”

The owner continued to explain that for him it was like a family. Everybody was very friendly and sociable and no one was excluded. Once a year he invited the workers with their families on a beach holiday with everything paid for, as a form of compensation for the worker’s frequent overtime.

In most of the cases the owners described the injured worker as having many positive qualities that were valued in the enterprise. This appeared to be independent of the injured workers’ tenure or whether the owner worked alongside the injured worker in the metal plant or at construction sites – rather than just in the office (Table 2).

3.3. Prevention of a repetition of the accident

In most cases ($n = 15$) the owners refrained from initiating any accident prevention measures. This seems logical as they considered the accidents as unforeseeable:

“My motivation to prevent accidents is that it costs the enterprise a lot of money to have someone on sick leave. . . and I’m also a man short to do the work. I’m quite aware of the fact there are no such things as unforeseeable circumstances, but there is nothing we could have done to prevent this accident.” (Metal case 3)

“Of course I could have told the workers to be more careful, but they know that, and we can’t keep an eye on them all the time. So it was simply bad luck, and I can’t say that it won’t happen again. . . because it will.” (Metal case 7)

If the owners undertook any measures, they were mainly directed towards worker behaviour (three cases). In these cases special meetings were held to discuss the accident and raise safety awareness. Technical improvements were made in only two cases:

“The day after the accident I gathered all the employees and went through the safety procedures for using the lift. This accident was due to the worker’s lax attitude to safety. . . Safety work is something that takes extra time, and can be a little bit inconvenient. . . but I won’t hear any arguments about safety work being too time consuming, this accident has cost me 25,000 crowns (3350 €), and on top of that a worker with a lengthy sickness absence.” (Construction case 9)

The statements of the owners also contained contradictions. An example is one of the two cases with technical improvements. The owner of a metal workshop explained how a worker stumbled over an exhaust pipe when climbing out of a manhole after welding in a confined space. The owner meant that this clearly explained that the accident was unforeseeable and could not have been prevented. Half an hour later in the interview the owner incidentally said that they had now started to bind up the exhaust pipe in the manhole, so it was off the floor.

3.4. The owner's general attitude towards safety

None of the enterprises had an explicit safety policy although some owners ($n = 6$) expressed an explicit positive and proactive approach to safety. In most of the cases ($n = 16$) though, the owners had an ambivalent attitude towards working with safety. On one hand they emphasized the importance of safety, and on the other did not feel that they could do anything to promote it. In general, the owners 'reacted' to safety issues and problems by dealing with them as they arose, and most were of the opinion that accidents in general were due to worker faults or unforeseeable circumstances – both of which they meant were beyond their control. Some typical responses regarding general safety work and accident attribution were:

“As chairman of the safety committee I ensure we analyse accidents for causes, including unforeseeable circumstances. . .but most often the worker is at fault.” (Metal case 2)

“I (the owner) constantly remind the workers to think about safety, and that if they need safety equipment they should make sure it is purchased. In general though, safety is up to themselves. . . I can't keep an eye on them all the time, they have to look out for themselves. Accidents shouldn't happen. . .but it's difficult not to get injured when you work nine hours a day at a construction site.” (Construction case 11)

4. Discussion

4.1. Risk prevention in small enterprises

The results of this study confirm earlier findings regarding the level of preventive safety activities in small enterprises (Hasle and Limborg, 2006). If prevention measures are undertaken they are mainly on an ad hoc basis. Accidents are, both on the general level and in relation to an actual accident, considered as unforeseeable and/or attributed to worker faults: Difficulties in explaining the causes of the actual accident and the lack of a safety policy of the enterprises also seem to indicate that safety activities are not a priority. This is an expected result as owners in small enterprises generally have many tasks in the daily operation of their enterprises (Champoux and Brun, 2003; Hasle and Limborg, 2006). It also points to a lack of competence in accident investigation which could also be expected from the literature (Walters, 2001).

4.2. Accident attribution in small enterprises

Accident attribution theory was developed in the context of large formal organisations, whereas the results in this study provide a unique look at accident attribution in small enterprises. In spite of the owners providing detailed explanations of the accidents, with many different contributing factors, most of them ended up attributing the accidents to unforeseeable circumstances – in other words bad luck (Table 2). This is surprising, as the owners identified many different factors that contributed to the accident, and it is well documented in the literature that accidents are most often the result of multiple contributing factors that vary by type and time (Hale and Hovden, 1998). The theory of defensive attribution may provide some explanation for the findings in the current study. A psychosocial mechanism behind this attribution might be the closer and reciprocal relations between owner and workers in a small enterprise compared to a larger enterprise. Differences in social roles, social status and hierarchy are found to affect defensive attribution (DeJoy, 1987; Hamilton, 1986; Lacroix and DeJoy, 1989; Salminen, 1992). However, these mechanisms may be different in small enterprises. On the one hand there are clear roles, with the owner being the person who has the final word, yet on the other hand the close daily social relations create a greater degree of personal and situational similarity between the

owner and workers (Burger, 1981; Kouabenan et al., 2001) based on e.g., collectivity, intimacy and proximity (Aron et al., 1991). The results of the study showed that the close and reciprocal bonds were independent of the injured workers' number of years work experience in the small enterprise, and whether or not the owner worked alongside the workers rather than just in the office. Owners might have found themselves in a moral dilemma after the accidents: they would like to have helped the injured worker but they had difficulty accepting that they as owners could have done more to prevent the accident. The owners can easily put themselves in the injured workers' situation, as they may work alongside them, or have had previous professional experience in the field, as opposed to being a strictly administrative owner. In order to maintain self-esteem, group-esteem, and a positive image within the enterprise, many owners seek to maintain control and order by self- or group-defensive attribution, whereby the accidents are primarily attributed to unforeseeable circumstances (Gyekye and Salminen, 2006; Hewstone, 1990; Walster, 1966; Weary, 1979). Subsequently there is no organisational learning from the accident, and injured workers and co-workers return to work under the same unsafe conditions. Research has shown that if owner/managers and the employees were to work on improving the level of safety in the enterprise, then their perceptions of safety responsibility converge (Prussia et al., 2003), and there is greater potential for learning from the accident and in taking accident prevention measures.

4.3. Long term injury absence

Another mechanism that might contribute to the owner attributing the accident causes to unforeseeable circumstances may be the severity of the injury. All the owners in this study had reported the accident to the national working environment authorities and municipal sickness compensation payment offices. The accident was not 'just another minor every-day event', but required the owner to report the accident (injury-related sickness absence of more than one day after the accident) and to seek economic compensation from the municipality (available after 14 days' of sickness absence). The extended absenteeism resulted in reallocation of the enterprises resources and sacrifices were made, not only by the owner but also by the workers. Although there is no conclusive evidence in the literature on the effect of accident/injury severity on defensive attribution, a number of studies provide evidence that the self- or group-defensive attribution bias increases with accident/injury severity (Blass, 1996; Kouabenan et al., 2001; Walster, 1966) as well as the likelihood of the accident (Tyler and Devinitz, 1981). Accidents, particular those resulting in a serious injury, occur relatively infrequently in small enterprises. In the current study it may make sense to the owners that the serious accidents were due to circumstances beyond their control, whereas minor injuries are often attributed to the workers.

4.4. Owner–worker reciprocity

Most injured workers (Table 2) were highly regarded in the enterprises both professionally and personally, and some owners went to great lengths to encourage and support the injured workers' to return to work. This joint reciprocity may have lead to worker presenteeism (working when sick/injured) (Andersen et al., 2007; Dew et al., 2005), which might reinforce the reciprocal bonds or psychological contracts between employers and employees (Parks et al., 1998; Shore and Barksdale, 1998). In a study of work-related hand accidents (Rusch et al., 2003), the authors found that injured workers who attributed the accidents to themselves were more likely to return to work (possibly while still sick/injured), compared to workers who attributed the accidents to co-workers or equipment. If the workers in the current study did not blame the enterprise owner, owners may also have reciprocated by not blaming the workers, but rather resorting to explanations of misfortune and bad luck. Self- and group-defensive patterns through the externalization of causality have been described in studies of large enterprises with formal hierarchical structures (DeJoy, 1994; Gyekye and Salminen, 2006; Kouabenan, 1998; Kouabenan et al., 2001). What is unique in this study in terms of attribution theory is the owner/manager's role reflected in his/her hierarchical position, social role and social group in a *small enterprise*, where formal structures are minimized. In a large enterprise managers/supervisors and subordinates (workers) may make use of different causal attributions, which can result in polarisation between owners/managers and workers, organisational conflict and identification of ineffective risk control measures (Kenny, 1995; Kouabenan et al., 2001; Prussia et al., 2003). In small enterprises, with their closer social

and professional bonds, the owners and workers avoid these conflicts, which may lead them to agreeing on attributing the accidents to unforeseeable circumstances. This in turn leads to negative learning.

4.5. Negative learning

Negative learning refers to a process in which the outcome of learning is the opposite of what was hoped for in the learning process. It rather reinforces the existing beliefs (Savolainen, 2006). Transferring this concept to accident prevention it refers to the process in which owners and workers refrain from gaining any new knowledge about accident prevention after an accident. Instead, they reinforce the notion that accidents are due to bad luck and cannot be prevented. In small enterprises accidents, particularly those resulting in serious injuries, occur relatively infrequently, and small enterprises have limited resources and expertise in dealing with the investigation and prevention of accidents. In terms of reporting accidents to the national working environment authorities, the analyses of the five year period prior to the study showed that over half of the enterprises involved in the study had reported at least one accident. Thus, the owners were not completely inexperienced with accidents and the need for risk control in their enterprises. However, the experience from these accidents apparently had little bearing on the need for proactive accident prevention nor a more systematic investigation of the particular accident. Another possibility for learning could be in terms of the legal responsibility, as the enterprise owner is responsible for workplace health and safety, including the prevention of accidents. This legal fact does not seem to be reflected in the practical experience of the owners. Their fatalistic views on accidents are detrimental to the promotion of health and safety.

5. Conclusion

The study shows that circumstances unique to small construction and metal enterprises (such as the close social relationships) contribute to their owners predominantly attributing the causes of accidents to unforeseeable circumstances, and the owners reject that circumstances under their control have caused the accident. Subsequently, there is little organisational learning from the accident, and the injured workers often return to work under the same unsafe conditions as before the accident. There is a need for educating owners and workers about multiple contributing accident factors and attribution bias, if they are to identify relevant and effective accident prevention measures. Safety professionals (such as inspectors and consultants) must keep in mind that the manner in which the owners of small enterprises deal with health and safety can be quite different from those in larger enterprises. A recent anthropological study on safety in the construction industry (Baarts, 2004), suggests that in order to change fatalistic attitudes towards safety, safety professionals may have to acknowledge that many owners perceive accidents as being due to unforeseeable circumstances, and to take it from there. An important element would be to look more at the positive side of learning situations (Kogi, 2006), such as an enterprises achievements as well as where there are possibilities for further improvements. This is a difficult but necessary prerequisite for a positive learning circle, where otherwise negative learning from accidents will prevail due to defensive causal attribution. By focusing on positive learning it may be possible to develop the necessary trust-based dialogue between the third party safety professional, the owner and the employees.

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