Causal Attribution among Business ExecutivesInvestigation

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Abstract:

In this study, the authors investigated causal attributions for achievements at work amongst 124 business executives. The business executives appeared to have traditional self-enhancing attribution patterns when they explained their successful achievements. When explaining their unsuccessful achievements, there was evidence of self-protecting. This is discussed based on the fact that the business executives take both responsibility for and believe they have control over their unsuccessful achievements; attribution to strategy was the most significant attribution for unsuccessful performance. The study also revealed a strong relation between metacognition and attributions of successful achievements to strategy and ability. This may indicate that the business executives' abilities to think about their own learning processes predict their attributions to strategy. The results found in the investigation indicate that the business executives think and act strategically with regards to their achievements.

Causal Attribution among Business executives

In business the performances of executives are typically measured by tangible, observable outcomes based on expectations and previous accomplishments. Companies frequently focus on the growth and development of requisite skills of their employees aimed at maximizing individual performance and corporate financial return. An average workday for executives in such environments is often hectic and they are expected to (and expect to) constantly upgrade their technical and leadership skills (Fillery-Travis & Lane, 2008). Thus, high effort and good results are expected. Experiences among business executives

should therefore lead to a complex mixture of thoughts and feelings related to their performances. How people react to success and failures depends on their interpretation of the outcomes. Attribution theory seeks to explain people's causal interpretations of successes and failures as well as the emotional and behavioural consequences of these interpretations. Beliefs about causality determine cognitive, affective and behavioural consequences (Weiner, 1995). Attribution theorists argue in general that increasing the individuals' attribution of failure to lack of effort is successful in increasing persistence and performance (Fösterling, 1985; Weiner, 1995). However, their research is mainly based on

heterogeneous samples where efforts vary strongly. Among business executives in a competitive market however, high effort is the rule. Thus, effort might not be the most efficient cause when explaining one's own behaviour.

The main purpose of this study was to identify and discuss functional causal attributions among business executives in a competitive market and how this relates to the participants' metacognition. In the present study, participants were one hundred and twenty-four business executives in a Fortune 500 company which was branch leading over the last three years.

Theoretical Foundations
Causal Attribution
Influenced by the theoretical analyses done by Rotter (1966), and more importantly, Heider (1958) and Kelley (1967), Weiner developed his attribution theory (1972) focusing on intrapersonal processes. Weiner addressed the fact that one has to use and combine various sources of information to determine causal explanations. Some of this information will originate from the actual situation, while other information is stored in the person's memory as experiences from past events. Weiner states that in real situations there are a large number of possible causes for success and failure (Weiner, 1989) and he hypothesized that attributions would hinge on three dimensions; locus of causality (internal vs. external), stability (whether the causes change over time) and controllability (whether the cause can be changed by the person) (Weiner, 1985).

Locus of control was proposed by Heider (1958), and is the most fundamental dimension in attribution theory (Homsma, Dyck, Gilder, Koopman & Elfring, 2007). Weiner and colleagues later redefined this causal dimension into locus of causality, so that the dimension locus (of control) was differentiated from perceived control (Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971). Apart from being internal or external (locus of causality), a cause can be seen as stable or unstable (e.g. being constant over time or likely to change). A third causal dimension, which also originated from Heider, was connected to the model for classification of the causal dimensions (Rosenbaum, 1972). Rosenbaum originally called this dimension "intentionality", while Weiner chose to call it controllability. This dimension was a result of the recognition that causes like effort, mood and fatigue, which are all internal and unstable causes, differ as to the degree of control that can be exerted over them.

Causal attributions are important because of their tendencies to influence future behaviour through their influence on both motivation and affect (Anderson, Krull, & Weiner, 1996; Weiner, 1985). The perceived stability of causes influences expectations of success and all three causal dimensions influence a variety of emotional experiences (Anderson, Krull, & Weiner, 1996; Weiner, 1985). Theorists agree that people have a general tendency to utilize both self-protecting and self-enhancing patterns of attribution (Miller & Ross, 1975; Skaalvik, 1990, 1994; Zuckerman, 1979; Withley & Frieze, 1985). This implies that individuals tend to attribute their own successes to internal factors such as effort and ability, and failures to external factors. In short, humans tend to take credit for their own achievements by attributing them to factors for which they are responsible, whereas failures are more often explained using external factors where the situation is responsible. Martinko (1995) calls these two types of attribution, dispositional and

situational. Dispositional attributions ascribe a person's behaviour or achievements to internal factors such as personality traits or ability, while situational attribution ascribes a person's behaviour or achievements to external factors such as social influence from other people (i.e., leadership). This is what Weiner calls a self-protecting attribution pattern (Weiner, 1986). However, self-protection in the ego defensive sense might not be an adaptive pattern when subsequent progress and performance is the main goal. The reason for this is the importance of perceived controllability for subsequent effort and choices. People cannot optimally improve their achievement if they perceive themselves to have little control over the causal factor which leads to the specific achievement. Responsibility and controllability are therefore generally desirable causal attributions (Arkin & Maruyama, 1979). In general, internal, unstable and controllable attributions after a failure (effort and strategy) lead to more functionally determined behaviour and emotions than other types of attributions (Abramson, Seligman & Teasdale, 1978; Bandura, 1982; Weiner, 1985). Functional task behaviour is defined here as high persistence and accuracy (Chapin & Dyck, 1976; Fowler & Peterson, 1981; Schunk, 1981). The expectation of performing these tasks successfully in the future may be maintained if the individual believes that they can control the cause of the behaviour (Bandura, 1977). Attribution to internal, stable and uncontrollable causes after failure, such as lack of ability, but also attribution to external causes, may over time lead to irresolution and learned helplessness because the individuals perceives that they have little control over the cause of their own behaviour (Abramson, Seligman & Teasdale, 1978; Maier & Seligman, 1976; Dweck, 1975).

Humans often use information on the basis of the outcome of specific situations to decide how much energy or effort to spend in the situation (Weiner & Kukla, 1970; Kukla, 1972). The reason for this is that effort and outcome are seen as related variables. Because of this, if one experiences great performance, one concludes that effort was high, while failure is attributed to a lack of effort. A review of attributional training confirms that increasing the individuals' attributions of failure to a lack of effort, is a strategy which has been consistently successful in increasing persistence and performance (Fösterling, 1985). This makes sense if the person didn't put much effort into the situation and subsequently failed. One may question, however, if attribution to lack of effort is adaptive or even possible after maximum effort. A number of careers in today's society, such as the participants in this study, are demanding and expect high levels of effort from people. In such a case one may question if it is possible to conclude and believe that failure to produce expected results is due to lack of effort? To answer this question we need to investigate theories related to causal attributions and performance.

Strategy- the plan of action

Research has shown that reflection upon the accomplishment of one's actions after the event has been a very effective tool for improving performance (Baird, Holland, & Deacon, 1999; Busby, 1999; Dwyer, Oser, Salas, & Fowlkes, 1999; Ellis & Davidi, 2005; Ellis, Mendel & Nir, 2006). This implies that reviewing the successful or unsuccessful strategies used during an event changes the individual's mental models and improves their actions in similar events. This post-event review elicits more internal (as opposed to external) and specific attributions (as opposed to general). Ron, Lipshitz, and Popper (2001), who studied

"post-flight-reviews" in the Israeli Air Force, quoted pilots as saying that the most important element of the self-debriefing is proving that they made the error and that it was their responsibility (locus). This implies causal attribution to internal causes. Once they had done that, performance improvement was seen as the next natural step, as taking responsibility for errors was essential to doing better the next time around. However, this might not always hold true because of the importance of controllability. If they perform better the next time around, their actions should differ somewhat from the previous unsuccessful situation. This implies that their strategy in the situation has changed because of their review of previous actions in similar situations. The causal attribution dimension in this case can therefore be defined as strategy. Strategy is both unstable and controllable since the individual has an opportunity to influence and change it (controllability). This shows that taking responsibility might not be enough; controllability over the causal factor explaining behaviour is also essential. Nakanishi (2004) found a significant increase in self-efficacy among high school students after a period of focusing on strategy attribution after a successful behaviour. Learning strategies are presumed to have a greater influence on self-efficacy than attributing failure to effort (Ito, 1996). These results show that attribution to strategy, for both successful and unsuccessful experiences, might improve subsequent performance. It's obvious that a general cause of an outcome (e.g. the lack of effort) is less informative than a specific cause (e.g. an aspect of the strategy during accomplishment). As supported by Abrahamson, Seligman and Teasdale (1978), knowledge of the specific factors leading to a specific performance is more useful for guiding subsequent behaviour and

performance. This is of great relevance to attribution theory. Controllable, internal, unstable and specific attributions are favourable. There is also evidence that focusing on strategy through self-monitoring and self-instruction can be a remedy for helplessness among children (Diener & Dweck, 1978). This raises the question of whether lack of effort is too general as a causal explanation and whether specific attributions would be favourable, especially in environments were high effort is a matter of necessity.

Strategy as a causal dimension

The positive result that arises from reviewing one's performance after the event (Baird, Holland, & Deacon, 1999; Busby, 1999; Dwyer, Oser, Salas, & Fowlkes, 1999; Ellis & Davidi, 2005; Ellis, Mendel & Nir, 2006), is a reflection upon one's strategy adopted in that specific situation, which implies that two dimensions in particular are key: (a) Awareness of and insight into the situation and the strategy adopted, and (b) the self-reflection upon one's strategy implementation and resultant performance in the situation. This provides evidence that strategy, and especially attribution to strategy, is a complex area.

Strategy is the plan of action individuals use to achieve their goals or accomplish a task (VandenBos, 2006), which means that strategy is supposed to characterise the working process. Strategy is categorized as an internal, unstable and controllable cause of attribution (Skaalvik & Skaalvik, 2005). While effort provides information about the intensity of the working process, strategy describes the quality of the plan of action related to the working process. Little research has been done into the development of causal attributions with respect to the use of strategies. Most of the research in this area focused on attributions to ability versus

effort (e.g., Cooley & Ayres, 1988; Kistner, Osborne & LeVerrier, 1988; Wigfield, 1988). Even in pioneering studies on the simultaneous use of attributional retraining and strategy training (Borkowski, Weyhing & Carr, 1988; Reid & Borkowski, 1987), participants were only instructed to attribute success to effort. Getting students to attribute their success (resulting from using the learned strategy) to use of an effective strategy may be more convincing in these cases (Borkowski, Carr, Rellinger & Pressley, 1990). Of course such an approach would, by definition, require extending our current knowledge about the development of attributions regarding the use of strategy. It's obvious that effort is required to apply strategies (Borkowski, Carr, Rellinger & Pressley, 1990), and that the amount of effort could be vital for successful strategy implementation and resultant performance. However, the above review shows that this may not be sufficient. To be successful, strategy has to be effective and efficient in any specific situation and has to be changed when it is not adaptive.

Aim of the Study

The first aim of the present study was to explore causal attributions following success and failure among business executives. Based on the previous discussion we expected that success would be attributed to strategy as well as ability and effort. Focusing on employing adequate strategies is necessary to succeed in demanding executive positions. Furthermore, we suggest that the perception of being able to choose adaptive strategies is related to both perceived abilities and effort. We also expected that failure would be most strongly attributed (inadequate) to strategy because this attribution allows one to believe that failure can be changed into success. Furthermore, we expected that executives would avoid attribution of failure to ability,

thus demonstrating a self-protecting pattern of attribution. To what extent failure would be attributed to lack of effort was a more open question. On the one hand, attributing failure to lack of effort may not be easy following high effort. On the other hand, given that an executive has multiple responsibilities, tasks or assignments it may not be possible to give equal attention to all tasks.

Metacognition

As discussed above, reviewing one's own performances after an event require (prerequisite) awareness and insight into the situation and the strategy adapted. Thus, the cognitive ability in order to do this successfully and with quality seems to be an important issue. Metamemory acquisition procedures (MAPs) ensure that effective and efficient strategies are maintained and that strategies detected as ineffective and inefficient are discarded (Borkowski, Carr, Rellinger & Pressley, 1990). Strategy is therefore related to other cognitive processes; hence causal attributions made to strategy should depend upon the quality of these cognitive processes. Learning strategies are defined as thoughts and behaviours intended to influence the learner's ability to select, acquire, organize, and integrate new knowledge (Weinstein & Mayer, 1986). It is an unstable quality which the individual believes they can control. Metacognition is an important concept in cognitive theory. It consists of two basic processes occurring simultaneously: monitoring progress during work, and making changes and adapting strategies (Winn & Snyder, 1996). This implies that in order to focus on the strategy and/or be aware of the strategy before and during implementation, higher order metacognition might be necessary. The awareness and use of strategies and metacognition are quite strongly related. In general, students with

high metacognition use more strategies relative to students with low metacognition (Garner & Alexander, 1989; Pressley & Ghatala, 1990), and also use more sophisticated strategies (Schraw & Moshman, 1995), with greater flexibility (Swanson, 1990). A number of strategy intervention programs have found that scaffold strategy instruction tends to improve metacognitive awareness (Paris & Jacobs, 1984; Pressley and Wharton-McDonald, 1997). Since metacognition includes awareness of one's own thinking and learning, this might be perceived as an ability of the individual for choosing and employing effective and adaptive strategies in the process of learning and problem solving. Thus, an individual's strategic skills are predicted by the individual's metacognitive ability. There are also findings which imply that low cognitive ability may limit an adaptive attributional process (Allen, Walker, Schroeder & Johnson, 1987). We therefore propose that attribution of success to strategy is positively related to attribution to ability. Hence, a second purpose of this study was to test the expectation that attribution of success, but not failure, to strategy and to ability would be positively correlated.

Knowing how to learn and which strategies work best are valuable skills that differentiate expert learners from novice learners (Ertmer & Newby, 1996). Metacognition, defined as the awareness and regulation of one's cognitive processes (Flavell, 1979; Baker & Brown, 1984) is therefore a critical ingredient to successful performance. "Metacognitive skills include taking conscious control of learning, planning and selecting strategies, monitoring the progress of learning, correcting errors, analyzing the effectiveness of learning strategies, and changing learning behaviours and strategies when necessary" (Ridley,

Schutz, Glanz & Weinstein, 1992). Metacognition therefore includes two related dimensions: (1) knowledge of cognition, and (2) regulation of cognition (Brown, 1987). These two dimensions are invariably linked in the sense that to know something means knowing how to use it. Knowledge of cognition is assumed to include three components: declarative knowledge, procedural knowledge and conditional knowledge (Brown, 1987; Jacobs & Paris, 1987). Declarative knowledge is awareness about ourselves as learners and what factors influence our performance, procedural knowledge refers to knowledge about strategies, and conditional knowledge refers to knowing when or why to use a strategy. Regulation of cognition also includes three components: planning, regulation and evaluation (Jacobs & Paris, 1987). Planning includes setting goals, activating relevant background knowledge and budgeting time; regulation involves monitoring and self-testing skills necessary to control learning; and evaluation involves appraising the products and regulatory processes of one's own learning.

This has an interesting relevance to attribution theory. It could mean that people with higher order metacognition (ability) focus on their strategy when they perceive a causal explanation to the behaviour experienced. Being aware of- and to regulate one's own cognition might be perceived as an ability, and it is this ability which might make individual's capable of regulating their actions through their strategies. Thus, there should be a relation between metacognition and causal attributions to both ability and strategy. One potentially effective strategy is therefore to combine attributional retraining with cognitive strategy training (e.g., Borkowski, 1992; Cole & Chan, 1990; Borkowski, Weyhing & Carr, 1988; Reid & Borkowski, 1987), so that focus is on the

quality of learning, instead of only on the effort, which has been the general practice in attributional retraining methods (e.g., Cooley & Ayres, 1988; Kistner, Osborne & LeVerrier, 1988; Wigfield, 1988). This could result in a move from a general causal attribution pattern to a more specific one. Effort is reckoned to be general strategic knowledge, whereas knowledge about task demands, which strategies work best and how to use them efficiently, are specific strategic knowledge (Borkowski, Carr, Rellinger & Pressley, 1990). To move from a general causal attribution, individuals need to be aware of their own cognitive processes. Thus, higher order metacognition might be a prerequisite for attribution to strategy. Quirk (2006) argues that metacognition is intelligence. It is the metacognitive aspect of intelligence that enables the individual to be "not just reactive to the environment but active in forming it" (Sternberg, 1997, p.1030). Borkowski and colleagues argue that it is the general and specific strategic knowledge, combined with perceptual efficiency, which promotes the development of higher order metacognitive knowledge (Borkowski, Carr, Rellinger & Pressley, 1990). It is the establishment of these advanced metacognitive components that eventually promotes successful performance (Borkowski & Kurtz, 1987). We propose that attribution of success to strategy is positively related to higher order metacognition. A third purpose of this study was to test the expectation that attribution of success to strategy would be positively related to higher order metacognition.

Method
Participants and procedure
One hundred and thirty seven business executives in a branch leading Norwegian Fortune 500 company were asked to voluntarily participate in an on-line questionnaire concerning targeted thoughts, feelings and actions at work. The business executives in the study were the company's CEO's (Chief executive officers) and middle managers who were office managers in different departments in the company. Of the 137 business executives asked and eligible, 124 participated in the survey. Periodic reminders by mail and by an internal project manager were utilized. Thus the final results were based on responses from these 124 business executives representing a 90.5% participation rate. A gender breakdown of the subjects included 56.5% men and 43.5% women. In terms of age, 4.8% < 30 years, 61.3 % aged 30 to 45 years, 29.8 % aged 46 to 60 years, and 4% > 60 years.

Instruments
All measurements used in this study were based on previously developed scales proven to hold both satisfactory validity and reliability. The measurements were originally created in English. The measurements were translated into Norwegian and slightly adjusted for the purpose of this study by the authors.

Attribution
Attribution was measured by means of the 20- item Forced Choice Attributional Style Assessment Test (ASAT - I) developed by Anderson, Jennings & Arnoult (1988). The scale was modified and used to measure intra-personal attributional style in specific work related situations. Items measuring interpersonal behaviour were taken out in the modified version together with the choices relating to personality traits and mood. Attributions in general situations, such as "You have failed to complete the crossword puzzle in the daily paper", are not relevant to specific work performance, and were thus taken out of the original test. This resulted in a six item questionnaire for

specific work related situations (three for positive outcomes and three for negative outcomes). Four different choices were offered for each item, relating to strategy, ability, effort and circumstances, which gave us 8 different sub-scales. The participants were asked to consider the causality of their performance at work on a seven point scale ranging from completely untrue (1) to completely true (7), for each of the 4 variables (strategy, effort, ability and circumstances). The adjusted measurement was not a forced choice as in the original, because of the desire to investigate relationships between the different choices. For example (item 1, positive outcome): "You have just received successful feedback on tasks performed at work." (a) "I used the correct strategy to achieve it", (b) "I'm good at this", (c) "I worked really hard to achieve it", (d) "Other circumstances (people, situation, e.g.) influenced the result".

Metacognition. To measure metacognition we used the self-reflection and insight scale (SRIS), which has been proven to be a useful measure of private self-consciousness (Grant, 2001a & 2001b). Grant (2001a, 2001b) explored several measurements (among others The Private Self-consciousness Scale) for this purpose and concluded that the self-reflection and insight scale was most suitable for measuring private self-consciousness. The instrument contains two subscales, one measuring self-reflection, and the other insight. A total number of 20 items are used. Examples of items are: "I don't often think about my thoughts" (Self-reflection), "I'm not really interested in analyzing my behaviour" (Need for self-reflection), "I'm usually aware of my thoughts" and "Thinking about my thoughts makes me more confused" (Insight). Responses were made using a five point scale ranging from completely untrue

(1) to completely true (5), which is the same as the original scale.

The reliability of the instrument was high, with a cronbach's Alpha above .79 for all scales. The cronbach's Alpha of the instruments is shown in Table 1.

Results

Table 1 show the statistical means and standard deviations of attributions related to both successful and unsuccessful achievements by business executives at work. The results demonstrate that business executives use all four causal dimensions when explaining their own successful achievements at work. We used the paired samples t-test to compare the means of the causal dimensions in this study. Significance values (p value) less than 0.05 (CI .95) was set to indicate if there was significant differences in mean values. The means of attribution of success to strategy, ability, effort and circumstances were; 5.97, 6.02, 5.75, and 4.91, respectively. The strongest attributions of success are to strategy and ability and the tendencies to attribute to strategy and to ability are not statistically different ($p > .05$). However, the tendency to attribute to strategy and to ability was significantly stronger than the attributions to both effort and circumstances ($p < .05$). Also, attribution to effort was significantly stronger than to circumstances ($p < .001$).

The means of attribution of failure to strategy, ability, effort and circumstances were; 5.09, 3.28, 4.12, and 4.00, respectively. The results reveal that unsuccessful performance was most strongly attributed to strategy, which was significantly different from all other attributions to lack of success ($p < .001$). The least frequent attribution of lack of success was to ability. The scores were significantly lower than scores for all other attributions to

lack of success (p< .001). A comparison between attributions of successful and unsuccessful achievements in Table 1 shows a strong tendency to attribute success to ability and to avoid attributing failure to ability. The difference between attributing success and failure to ability is substantial, whereas the difference between attributing success and failure to strategy is smaller, although it is significant (p < .05). These results clearly demonstrate use of protection

against learned helplessness and a self-protecting pattern of attribution.

Correlations between the variables being studied are also displayed in Table 1. With one exception the correlations ranged from moderate to weak. The exception was attribution of success to strategy and to ability, which was strongly correlated (.77). In comparison, the correlation between attribution of failure to strategy and ability was much smaller (.30).

Table 1

Zero-Order Correlations and Descriptive Statistics

Study variable	1	2	3	4	5	6	7	8	9
1. Metacognition	_	0.42	0.35	0.25	0.26	0.23	-0.11	0.03	-0.12
2. Attribution success strategy		_	0.77	0.32	0.10	0.40	-0.07	0.02	-0.14
3. Attribution success ability			_	0.41	0.20	0.22	-0.18	0.03	-0.16
4. Attribution success effort				_	0.27	0.02	0.05	-0.16	0.02
5. Attribution success circumstances					_	0.15	0.12	0.14	0.16
6. Attribution failure strategy						_	0.30	0.41	0.03
7. Attribution failure ability							_	0.47	0.14
8. Attribution failure effort								_	0.05
9. Attribution failure circumstances									_
M	75.98	5.97	6.02	5.75	4.91	5.09	3.28	4.12	4.00
SD	10.35	0.78	0.72	0.94	1.37	1.26	1.51	1.52	1.29
Cronbach's alpha	0.85	0.88	0.81	0.80	0.89	0.79	0.89	0.80	0.88

Note. Numbers in bold represent significant correlations. Correlation of .23 or higher are significant (p < .01) and of .18 or higher are significant (p < .05).

The measures of attribution were further analysed by means of exploratory factor analysis with principal component extraction, varimax rotation, and eigenvalues greater than 1. Three factors were extracted as shown in Table 2, explaining 67 % of the variance in the equation. Attribution of success to ability and to effort constituted one factor which we have termed "Self-enhancing attribution of

success". Interestingly, these are the two most dominating attributions. They both represent internal attributions of success. Therefore, it is important to note that the attribution of success to effort loads about equally strongly on this factor and on the third factor, which mainly contains external attributions. The second factor contains all the internal attributions of failure, effort as well as ability and strategy.

Table 2

Exploratory Factor Analysis of the different attribution choices

Variables	Factor 1: Self-enhancing attribution of success	Factor 2: Internal failure pattern	Factor 3: External pattern
Attribution success ability	**0.91**	-0.02	0.07
Attribution success strategy	**0.90**	0.12	-0.04
Attribution failure effort	-0.03	**0.84**	-0.01
Attribution failure ability	-0.20	**0.72**	0.25
Attribution failure strategy	0.38	**0.72**	-0.02
Attribution success circumstances	0.20	0.15	**0.72**
Attribution failure circumstances	-0.31	0.09	**0.64**
Attribution success effort	**0.51**	-0.20	**0.57**

Note. Numbers in bold represent factor loadings.

One of the purposes of this study was to explore relations between patterns of attribution and metacognition among business executives. Hence, we conducted a second factor analysis including metacognition and the eight measures of attribution, as shown in Table 3. The analysis revealed three factors consistent with the results presented in Table 2. The additional variable, metacognition loaded strongly on factor 1, which we now term "Metacognitive pattern". Attribution of success to effort also loads on this factor. The significant cross-loading for attribution of success to effort is still present in the new factor analysis. Thus, attribution of success to effort loads both on the metacognitive pattern and the external pattern. Also worth noting is that attribution of failure to strategy almost cross-loads with the self-enhancing factor in both models.

Table 3
Exploratory Factor Analysis of the different attribution choices and metacognition

	Factor 1: Metacognitive pattern	Factor 2: Internal failure pattern	Factor 3: External pattern
Attribution success strategy	**0.88**	0.11	-0.09
Attribution success ability	**0.87**	-0.03	0.01
Metacognition	**0.64**	0.03	0.11
Attribution failure effort	-0.02	**0.84**	-0.01
Attribution failure ability	-0.20	**0.72**	0.26
Attribution failure strategy	0.39	**0.71**	-0.04
Attribution success circumstances	0.26	0.14	**0.71**
Attribution failure circumstances	-0.29	0.09	**0.65**
Attribution success effort	**0.51**	-0.21	**0.53**

Note. Numbers in bold represent factor loadings.

Discussion

The present study explored causal attributions following success and failure among business executives. Consistent with our expectations success was strongly attributed to strategy as well and to effort and ability, whereas it was less strongly attributed to external causes. Moreover, success was more strongly attributed to strategy and ability than to effort. Also, consistent with expectations failure was most strongly attributed to strategy and most weakly attributed to ability. Attributions to effort followed both success and failure, however the tendency to attribute achievement outcomes to effort was stronger following success than failure.

The study also explored relations between attributions following success and failure. Consistent with our expectation we found a much stronger correlation between attribution to strategy and to ability following success than failure. However, attribution of failure to strategy, ability and effort form one common factor in the exploratory factor analysis. Thus, the results regarding the relation between attribution of failure to strategy and ability remain inconclusive. Exploratory factor analysis also revealed a positive relation between metacognition and both attribution of success to strategy and ability.

Among business executives in a competive market, high effort is both common and expected. However, we suggest that working hard is not perceived as sufficient in order to succeed, one also have to work smartly. Moreover, we suggest that ability is perceived as necessary in order to work smartly (see Covington, 1992). Thus, when business executives experience successful achievements, attribution to ability, effort and strategy make sense. Therefore, it is not surprising that business executives made multiple attributions of successes. The business executives attributed their successful achievements to strategy as well as ability and effort. This is a typical self-enhancing pattern of attribution, which implies that the business executives tend to attribute their own successful achievements to both controllable and uncontrollable internal factors (Miller & Ross, 1975; Skaalvik, 1990, 1994; Zuckerman, 1979; Withley & Frieze, 1985). In short, the business executives tend to take credit for their own achievements by attributing them to factors for which they are responsible. Ability is traditionally seen as a self-enhancing attribution of successful achievements because ability is perceived as important and a prerequisite to achieve good performances (Covington, 1992). There is also evidence for arguing that strategy may be a self-enhancing causal attribution, because it is indicative of ability. This will be further discussed later.

On the other hand, the importance of, and the need for self-protection were obvious when we investigated the attributions made by executives explaining their unsuccessful achievements. Theorists agree that humans tend to utilize a self-protecting pattern of attribution. This implies that failure is attributed either to external causes or that internal attributions are made to lack of effort, whereas attribution of failure to ability is avoided. The results confirm that the business executives in this study avoid attribution of failure to ability, whereas they make stronger attributions to external factors and to lack of effort. However, the strongest attribution of unsuccessful achievements are made to strategy. This may also be regarded as a self-protecting attribution in the sense that strategy may be changed and improved. This result provides clear evidence of protection against learned helplessness, since ability was the least significant

variable used to explain unsuccessful achievements, and the most significant choice of attribution (strategy) is within an executive's control. The fact that unsuccessful achievements are most frequently explained by strategy, but also by effort which is perceived to be within the control of the individual, is an important finding. We argue that this is a self-protecting attribution pattern in an ego-defensive sense. Strategy may be perceived as an internal causal factor, but one which is probably perceived as unstable and controllable by the individual, especially for this particular sample who is aware of one's own possibility (metacognition) to regulate the learning process by using effective and efficient strategies. As a result of this, expectations about future successful achievements may be unaffected by current unsuccessful performance (Bandura, 1982). Self-protection is therefore the most significant result when business executives explain their unsuccessful achievements. The results indicate that the executives perceive themselves to be both responsible for, and able to control their unsuccessful achievements at work. When working with a specific task unforeseen things may happen. For example, it can be a big challange for business executives to execute the most efficient and effective strategy during mandatory results- and appraisals conversations. Mandatory results- and appraisals conversations are demanding because they depend upon the response from the employee, and the response might be unforeseen. Using the wrong strategy should be a reasonable explanation in terms of being self-protective in such challenging situations. Being aware of this fact and being able to reflect upon this (i.e. being in possession of metacognitive abilities) seems necessary for attribution of failure to strategy to work optimally self-protective. A person can only control that of which he or

she is aware, that of which he or she is unaware, controls the person (Whitmore, 2002). Therefore, the metacognitive abilities among the business executives in this study empowers them. On the other hand, when strategy is effective and efficient, this should be self-enhancing. Thus, the business executive proved that he or she is capable of being self-reflective, learning from previous failures, and executed the most efficient and effective strategy in new situations. The fact that attribution failure strategy almost cross loads with the self-enhancing factor in both models (Table 2 and 3) shows the complexitity regarding the strategy dimension.

The individual' perception of control related to strategy attribution is however complex. The perception of control is dependent on how the individual perceives strategy. To be able to control the strategy, the individual needs to be aware of alternative strategies and believe that he or she is able to use these strategies, or to adjust the current strategy, to make it more efficient and effective in the situation. To do this, metacognitive skills might be a prerequisite, since metacognition includes awareness of one's own thinking and learning. The conclusion that the attribution of unsuccessful achievements to strategy is self-protecting, as discussed above, is based on the assumption that the individual has a repertoire of strategies, and that they believe that they are capable of changing the strategy, or to employ different and more efficient strategies.

The high correlation between attribution of success to strategy and ability and the moderate correlations between these attributions and attribution to effort are particularly interesting. We suggest that effort illustrates the personal investment in the working process and strategy illustrates the quality and smartness of the working

process. It is obvious that any given strategy requires effort in order to be successful. Effort could therefore be perceived as a general dimension of every strategy, and the relation between strategy and effort is therefore quite reasonable. The correlations between attributions to strategy, ability, and effort, support the notion that effort is seen as a prerequisite for utilizing one's abilities and effectively employ adequate strategies. A possible explanation of the strong correlation between strategy and ability may be that ability is seen as a prerequisite for choosing and employing effective and adaptive strategies. Thus, the close relationship between attribution of successful achievements to strategy and ability might indicate that the business executives percieve that their strategic skills are predicted by their abilities, meaning that to work smartly is percieved as ability. The close relationship between strategy and ability is less evident when executives are explaining unsuccessful achievements. This is explained by the need for self-protection and protection against learned helplessness. We argue that the attribution pattern seen among the business executives leads to a psychological state of learned hopefullness and independence, rather than learned helplessness, because of their beliefs in their abilities to use effective and efficient strategies.

The correlation matrices and the factor analysis, including metacognition and attributions, confirmed our expectation of positive relations between metacognition and attribution of successful achievements to strategy and abilities. This result indicates that it is the business executives' ability to think about their own learning process which predicts their attributions to strategy, since metacognitive knowledge and skills involve strategic thinking. A strategy cannot be successful if it is not effective and efficient, such that the learning and mastery in the situation is optimal. The ability to monitor personal progress during the learning process and make useful adjustments is an important part of metacognitive skills. The individual's strategy in the learning process may therefore be related to other cognitive processes, our findings support this prediction. Successful achievements could therefore be percieved as evidence of their ability to work strategically (i.e. the ability to continuously develop, use, monitor and adjust personal learning strategies).

Attribution to effort is traditionally recognized as an internal attribution. In the present study the factor analysis showed that attribution of unsuccessful achievement to ability, strategy, and effort formed one factor. This indicates that attribution to effort is perceived as an internal factor. However, the factor analysis showed that attribution of successful achievements to effort loaded about equally strongly on an external factor and an internal factor consisting of attribution to ability and strategy. A possible reason is that even though effort is controllable by the individual it may also be context depended. For instance, given that a person is working with several assignments in a given period, all assignments may not be given an equal amount of attention. Moreover, the business executives in the present study had long working hours. Therefore, although effort is controllable in theory, their effort or investment might reach a point where it may not be further increased. Instead of increasing effort, the business executives in question may be forced to reduce effort in some areas or tasks in order to increase effort in other areas. Both effort and effort attributions should be studied in future research.

The findings of this study suggest that the business executives are active in forming their own environment and personal growth, that they perceive themselves to have control over and be responsible for both their successful and unsuccessful achievements. In addition the findings provide evidence for the use of both self-enhancing and self-protecting pattern of attribution. The findings of this study suggest that the business executives are active in forming their own environment and personal growth, that they perceive themselves to have control over and be responsible for both their successful and unsuccessful achievements. In addition the findings provide evidence for the use of both self-enhancing and self-protecting pattern of attribution.

A limitation of the present study is that the sample was fairly small and that business executives from only one company were represented in the sample. Future research should employ larger and more varied samples. Also, the measure of attribution stated general questions about attribution of successful and less successful achievements. The measure of attribution was therefore relatively abstract and hypothetical. An important task for future research would be to explore attributions of real achievements. Also, one needs to be aware of the fact that the results in this study are from people working in competitive market environment. Therefore, one should be careful not to generalize the results to other contextual situations or other types of environments. Future research should study and compare attributions in different types of environments.

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