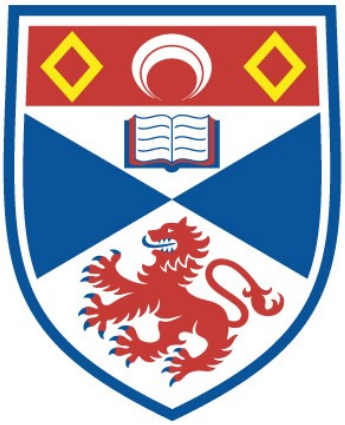
COUNTERFACTUAL REASONING IN STRATEGY CONTEXT : A THEORETICAL INVESTIGATION OF THE ROLE OF HINDSIGHT IN STRATEGIC FORESIGHT

R. Bradley MacKay

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



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Counterfactual Reasoning in Strategy Context:

A Theoretical Investigation of the Role of Hindsight in Strategic Foresight

By: R. Bradley MacKay

Submitted for the requirements for the degree of Doctor of Philosophy

In

Economics

(Management, Economics and International Relations – MEIR)

At

The University of St Andrews, Scotland

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Declarations

I, Robert Bradley MacKay, hereby certify that this thesis, which is approximately 87000 words in length, has been written by me, that it is the record of work carried out by me and that it has not been submitted in any previous application for a higher degree.

Date 31.05.04 Signature of candidate _____

I was admitted as a research student in September 1999, and as a candidate for the degree of Doctor of Philosophy in Management, Economics and International Relations (MEIR); the higher study for which this is a record was carried out in the University of St Andrews between 1999 and 2003.

Date 31.05.04 Signature of candidate _____

I hereby certify that the candidate has fulfilled the conditions of the Resolution and Regulations appropriate for the degree of Doctor of Philosophy in the University of St Andrews and that the candidate is qualified to submit this thesis in application for that degree.

Date 31. V. 04 Signature of supervisor _____

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Abstract

The purpose of this doctoral thesis is to deepen theoretical understanding of the role that hindsight plays in foresight. The thesis argues that the past is not an isolated static state, but one that is intimately connected with the future. However, there are several biases that influence our perceptions and conceptions of the past. These biases act as constraints on strategic learning by limiting our ability to understand the driving forces that emerge from the past, play out through the present and become critical uncertainties in the future. They can result in misperceptions about events or processes, and as such, may impair foresight methodologies such as scenario thinking. Such *foresightful thinking flaws* are characterised by a combination of hindsight biases and creeping determinism, which result in searching for information that corresponds to people's views about both the past and the future, logical path-dependencies, misaligned dominant logics, routines, recipes and paradigms, and over-confidence and defensive pessimism.

Drawing on received research in psychology, the role of counter-to-factual reasoning as a heuristic is discussed and analysed as a possible antidote to *foresightful thinking flaws*. The judicious use of such a heuristic device as counterfactual reasoning, both as a sense-making process and as an analytical reasoning tool applied to the analysis of historical data, the thesis concludes, is a method for investigating and discovering the past and fortifying foresightful strategic thinking.

Acknowledgements

Over the course of this doctoral research I have been fortunate to encounter numerous people who have broadened my horizons with their diverse backgrounds, provided ears for listening to my thoughts and reflections, inspired me with their enthusiasm for learning and intellects, and invigorated me with their own impassioned pursuit of knowledge and wisdom in their respective fields. They have made my experience of writing this doctoral thesis at the University of St Andrews a thoroughly enjoyable one.

St Andrews itself, an almost mythical town in the Kingdom of Fife, surrounded by hills and sea and steeped in history and tradition, is itself inspirational with its ancient buildings, cobble stone streets, castle and cathedral ruins. In the midst of this ancient seat of education and learning is a vibrant intellectual life juxtaposed with pubs and cafes bristling with students and academics who, over a cup of coffee, pint of ale or dram of whisky, debate ideas and explore thoughts. The University of St Andrews has been an idyllic place to research and write this doctoral thesis.

Throughout my time in St Andrews there have been many people who have offered selflessly their time, wisdom and guidance. It is these people that I thank heartily. First and foremost, I am grateful and indebted to my supervisor, Professor Peter McKiernan, for his generosity of time and for his tolerance of a doctoral student who must have surely been trying of patience. A friend of mine once suggested that the relationship between doctoral student and supervisor is really an apprenticeship between apprentice and master craftsman. Throughout my apprenticeship I have had the privilege of

learning from Peter academically and professionally. Peter has also taught me the value of using gratuitous language parsimoniously and of precision and clarity of thought in writing style. On top of this, he has been a good friend. For Peter I have nothing but admiration.

I am also profoundly grateful to all of my colleagues in both the Management Dept. and the Centre for Business Education for the sharing of their advice and knowledge. Chris Carter, in particular has, along with Peter, inspired me to continue on as an academic and he has also helped me to re-discover the value of using gratuitous language. Professor Alan McKinlay, Head of the Management Department, and Dr. Ian Robson, Director of the Centre of Business Education have been both supportive and encouraging. I extend my thanks to Barbara Lessels, the Departmental Secretary in the Management Dept., for her generosity and help on numerous occasions. I also owe a debt of thanks to my other colleagues in the "Cellar", "where young wines mature ...," for their time and spirit. St Andrews is blessed with an international community that gives it a cultural richness and sophistication, which is reflected in the composition of its doctoral students. From Saudi Arabia to India, Greece, Canada, Thailand, Iran, Italy, Ireland, South Africa, Kenya, England, the United States and, of course, Scotland, my life if fuller from those that I have had the pleasure of engaging with.

I would also like to thank friends and colleagues throughout the University of St Andrews and beyond. In particular, I owe a debt of thanks to Dr. Colin Mason, who has been a good friend and an indulgent listener of my woes on our many long runs down the beautiful West Sands or over dinner at the Mason family household. In my role as Warden of John Burnet Hall, I have

found the staff at Student Support Services, Residential and Business Services, the University Chaplain, Jamie Walker, and both the residential and Wardennial staff at John Burnet Hall to be very supportive.

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The viva for this thesis, conducted by Professor Colin Eden, the external examiner, was an immensely enjoyable experience. His questions were insightful and his thoughful disposition made the affair intellectually stimulating and engaging. I sincerely thank him.

Over the course of the past four years there have been many people who have touched my life in countless ways. While I haven't begun to mention them all, I hope that they know who they are and that I am thankful and consider myself fortunate in their friendship.

Finally, I pay my highest tribute to my family whose love and encouragement have been the rock on which I've built my life. It is to them that I dedicate this thesis.

Any mistakes or inaccuracies in this dissertation are, of course, my own.

Doctoral Research Publications

Publications

MacKay, B. and McKiernan, P. "Exploring Context with Foresight." *ISMO Special Edition*. (In Press).

MacKay, B. and McKiernan, P. (2004, May). "Exploring Context with Strategic Foresight." *European Management Review Special Edition*. .

MacKay, B. and McKiernan, P. (2004, March) "The role of hindsight in foresight: Refining strategic reasoning." *Futures Special Edition*.

MacKay, B. and McKiernan, P. (2002, March/April). "The trouble with the environment." *Scenario & Strategy Planning*. Vol. 3(6): 9-14.

Conference Papers

2003, April 3-5	*Bias and Correction in Scenario Methodologies*. A paper presented at the EURAM (European Academy of Management) Conference in Milan, Italy.
2003, June 12-13	*The Role of Hindsight in Constructing Organisational Context*. A paper presented at EIASM (European Institute for Advanced Study in Management) Workshop On Understanding Organizational Context in St Andrews, Scotland.
2002, July 11-12	*Strategic Reasoning: The Case for Tripartite Thinking*. A paper presented at the International Conference at the University of Strathclyde Graduate School of Business in Glasgow, Scotland.
2002, May 9-11	*The Hindsight/Foresight Paragon: Linking Hindsight and Foresight Through Cognition*. A paper presented at the EURAM (European Academy of Management) Conference in Stockholm, Sweden.
2001, July 11-12	*Counterfactual Posturing: Hindsight into the Future?* A paper presented at the Academy of Management Conference in Washington DC, USA. August 3-8 2001

"Every day you may make progress. Every step may be fruitful. Yet there will stretch out before you an ever-lengthening, ever-ascending, ever-improving path. You know you will never get to the end of the journey. But this, so far from discouraging, only adds to the joy and glory of the climb."

~ Sir Winston Churchill

"Nothing in life is to be feared. It is only to be understood."

~ Marie Curie

Chapter One: Doctoral Thesis Introduction

Two Roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
To where it bent in the undergrowth ...
Two roads diverged in a wood, and I-
I took the one less traveled by,
And that has made all the difference.
The Road Not Taken
Robert Frost

Men's curiosity searches past and future
And clings to that dimension. But to apprehend
The point of intersection of the timeless
With time, is an occupation for the saint –
T. S. Eliot, from The Dry Salvages

1.0 Chapter Introduction

Humanity has always been fascinated with the future. From the ancient consultations of the Oracle at Delphi, to the development of contemporary forecasting techniques, ways to improve foresight have been continually sought. But the future cannot be known. Forecasting, from simple regression of past data points into the future to sophisticated econometric modelling is frequently erroneous. The further forward forecasters try to predict, the more inaccurate the forecasts seem to get. To add value to management decision making, forecasting requires the driving elements that define the business environment to be continuous, so they can be known with a degree of certainty. If these conditions do not exist, then forecasting falls in significance and must be fortified or replaced by other techniques or processes. One such technique is scenario thinking.

Many modern organisational environments are driven by variables that are dynamic and move together in a complex manner. The building of scenarios

is one technique that has been developed to cope with this complexity. Scenarios are different stories about how the future may evolve. One can imagine them as postcards that describe business conditions surrounding the organization in the future and sent back to you by a future analyst so that you can read them now. Not one of these stories will come about exactly. Scenarios allow for the possibility that different worlds may evolve while at the same time creating space for uncertainty in the future. *The Economist*, in reference to the theories proposed by paleontologist Stephen Gould (The Economist, 2002, p. 101), state:

> "... the role of accidents in evolution is more widely appreciated, as asteroid collisions and nearby supernovae are recognized as hazards that can wipe out whole groups of organisms arbitrarily"

The scenario building process treats the uncertain elements that drive future conditions in an internally consistent way so that the frontiers of people's reality and perception can be expanded and thinking the unthinkable, understanding the unthinkable and being prepared for the unthinkable become a sustainable source of competitive advantage (Schoemaker, 1992).

Scenario thinking as a methodology for improving foresight recognizes that in dynamic environments the future cannot be known, but it can be understood. Traditionally scenario thinking has been referred to as scenario planning. There is, however, increasing recognition that the process of building scenarios has value that goes beyond that of a mere planning tool for improving foresight. For this reason, the term scenario planning has been changed increasingly to scenario thinking in the literature (van der Heijden, 2000), to reflect its role in cognitive processes (Grinyer, 2000; Schoemaker, 1992) and the importance of individual reasoning techniques in interpreting

the past, considering the present and perceiving the future. As Pericles said: "There is no need to know the future, but to be prepared for the future." Usually, such preparations warrant a significant commitment of resources. Hence, any flaws in the chronological perceptual process can lead to their major misallocation and concomitant strategic drift.

Scenarios are designed to surprise readers by challenging their assumptions about how the world works and altering their mental models. Scenario thinking recognizes the paramount role of sense-making in human understanding, behavior and action. However, as van der Heijden (van der Heijden, 1996, p. 41) points out, "concern about the future is related to lack of understanding of past/current experiences." Understanding past and current experiences, whether personal experiences or experiences recorded by others, requires an intimate understanding of the senses making processes that are used for analysing and learning from them.

Despite the many successes of scenario thinking as a process for improving foresight, especially in the medium to long-term, scenario thinking failures are beginning to enter into the discourse (Hodgkinson 2002; van der Heijden, 2002, July), as is criticism (Economist, 2001, October 13; Hart and Rudman, 2000). Scenarios are not a panacea for difficulties in understanding the future and, as a receptor, can themselves be vulnerable to missing "weak signals" presaging changes to come in noisy organisational environments (Hart and Rudman, 2000) and resultant "big miss errors" (Weber, 1996) in decision making.

While the reasons for faulty reasoning are numerous and can vary depending on context, this doctoral research argues that one significant cause

of faulty reasoning when generating futures is the analysis and use of historical data, and how assumptions, beliefs, experiences, history, ideology, myths, stereotypes, and symbols, analysed in hindsight and rooted in the past, can distort our ability to understand the future. This is not to suggest that one can step out one's biographical or ontological experience, but it is to say that we can be reflective in engaing with these biases. In short, hindsight influences foresight.

1.1 Doctoral Research Purpose

The purpose of this doctoral research is to deepen understanding of the role that hindsight plays in foresight. It draws on and synthesises debates in history, strategy, and psychology to show that thinking about the future is linked intimately with thinking about the past. Psychological biases that result from poor interpretations of past experiences constrain our ability to make sense of the future. This research proposes that counter-to-factual analysis, which is a natural, spontaneously occurring cognitive process that involves asking 'what if,' 'if then' and 'if only' questions about the past, is a heuristic that if left untested can lead to faulty reasoning, but if tested, can reduce the effects of psychological biases generated through hindsight and influencing foresight. Enhancing foresight, it is argued, requires a robust understanding of the role played by hindsight and the ensuing biases that arise from faulty interpretations of the past.

1.2 Doctoral Research Question and Assumption

Constructing a research problem involves the elaboration of a problematic or question. It is a question that expresses a knowledge project (Allard-Poesi

and Marechal, 1999, p. 33; Thietart *et al.*, 1999). This doctoral research seeks to answer the question: *What role does hindsight play in foresight?* The research question rests on the assumption that hindsight does play a role in foresight, but what role that is, is not very well understood.

The research question resulted from an M.Litt dissertation on scenario planning. When reviewing the literature on scenario planning specifically, and foresight and strategy more generally, it became apparent that there is little written on the role of hindsight in foresight. There are some fleeting references to research in psychology and neurophisiology, such as Ingvar (Ingvar, 1985) Argyris (Argyris, 1982), and Kahneman and Tversky (1982) to theoretically underpin lines of argument, and references to various biases that affect foresight (e.g. in Van der Heijden, 2002; Makridakis, 1998; Schoemaker, 1995), but the larger corpus of this research has not been written into strategy in any substantive way. This view reonates with Mintzberg *et al.*'s (1998) observation that strategic management has not gained sufficiently from insights generated from psychology research.

In a similar vein, Chia (2002, May) argues that a better understanding of the workings of the strategic mind and the level of foresight associated with it, and in particular, a better understanding of the sense-making experience is required to improve foresight. It is, however, important to differentiate between the impact of cognition on scenario thinking and strategic formulation and the cognitive experience itself. Academic literature on the former abounds (Schwenk, 1984; Barnes, 1984; Porac *et al.*, 1989; Stubert, 1989; Thomas *et al.*, 1993; Grinyer, 1992; Von Krogh *et al.*, 1994; Schwenk, 1995; Hodgkinson, 1997; Huff, 1997; Eden and Ackermann, 1998b; Rindova, 1999;

Das, 1999; Grinyer, 2000; Mir, 2000), but there has been far less research on the latter.

The nature of this research question raises several other sub-questions. They include: How do biases influence foresight? Can counterfactual reasoning be used as an antidote to biases generated in hindsight? Can research in psychology and debates in history add explanatory value to strategy literature? How can the role of hindsight be made explicit in scenario thinking and building methodologies?

1.3 Doctoral Thesis Structure

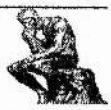
This dissertation begins, in Chapter Two, with a brief history and literature review of strategic thought. It begins with Caesar's *Gallic Wars* (1996) through to Von Clausewitz's *On War* (1997) to contemporary, business oriented conceptions of strategy beginning with Selznkick (1957), Chandler (1962), and Ansoff (1965), emphasising differences between strategic schools that have emerged. The chapter then reviews the rise and fall and rise again of strategic planning (Whittington, 2001; Mintzberg, 1994a; Mintzberg, 1994b) and concludes that for strategic planning to be successful in dynamic environments, it is the adaptive processes, informal thinking and learning that will add value to strategic thought (Mintzberg, 1994b; Senge, 1990; Senge, 1990; De Geus, 1997; De Geus, 1988).

Chapter Three reviews seminal work in the strategic learning literature. From the Darwinian (1860) roots of the natural selection perspective (McKelvey, 1983), to incremental learning (Johnson, 1988; Quinn, 1978; Lindblom, 1959), to the assumptions, beliefs, experiences, cultural nuances, and politics (Pettigrew, 1977) that affect shared paradigms (Sheldon, 1980),

managerial recipes (Grinyer, 1979a) and dominant logics (Prahalad, 1986) in organisational learning, and result in bounded rationality (Simon, 1955), the chapter extracts key insights that pertain to the role of hindsight in foresight from the literature. The chapter concludes that there is sufficient consensus within the literature to build a model of how hindsight influences foresight, but there is little analytical depth to how history is used in strategic formulation.

Turning to psychology, Chapter Four begins by touching on part of the legacy of Freud (1905) and Jung (1994) on individual and collective learning. One can infer from their theories that there are various biases that will influence perceptions about the world, and ultimately prescience. Two biases in particular, the hindsight bias (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975) and creeping determinism (Fischhoff, 1975; Florovsky, 1969), are focused on. A conceptual framework illustrating *foresightful thinking flaws* is developed, and experimental attempts by psychologists to control for them are reviewed.

Chapter Five introduces counterfactual reasoning, or the asking 'what ifs,' 'if thens,' and 'if onlys' as a learning heuristic for past experiences and future strategies. The chapter reviews research in psychology that suggests that spontaneous counterfactual generation is a simulation heuristic that affects a range of judgments (Miller *et al.*, 1990; Gleicher *et al.*, 1990, June) and has been shown to serve a preparative function for the future (Roese, 1994; Markman *et al.*, 1993; Taylor and Schneider, 1989; Wells *et al.*, 1987). However, counterfactual reasoning also has some dysfunctional implications



for the role of hindsight in foresight (Sherman and McConnell, 1995; Dunning and Madey, 1995; Kruglanski and Freund, 1983), which are discussed.

Counterfactual reasoning has been found by psychologists to be a pervasive cognitive function (Roese and Olson, 1995b; Miller *et al.*, 1990; Gleicher *et al.*, 1990, June; Wells *et al.*, 1987; Kahneman and Tversky, 1982). In historiography, however, mainstream historians have criticized applying counterfactual analysis to historical events (e.g. Carr, 1961/1990; Thompson, 1978; Croce, 1966). Advocates of applying counterfactual analysis to historical events in both history and the social sciences counter by arguing that counterfactuals, often implicitly, are frequently used to justify certain lines of argument and policy decisions (Lebow, 2000b; Breslauer, 1996; Herrmann, 1996).

Chapter Six reviews the debates engulfing the use of counterfactual analysis as a scholastic tool, and concludes that, as an intervening tool for challenging path-dependencies (Booth, 2003), and de-biasing perceptions of the past (Hawkins, 1990; Fischhoff, 1982b), to learn for the future, a disciplined application of counterfactual analysis is an effective technique for foresightful hindsight.

Chapter Seven begins by introducing the metaphor of 'causal fields' (Einhorn, 1986; Mackie, 1965) as a diagnostic technique for assessing the causal relevance of causes and conditions that lead to outcomes, and for assessing alternative explanations for events. The chapter draws on interviews collected from twelve leading historians (Seaton, 2003, February 19), who were asked to assess the usefulness of applying historical 'what ifs' to the recent conflict (2003) in Iraq. The chapter then uses Ingvar's theories

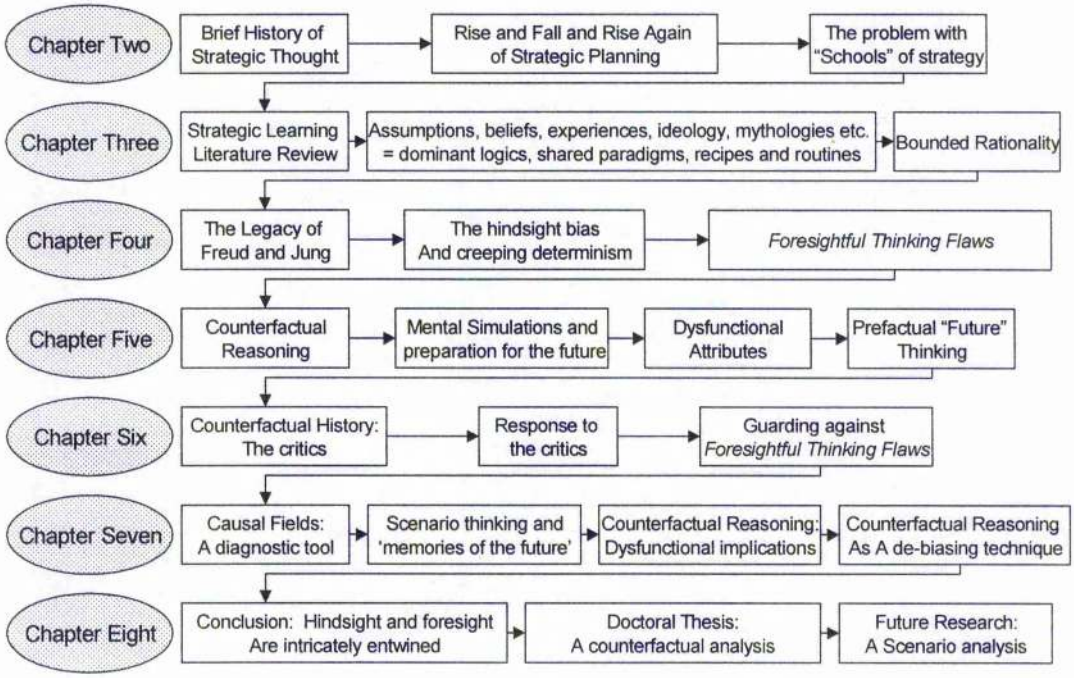
(1985) to develop a conceptual framework for the linkages between counterfactual reasoning into the past, and scenario thinking into the future. Finally, the chapter synthesizes the use of counterfactual reasoning as a de-biasing technique for *foresightul thinking flaws*, and concludes that counterfactual reasoning can have dysfunctional implications for foresight (Roese and Olson, 1995b; Sherman and McConnell, 1995), however, if governed by academic rigor, can be an effective tool for improving the quality of hindsight, and by extension, foresight.

The thesis concludes in the final chapter by arguing that hindsight is intricately entwined with foresight. The reasoning processes that are used to analyse the past are also used to make sense of the future. Humans are natural scenario thinkers, whether that thinking involves the past, present or future. Learning heuristics, such as counterfactual reasoning, are pervasive parts of people's socio-cognitive functioning, and if left unregulated and spontaneous, can result in biases that constrain perceptions of the future by triggering biases. If regulated and applied in an elaborative way, however, they can be an effective tool for challenging foresightful thinking flaws and improving scenario thinking. Critics of counterfactual reasoning, in both history and the social sciences, miss the mark; 'what if' history is the norm, not the exception.

1.31 Doctoral Thesis Overview

Exhibit 1.0 visually maps out the doctoral thesis, beginning with chapter two and ending with chapter nine, the conclusion.

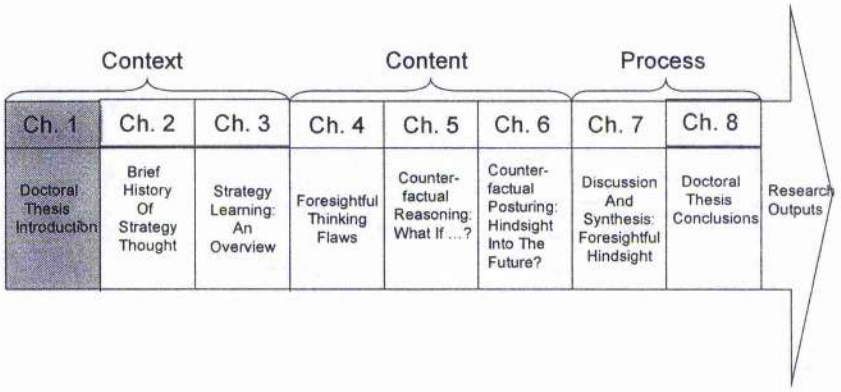
Exhibit 1.0 Doctoral Thesis Overview



1.32 Doctoral Thesis Map

The doctoral thesis can be conceptualised as a map, with each chapter in the dissertation representing a further step towards the final destination. Each step builds on the previous one, adding to the thrust of the argument (exhibit 1.1).

Exhibit 1.1 Doctoral Thesis Map



The thesis is structured so that chapters two and three provide a general overview of strategic management literature, focusing specifically on strategy and strategic learning. These two chapters set the context for the thesis. Chapter four argues that there are certain hindsight biases that can constrain strategic thinking and approaches to strategic formulation and implementation, which haven't been sufficiently explored in the literature. Chapters five and six review debates on counterfactual reasoning, a hindsight heuristic, in psychology and historiography, which has been proposed as a de-biasing cognitive technique. Chapters four through six comprise the content of the thesis. Chapter seven discusses and synthesises counterfactual reasoning processes within the context of strategic management, and chapter eight presents the conclusions of the thesis and research outputs.

1.4 Doctoral Research Methodology

Strategic management Ph.D.s are generally about operationalising a theoretical position and contributing to an external debate. Doctoral theses of this nature are generally hermetically sealed in a particular canon of knowledge. This thesis differs in this regard. What it seeks to do is to write research generated in psychology and debates over the legitimacy of counterfactual analysis in historiography into strategic management. Consequently, it does not operationalise theoretical concepts around a traditional empirical study to contribute to external debates, but extends the strategic management domain by writing in two literatures from external domains to explain phenomena in the rubric of strategic management. As such, and *within* the tradition of strategic management, this dissertation draws on a range of disciplines to give clarity to the argument.

One caveat to this dissertation is that it does not attempt to be a *tour de force* of strategy literature. In spite of this, and although it draws on research from history, political theory, psychology, and strategic management, it is in the context of a strategy thesis.

1.41 Rationale

This dissertation is a theoretical one. It has used a qualitative as opposed to a quantitative research methodology. By the term "qualitative methodology", it takes the same meaning used by Strauss and Corbin (1998). Qualitative research as described by Strauss and Corbin is:

> "Research that produces findings not arrived at by statistical procedures or other quantification. It can refer to research about person's lives, lived experiences, behaviors, emotions, and feelings as well as about

> organizational functioning, social movements, cultural phenomena, and interactions between nations" (Strauss and Corbin, 1998, pp. 11-12).

Strauss and Corbin argue that there are many valid reasons for doing qualitative research, which depend on the orientation of the researcher; some researchers are more temperamentally suited to conducting this sort of research. A more valid reason for choosing qualitative methods they contend is the nature of the research problem (Strauss and Corbin, 1998).

The research problem of this dissertation is what role hindsight plays in foresight and can foresight generally, and scenario thinking in particular, be improved by making hindsight explicit? While the literature on hindsight and counterfactual reasoning is voluminous, little attention has been given to the role that hindsight and bias play in foresight and scenario thinking methodologies.

While there are many different types or approaches to doing qualitative research (Strauss and Corbin, 1998; Morse and Field, 1995; Cassell and Symon, 1994; Denzin and Lincoln, 1994; Gubrium and Sankar, 1994; Westbrook, 1994; Gilgun *et al.*, 1992), the nature of this research problem requires a hybrid between a qualitative approach using exploratory research in the form of an initial citation search and a documentary analysis, and an *adaptation* of the grounded theoretic approach first developed by sociologists Glaser and Strauss (Glaser, 1967; Glaser, 1978; Strauss, 1987; Glaser, 1992).

1.42 Research Instruments

Exploratory research is discovery-oriented and is useful when there is little information in an area or the research question is vague (Hair *et al.*, 2003). It

is used for creating better understanding (Hair *et al.*, 2003) and has been successfully used in innovative industries by firms as diverse as Dupont, IBM, Microsoft and Siemens to identify new technologies (Teresko, 1997). Given the broad scope of the research question and the lack of literature on hindsight and counterfactual reasoning within strategic management, an exploratory approach is more suitable than descriptive research in the form of cross-sectional or longitudinal studies.

1.43 Citation Search and Literature Review

The first methodological step in this dissertation was to conduct three citation searches and literature reviews in three fields. The first citation search and review focuses on the seminal works in strategic management generally and in strategic learning more specifically. The seminal works were identified through an initial citation search using published histories of strategic management, including Whittington (2001), Mintzberg *et al.* (1998), Mintzberg (1994a) and McKiernan (1996a, 1996b). This citation search and review allows for a number of key insights to be extracted and gaps identified in the literature in relation to the role that hindsight plays in foresight.

The second citation search in this dissertation was to search for published research on counterfactual reasoning in credible (peer refereed) psychology journals between 1982 and 2000. To ensure the credibility of the data, the initial citation search and subsequent documentary analysis of the published research relies solely on studies published in refereed journals in psychology. The journals include:

- ✓ Journal of Experimental Social Psychology
- ✓ Quarterly Journal of Experimental Psychology
- ✓ Personality and Social Psychology Bulletin
- ✓ Journal of Personality and Social Psychology
- ✓ Journal of Social and Clinical Psychology
- ✓ Journal of Experimental Psychology: Learning, Memory, and Cognition.

Moreover, the secondary data used from psychology, especially in book form, is from literature by well-cited, recognized academic researchers, published in the latter refereed journals. As the citation search and analysis and synthesis of documentary data is fairly thorough, and each study within the field builds on earlier studies, the problem of interpretation is not relevant to this study.

The third citation search consisted of searching published works in history and the social sciences for debates on the validity of using counterfactual history.

1.44 Documentary Analysis

The second methodological step was to conduct a documentary analysis of research and literature generated from the citation search. Documentary analysis as an exploratory research method has both disadvantages and advantages. The disadvantages, as highlighted by Denscombe (1998) include:

- ❖ Credibility of the source. Researchers need to evaluate the authority of the source and the procedures used to produce the original data in order to gauge the credibility of the documents.
- ❖ Secondary data. When researchers use documents as a source of data, they generally rely on something which has been produced for other purposes and not for the specific aims of the investigation.
- ❖ Social constructions. Documents can owe more to the interpretations of those who produce them than to an objective picture of reality. (Denscombe, 1998, p. 170)

The advantages of documentary analysis, according to Denscombe (1998), are the following:

- Access to data. Vast amounts of information are held in documents. Depending on the nature of the documents, most researchers will find access to the sources relatively easy and inexpensive.
- Cost-effective. Documentary research provides a cost-effective method of getting data, particularly large-scale data such as those provided by official statistics.
- Permanence of data. Documents generally provide a source of data which is permanent and available in a form that can be checked by others. The data are open to public scrutiny (Denscombe, 1998, p. 169).

For the purpose of this doctoral research, the advantages of relying on a documentary analysis outweigh the disadvantages. Vast amounts of relatively untapped studies, held in psychology journals, are easily accessible and inexpensive. It has thus been a cost-effective method of getting large-scale data that has not filtered into the strategic management literature. Finally, this data is permanent and can be scrutinized for anyone wishing to draw his or her own conclusions or critique this work.

1.45 Grounded Theoretical "Hybrid" Approach

The grounded theoretical approach is an approach where theory emerges from data that 'has been systematically gathered and analysed through the research process' (Strauss and Corbin, 1998, p. 12). Researchers do not begin by projecting preconceived theories in their mind. The theory emerges from the data. As Strauss and Corbin argue:

> "Grounded theories, because they are drawn from the data, are likely to offer insight, enhance understanding, and provide a meaningful guide to action" (Strauss and Corbin, 1998).

Of course, as research by Argyris (1982) suggests, people always bring concepts and theories to the table, which calls into question the premise proffered by Strauss and Corbin that theories can emerge from data unencumbered by preconceived conceptions. However, this criticism does

not diminish the usefulness of grounding theory in data and letting theories emerge naturally, which is a primary feature of this method (Strauss and Corbin, 1998).

Strauss and Corbin (1998), and Sandelowski (1995) argue that creativity of researchers is also an important ingredient in the grounded theory approach. While the grounded theoretic approach is normally used in empirical studies, it is adapted to be used in conjunction with the exploratory, documentary analysis approach already outlined for the purposes of this doctoral research. In other words, in addressing the research question: "What role does hindsight play in foresight," the concepts have emerged from investigating and analysing three literatures in three disciplines and synthesising key insights.

1.46 Approaches to Understanding Reality

According to Allard-Poesi and Marechal (1999), the construction of a research question or knowledge goal rests on certain epistemological assumptions. The research question will thus differ depending on whether the researcher takes a constructionist, interpretativist, or positivist view of reality.

Constructivist research approaches assume that the mind creates knowledge and reality (Allard-Poesi and Marechal, 1999) and observation is dependent on the researcher and is thus subjective (Segal, 1986). Interpretativist research approaches adopt a phenomonological hypothesis (Hudson and Ozanne, 1988), where reality is 'essentially mental and perceived.' The research problem is not guided by a research goal, as it is with a positivist approach, but seeks to understand reality from the perspective of those being studied (Allard-Poesi and Marechal, 1999, p. 38).

A positivist research approach adopts an ontological hypothesis and assumes that reality is independent of individual perceptions and is governed by laws and rules (Allard-Poesi and Marechal, 1999; Kerlinger, 1973). Researchers will base their research question on discontinuities between facts and theories (Landry, 1995) or on an identifiable inadequacy in an existing theory (Allard-Poesi and Marechal, 1999).

Unlike the constructionist and interpretevist approaches and similar to the positivist approach, this doctoral research question did not emerge from the data, but was stated from the outset. While the doctoral researcher takes the perspective that reality is knowable, as positivist views of reality do, it also acknowledges that when dealing with human behaviour and understanding the 'mind of the strategist,' one must also accept that people will interpret data based on intentions, motives, culturally shared meanings and the context in which reality is interpreted, to better understand, in this case, the role of hindsight in foresight. One must also acknowledge that reality, within the constructivist tradition, is moulded to fit deliberate acts by individuals and can be expressed through language and symbol systems (Schwandt, 1994).

In a sense, the on-going debate within strategic management concerning whether environments are perceptual (interpretivist) or objective (positivist) phenomena also reflects this view. Child (1972), who emphasises strategic choice within environments, and Aldrich (1979), who views the environment, in the Darwinian tradition, as ruthlessly efficient at naturally selecting those organizations that will survive and those that will become extinct, both approach the environment as an objective "external" entity.

Scholars such as Simon (1957) argue that a strategist whose perceptions are bounded by imperfect information perceives the environment, but not always accurately. The distinction between the 'objective,' knowable environment and the 'perceived' environment thus rests with the strategist and whether they have the ability to receive and process all necessary information about the environment, as classical notions of perfect rationality suggest, or whether the strategist is constrained by imperfect information and bounded rationality.

A third view, drawing on interpretivist notions of understanding an environment through patterns and processes of activity, but in substance closely resembling constructionist approaches to understanding reality, is that of an environment that is enacted by the interaction of organized actors and processes of social construction. This perspective, heavily influenced by cognitive social psychology, interpretive sociology and the sociology of knowledge proffers that organization and environment are created, or 'enacted, together (Smircich and Stubbart, 1985). As Smircich and Stubbart state:

> "From an interpretive worldview, separate objective 'environments' simply do not exist. Instead, organizations and environments are convenient labels for patterns of activity. What people refer to as their environment is generated by human actions and accompanying intellectual efforts to make sense out of these actions" (Smircich and Stubbart, 1985, p. 727).

Consequently, there is a continuous pattern of 'interacts' (Weick, 1979) – action and reaction – which, as Gidden's (1984) emphasises, creates both the organisation and environment reflexively. However, when the assumptions generated through these processes go untested, they can lead to 'collective

ignorance (Weick, 1979). As such, people must first change themselves if they wish to change their environment. As Weick argues:

> "If people want to change their environment, they need to change themselves and their actions – not someone else ... Problems that never get solved, never get solved because managers keep tinkering with everything but what they do" (Weick, 1979, p. 152).

Immanent to cognitive approaches to strategy is a corresponding positivist view of reality. However, this dissertation leans more towards the constructionist view of reality and adopts an exploratory methodological approach to achieving the research objective. This dissertation also professes that to know reality in the constructionist tradition, one must also acknowledge that to a large extent the demarcations drawn between approaches to understanding reality (and environments) are often false dichotomies because the three approaches are not necessarily mutually exclusive and approaches to understanding reality will often draw on all three perspectives.

The epistemological foundations of cognitive approaches to strategy are underpinned by a corresponding view of reality and idioms such as bias, correction and reality. Yet this raises the question of how such a paradigmatic stance can be juxtaposed with a more constructionist position on counterfactuals? Such a question drives at the heart of a debate around paradigm incommensurability that has its genesis in Burrell and Morgan (1979). Their work identified four paradigms, each hermetically coherent but containing different assumption about knowledge and concomitant research assumptions and methodologies. The corollary of their argument is that a state of incommensurability exists between different paradigms. Such an understanding would problematize notions of trying to fuse cognitivism with

constructionism. That said, within the history of the paradigmatic debate some writers e.g. Hassard (1991) have argued that there are analytical opening between different paradigms. This was his major finding from his study of the British fire service where he conducted four research projects, each using a different paradigm. Hassard's optimism regarding the capacity to work with different paradigms has been challenged by Tsoukis (1993), for whom research paradigms go to the core of what a researcher believes about the world and he expresses Hassard's view of the world as akin to changing a shirt. So what conclusions can we draw from the paradigmatic disputes embodied in the work of Burrell and Morgan (1979), Hassard (1991) and Tsoukis (1993)? While it is important to be wary of the links between different paradigms, it is nonetheless important when trying to make a contribution to knowledge to entertain the possibility that it is possible to draw selectively from different paradigms. This is the position adopted in this thesis where literatures from constructionist counterfactual history and reality cognitive approaches are combined and written into strategy.

1.47 Methodological Summary

A qualitative methodological approach can be used for exploring substantive areas, either unknown or known, to gain novel understandings (Stern, 1980). Qualitative methodologies can be used to extract and learn about intricate details about such phenomena as thought processes, emotions and feeling that conventional research methods would have more difficulty eliciting (Strauss, 1998, p. 12). Furthermore, as Neuman asserts, qualitative data can accommodate interactive research processes (Neuman, 1997) such

as the grounded theory approach through documentary analysis. As Strauss and Corbin state: "Analysis is the interplay between researchers and data" (Strauss and Corbin, 1998, p. 13). Qualitative data, unlike quantitative data, is intrinsically meaningful and more apt at developing social constructions and cultural meanings, especially when they involve explicit values (Neuman, 1997) and implicit processes. However, it is incumbent on the researcher to articulate a clear analysis of the data for the purpose of making a credible argument (Eisenhardt, 1989). This requires the study to be structured in such a way that it is authentic, convincing and plausible to the reader (Golden-Biddle and Locke, 1993).

Given the nature of the thesis, its authenticity, conviction and plausibility necessitates that the citation searches and documentary analysis reflect mainstream debates in historiography and psychology. The thesis must convey that these are live debates.

Theoretical exploration consists of linking two or more theoretical fields that have not been previously connected in the literature before. The disciplines cannot be totally circumscribed by the researcher, but only a limited area of the field that is most relevant to the research question can be focussed on (Charreire, 1999). Citation analysis pointed the researcher towards these debates, which were reviewed, analysed, and written into strategic management discourse.

The research does not use an inductive (generating universal laws and theories from observable facts) or a deductive (offering explanations and predictions from universal laws and theories) approach in the traditional

sense, but a hypthetico-deductive process, which begins with reviewing conceptualisations in psychology and history, and using these conceptualisations to proffer explanations, in this case, in strategic management (Chalmers, 1976).

1.5 Chapter Conclusion

At different points in this thesis views from positivistic psychology to constructionist history are marshalled to explore the phenomena of counterfactual reasoning. In psychology this phenomena has become a signature domain of inquiry, but in history it is treated with suspicion. Indeed, mainstream historians have traditionally rejected counterfactual reasoning as an analytical technique for understanding hindsight (Thompson, 1978; Croce, 1966; Carr, 1961/1990).

The illegitimacy of counterfactual reasoning within historiography, however, is now being challenged (Lebow, 2000b; Cowley, 1999; Ferguson, 1997; Breslauer, 1996; Hawthorn, 1991). Developments in psychology research (Roese and Olson, 1995b; Miller *et al.*, 1990; Gleicher, 1990; Wells, 1987; Kahneman, 1982), when combined with debates in history, help to illuminate the role of hindsight in foresight, and how reasoning into the past influences reasoning into the future. Thus, current thinking in psychology demonstrates that hindsight is not 20/20, and as such, has to be rigorously tested to improve strategic thinking and decision-making.

This thesis will successfully achieve its objectives if it brings concepts and sensibilities in history and psychology in particular, as well as in

neurophysiology and political theory to bear on strategic management thinking and literature.

Chapter Two: A Brief History of Strategy Thought

"He uses statistics as a drunken man uses lamp-posts – for support rather than illumination."

~ Andrew Lang, 1844-1912

"For every complex problem there is a simple solution that is wrong."

~ George Bernard Shaw, 1856-1959

"One has to be prepared for every eventuality."

~ Einstein, 1918

"While Napoleon thought he was in control of events, the Russian general Kutuzov knew that neither of them were, and so made fewer mistakes."

~ Tolstoy, 1828 – 1910

2.0 Chapter Introduction

Strategy is a 'youthful discipline' (McKiernan, 1997). As such, there is little consensus about strategy within the field (Whittington, 2001, p.2). As the *Economist* argues:

> "The consultants and theorists jostling to advise businesses cannot even agree on the most basic of all questions: What precisely is a corporate strategy" (Economist, 1993, p. 106).

Despite the lack of consensus about what strategy is, there has been a great deal of literature dedicated to it, much of it generated from research studies over the past 40 years (McKiernan, 1997). Several strategy thinkers have made attempts to partition this research into schools of thought (Whittington, 2001; Mintzberg *et al.* 1998; McKiernan, 1997; McKiernan, 1996; van der Heijden, 1996, Mintzberg, 1994). The reason for distilling strategy thinking down into schools of thought is that to comprehend strategy as a whole, its parts must first be understood (Mintzberg *et al.*, 1998). Breaking strategy down into its parts also helps one to understand its roots, and its choice of future directions (McKiernan, 1997).

2.1 Chapter Purpose and Contribution

The purpose of this chapter is to map out the historical evolution of contemporary strategic thought and to critique the various schools on the basis of their treatment of foresight in the context of environmental uncertainty. Writing in 1916, Fayol recognized that:

> "The Maxim, 'Managing means looking ahead,' gives some idea of the importance attached to planning in the business world, and it is true that if foresight is not the whole of management at least it is an essential part of it" (Fayol, 1916/1949, p. 43).

And Loasby argues that:

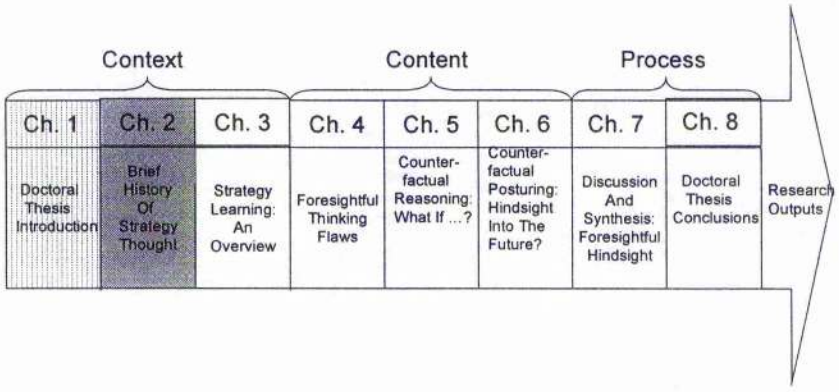
> "The first reason for looking at the future in a systematic way is to understand the future implications of present decisions [and also] the present implications of future events" (Loasby, 1967, p. 301).

Indeed, there is a prevailing assumption that strategic thinking and planning "denotes thinking about the future" (Bolan, 1974, p. 15). As Mintzberg *et al.* (1998) conclude: "Almost everyone would agree that strategic thinking means seeing ahead," but they also acknowledge that:

> "You cannot see ahead unless you can see behind, because any good vision of the future has to be rooted in an understanding of the past" (Mintzberg *et al.*, 1998, p. 126).

This chapter sets the larger context for the rest of this dissertation (exhibit 2.0).

Exhibit 2.0 Doctoral Dissertation Map



By analyzing the historical evolution of strategic management, assessing how the assorted 'schools' of strategy approach the future, and identifying a future direction for strategic management, the following chapters then have a foundation to add its own contribution to, paraphrasing McKiernan's (1997) metaphor, helping this 'youthful discipline' to 'mature from adolescence to adulthood.'

2.2 Chapter Structure

This chapter begins by reviewing the historical evolution of strategy thought, beginning over 2000 years ago with Caesar (1996), Thucydides (1972), and Sun Tzu (2002), and continuing through to 20th century conceptions of strategic thinking in a commercial context. It focuses on strategy perspectives that have emerged since 1957, beginning with Selznick (1957), Chandler (1962), and Ansoff (1965) through to the present, and emphasizes the differences between these perspectives.

Strategic planning has had its successes and its failures (Whittington, 2001; Mintzberg, 1994a; Mintzberg, 1994b). The subsequent section looks at the reasons for the rise and fall and rise again of strategic planning within organizations. The ensuing section critiques the usefulness of classifying streams of strategy thought into schools/perspectives and offers two areas of future research. The chapter concludes by arguing that, in a highly dynamic environment where the future is uncertain, value will be added to strategic formulation and implementation by developing better learning heuristics for improving foresight.

2.3 In the beginning ...

Strategy is a field of human inquiry that finds its scholastic genesis in such early literary classics as Julius Caesar's *Gallic Wars*, Thucydides' *Pelopponesian War* and Sun Tzu's *The Art of War*. Tzu, writing 2,400 years ago, even makes a reference, loosely translated, to a 'Director of Strategic Planning'. In his strategy manual, he outlines a strategic vision of conflict as being interwoven with human life, and as such, he proffers, we must learn to work with this conflict by using knowledge, self-knowledge in particular, and by bringing conflicting views around to a larger perspective. He defines strategy as "the means by which all actions are coordinated and all resources allocated" (Tzu, 2002, p. 104) and he goes on to teach that strategy is as much about the mind as the physical conditions of warfare: "This is as much a matter of mind as it is of the physical conditions of warfare" (Tzu, 2002, p. 104). Even in these ancient times, complexity and uncertainty were characteristics of operating environments, and specifically, of battle fields. Tzu recognizes this when he says: "In this complex and essentially

uncontrollable world, the ultimate outcome of present actions is not predictable" (Tzu, 2002, p. 104).

Like so many classics, the teachings of Tzu still find resonance today. Perhaps this is because, as another master strategist, general and chronicler of ancient wars, Thucydides, writing 400 years before the Common Era states: "My work is not a piece of writing designed to meet the taste of an immediate public, but was done to last for ever" (p. I, 22). Thucydides, an Athenian, had first come to the office of *strategos*, or general, before taking up the pen to chronicle the civil war between Sparta and Athens. He did so for the expressed, and somewhat cynical purpose of dispelling myth and romantic notions about the war and, as humans are prone to repeating their mistakes to clearly understand the events of the past:

> "And it may well be that my history will seem less easy to read because of the absence in it of a romantic element (to mythodes). It will be enough for me, however, if these words of mine are judged useful by those who want to understand clearly the events which happened in the past and which (human nature being what it is) will, at some time or other and in much the same ways, be repeated in the future" (Thucydides, 1972, p I, 22).

Caesar, too, in his record of the Gallic War, published in the twilight of the Roman Republic and on the eve of civil war, 50 years before the birth of Christ, has left a lasting legacy in terms of leadership (both Frederick the Great of Prussia and Napoleon compared themselves to Caesar), organization (the ruthless efficiency and execution of the Roman Legions), the pursuit of power and wealth (Caesar, 1996). As the French essayist, Montaigne writes:

> "Caesar, in my opinion, deserves particular study, not only for the knowledge of history, but for himself too ... I read him with rather more reverence and respect than one feels in reading other human works" (Montaigne, 1936, 2.10).

Tolstoy, writing in the 19th century, in his chronicling of Russia and the Napoleonic Wars refers to the 'new science of strategy' (Tolstoy, 1978), not so much 'new' as a field of human inquiry, as we've seen with such strategy classics as Tzu, Thucydides and Caesar, but perhaps new as a defined discipline of study. Von Clausewitz, the 19th century Prussian soldier and writer, also turned his attention to the importance of strategy for the military when he writes:

"Strategy is the employment of the battle to gain the end of the war" (von Clauswitz, 1997, p. 142). Like Sun Tzu, von Clauswitz argues that strategy must be concerned with the 'whole' of military action, "which must be in accordance with the object of the war" (von Clauswitz, 1997, p. 142). To von Clauswitz, plans are formed from strategy, and strategy is not something that can be generated in an ivory tower, or in this case, with cabinets, removed from the battlefields, but in the tents of the army who are near the front lines.

In the 20th century, the concept of strategy proliferated into commercial life with the publishing of such contemporary strategy literary classics by writers such as Selznick who introduced the notion of "distinctive competence" and reconciling a firm's "external expectations" and "internal state" (Selznick, 1957, p. 42-74), Chandler who wrote on the relationship between an organization's structure and business strategy (Chandler, 1962), and Ansoff (1965) who links his concept of strategy directly with academic economics and military practice (Whittington, 2001, P. 13). Selznick, Chandler and Ansoff were not, however, the first to apply the concept of strategy to business. Bracker traces the link between business practice and the military to classical times, when Socrates consoled the Greek soldier Nichomachides, who had

been defeated by a 'mere businessman' in an election to the position of general (Bracker, 1980, p.219). As Whittington says:

> "Scocrates explained to Nichoomachides that the duties of a general and businessman were equivalent: both involve planning the use of one's resources in order to meet objectives" (Whittington, 2001).

The roots of the actual word strategy can be found in the ancient Athenian position of *strategos*. After leading a popular revolution against an oligarchy supported by the Spartans (508-7 BC), the Kleisthenes established a new sociopolitical structure in Athens, comprising of 10 tribal divisions, which acted as both a political and military subunit of Athens. Each tribe elected a leader known as a *strategos*, and the 10 *strategio* collectively formed the Athenian war council. Strategos is thus a compound of *stratos*, meaning an 'encamped army spread out over the ground' and *agein*, which means 'to lead' (Bracker, 1980), (Cummings, 1993). The concept of strategy for the ancient Greeks can best be summarized by the oft-quoted maxims of the great strategoi Pericles, "Opportunity waits for no man" and "to limit risk while holding fast to essential points and principles" (Cummings, 1993).

Throughout the latter half of the 20th century, scholarly activity in the field of strategy, as a concept for business, has evolved and diversified as the complexity of the strategic process and the various elements that that process consists of have increased. For the purposes of analysis and synthesis, strategic thought has been broken down into taxonomies, which have evolved into "schools of strategy."

2.31 The Design and Planning Schools

The "design" and "planning" schools of strategy were both established as parallel developments in the 1960s (Mintzberg, 1998; McKiernan, 1997). These schools represent the beginnings of a coherent discipline in strategy (Whittington, 2001). As Spender argues:

> "Prior to the 1930s, there seemed to be little difference between theories of organizations, their management and their strategies" (Spender, 1993).

Both schools take a classical approach to strategy formulation and implementation, which emphasizes rational analysis, specialization, control planning and commitment to profit maximization (Whittington, 2001), and both schools *prescribe* the 'proper' ways of going about strategy formulation (Mintzberg, 1994). The original conceptions of Selznick (1957), Chandler (1962), and Ansoff (1965) are classical in that they resonate with expectations of implementation through a hierarchical command, which are rooted in a militaristic tradition that, some argue, can be traced back to the ideals of ancient Greece, and economistic ideas about rational expectations in strategy formulation, which is informed by 18th century Scotland. The idea of a 'heroic yet slightly isolated figure of a general, from Alexander to Rommel, presiding at the top of a rigid hierarchy and using their individual genius to achieve victory' features prominently in classical thinking (Whittington, 2001, p. 13). Contemporary classical thinking also builds on the contributions of such 18th century writers as Arkwright, Owen, Stuart and Smith that included the integration of specialized occupations within the organization and mechanized approaches, which in classical times, has also been known to the Sumerians, Egyptians, Hebrews and Chinese (McKiernan, 1996; McKiernan, 1997).

The design school attempts to achieve a *fit* between internal capabilities and external opportunities (Mintzberg *et al.*, 1998, p. 24). Selznick (1957) and Chandler (1962) are credited with being instrumental in inspiring this stream of strategy thought (Whittington, 2001; Mintzberg *et al.*, 1998; McKiernan, 1996). Selznick in particular advanced the notion of "distinctive competence" which Andrews would further cultivate in the Harvard casebook authored by Andrews, with minor contributions by Learned, Christensen, and Guth (1965) (McKiernan, 1996, p. xvi). Barnard (1938), the original pioneer of the idea that there must be an organizational "fit" between the firm and the operating environment, influenced Andrews, who viewed each organization as unique with its own capabilities, set of current policies, personality and history (Porter, 1991, p. 199), and who was one of the principle writers of the text material.

The design school has had a lasting influence on the evolution of strategy as a discipline and it has provided the foundation for other strategic "schools" that have emerged since the 1960s. Indeed, the design school, which views the formation of strategy as an informal conception or design, and provides a loose conceptual framework for analyzing the political, economic, social and technological factors (PEST) that form the underlying structure of an industry, and linking the analysis of the external environment with the internal state of the organization, featured prominently in textbooks in the 1960s and 1970s (McKiernan, 1997; Argenti, 1974; Ackoff, 1970; Steiner, 1969). Many of the tools that were generated at this time, such as SWOT analysis, which identifies the Strengths and Weaknesses of an organization in the context of the Opportunities and Threats present in the organization's operating

environment, are still widely taught in classrooms around the globe (Whittington, 2001). Thus, corporate strategy, according to this school, is:

> "The pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and the nature of the economic and non-economic contribution it intends to make to its shareholders, employees, customers, and communities" (Andrews, 1971, p.18).

In 1965, Ansoff published *Corporate Strategy*. The book was paramount in the establishment of the planning school, which relied, and still relies heavily on formalized, virtually mechanized processes. The planning school still very much fits into the 'classical' approach to strategy formulation, sharing a common model with the design school, however, as Learned and Sproat emphasize, there are distinct demarcations between the two literatures:

> "A distinctive difference between Ansoff and the Harvard group may be found in the former's attempt to routinize – so far as possible – the process of strategic decision making. This he does by providing rather detailed checklists of factors that the strategy maker must consider, plus pointers on weighting these factors and on establishing priorities among them, plus numerous decision-flow diagrams and choice rules" (Learned and Sproat, 1966, pp. 95-96).

The planning process, epitomized by Ansoff's model of strategic planning, is distilled down into precise, formal steps. The process begins by setting objectives, analyzing the internal and external environments of the organization using formal analysis and empirical research, thus resulting in forecasts of the future. It is then cross-referenced and verified using checklists and other techniques. From this process a strategy is derived and then implemented in the firm (Mintzberg *et al.*, 1998, p. 49-79). Unlike the informality and simplicity of the design school, the planning school developed elaborate planning models that could be applied generically to firms. After

studying 'scores of planning systems,' for example, Steiner, one of the most prolific of the planning school scholars, constructed his own conceptual model. He argues:

> "I have found the model to be flexible and adaptable to almost any size or type of business, style of management, or stage in the development of organized formal planning" (Steiner, 1969, p. 31).

Despite the literatures of the design and planning schools sharing the same basic model, one significant difference is that the planning school effectively side steps the CEO, the 'heroic leader', as the chief architect of strategy and moves the planner front and center in the process (Mintzberg, 1994, pp. 40). The differences between the two schools are not so much in the basic premises that underpin the classical approach to strategy formulation then, but in the approach to formulation and implementation. As Christensen *et al.* emphasizes:

> "[My text is not] a how-to-do-it checklist for corporate planners. In fact, it virtually ignores the mechanisms of planning on the grounds that, detached from strategy, they miss their mark" (Christensen *et al.*, 1982, p. 10).

2.32 The Positioning School

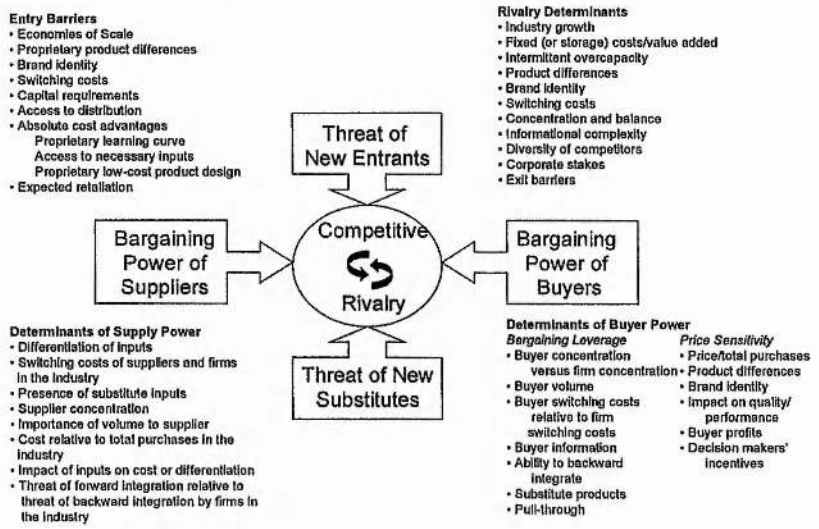
The third "school" of strategy, which, along with the *design* and *planning* schools also shares classical attributes (Whittington, 2001) and is *prescriptive* in its approach to strategy formulation (Mintzberg, 1994), is the positioning school.

The positioning school, which finds its genesis in the econometric brewing studies into strategy at Purdue (e.g. Hatten *et al.*, 1978), deductive research at the Harvard Business School into diversification patterns e.g. (Wrigley, 1970), and work in the economics department at Harvard, which questioned

over-simplified neoclassical assumptions about firms and industries (McKiernan, 1996b), extrapolates many of the same messages of the planning school, but applies it to strategy content rather than the processes used to formulate strategy (Mintzberg, 1994). The failure of forecasts and other formal techniques and tools used by the planning school during the 1970s and 1980s, and the over-simplification of the strategic process in the design school, led to a great deal of disenchantment with traditional strategic frameworks. The watershed year came in 1980 (Mintzberg *et al.*, 1998, p. 82) with the publication of Porter's book *Competitive Strategy* (1980).

Porter identifies a firm's environment as the principal determinant for developing competitive strategy. Porter's notion of strategy is an "outside-in" view. First, a firm must assess the five forces in any given industry environment (the threat of new entrants, the threat of substitute products, the intensity of rivalry among competing firms, the bargaining power of buyers and the bargaining power of a firm's suppliers) (see exhibit 2.1).

Exhibit 2.1 *Porter's Five Forces*



Source: Porter 1985

Secondly, using generic strategies (cost leadership, cost focus, differentiation, differentiation focus), the firm must identify a position in the marketplace, which enables the firm to establish a competitive advantage. Effectively, rather than having to accept the firm's environment, Porter's positioning framework gives a firm's management *choice* within the marketplace, rather than having to acquiesce to the whims of the competitive environment (McKiernan, 1996b, pp. xii-xv).

As with the other two schools that adopt a classical approach to strategy formulation, the positioning school predisposes many of the same principals as the design school and the planning school. All three schools approach strategy making deliberately. They consciously develop full-blown strategies before implementing them (Mintzberg *et al.*, 1998). The positioning school is particularly influenced by classical economic theories of competitive and monopolistic competition. Mason's paper on the objectives of anti-trust policies in the context of how competitive and monopolistic theories impact on industry structure and the competitiveness of the firm (Mason, 1949), and Bain's papers on working competition in oligopolies, which advanced notions of relationships between buyer concentration, seller concentration, condition of entry, and relationships concerning the degree of product differentiation to selling costs, profits, and relative efficiency of scale and capacity (Bain, 1950; Bain 1951), laid the classical foundations for the positioning school. Caves and Porter built on these developments in industrial organization with their paper on entry and mobility barriers that deter new competition (Caves, 1977). Indeed, Porter is quite open with his allegiance to the classical approach to formulation, when, in his introduction to *Competitive Strategy*, he states:

"This section draws heavily on work by Andrews, Christensen, and others in the Policy group at the Harvard Business School (Porter, 1980, p. xvi).

Consequently, it is subject to many of the same criticisms. One can view the positioning school's deliberate, top-down, excessively formal strategy-formulation processes as stifling institutional learning (Mintzberg *et al.*, 1998, p. 112) and, as Ghemawat highlights, ignoring the assets and distinctive capabilities that can ensure a sustainable competitive advantage (Ghemawat, 1986). As McKiernan (1996) says: "The roots, trunk and branches are absent" (McKiernan, 1996b).

2.33 The Resource-Based View

Where the "design," "planning," and "positioning" schools of strategy formulation can be broadly described as *classical* (Whittington, 2001) and *prescriptive* (Mintzberg *et al.*, 1998; Mintzberg, 1994) in their approach to strategy formulation, the resource-based view (RBV) of the firm, which is an 'inside-out' approach to the marketplace (McKiernan, 1996), is described as having a *processual* (Whittington, 2001) and *descriptive* (Mintzberg, 1998), (Mintzberg, 1994) approach to strategy formulation. The RBV is considered *processual* in the sense that they see long-term planning as being futile due to the unpredictability and implacability of the environment, but they also believe that firms can survive without optimizing a "fit" with the environment (Whittington, 2001). The Resource-Based View (RBV) of strategy formulation has been the dominant strategy paradigm in the 1990s. The resource-based view emphasizes the mix and development of capabilities and heterogeneous resources as the firm's fundamental source of competitive advantage.

The fundamentals underlying the RBV framework can be traced back to Coase (1937). In his essay, Coase presents the seemingly simple, yet profound task of finding out why a firm exists at all in a specialized exchange economy. He says: "Our task is to attempt to discover why a firm emerges at all in a specialized exchange economy" (Coase, 1937). He concludes that there are costs (i.e. transaction costs) associated with the functioning of the price mechanism. By forming an organization and allowing the entrepreneur to coordinate economic activities and direct the firm's resources, varying marketing costs can be saved (Coase, 1937).

While the notion of creating and exploiting distinctive competencies can be originally attributed to Selznick (1957) (Porter, 1991, p.199), the influential works by Prahalad and Hamel (1990), Grant (Grant, 1991) and Nelson (1991) were fundamental in establishing the contemporary RBV as the dominant strategy framework in the 1990s.

Prahalad and Hamel's paper argues that to survive in the 1990s, corporations will have to be adept at recognizing, developing and taking advantage of their core competencies. Core competencies, according to this view, consist of "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies" (p. 82). One might look at the diversified corporation, according to Prahalad and Hamel, as a large tree:

> "The trunk and major limbs are core products, the smaller branches are business units; the leaves, flowers, and fruit are end products. The root system that provides nourishment, sustenance, and stability is the core competence" (p. 82).

Competitive advantage is thus derived from management's ability to consolidate corporate wide production skills and technologies into core

competencies that "empower individual businesses to adapt quickly to changing opportunities" (p. 81) and to manage the companies strategic business units as bundles of resources, thus challenging the view that the strategic business unit's autonomy is sacrosanct. Resources should be transparently allocated within an overarching strategic architecture that acts as logic for market and product diversification (Prahalad and Hamel, 1990).

Exhibit 2.2 Resource-Based View

	Strategic Business Unit	***Core Competence***
Basis for competition	Competitiveness of today's products.	Interfirm competition to build competencies.
Corporate structure	Portfolio of businesses related in product-market terms.	Portfolio of competencies, core products, and businesses.
Status of the business unit	Autonomy is sacrosanct; the SBU 'owns' all resources other than cash.	SBU is a potential reservoir of core competencies.
Resource allocation	Discrete businesses are the unit of analysis; capital is allocated business by business.	Business and competencies are the unit of analysis: top management allocates capital and talent.
Value added of top management	Optimizing corporate returns through capital allocation trade-offs among businesses.	Enunciating strategic architecture and building competencies to secure the future.

Source: Prahalad and Hamel, 1990

Grant's paper (1991), in a similar vein, emphasizes the capabilities and resources of the firm as the primary source of profitability and the principle constant that a firm can identify and construct a strategy framework around (Grant, 1991). Finally, Nelson (Nelson, 1991) points out that economic analysis tends to repress the differences between firms in the same industries, while management and business students view these differences as being 'at the heart of their inquiry.' He argues that economic analysis comes from the theoretical perspective of neoclassical views, but should take an evolutionary view of economic activity which emphasis differences

between firms. The 'dynamic capabilities' view of firms, Nelson contends, is an important contribution to the field of strategy, guide for management, and foundation for the economic analysis of the firm (Nelson, 1991).

Porter (1991) is adamant that the RBV is not an alternative to the positioning school. As McKiernan says:

> "He is cynical of claims that the resource view is the alternative to strategy, but wise enough to recognize that 'stress on resources must complement, not substitute for stress on market positions'" (McKiernan, 1996b, p. xv).

He argues that the environment determines how activities are conducted:

> "The environment shapes how activities are configured, which resources can be assembled uniquely, and what commitments can be made successfully" (Porter, 1991, p. 212)

Porter argues that strategy is a matter of choice; firms cannot influence the industry structure, but they can position themselves in it. He argues that some routines and skills emerge over time through a process of institutional learning, which is a reflection of past strategy choices (p. 211). The RBV, according to Porter, will have its greatest significance in environments "where change is incremental, the number of strategic variables and combinations is limited" (p. 109).

2.34 The Learning School

Like the resource-based view of the firm, the "learning school" has been another significant *processual* (Whittington, 2001) perspective throughout the 1990s. The learning school regards the field of strategy as inherently cognitive and complex and "[gives] considerable discretion to managerial choice in complex strategic decisions" (McKiernan, 1996b, p. xiv). One can imagine a proponent of the learning school describing organizational

environments in the same manner as Luis Alvarez, 1964 Nobel Laureate in physics once described advanced physics:

> "This is the course in advanced physics. That means the instructor finds the subject confusing. If he didn't, the course would be called elementary physics" (Mintzberg *et al.*, 1998, p. 176).

The learning school views strategy formulation as being 'cloaked' in rituals, myths and symbols (Johnson, 1988), organizational routines and routinized behavior (Johnson, 1988; Cyert and March, 1963), and organizational politics (Pettigrew, 1992; Simon, 1979; Pettigrew, 1977; Child, 1972; Hickson *et al.*, 1971). Recipes and paradigms become embedded in an organization's culture (Whittington, 2001; Sheldon, 1980; Grinyer and Spender, 1979a) and must therefore be unlearnt for change to take place (Nystrom and Starbuck, 1984). For firms to make effective strategies, they must learn and adapt (Mintzberg *et al.*, 1998, p. 176).

The school's origins can be traced back to Lindblom (1959). His article describes public policy decision making as a fragmented, complex process that attempts to reconcile a multitude of values, alternative interests and objectives (Lindblom, 1959). As Mintzberg *et al.* (1998) state, Lindblom's notions of 'muddling through' may have violated virtually every premise of "rational" management (Mintzberg *et al.*, 1998, p. 176), which dominates classical thinking. Indeed, the learning perspective on strategy formulation and implementation emerged at a time when the design school was just reaching its hiatus. Strategy was perceived to be a highly deliberate, overly formalized practice and Lindblom's emergent theory, which suggests that strategy formulation (in government) is a chaotic affair in a complicated world, flew in the face of the dominant notions of the day.

Quinn (1978) also did much to catalyze the school. To Quinn, however, effective strategy formulation is not a matter of "muddling through". To the contrary, it is a process of keeping objectives nebulous and allowing the firm's strategy to emerge based on the endeavors of those at the sub-unit level. A successful executive will be effective at identifying new directions and creating cohesion within the organization (Quinn, 1980). Existing recipes and cognitive structures within organizations are inherently self-reinforcing and must therefore be constantly challenged (Whittington, 2001). This has led Senge (1990) to argue that, unlike the classical notion of the CEO as the heroic general, particularly in the design school, the 'leader's new work' is for ensuring that the conditions in an organization are such that unlearning, learning and adaptation can take place. He argues that learning needs to be built in or institutionalized in the organization. "Human beings are designed for learning", and the leader's role in a learning organization is that of teacher, steward and coach. He suggests that the quality movement in Japan highlights the evolution from *adaptive* learning, which is about coping, to *generative* learning, which is about creating, expanding capabilities *and* coping (Senge, 1990). The solution to bounded rationality, and the cognitive biases that exist within 'cognitive communities' is, thus, both learning (Jones and Hendry, 1992) and unlearning (Nystrom and Starbuck, 1984) processes.

De Geus (1997), who has been accredited by Senge (De Geus, 1997) as conceiving of the metaphor of the "learning organization", conjectures the firm as a living, learning entity. He presents the future company as one that is a living being whose decisions for action are made through a learning process. De Geus, formerly the coordinator of planning worldwide for Royal

Dutch/Shell, bases his inquiry into the longevity of firms on a Royal/Dutch Shell Group Planning study done in 1983, entitled, *Corporate Change: A Look at How Long-Established Companies Change.* Shell's history had been replete with changes from self-preservation to growth and back again to self-preservation. When Rockefeller's Standard Oil cut oil prices at the beginning of the 20th century, for example, Shell, who dominated the Far East markets for "All the lamps of China" and kerosene in tins, lost market share, which led to the merger of Royal Dutch Petroleum and the Shell Transport and Trading Company (which, until this period, had been competitors) in 1907, and eventually to entering the United States market in 1911. Outcomes such as this, De Geus maintains, does not happen automatically, but through a process of institutional learning.

Institutional learning is often the lowest common denominator. Consequently, many institutions are slow to learn. The study concludes that the mortality rate for a multinational company that is equivalent to a Fortune 500, is 40 to 50 years. For example, by 1983, one-third of the companies listed in the Fortune 500 during the 1970s had merged, been purchased, or had been dissolved (PL/I, 1983). Howe (1986) has highlighted that for every successful corporate turnaround, there are two troubled firms that do not recover (Howe, 1986). The criteria for the study, as conveyed by Lo van Wachem, the then chairman of the most senior board at Royal Dutch/Shell, the Committee of Managing Directors, was that the companies that were looked at must be as old (Shell dates back to the 1890s) and of comparable

size. The planners eventually narrowed their study down to 27 companies.[1] The study concluded that there were four characteristics that contributes to firm life-longevity. They are: a sensitivity to the firm's environment represented by a company's ability to learn and adapt; cohesion and identity, which consists of a company's innate ability to build a community and a persona for itself; tolerance and its corollary, decentralization, which are both symptoms of a company's innate ability to build constructive relationships with other entities, within and outside itself; and conservative financing, which is an element in the corporate attribute of being able to govern its own growth and evolution effectively (see exhibit 2.3).

Exhibit 2.3 Characteristics that Contribute to a Companies' Life-Longevity

Characteristic	Explanation
1. Sensitivity to the firm's environment:	Represents a company's ability to learn and adapt.
2. Cohesion and identity:	Aspects of a company's innate ability to build a community and a persona for itself.
3. Tolerance and its corollary, decentralization:	Are both symptoms of a company's awareness of ecology: its ability to build constructive relationships with other entities, within and outside itself.
4. Conservative Financing:	One element in the corporate attribute of being able to govern its own growth and evolution effectively.

Source: Adapted from De Geus, Arie. (1997). *The Living Company.* London: Nicholas Brealey Publishing.

The learning school is not without its criticisms. Change can be slow and constrained by executives, for instance, whose status and power is personally threatened, despite recognizing a need for change. It can also lead to underestimating competitors and missing opportunities (Whittington, 2001). Innovating piecemeal, or 'irrational incrementalism' as Hayes and Jaikumar

[1] The companies included were Anglo American Corporation, Booker McConnell, British American Tobacco, Daimaru, DuPont, East India Companies, Anthony Gibbs, W. R. Grace, Hudson's Bay Company, IBM, Kennecott, Kodak, Kounike, 3M, Mitsubishi, Mitsui, Pilkington, Rolls-Royce, Rubber Culture, SKF, Siemens, Societe Generale, Suez Canal Company, Sumitomo, Suzuki, Unilever and Vestey.

term it, can lead to piecemeal strategies, and the disintegration of a coherent strategy (Mintzberg *et al.*, 1998).

Andrews (1980) criticizes Lindblom's (1959) ideas about organization's "muddling through" as "purposeless," and in a similar vein, Johnson highlights the dangers of "strategic drift" (Johnson, 1987, pp. 244 - 247). The consequences, as Gaddis suggests, can be the failure of a strategy to 'emerge' and this situation can ultimately result in disaster. As an example, he emphasizes the defeat of the strategy-less Roman general Varro, "an early incrementalist", at the hands of Hannibal, who had a strategy of a weak center, stating that: "Apparently a suitable strategy for the superior Roman army failed to 'emerge' as the battle wore on" (Gaddis, 1997, pp. 38 - 45).

Finally, Mintzberg, an adherent of the learning school, summarizes these criticisms using the story of a boiled frog. If a frog is placed in hot water, it will jump out. However, if a frog is placed in cool water, and the water slowly heats up until it is boiling, the frog will adapt to the new temperatures until it is too late, and it boils to death (Mintzberg *et al.*, 1998, p. 226).

2.4 The Rise and Fall and Rise Again of Strategic Planning

Mintzberg argues that the history of strategic planning since 1965 has been one of rise and fall, fall and rise (Mintzberg, 1994; Mintzberg, 1994b). He proposes that the fall of strategic planning in the 1980s was due to "planning pitfalls." The "predict and prepare" (Achoff, 1983) processes of strategy formation, particularly with the classical school of thought, can breed an atmosphere of politics, constrict an organization's vision, destroy commitment and discourage change (Mintzberg, 1994a). Hamel and Prahalad concur:

> "In many ways, strategy has been discredited over the past several years. Consulting companies that once focused on strategy are now turning to operational issues. Strategic planning departments are being disbanded ... Most strategic planning is strategic in name only, ritualistic and formulaic, seldom deeply creative" (Hamel and Prahalad, 1994, p. xii).

True to the scientific management pioneered by Frederick Taylor, the argument follows, strategic thinking was separated from doing, and strategic planners were expected to produce 'the one best way', and planning systems were expected to produce step by step instructions on implementing the 'one best strategy' (Mintzberg, 1994b). Indeed, General Electric is a case in point.

General Electric, Pascal (1991) writes, pioneered corporate planning under the stewardship of CEO Fred Borsch in the 1960s and 1970s. Eventually large central corporate planning departments (General Electric's grew to be over 200 people) spread throughout Western businesses. However, despite their planning efforts, poor financial performance forced companies like IBM [McMaster, 1996 #539] and General Electric (Pascale, 1991) to reconsider strategic planning. Large planning departments had failed to cope with slow growth (Whittington, 2001). In General Electric, 'Neutron Jack' Welch 'rationalized' the corporate planning system. Welch, quoted in Pascale, justifies his actions by arguing that:

> "We had constructed over the years a management apparatus that was right for the time, the toast of the business schools. Divisions, strategic business units, groups, sectors, all were designed to make meticulous, calculated decisions and move them smoothly forward and upward. This system produced highly polished work. It was right for the seventies ... a growing handicap in the early eighties ... and it will be a ticket to the boneyard in the nineties" (Pascale, 1991, p. 213).

As Whittington (Whittington, 2001), Moran and Ghoshal (1999) and Sampler (1998) all propound, traditional boundaries no longer exist (e.g. Amazon.com competes with traditional book retailers and Ryan Air bypasses travel agents).

So where Porter writes in the *Economist:* "I favour a set of analytical techniques for developing strategy" (Porter, 1987), formal planning techniques for analyzing traditional industry structure no longer serve as a sustainable source of competitive advantage because, as Mintzberg says: "Formal procedures will never be able to forecast discontinuities, inform detached managers, or create novel strategies" (Mintzberg, 1994b, p. 111). In a thesis written by Gomer (Gomer, 1976), concerning the role of planning systems in response to the 1973 OPEC oil crisis, three companies who had planning systems reflecting the classical model were studied. Gomer found that, in each case (e.g. one company manufactured mining equipment, the second company was in insurance and the third company was in primary products) the planning systems failed to generate "early warning", and that conventional planning systems "seems to have rather little or use as a method for problem solving, being more related to the implementation measures" (p. 16). He concludes that:

> "Formal planning lent some evaluative support to problem-solving activities related to the crisis, but did not provide 'early warning' or otherwise make the organization more sensitive to change" (Gomer, 1976, p. 1).

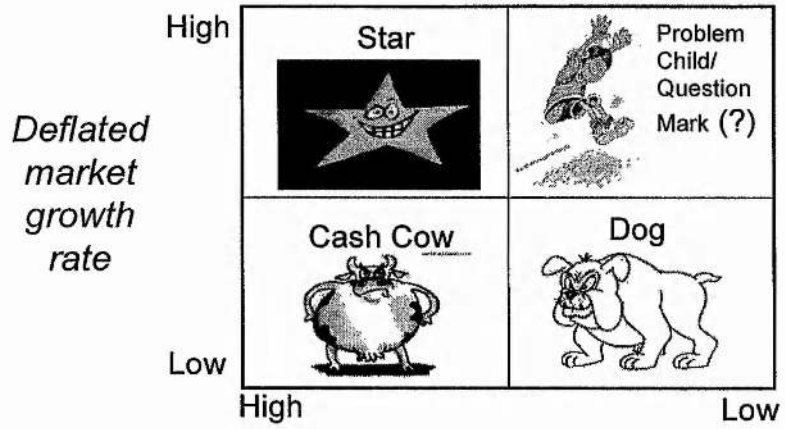
Many of the tools for analyzing environmental uncertainties such as the 'five force' analysis of industry structure, really require a world that is sufficiently stable to predict the future (Whittington, 2001). Consequently, one might argue, as Mintzberg does, that:

> "While certainly not dead, strategic planning has long since fallen from its pedestal. But even now, few people fully understand the reason: strategic planning is not *strategic thinking*" (Mintzberg, 1994b, p. 107).

In fact, "strategic planning often spoils *strategic thinking*" (Mintzberg, 1994b, p. 107). The Boston Box is one example.

The Boston Box, or growth-share matrix, developed in the 1970s by the Boston Consulting Group, provides a simplified framework for managing a portfolio of strategic business units (SUBs) (See Exhibit 2.4).

Exhibit 2.4: Growth-Share Matrix: "The Boston Box"



The Boston Box quickly gained prominence in both academic and business worlds (McKiernan, 1992), and is still taught in business schools today. However, it has been criticized for being too simplistic (Mintzberg *et al.* 1998) and prescriptive in its strategies, thus crowding out more "creative" solutions for SUBs that are not performing well, such as recovery or internationalization, rather than simply "divestment" (McKiernan, 1992).

This is not to say that strategic planning in the classical sense is dead, but it is to say that strategic planning can no longer embrace the 'one best way'. As many strategy scholars admit, it must integrate and draw on the assorted strategy disciplines, perspectives and tools (Mintzberg *et al.*, 1998; McKiernan, 1997) for more robust outputs from strategy formulation and implementation processes.

2.5 Critique and Two Areas of Future Research in Strategy

Mintzberg emphasizes that strategy making is a complex process that "involves the most sophisticated, subtle, and, at times, subconscious elements of human thinking" (Mintzberg, 1994b). For strategy to remain effective in a world where discontinuities are commonplace, conventional tools must be reinforced by flexible and creative strategic thinking and learning (McKiernan, 1997 #504).

This chapter has discussed five approaches, or "schools" of strategy formulation – design, planning, positioning, resource-based and learning. However, there is much taxonomy for classifying strategic approaches. Schools of strategy vary depending on the taxonomist (i.e. McKiernan, Mintzberg, van der Heijden, Whittington).

McKiernan (1996), for instance, divides strategic management into four broad categories or "schools", with one school divided into six sub-categories. They include:

1. The Planning and Practice School,
2. The Learning School
   a. The Natural Selection View
   b. The Incremental View
   c. The Cultural View
   d. The Political View
   e. The Visionary View
   f. Patterns of Strategy Development
3. The Positioning School, and
4. The Resource Based School.

The planning and practice school (e.g. Selznick, Chandler, Andrews and Ansoff) stress market positioning, resource capability and environmental appraisal. They are about corporate, rather than strategic planning and are prescriptive and mechanical in nature.

The learning school (e.g. Lindblom, Wildavasky, Johnson, Quinn, Mintzberg, Pettigrew), according to this classification, borrows from the natural selection model and views the environment as unpredictable and complex. Strategy is a pattern that sometimes emerges incrementally, and at other times is deliberate. It is a process that can be 'cloaked' in rituals, symbols, belief and it is influenced by organizational politics, problems of legitimacy and conflicting demands.

The positioning school (e.g. Caves, Hunt, Porter) approaches strategy formulation from the 'outside-in.' It links the firm with its environment. Firms will position themselves within an industry where it could best defend itself from its competitors.

The Resource Based View of the firm (e.g. Nelson, Prahalad, Hamel), or the 'inside-out' view, regards competitive advantage as being derived from the accumulation of scarce resources and core competencies, which are difficult for competitors to replicate, through learning and skill acquisition (McKiernan, 1997; McKiernan, 1996; McKiernan, 1996b #163).

Van der Heijden (1996) puts a slightly different spin on classifying strategy literature into schools. He divides the differing approaches to strategy formulation and implementation into three broad schools. They include the rationalist, evolutionist and processualist schools.

The process of strategy formulation for the rationalist school is one of finding the "optimal strategy (e.g. Porter), where as the evolutionsts (e.g. Mintzberg) view strategy formulation as an emergent process and can only be understood in retrospect. The processualists, on the other hand, take a middle position (e.g. van der Heijden). As a general rule managers dislike the

evolutionist school because it disenfranchises their ability to determine the destiny of their organization. For the opposite reason, they love the rationalist school because it empowers managers to determine their organization's fate. The problem with the rationalist school is that the future is unpredictable and often times it unfolds differently than was anticipated. As van der Heijden (1996) says: "If things change rapidly and are unpredictable, today's strategy may be tomorrow's disaster." There is thus a need for a strategic framework between the two extremes. Again, to quote van der Heijden:

> "You have to stay with the consequences. The less things are predicatable the more attention you have to pay to the strategy **process**. Uncertainty has the effect of moving the key to success from "optimal strategy" to the "most skillful strategy" (Van der Heijden, 1996, p. vii-viii).

A middle ground between the two extremes is the processual school. The emergence of the processual school results from strategic conversations within organizations (van der Heijden, 1996).

Mintzberg *et al.* (1998) elevate the six sub-categories of the learning school identified by McKiernan (1996) to schools in their own right, thus coming up with ten schools of strategy. In the design school strategy formation is a process of conception. In the planning school strategy formulation is a formal process. The positioning school views strategy as an analytical process. The entrepreneurial school approaches strategy formulation using visioning processes. The cognitive school of strategy formulation uses mental processes. The learning school views strategy formulation as an emergent process. The power school takes the perspective of strategy formulation as a process of negotiation. The cultural school approaches strategy formulation as a collective process. The environmental school takes the perspective as strategy formulation as a reactive process.

And finally, the configuration school views strategy formulation as a process of transformation (Mintzberg *et al.*, 1998; Mintzberg, 1994a).

Like McKiernan, Mintzberg *et al* distill their ten schools of strategic formation down into three broad categories. The first three schools, they contend, are prescriptive in nature. The following six schools, on the other hand, are descriptive in nature. Finally, the configuration school, they argue, integrates many aspects of the other nine schools, and is thus collective in nature (Mintzberg *et al.*, 1998, p. 4-7).

Whittington has developed taxonomy of four for classifying approaches to strategy. They are the classical perspective (e.g Selznick, Ansoff, Chandler, Ackoff, Porter), the evolutionary perspective (Alchian, Henderson, Williamson), the processual perspective (Cyert, March, Simon, Lindblom, Quinn, Mintzberg, Pettigrew, Hamel, Prahalad) and the systemic perspective (Granovetter, Whitley, Pascale, Boyacigiller, Atler, Meyer, Shrivastava).

The classical approach to strategy is formal, profit maximizing, focused on internal plans that are analytically arrived at, influenced by economic and military thinking, and emerged in the 1960s. The processual approach to strategy is crafted, vaguely rationalized, focused on internal politics and cognitions and on processes of bargaining and learning, influenced by psychology and emerged in the 1970s. The evolutionist approach to strategy is efficient, finds its rational in survival, focuses on external markets and on Darwinian processes, is influenced by economics and biology and emerged in the 1980s. Finally, the systemic approach is embedded, rationalized by local environments, focused on external societies, arrived at through social

processes, influenced by sociology and emerged in the 1990s (Whittington, 2001).

One criticism of the strategy literature generally, is that despite variations between the differing classifications of strategy approaches, there has not been a sufficient debate within the literature about what a 'school' of strategy is, or what principles should underpin the classification of strategy thought into schools of strategy. Three of the four scholars that have been reviewed here (Mintzberg, van der Heijden, and Whittington) are opaque about the methodology that they use for identifying patterns within the strategy literature or the principles that are used for conceptualizing schools (McKiernan, (1997) uses a survey of strategy scholars to construct his taxonomy). Many strategy scholars admit that schools of strategy are not mutually exclusive (Mintzberg *et al.*, 1998; McKiernan, 1997; Porter, 1991). To quote McKiernan:

> "The history of the development of strategic management must therefore reflect the 'relatedness of collective learning' that grows through time. The rope's strength depends on the integrity of individual strands working in harmony. Our development as academics should not be restricted by artificial barriers" (McKiernan, 1996b, p. xviii).

Mintzberg *et al.* concur. They argue that:

> "There are categories out there, but they should be used as building blocks, or, better still, as ingredients of a stew" (Mintzberg *et al.*, 1998, p. 368).

While there may be overlap between the schools and the various taxonomies that exist, there are still some significant differences of opinion in what actually constitutes a 'school.' Mintzberg, for instance, places the Resource Based View of strategy in the 'learning' school', while McKiernan, recognizing both the influence of the RBV throughout the 90s, and differences in the way RBV literature and learning literature conceptualize strategy

formulation and implementation, elevate both approaches to schools in their own right. More specifically, what differentiate these two streams of thought are both their views of what constitutes a source of competitive advantage and how they approach the future. The RBV, for instance, looks for ways to 'create the future' (Hamel and Prahalad, 1994), while viewing the primary source for competitive advantage as the distinctive competencies and unique capabilities of a firm, and treats learning as a modus operand. Competitive advantage thus comes from:

> "Management's ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities" (Prahalad and Hamel, 1990, p. 79).

Proponents of a learning perspective view learning as a primary source of competitive advantage in a quickly changing and complex environment. To quote de Geus:

> "The ability to learn faster than your competitors may be the only sustainable source of competitive advantage" (De Geus, 1988, p. 71).

Until there is a debate in the field as to what constitutes a school, what principles should be used for distinguishing points of view, patterns, or streams of thought, it is difficult to see where value can be added to the strategy field by creating new taxonomies. There seems to also be some confusion about what constitutes the content of a 'school,' or a strategy 'perspective' and what constitutes process, or modus operand. For example, Whittington's approach conceptualizes strategy as four 'perspectives' (classical, evolutionary, processual and systemic). Van der Heijden's approach conceptualizes strategy as three 'paradigms'. What defines a 'school,' or a 'perspective,' or a 'paradigm'? Are they talking about the same

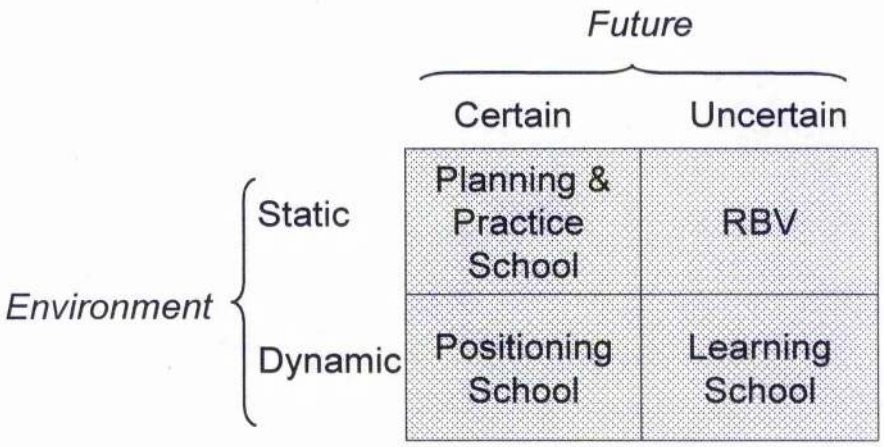
thing, approaches to strategy formulation and implementation (i.e. content), or are they talking about different things such as modus operand (i.e. process)? Can you have a school, such as the *planning school*, which represents strategy content, but which is also *classical* in context and prescriptive of process? It seems unlikely that these various scholars are unaware of each others work, which leads one to the conclusion that they've chosen to side-step the issue of definition and the rationale for their approaches to analyzing the strategy literature.

Besides a debate about the optimal ways of classifying the various streams of thought in the strategy literature, a second area where real value can be added to the strategy field is in the way in which strategy school, perspective, paradigms, treat both the environment and the future. Ansoff attributes the rise of strategic corporate planning between 1945 and 1965 as being catalyzed by:

> "Growing realization that the firm's environment has become progressively changeable and discontinuous from the past and that, as a result, objectives alone are insufficient as decision rules for guiding the firm's strategic reorientation as it adapts to changing challenges, threats and opportunities" (Ansoff, 1965, p. 46).

Yet, the history of strategic planning tells us that some approaches to strategic planning have been more effective in turbulent environments with uncertain futures than others (Whittington, 2001; Mintzberg *et al.*, 1998; McKiernan, 1997; Mintzberg, 1994a; Porter, 1991). For instance, the strengths and weaknesses of the various strategy schools/perspectives/paradigms in various environmental states can be discerned from debates between scholars in the literature (See Exhibit 2.5).

Exhibit 2.5: *The Environmental State & Future Uncertainty Matrix*



Source: McKiernan, P. and MacKay, B. 2001, University of St Andrews.

If we take McKiernan's classification of four schools (e.g. Planning and Practice, Positioning, Resource Based View, Learning) for example, the literature suggests that the planning and practice school, with its focus on fitting internal capabilities with external opportunities, will be optimal in an environment that is static with a future that is certain

Yet, ironically, as Mintzberg argues, for planning to be effective the strategy requires an environment that is acquiescent and predictable (Mintzberg and Waters, 1985). To quote Mintzberg and Waters:

> "Since strategy has almost inevitably been conceived in terms of what the leaders of an organization 'plan' to do in the future, strategy formation has, not surprisingly, tended to be treated as an analytic process for establishing long-range goals and action plans for an organization; that is, as one of formulation followed by implementation" (Mintzberg and Waters, 1985, p. 257).

The resource-based view, with its inside-out focus on scare resources, internal capabilities and competencies, will be an optimal approach to strategy formulation and implementation in an environment that is fairly static, with an uncertain future. To quote Porter:

> "The resource-based view will have the greatest significance in environments where change is incremental, the number of strategic variables and combinations is limited, so that a few scarce resources can govern outcomes, and the time period is short to intermediate term so that managerial choices can replicate or offset resource stocks" (Porter, 1991, p.109).

The positioning school, with its outside-in focus on positioning a firm within a market where it is easiest to either influence or defend against the 'five forces,' on the other hand, will operate optimally in dynamic environments with relatively predictable futures. But in dynamic environments with uncertain futures (Hamel and Prahalad, 1994), it is no longer enough for "the diversified corporation [to] point its business units at particular end product markets and admonish them to become world leaders" (Prahalad and Hamel, 1990, p. 80). Prahalad and Hamel underscore their point using the metaphor of a tree:

> "The diversified corporation is a large tree. The trunk and major limbs are core products, the smaller branches are business units; the leaves, flowers, and fruit are end products. The root system that provides nourishment, sustenance, and stability is the core competence. You can miss the strength of competitors by looking only at their end products, in the same way you miss the strength of a tree if you look only at its leaves" (Prahalad and Hamel, 1990, p. 82).

It is for these reasons that De Geus (1997; 1988), Senge (1990), Mintzberg *et al.* (1998), Mintzberg, (1994b; 1994a; 1991) and others have turned to the learning school in environments that are dynamic with unpredictable and uncertain futures. As Mintzberg *et al.* propound:

> "Some organizations face perpetual novelty. In other words, their environments are dynamic and unpredictable, which makes it difficult to converge on a clear strategy at all. in this case, the structure tends to take the form of adhocracy, or project organization, and the learning approach becomes almost mandatory – the means to work things out in a flexible manner" (Mintzberg *et al.*, 1998, p. 229).

So one may conclude, as De Geus does, that: "The ability to learn faster than your competitors may be the only sustainable competitive advantage" (De Geus, 1988).

2.6 Chapter Conclusion

In recent decades various planning perspectives have, like the biological metaphor of product life cycles, emerged, grown to maturity and then declined, but are never completely vanquished. Deliberate *planning* perspectives that rely on classical notions of rational thinking processes, prescriptive strategies and top-down decision-making, were prevalent in the relatively stable 1960s. The *learning* perspective found its genesis in the 70s, acknowledges complexity, adaptive behavior, incrementalism and recognizes that strategy formulation and implementation is not just deliberate, but also emergent, and has grown into maturity in the 90s. The *positioning* perspective, which, in many respects is a surrogate of the classical perspectives that were prominent in the 60s, emphasizes the important of positioning in turbulent markets, and came to dominate strategic thinking in the 80s. The *resource-based view* also has a pedigree that can be traced back to the late 50s, shares many of the premises of the learning perspective, and relies on acquiring scarce resources that are hard to replicate, such as capabilities, competencies and skills, also passed from adolescence into adulthood in the 90s.

Each school has made significant contributions to the evolution of strategic thought. However, many strategy scholars believe that for strategic planning to be successful in dynamic and uncertain environments, then it is the informal thinking, learning and adaptive processes that will add value to strategy formulation and implementation, rather than formal procedures that attempt to forecast discontinuities (Mintzberg, 1994b; Senge, 1990; De Geus, 1997; De Geus, 1988).

The contribution of this brief history of strategy thought, and concomitant review of strategic literature is that it sets the context for this thesis by showing that the theoretical development of strategic thought has incrementally evolved into differing perspectives, represented by distinct taxonomies. However, this account of the development of strategic thought subscribes to one general perception of its evolutionary history. Indeed, one might argue that what has been presented in this chapter is a construction of a taleology of strategic thought. Researchers who have looked at it through their own lenses and biases have driven this evolution. In this sense, the evolution of strategic management has been retrospective and historicist in nature, as has, one might argue, the strategy canon presented here. What is needed is more integrative and prospective thinking on the subject. Furthermore, as the environmental context has become more uncertain and complex, managers need more effective frameworks and heuristics for challenging assumptions, improving learning, and ultimately foresight into the future.

In the following chapter, the context of this thesis is refined further by focusing in on learning within strategic management.

Chapter Three: Strategic Learning: An Overview

"The question of what exactly is involved in the cognitive experience and how it arises must be addressed if we are to arrive at a better understanding of the workings of the strategic mind and the level of foresight associated with it."

~ Chia, 2002

"Human history becomes more and more a race between education and catastrophe."

~ Wells, 1920

"It is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change."

~ Darwin, 1860

3.0 Chapter Introduction

The only sustainable source of competitive advantage, De Geus argues (1988), is learning. Senge concurs. He argues that in the long run, superior performance depends on superior learning (Senge, 1990).

Learning, at the individual level, occurs when one can perform a new skill that could not be performed before, when one has a new realization or insight into a problem, or when a new fact is acquired. Learning can occur formally through reading, lectures and teaching, or it can transpire, often times unconsciously, through experiencing daily events. Researchers of individual learning (Honey and Mumford, 1992; Kolb, 1991), generally agree that learning is a continuous process that, loosely, involves four stages. The four stages include a) experiencing, b) concluding, c) reviewing, d) planning. There is thus a past element (having had an experience), a present element (reviewing and concluding from that experience), and a future element (planning for the future).

Some individuals, as Honey and Mumford (1992) suggest, place more emphasis on one stage than another. This relates to people's learning styles.

There are pitfalls, however. Bi-passing stages in the learning process, or over-emphasizing one stage over another can impair the learning process. Rushing around having experiences is sometimes assumed to be synonymous with learning from them. The postponement of reaching conclusions from the reviewing of experiences for as long as possible while more data is collected can result in "analysis to paralysis." Experiencing and planning to the detriment of reviewing and concluding can lead to inadequate analysis and the implementation of "quick fixes". Even within each one of the stages there are various biases that can influence the learning process. Finally, in times of ambiguity and uncertainty there is frequently a compulsion to reach a conclusion quickly, which can lead to circumventing the review stage (Honey and Mumford, 1992). As Honey and Mumford (1992) point out: "Conclusions, even if they are the wrong ones, are comforting to have" (1992, p. 5).

Organizational learning is considered by many researchers to be the sum of individual learning. Starkey defines it as:

> "The integration of the sum of individuals' learning, to create a whole that is greater than the sum of its parts" (Starkey, 1996, p. 2).

Eden and Ackerman (Eden, 1998a) echo this sentiment. They concede that cognition, which is closely linked to learning, is the domain of the individual, not the organisation:

> "The attribution of cognition to an organisation is problematic and depends completely upon the legitimacy of reification" (Eden and Ackerman, 1998a, p. 193).

Grinyer (2000) also agrees. He argues that it is not the group that thinks, but the individual. Moreover, he suggests that the cognitive map of the organization only has meaning in so much as some of the individual cognitive

maps may result in shared, and possibly negotiated values, beliefs and cognitions. However, controlling for perceptions at the individual level can reduce processes that lead to such psychological phenomena as "group think" (Janis, 1971) and various disruptive biases (Grinyer, 2000; Eden, 1992b), in particular at the 'review' stage of learning (Honey and Mumford, 1992; Kolb, 1991). This is not to suggest that individual learning and organisational learning are not intricately interwoven. Indeed, Giddens (1979) and Clegg (1989) have both demonstrated that in turbulent periods, individuals and groups will try to persuade others of their ideology, beliefs and values as an interpretation of the collective experience of the organisation. Consequently, power, politics, and ideology at both the orgnanisational and individual levels influence both organisational and individual learning through a socialization process. However, as Starkey points out, organisational learning is not well understood and, for this reason, the argument presented by Grinyer (2000), Starkey (1996), and Eden (1992), that organisational learning is the sum of individual cognitions, is a central assumption of this chapter.

To improve organisational learning, a better understanding of the workings of the strategic mind and levels of foresight associated with it (Chia, 2002, May) is needed, particularly because "strategy formulation is quintessentially a learning process" (Starkey, 1996). To achieve this end, however, the question of what influences the cognitive and learning experience, and the biases and heuristics that constrain and enable learning, must also be investigated.

3.1 Chapter Purpose and Contribution

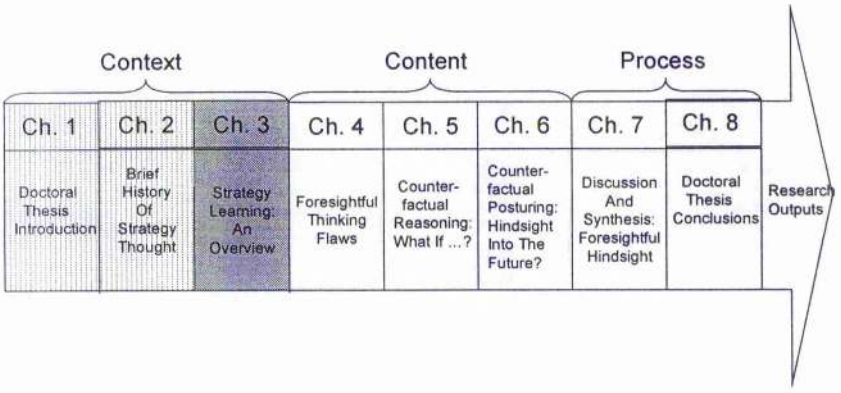
Strategy is both an individual and a collective learning process. As circumstances change, individuals learn about the changes, assess the

capability of their organisation to adapt to the changes, and then converge on patterns of behavior to address them (Mintzberg, 1998). As such, management becomes "no longer just the management of change but management by change" (Lapierre, 1980). Paraphrasing Wells (Wells, 1920), organisational survival thus becomes more and more a race between education, change and catastrophe. The sort of learning that is needed to avoid catastrophe requires that the company is able to "see clearly what is happening in its environment" and to "see early and manage change by foresight" (De Geus, 1997, p. 37).

Foresight, Whitehead (1931) argues, is rooted in deep understanding. The purpose and contribution of this chapter is to understand influences, such as ideology, myth, routines, bias, which are the stuff of hindsight, on strategic learning, and to build a framework that illustrates how these vestiges of hindsight influence foresight.

When it comes to strategic planning, we tend to believe that it should be future oriented (Sanders, 1998). The contribution (see exhibit 3.0) that this chapter adds to the research question, What role does hindsight play in foresight?, is in understanding the critical linkage, often underdeveloped in the strategy literature, between the past and the future – hindsight and foresight (Weick, 1995; Theus, 1995; Thomas and McDaniel, 1990; Frederickson, 1986; Weick, 1979).

Exhibit 3.0 Doctoral Dissertation Map



It should be noted that this dissertation does not draw the distinction between cognition and learning that Mintzberg *et al.* (1998) do. The reason is simple: Where cognition is primarily concerned with the totality of thinking processes and information processing, learning is both a prerequisite and a consequence of these thinking processes, and as such, the demarcation that is made in the strategy literature, in particular by Mintzberg *et al.* (1998), is a false one. You cannot have learning without cognition.

3.2 Chapter Structure

This chapter begins by reviewing the literature on strategic learning. It commences by looking at the natural selection perspective (McKelvey, 1983), which follows in the Darwinian tradition (Darwin, 1860), but also points out the importance of co-operation in biological systems (Sahtouris, 1996). It then looks at the complexity of planning and the debate over the extent of rationality inherent in incremental learning (Lindblom, 1959; Quinn, 1978;

Johnson, 1988), while keeping in mind Wildavsky's (1973) question of whether strategic planning has, by trying to be everything, dissipated into nothing.

Organisational learning, as Sheldon (1980) and Grinyer and Spender (1979b) argue, is affected by, to use Johnson's (1988) metaphor, a web of assumptions, beliefs and past experiences, influenced by the organisational culture, which results in addressing uncertainty through shared paradigms (Sheldon, 1980) and 'managerial recipes', which can, they argue, constrain thinking in certain circumstances (Grinyer and Spender, 1979b). In his research, Pettigrew (1992; 1977) does not dispute these premises, but approaches strategic learning and decision-making from a political perspective. He tacitly agrees with much of the work by Johnson (1988), Sheldon (1980), Grinyer and Spender (1979b) and even aspects of McKelvey and Aldrich (1983), who all, to lesser and greater degrees, point to cultural factors such as the role that assumptions, beliefs, experiences, understanding of history, ideology, myths, politics, routines, and symbols play in strategy formulation, and strategic learning. In a contrasting approach, Pettigrew emphasises of politics and conflict in the strategy formulating process. The section concludes by eliciting areas of consensus within the literature.

Following on from a review of the strategy learning literature, the following section examines the work on bounded rationality pioneered by Simon (1986; 1979; 1957; 1956; Simon, 1955). It also examines arguments disparaging classical assumptions of instrumental rationality, the rigidity of quantitative models, and the influence of centers of power and dominant coalitions on strategy formulation and decision-making proposed by Child (1972) as well as

the "softer" more intuitive influences on strategic learning and decision-making emphasized by Hurst *et al.* (1989).

The Chapter concludes with the argument that there are sufficient areas of commonality within the literature to build a conceptual framework for the purpose of illustrating how these various 'forces' coalesce to influence strategy learning, formulation and decision-making, but what is lacking in the literature is an in-depth analysis of the various heuristics and biases used to analyse the past in hindsight. Researchers, such as Pettigrew (1977), for instance, acknowledge that an understanding of history is important in strategy formulation, learning and decision-making, and other researchers (Starkey and McKinlay, 1996; Hurst, 1989) emphasise the importance of undoing the past to learn for the future. However, there is little analytical depth to how history is used, and what role hindsight plays in strategy formulating, learning and decision-making processes.

3.3 Strategic Learning Literature Review

Shell's study of company longevity found that the companies comprising their study were able "to recognize and react to environmental change before the pain of a crisis" (De Geus, 1988, p. 71). Adapting to environmental changes requires that companies have knowledge of both their environment and themselves. The decision making process within organizations, according to De Geus (1988), is a learning process. As people engage in organizational dialogue they may change their own mental models (sometimes referred to as microcosms (Wack, 1985a; 1985b)) and build up a group model. However, the process is slow, and "the ability to learn faster than your competitors may be the only sustainable competitive advantage"

(De Geus, 1988, p. 71). Finding mechanisms to speed up the velocity and improve the accuracy of institutional learning is an important element in developing sustained competitive advantage. Shell has found that scenarios have been effective tools for triggering institutional learning. As Schoemaker says:

> "[scenario planning] is essentially a study of our collective ignorance. It institutionalizes the hunt for weak signals, such as OPEC's price hikes in 1973 or Gorbachev's political ascent in the early 1980s. The scenario method continually pushes the envelope of possibilities since it views strategic planning as learning" (Schoemaker, 1997, p. 51).

3.31 Individual Learning

Holt's (1982, 1983) research has shown that, in most circumstances, only about 25 per cent of what is taught is learned. At most, only 40 per cent is learned. These statistics illustrate the limitations of learning through the traditional learner-teacher framework. When you change the structure of the class from one where the teachers are authority figures that are deemed to be more knowledgeable in their genre to one where the learners are senior managers in a firm, this statistic is compounded. However, by suspending or changing the rules that management lives by e.g. the time of year for strategic planning, the Shell planners found that they could accelerate learning. Furthermore, they also found that games are an effective tool for increasing the velocity of institutional learning.

Microworlds, otherwise known as individual models of reality, rarely fully corresponds to reality because "no complex reality can be represented analytically and a model is an analytical way of representing reality" (De Geus, 1988, p. 73). Thus, whether achieved through teaching or games, an important aspect of the institutional learning process is developing an

organizational language for making explicit the implicit knowledge of individuals, which becomes a building bloc in the institutional model (van der Heijden, 1996; De Geus, 1988). The speed and degree to which this model changes will depend on the structures and culture of the organization. However, "institutional learning begins with the calibration of existing mental models" (De Geus, 1988, pp. 74-75). To learn faster than competitors and create sustainable competitive advantage through learning, organizational leaders must continually be revising their models of the world: "Learning is not a luxury. It's how companies discover their future" (De Geus, 1988, pp. 74-75).

3.32 Strategic Learning Perspectives

Planning as learning is a concept that has evolved into several different strands. The rational-analytic view of the planning school became challenged due to the recognition that some strategies emerge informally while others are not realized at all. As McKiernan says:

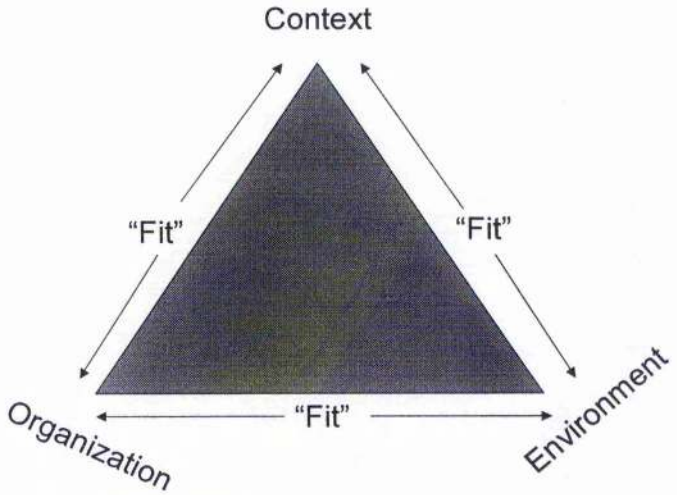
> "It was clear that the Planning school was only one of many approaches to strategy development. For instance, organizational studies scholars challenged intentional choice and outcome, embraced notions of bounded rationality, context, politics, power and chance in choice processes and went on to study strategic change in implementation. There was an emphasis on organizational adaptability since the rational process was inherently constrained by both external and internal variable whose behavior was unpredictable or simply unknown" (McKiernan, 1996b, p. xix).

The natural selection view of learning, for instance, has a history that finds its genesis in the theories of Darwin (1860). According to this view, unlike the neoclassical homogeneous concept of the firm, firms can be differentiated in terms of their systems, culture, resources, power centers and processes. An organization's environment is too powerful for a synoptic strategy to be effective in light of environmental uncertainties and an organization's survival

or extinction will be dependent on the extent of the "fit" or "harmony" between the environment and the organization (McKiernan, 1996b, p. xix).

In a paper by McKelvey and Aldrich (1983), the authors propose that the findings in organizational science would achieve a greater validity and could be applied more widely if their was a greater focus on the conditions under which research findings are elicited. Borrowing from biology, the authors use population ecology to illustrate that organisations and industries may behave differently in different environments, thus limiting the ability of single industry or single organizational studies to make theoretical assumptions, generalizations and predictions in business. In essence, they propose that there has to be a "fit" between the systems, cultural resources, power centers and processes of the organisation, the environment and the context (see exhibit 3.1).

Exhibit 3.1 Organisational Research



Source: *Based on McKelvey and Aldrich (1983)*

Thus, homogeneous organizational populations must be identified and classified for generalisations to be made based on research findings. The characteristics of a population and how those organisations might have

formed are important factors in identifying organisational clusters. Population thinking limits cross-species generalisations, which, it is asserted, cautions managers against heeding the advice of consultants, for instance, who often apply generic solutions to organisations regardless of their structure, culture and so on.

There is, however, a caveat to generating sustainable competitive advantage through organisational learning and adaptation, proposed by De Geus (1997). Organisations that adapt too quickly to their environment are more vulnerable to environmental uncertainty because they have not maintained the "requisite variety" within the organization to adapt to changing circumstances (McKelvey, 1983). To maintain requisite variety, McKelvey and Aldrich adopt Weick's (1977) plan that some cumbersomeness be built into the organisation:

> "The essence of his plan is his call for effective organisations to be garrulous, clumsy, superstitions, hypocritical, monstrous, octopoid, wandering, and grouchy. It is well to build in some clumsiness or "galumphing," defined as 'patterned voluntary elaboration or complication of process' (Miller, 1973) instead of designing organizational means that are streamlined, finely tuned, efficient, and inflexibly focused on a specified goal" (McKelvey and Aldrich, 1983, p. 122).

The concept of natural selection, according to this view, helps to illuminate how the requisite varieties (including processes and people) within organisations are selected or "weeded out". For the organization to survive, it is thus argued, it is important to be aware of the selection processes within the organization. Putting units in competition with each other, thus causing an internal "struggle" is advised for "shaking out" units that are not competitive and keeping the organization prepared for industry shake-outs where organisational mortality rates jump.

While natural selection and population ecology are still useful metaphors for continuous learning, it is important to note that advances in evolutionary biology have shown that the theories of natural selection have been blind to natural co-operation. Competition and competitive behaviour, according to evolutionary biologist Sahtouris (1996), is more a characteristic of young species as opposed to mature systems such as old growth forests. As Sahtouris points out, in many ecosystems competition e.g. for light amongst species in old growth forests, is balanced by co-dependence and co-operation amongst species. Those species that do not learn to co-operate perish (Sahtouris, 1996). Furthermore, cases of co-evolution, according to Imanishi, are an inherent characteristic throughout evolution (Thuillier, 1986). As Lietaer (2001) says:

> "Even our own bodies would not be able to survive long without the symbiotic collaboration of billions of micro-organisms in our digestive tract" (Lietaer, 2001, p. 52).

One can also criticize this strategic perspective e.g. (Aldrich, 1979) for being over-determined, and as such, reducing strategic management to a purely reactive proposition. In other words, the environmental determinists take away the possibility of choice (e.g. Child, 1972) in the strategic equation.

At the environmental level, strategy formulation, from a planning perspective, frequently places managers in the central role of steering organisations towards effective strategies for adapting to and manipulating their environments (McKelvey and Aldrich, 1983, p. 121). As Chamberlain (1968) states:

> "Strategic decisions ... express a firm's purpose, a future state of affairs which it expects to bring into being ... Strategic decisions imply a belief in power to control the future, to make it something other than predictable. A choice of objective is involved, and then a contrivance of means, and both of these involve an assertion of will rather than responses deterministically derived from what has gone on before, they are purposive thrusts into the

> future rather than decisions directed by testable logic or continuity of circumstance" (Chamberlain, 1968, p. 33-34).

However, as McKelvey and Aldrich counter:

> "Thinking that one can control the future is heady stuff. Our view is that some conditions or effects, those that comprise the niche, are subject to manipulation by the organization, but that the broader environment is not open to influence" (McKelvey and Aldrich, 1983, p.121).

While this debate may be ultimately irresolvable, it does nothing to diminish an important contribution to strategic management thinking. In sum, this 'environmental' perspective calls attention to organizational environments and to the possibility that in certain circumstances organizations may be constrained by their environments, and consequently forced to react and adapt, and at other times organizations may have choice and the ability to either position or to influence their environments. In both cases, this perspective agrees that the "environment" is external and knowable, and as such, the two approaches to strategic management are not mutually exclusive.

The ability of a firm to influence its environment is a debate that has been a characteristic of strategic thought in the literature since the late 1960s, and quite likely dates farther back in time. In recent years it has manifested itself in the creative tension that exists between the resource-based view of the firm and the positioning school. In a sense, McKelvey and Aldrich (1983) have elements of both positions. They highlight the "requisite varieties" within the organization as being paramount for the survival and adaptability of the organization and they also recognize that the firm's ability to influence the environment is restricted. Learning is thus seen as an important approach for developing the necessary "requisite varieties". Quoting an (anonymous) top-

level corporate strategy expert from an internationally renowned consulting firm, McKelvey and Aldrich state:

> "So what do the great military strategists, like Patton or MacArthur, or the great business strategists, like Walter Wriston or Patrick Haggerty, really do? What are the excellent companies – who talk less, but do more about strategy – really up to? I think the answer is this: first they are experimenting far more than the rest – they are not more prescient than any others; they simply have lots and lots of experiments, trials, and miniature ventures going on at any one time. Second, they are better learners. Because their top managers have first-hand knowledge of all the trials going on in their companies (and perhaps those of competitors) they have first-hand knowledge of what works and what does not work. Third, they do not experiment expensively; they seem to have systems for quickly cutting off the failures and stepping up resources to the apparent successes. That's it. I submit that the real strategists are simply better learners who are experimenting more" (McKelvey and Aldrich, 1983, p. 123).

Planning as learning, to many strategic scholars, has been viewed as an incremental process. Lindblom (1959), whose concept of planning in public entities as a 'science of muddling through', germinated the idea of planning as complex and fragmented process consisting of balancing a myriad of alternatives, interests, values and objectives. Planning has accordingly become so much that some scholars have asked the question of whether it has dissipated into nothing.

Wildavsky (1973) suggests that 'if planning is everything, maybe its nothing.' Writing in the context of the early, turbulent years of the 1970s, when planning and planners were under siege from a general disenchantment with planning, Wildavsky argues that:

> "The planner has become the victim of planning; his own creation has overwhelmed him. Planning has become so complex planners cannot keep up with it. Planning protrudes in so many directions, the planner can no longer discern its shape. He may be economist, political scientist, sociologist, architect or scientist. Yet the essence of his calling – planning – escapes him. He finds it everywhere in general and nowhere in particular. Why is planning so elusive?" (Wildavsky, 1973, p. 185)

Wildavsky (1973) goes on to suggest that planning, as it was, and still is constituted, cannot work in the environment that it is meant to function.

Wildavsky explores several themes such as planning as the ability to control the future. Success in planning, he contends, is thus measured by the ability of current acts to control the future. Failures to control the future are therefore equated with planning failures. Thus, in terms of national planning, causal knowledge is the first requisite:

> "If the consequences of contemplated actions cannot accurately be appraised, specified objectives will be achieved only by accident" (Wildavsky, 1973, p. 187).

Causal knowledge is even more important in long-range planning because every error in prediction will be magnified further up the causal chain "because of its impact on future decisions" (p. 187). Of course, there are inter-relationships between causal chains so planners must have a broad knowledge of causality. Planning is also inherently political. Planning assumes power, defined as the ability to get people to act in ways that they otherwise would not. Planning is adaptive. It assumes future objectives, often extrapolated from present trends and projected into the future, and intervenes to ensure that those objectives are achieved. Evaluation of formal planning depends on the link forged between the future performance of the organization and the intentions expressed in the plan. Planning is, therefore, also intention. However: "The virtue of planning is that it embodies universal norms of rational choice." (P. 197). Planning is thus preferred because:

> "It is systematic rather than random, efficient rather than wasteful, co-ordinated rather than helter-skelter, consistent rather than contradictory, and above all, rational rather than unreasonable" (Wildavsky, 1973, p. 197).

The sanctity of formal planning results in the impairment of learning because, despite its numerous failures, planning is not supposed to make mistakes, and to learn, "one must make mistakes" (P. 207).

Quinn (1980), in a study conducted of ten major companies, found that strategy formulation is not "muddling through", as Lindblom found, but it is a process of logical incrementalism. As Quinn states: "It is conscious, purposeful, proactive, good management" (Quinn, 1978, p. 19). If the process is properly managed, it allows concepts of organisational behavior, theories of power and politics, and rational systematic analyses to be bound together by the executive. The process must:

> "Proceed flexibly and experimentally from broad concepts toward specific commitments, making the latter concrete as late as possible in order to narrow the bands of uncertainty and to benefit from the best available information" (Quinn, 1978, p. 19).

Consequently, according to Quinn, the most effective strategies emerge from opportunistically and incrementally blending together a series of strategic subsystems "into a cohesive pattern that becomes the company's strategy." As Quinn states:

> "The real strategy tends to evolve as internal decisions and external events flow together to create a new, widely shared consensus for action among key members of the top management team. In well-run organisations, managers pro-actively guide these streams of actions and events incrementally toward conscious strategies ..." (Quinn, 1980, p. 15).

Incrementalism is viewed as a learning process (Mintzberg, 1978) and has also been seen as an outcome of social and political processes (Pettigrew, 1977) within organizations. As Johnson (1988) summarises:

> "... the underlying theme is that the strategic development of an organization needs to be seen as building on current practice and managerial beliefs about organizational competences within a political and historical context" (Johnson, 1988, p. 91).

While Johnson does not take exception with the notion of "incrementalism" per se, he calls into question Quinn's (1980) notion that incrementalism is logical. According to Johnson, strategy emerges from a combination of programs, symbolism and cognition, which, unlike the view of strategy formulation as a rational process constrained by paradigms and politics within

the organization, is at times illogical. Based on a study of a firm referred to as Coopers, Johnson finds that the configuration of "organizationally relevant strategic responses" to environmental stimuli is shaped by the interpretation of the environmental stimuli. Interpretation of environmental stimuli, however, is shaped by the organisational paradigm; the commonly held assumptions and beliefs that weave through the organization and the explanations and stories of the managers.

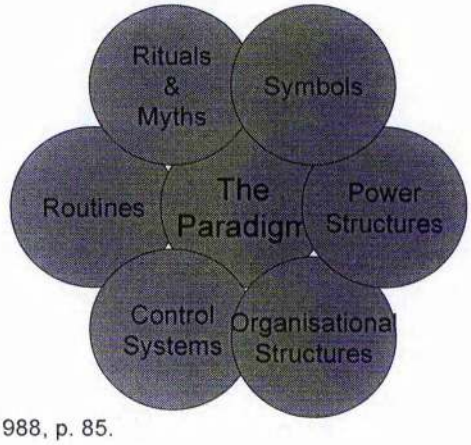
Johnson uses Mintzberg's (1978) concept of intended and realized strategy to help to distinguish between the organization's "strategy" and the organisation's "paradigm". Johnson says:

> "Realized strategy is taken to mean the observable output of an organization's activity in terms of its positioning over time. By intended strategy is meant the strategy that managers espouse, perhaps in some sort of formal plan, public statement, or explanation. The paradigm, on the other hand, is a more generalized set of beliefs about the organization and the way it is or should be and, since it is taken for granted an not problematic, may be difficult to surface as a coherent statement. It is more likely to emerge in the explanations and stories of managers. The point is that both intended and realized strategy are likely to be configure within the parameters of the paradigm" (Johnson, 1988, pp. 84-85).

Johnson goes on to argue that, in the organization under study, the paradigm resisted change for two primary reasons. First of all, it is internally consistent with the accepted wisdom within the organization and it was observed to be self-legitimizing and self-preserving. As Nathan (1998) points out, there is a "perverse power of normalization", which motivates people working in organizations to preserve its past history, stability and traditions (Nathan, 1998) – to preserve the status quo (Roux-Dufort, 2000). Secondly, the paradigmatic system of beliefs and assumption is "preserved and legitimized in a "cultural web" of organizational action in terms of myths, rituals, symbols, control systems and formal and informal power structure which support and

provide relevance to core beliefs" (Johnson, 1988, p. 85). Exhibit 3.2 illustrates Johnson's "cultural web of an organization".

Exhibit 3.2 The cultural web of an organisation



Source: Johnson, 1988, p. 85.

Johnson (1988) observes that consciously managed logical incrementalism does not necessarily keep pace with environmental change, and indeed, in the case study of Coopers through the 1970s, the environment (i.e. market changes) and incrementally adjusted strategic change moved adrift. Logical incrementalism thus results in "strategic drift". Strategic drift was also found in two other company studies, leading Johnson to account for it as the following:

1. Sensing of external stimuli is muted because the stimuli are not meaningful in themselves; they take on a relevance, and responses are operationalised in terms of the paradigm.
2. Managers believe they are adapting to a changing environment when in fact they are adapting to signals, which coincide with the paradigm.
3. There is likely to be resistance to "deviant" interpretations of the environment if they threaten the paradigm. This results in political pressure for conformity or marginal adjustments to strategy.
4. Strategic drift is not easily discerned by managers. However, in the event of its detection remedial action is likely to take the form of solutions constructed within the bounds of the paradigm anyway.
5. Moreover these adjustments may well be enough to demonstrate the efficacy of the action to the satisfaction of stakeholders since, given the application of the familiar, there is a good chance that there will be some signs of performance improvement, at least in the short term. (Johnson, 1988, p. 88).

Other researchers note the notion of strategic drift. Chandler (1962) and Grinyer and Spender (1979a) observe the resilience of structures and strategies and Mintzberg (1978) has also noted that organisations will infrequently require global changes but in the interim they go through periods of continuity, flux and incremental adjustment. Miller and Friesen (1980) also find that:

> "Managers demand a large potential benefit before they are willing to destroy the order and complementarity of elements inherent in the old gestalt and begin to construct a new one. The price paid for this sluggish responsiveness to the need for reversals in evolutionary trends, and occasional revolutionary periods with all of their turmoil, expense and confusion" (Miller and Friesen, 1980; also quoted in Johnson, 1988).

Thus, Johnson (1988) concludes that: "managers are likely to espouse such "logical incrementalism" but that such espousals may disguise a system of management rooted in the currency of the paradigm." (p. 89). According to Johnson, this begs the question of how "strategic drift" can be avoided while generating more effective adaptive incremental strategic management?

Johnson's concept of organisational culture as a "complex web of individual assumptions and beliefs" (McKiernan, 1996, p.xx) is not original. Kuhn's (1970) concept of the paradigm, which results from his research into the history of science, "re-established the term paradigm as an overall gestalt or coherent pattern of beliefs" (Grinyer and Spender, 1979a, p. 115), and, despite the many controversies of the terms meaning, has been used extensively in strategic management literature. McKiernan (1996), for instance, describes organisational paradigms as the culmination of manager's interactions, and the shared beliefs that form from those interactions and grow to dominate strategic decisions. He says:

> "New managers enter into the organizations deal with uncertainty. Key frames of reference that forge beliefs can come from the functional or professional background of managers, from organizations or the industry itself" (McKiernan, 1996, p. xx).

Grinyer and Spender (1979a) similarly conclude from their survey of the literature that empirically based models of managerial recipes are similar. They state:

> "The concept of industry recipe combines several features that seem to highlight managers' own attitudes toward their work. It is dynamic, and consistent with a cyclical patter of growth and decay; it captures the managements' experience and learning; and it allows re-orientation through both innovation and imitation" (p. 129).

These features are embodied in successive strategies. As the company learns "the recipe becomes consolidated and adopted as a cognitive structure that permits both screening and interpretation of environmental events" (p. 118). It becomes reflected in institutionalizing behavior, procedures and programming. In the face of environmental change, this pattern of beliefs, the "paradigm" (Johnson, 1988), becomes increasingly obsolete, but the obsolescence is not recognised by the managers. Repeated failures of the strategies result in the decline of the firm and a loss of faith by management in the paradigm. Eventually it is vanquished and replaced.

Grinyer and Spender's (1979a) account is similar to that of Argyris' experiential model (Argyris, 1982) of comprehensive systems of belief impeding learning. The "recipes" that are formed by organisations for certain industries "constrain thinking and prevent change and adaptation, particularly when organizations face major crises" (McKiernan, 1996, pp. xx-xi). The result is that firms respond by doing more of the same. In their study of Newton Chambers engineering subsidiary, for instance, Grinyer and Spender found that management responded to a long-term decline in market demand for its products by "adding standardized products produced by the same

processes and directed to the same major customers and, on the other hand, seeking to penetrate an entirely new market for project management services" (Grinyer and Spender, 1979a, p. 123).

Sheldon (1980) also subscribes to an organizational paradigmatic theory of organizational change. In the context of medical services, Sheldon observes that all organizations have a proclivity to adopt paradigms. Paradigms, in Sheldon's view, reflect a perfect fit between an organization, its processes and its environment, "with all dimensions harmoniously directed toward some cherished end" (Sheldon, 1980, p. 62). The organisation, once it has reached a stable, harmonious "fit" with its environment, as was the case with Western Psychiatric Hospital, would "rather fight-or die-than switch" (Sheldon, 1980, p. 62). Sheldon argues that when change is evolutionary, or when the organisation senses the onset of a change that will be disadvantageous, it triggers a normal process of organisational change and organisational learning. Organisations that are open to learn can be described as "open systems".

Sheldon questions whether organisations can engage in continuous learning because of a profound tendency towards stability. Paradigmatic resistance to change can be strong. Sheldon draws a parallel between this "closed" paradigmatic state and the phenomena of groupthink noted by Janis (Janis, 1971). Referring to the case of South [medical] clinic, Sheldon says:

> "Members of the organization collude to avoid any questioning of their ideology or what they do. They seem to experience "doublethink," a state in which they simultaneously acknowledge and deny aspects of the organization that do not work ... An illusion of unanimity is created – one in which people repeatedly make statements they believe are shared by others, yet with out checking this belief. Finally, any deviance from the norm is regarded as betrayal or desertion" (Sheldon, 1980, p. 63).

While these perspectives emphasize the necessity of understanding the human mind and also the complexity and importance of understanding organizational culture, one criticism of this literature is that they have failed to learn from developments in cognitive social psychology, perhaps because cognitive social psychology has failed to address problems directly associated with strategic management, and conceptually, cognitive and cultural perspectives remain vague (Mintzberg *et al.* 1998). As a consequence, the literature is descriptive and retrospective in content. What is needed is more prospective thinking on solutions to strategic management problems, rather than just useful vocabulary that is used to discuss the status quo.

3.33 Patterns and Common Themes in the Strategic Learning Literature

In the strategy literature that pertains to learning, scholars adopt diverse perspectives. Pettigrew (Pettigrew, 1992; 1977; Child, 1972), and Hickson *et al.* (1971) see strategy formulation as a political process. Hurst *et al.* (1989) view strategy formulation as a process of visioning. Johnson (1988), Quinn (1978), Wildavsky (1973), and Lindblom (1959) conceive strategy as incremental, sometimes logical (Quinn, 1978), sometimes constrained by paradigms and politics (Johnson, 1988) and at other times over-stretched in its attempts to encompass every aspect of organisational activity and environmental complexity, and as such, some argue, strategy has deteriorated into nothing (Wildavsky, 1973; Lindblom, 1959). McKelvey and Aldrich (1983), following in the Darwinian (1860) tradition of natural selection, argue that organisations survive or perish based on their "fit" with their environments. A harmonious "fit" with an organisation's environment is

dependent on the specific combination of power centres, systems, resources, processes and the culture of the organisation. Sheldon (1980), and Grinyer and Spender (1979a) analyse strategy formulation in terms of organisational paradigms (Sheldon, 1980) and the closely related industry and managerial recipes (Grinyer, 1979a). As McKiernan (1996) summarizes:

> "Organizational culture is a complex web of individual assumptions and beliefs. These will have evolved through experiential learning in various management positions in the same or in different industries. As managers interact, a shared belief or 'organizational paradigm' is formed which can grow to dominate strategic decisions" (McKiernan, 1996, p. xx).

Each one of the perspectives reviewed in this section conceptualises strategy differently. However, there are some common patterns and themes that are similar in each one of the perspectives and can be extracted from the literature.

Sheldon (1980), and Grinyer and Spender (1979a) have a cultural perspective on strategy, which McKelvey and Aldrich (1983) also emphasise as being an important element in an organisation's harmonious "fit" with its environment. Johnson (1988), who conceptualises strategy as being an incremental process, emphasises the importance of culture, mythology and rituals, and Lindblom (1959), another incrementalist, also recognises the importance of 'values' in organisations.

Pettigrew (1992; 1977), Child (1972), and Hickson and Hinings (1971) view strategy formulation in terms of the political process that underlie strategic decisions, but power also features prominently in Wildavsky's (1973) analysis of strategy and in Johnson's [Johnson, 1988 #219] incrementalist view of strategy, as it does, if less explicitly, in Sheldon's (1980) notion of paradigmatic shifts, Grinyer and Spender's (1979b) notion of managerial recipes and Prahalad and Bettis (1996) abstractions of dominant logics.

Notions of paradigms (Johnson, 1988; Sheldon, 1980; Grinyer, 1979a), managerial recipes (Grinyer, 1979a), dominant logics (Prahalad and Bettis, 1996) cognitions, assumptions and beliefs (Johnson, 1988; Quinn, 1980), and causal knowledge (Wildavsky, 1973), conceived as patterns of belief that are often resistant to change (Nathan, 1998; Johnson, 1988; Sheldon, 1980; Grinyer, 1979a), which influence processes of strategic learning and strategy formulation, also feature prominently in the literature.

Despite the varying of perspectives on strategic learning and formulation – e.g. cultural, incremental, natural selection, political, visionary – one can also conclude from the literature that there is interplay between each one of these common themes; there are patterns (Mintzberg and Waters, 1985), which result in paradigms (Johnson, 1988; Sheldon, 1980) and recipes (Grinyer, 1979a). However, despite these various themes being the vestige of hindsight – patterns of belief, paradigms and recipes are formed from learning in the present, which is rooted in experiences and information from the past. A criticism of the literature on strategic learning is that there is no explicit treatment of how history is used by individuals and organisations, how individuals and organisations "remember the past in order to take more prudent action (indeed enact) the future?"* In other words, how does hindsight affect strategic learning, and ultimately, foresight?

* A theme of the International Conference at the University of Strathclyde Graduate School of Business, Glasgow,
United Kingdom, July 11 – 13, 2002

3.34 Bounded Rationality

The studies conducted by Sheldon echo Kuhn's (1970) observation "that paradigmatic change is only partly rational". Perfect, omniscient rationality, assumed in neo-classical economic models of decision-making, has also been disparaged by Child (1972). Child emphasises the importance of agency and strategic choice in decision-making, and postulates that courses of strategic action are decided through power-holders within the organization, making the process of arriving at a strategic choice effectively a political one.

Like Sheldon, who observes that "paradigmatic change is only partly rational" (Sheldon, 1980, p. 63), and Child, who disparages instrumental rationality assumptions in classical economics and approaches to strategy formulation (Child, 1972), Simon (1979) highlights such behavioral factors as bounded rationality, learning, adaptation, searching for decision alternatives and the replacement of optimization by targets and satisficing goals as influential in the management of organizations. As Simon says:

> "Bounded rationality is largely characterized as a residual category-rationality is bounded when it falls short of omniscience. And the failures of omniscience are largely failures of knowing all the alternatives, uncertainty about relevant exogenous events, and inability to calculate consequences" (Simon, 1979, p. 502).

Classical theory, according to this view, finds situations where decisions must be made under uncertainty, or when there is imperfect competition, problematic. Simon (1979) argues that it might be possible to sufficiently patch up classical theory to:

> "Handle a wide range of situations where uncertainty and outguessing phenomena do not play a central role – that is, to handle the behavior or economies that are relatively stable and not too distant from a competitive equilibrium" (Simon, 1979, p. 497).

However, when situations characterized by uncertainty and imperfect competition do exist, there is a strong case for replacing the central

assumption of perfect rationality in decision-making enshrined in classical and neo-classical theory with a theory of bounded rationality. Simon argues that failures of omniscience consist of uncertainty about relevant exogenous events, failures of knowing all the alternatives, and inability to calculate consequences.

Under conditions of bounded rationality, Simon outlines (1955; 1956) "a more positive and formal characterisation of the mechanisms of choice" (Simon, 1979, p. 502). Simon proposes two central concepts in bounded rationality: search and satisficing. Bounded rationality must incorporate a theory of search, because if all the alternatives are not presented to the decision-maker, then he or she must search for them.

Using the example of a decision taken by a person to search for a second-hand automobile, Stigler (1961) has sought to develop a search theory using the classical notions of utility maximization. Simon, conversely, marginalises the concept of utility maximisation because:

> "It would have required the decision maker to be able to estimate the marginal costs and returns of search in a decision situation that was already too complex for the exercise of global rationality" (Simon, 1979, p. 503).

North (1990b) agrees with this line of reasoning, arguing that people do trade utility maximisation for other values and for ideological convictions. Rejecting the concept of utility maximisation from the classical and neo-classical program, Simon [Simon, 1979 #236] chooses to borrow the concept of aspirations from social psychology because aspirations are not static, but tend to rise and fall depending on circumstances, and they help to explain why people search for alternatives. Once they find an alternative that resonates with their level of aspiration, they will terminate the search. Simon labels this process of searching for alternatives as satisficing.

Simon's notions of the role of behavioural factors in the strategic decision-making process also reflect the earlier ideas expressed in Chandler's (1962) study of American enterprise. As Chandler says:

> "[Strategy] can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals. Decisions to expand the volume of activities, to set up distant plants and offices, to move into new economic functions, or become diversified along many lines of business, involve the defining of new basic goals" (Chandler, 1962. P. 13).

Pettigrew (1977) follows on from previous work with the view of the formation of strategy as a continuous, implicit, political process within the organisation. Like Child (1972) and Simon (1979), Pettigrew also emphasis the role of choice by individuals and sub-groupings in the strategy formulation process. He argues that, because of the role that pattern of thinking and perceptions of the world play, the analysis of strategy formation must also include identifying and exploring decision events and the causal pathways to those events. To quote Pettigrew:

> "Choices are made and acted upon in processes involving individuals and sub-groupings, at various organizational levels, that develop into the pattern of thinking about the world, evaluating that world, and acting upon that world that we call strategy. Study of the process of strategy formulation therefore involves analysis of both discrete and identifiable decision events and of the pathways to and outcomes of those decision events, together with the connections between successive decisions over time" (Pettigrew, 1977, p. 78).

Pettigrew points out that strategy formulation is also contextually based. One must understand strategy in the context of actions, events, values, organisational culture, environmental change and stability, and location in time. Indeed, contemporary strategies will comprise of remnants of yesterday's strategies as well as concepts of the future. As Pettigrew says:

> "Yesterday's strategies will provide some of the pathways to and inputs for today's strategies; and today's strategies will have a concept of the future built into them. The consequences of the implementation of today's strategies will provide part of the context for tomorrow's strategies" (Pettigrew, 1977, p. 79).

The strategy formulation process, according to Pettigrew, involves the generation of demands by individuals or groups and the process of mobilising power associated with each demand. Conflicting demands by various individuals or sub-groups present dilemmas that require resolution. Partial resolutions of dilemmas may thus stimulate further disparities from individuals or sub-groups, depending on the structure, complexity, uncertainty, salience, value positions, styles of language use, problem-solving style, external pressure and history of relationships. In analysing what demands are presented, Pettigrew (1977) postulates that highly diffuse and moveable issues of legitimacy are crucial. Notions of meaning are constructed to either legitimise or de-ligitimise demands in this political process. The "management of meaning" can thus be analyzed using concepts of symbolism, language, belief, and myth. Myths, in particular, help to link past strategies with new strategies:

> "Myths serve as ways of legitimizing the present (demands) in terms of a perhaps glorious past, of reconciling apparent dilemmas, and of explaining away the discrepancies that may exist between what is happening and what ought to be happening. As such, myths provide part of the social cement that links old strategies with new strategies and that justifies the very existence of the new strategy" (Pettigrew, 1977, pp. 84-86).

Again, Pettigrew reiterates the notion that strategy formulation is a continuous process; new strategies are linked with old strategies through the temporal connecting role of myths, language and beliefs. Strategy formulation within organizations is thus "the reconstruction and re-labeling of old ways of thinking about, evaluating, and acting upon the world" (Pettigrew, 1977, p. 86).

Traditionally, according to Hurst *et al.* (1989), the "old ways of thinking" in strategic management emphasise problems solving. This framework has implicitly stressed the role of a synoptic, senior executive, or executive group,

who have a "dominant logic" (Prahalad and Bettis, 1986) or a "causal map" (Weick, 1979) of the structure and functions of their business. This established understanding of the business is defined as "rational" and data that does not correspond to this shared understanding is treated as an aberration or ignored. Likewise, behaviors must also be consistent with rational thought. Those that have differing dispositions, relying on feeling, intuition and insight, do not fit within the rational paradigm. Those that are predisposed to planning, acting and evaluating do. Consequently:

> "Intuition, insight and feelings are suppressed because they do not fit within the accepted SM process. Individuals openly exhibiting these types of behaviors cannot be accommodated within the conventional SM framework and are often excluded from the process, even though their contributions may be valuable" (Hurst *et al.*, 1989, p. 87).

Thus, traditionally, SM has accommodated rationally thinking people that fit into its rational-analytic processes,

> "Rather than expanding the process to fit the people, and their different abilities, predispositions and preferences" (Hurst *et al.*, 1989, p. 87).

Hurst *et al.* (1989), using Jungian types (sensors, feelers, intuitives, thinkers) posit that top management groups should be comprised of a mix of types and styles because, if the diversity can be unified and focused, it can yield great strength and catalyze continuous renewal of their business. Consequently, one can argue that strategic management as a discipline has, in recent years, begun to recognize other forms of intelligence (e.g. emotional intelligence, intuition (Rowan, 1987)) within top management groups. Despite this recent development in the literature, it is nevertheless important to point out that non-rational processes have a much longer epistemological pedigree, and have been long recognised (e.g. Barnard, 1938; McKenny and Keen, 1974; Mintzberg, 1976; Hurst *et al.*, 1989):

> "[Non-rational process] is helpful in the innovative, creative processes which allow organizations to enact fundamental change, to renew themselves" (Hurst *et al.*, 1989, p. 88).

Hurst *et al.* (1989) nonetheless notes that rational analytic processes continue to dominate "softer", more intuitive processes:

> "Facts evaluated by a rational analytic thinking process are regarded as more important than insight, feelings and even empirical experience!" (Hurst *et al.*, 1989, p. 88)

Rational-analytic reasoning processes, however, even when based on past experience, are frequently flawed. As Hurst *et al.* summarize:

> "In short, because SM is based on a logic developed from past experiences, it is an appropriate methodology for defending an established business, but is less able to prospect. It cannot deal well with novelty and ambiguity; it cannot bring into being those new activities which lie outside the structure of the managers' current understanding of their existing business, but which may well be required as part of tomorrow's business" (Hurst *et al.*, 1989, p. 88).

Logic that is derived retrospectively or based on the processing of past experiences in erroneous hindsight presents a significant shortcoming to strategic management process. For example, the paradigms (Johnson, 1988; Sheldon, 1980), recipes (Grinyer and Spender, 1979a; 1979b) and dominant logic (Prahalad and Bettis, 1986) that people operate in will influence the logic developed from past experiences. It has even been shown that fictitious data that is consistent with the logic of existing mental models may be remembered as being real (March *et al.*, 1996).

Shifting imbedded logic in well-developed strategic management process thus requires one to unlearn what has been learnt (Hurst *et al.*, 1989). This view is consistent with the observations of Starkey and McKinlay (1996) in their case study of product development in Ford of Europe. They found that the majority of organisational learning during the 1980s at Ford, was geared towards understanding the Japanese challenge in the auto industry, and in introducing lean production, 'Japan's secret weapon in the global auto war'

(Womack, 1990), into Ford. This led to managers at Ford having to 'undo the past, and learn for the future' (Starkey and McKinlay, 1996). As Starkey and McKinlay state:

> "[Organizational learning in Ford of Europe] involved the company's managers in a searching analysis of accepted managerial practice in the company which led to a gradual 'unlearning' of its past competences and to the learning of new modes of managerial behaviour" (Starkey and McKinlay, 1996, p. 214).

Hurst *et al.* (1989) argue that, traditionally, there has not been a means to unlearn learning incorporated into conventional SM processes. However, some progress has been made, through scenario thinking for example, in addressing this shortcoming (De Geus, 1988). To further these developments, Hurst *et al.* (1989) have constructed a creative management (CM) model. Hurst *et al.* argue that:

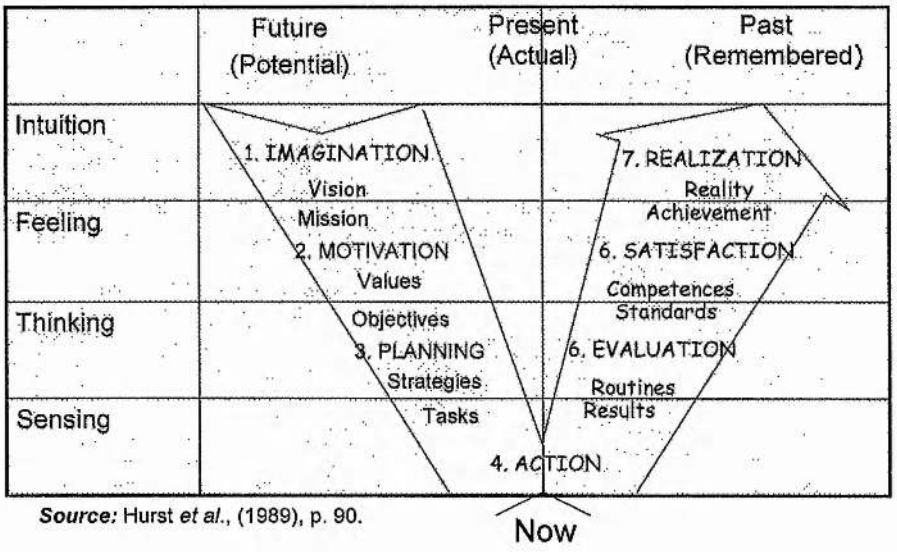
> "Organizational realities, like personal realities, consist of complex interactions of the objective, tangible ('out there') and the subjective cognitive ('in there') elements" (Hurst *et al.*, 1989, p. 89).

According to the creative management (CM) model, the CM process passes through four modes or levels of cognition. As the authors say:

> "When (subjective) time is considered, the model incorporates seven recursive and not necessarily completely sequential stages whereby an original idea is transformed from an intuitive insight, a vision, into action – eventually to become a remembered 'reality'" (Hurst *et al.*, 1989, p. 89).

Exhibit 3.3 illustrates the model:

Exhibit 3.3 The Creative Management Model



Source: Hurst *et al.*, (1989), p. 90.

The logic follows that, when analysing the way organisations learn, it is important not to over emphasise the linear, recursive process of 'planning, acting and evaluating' (stages 3 through 5) to the exclusion of the cognitive levels of feeling and intuition. Strategic thinking, according to the CM model, is rooted heavily in antecedents from past experiences and expectations (Stages 4 through 7). The processes thus modify strategic thinking in stages 1 and 2. Radical innovation occurs when thought breaks from the predominating logic and thought structures that are rooted in the past. The conceptual structures are constructed post hoc, feedback from stage 5 to stage 3 occurs and activities become routinised (Hurst *et al.*, 1989, pp. 88-91). The model illustrates the importance of emphasising the past in strategic thinking processes.

Simon's theory of bounded rationality disputes the "hard core" of the neo-classical research program (Eggertsson, 1990, p. 9). As North (1990b) argues, the importance of Simon's (1979) work on bounded rationality is that it

reflects the complexity of environments, "the fumbling efforts we make to decipher [those] environments," the incompleteness of our information, and the importance of ideology, which Olson (1996) also highlights, and, as North says, is "derived from subjective perceptions" in our reasoning processes (North, 1990b, p. 183). It also allows for the possibility that ideological conviction, values (North, 1990b), political processes, organisational culture, mythology (Pettigrew, 1977), and subjective cognitions (Hurst *et al.*, 1989) will influence the paradigms (Johnson, 1988; Sheldon, 1980), managerial recipes (Grinyer and Spender, 1979b), and dominant logics (Prahalad and Bettis, 1986) that constrain managerial mental constructs and binds, as Simon argues, the processing of information (Simon, 1979). It also adds weight to the argument that the past, in particular the analysis of past experiences and routines in hindsight (Hurst *et al.*, 1989), needs to be emphasized in strategic thinking processes. This may entail 'unlearning' old competences (Starkey and McKinlay, 1996) for, re-iterating Pettigrew:

> "The re-construction and re-labeling of old ways of thinking about, evaluating, and acting upon the world" (Pettigrew, 1977, p. 86).

Argyris (1990; 1982) points out those individuals in decision-making processes, executives in the context of Argyris's research, normally have significant reasoning abilities; yet, they are rarely conscious of their use. At best, when executives apply their reasoning processes to threatening issues they simultaneously lead to a successful short-term solution with the consequence of long-range problems – local improvements with the consequence of global decline. In crises, executives see that there is 'no other option' which is true, Argyris argues, if they are willing to accept the world as it is 'without seeking alternatives.' Consequently, the capacity to

identify and rectify errors is diminished. Argyris's research is further corroborated by Pentagon papers that expose what happens within the upper echelons of the State Department and Defense Department in the United States (Argyris, 1982). He explains the results of his research, which he argues has been empirically observed to transcend gender, race, age and culture, through a socialization process. Through socialization, people acquire two sets of skills and values.

1. Espoused Theories Of Action: are the skills and values in which people are conscious of. When in a threatening situation, or faced with a set of threatening circumstances people's espoused theories and behaviour will be inconsistent. As Argyris says: "'Do as I say, not as I do' illustrates the point and at the same time proves that the point is not new."
2. Theory-in-use: is a theory that we use unconsciously. It is a theory of action that has been ingrained since childhood and is often at odds with the theories we espouse (Argyris, 1982).

In order for humans to process reality, Argyris explains, and Kolb's (1991) experiential learning model corroborates, they must abstract from the complexity of daily life by using more abstract concepts. North (1990b) and Simon (1979) argue, and Argyris (1982) also contends that the human mind simply can't process the myriad of complexities that are present in the environment at any one time. Argyris maintains that these concepts have two key features: A) they are learned at an early age and B) many different meanings can be covered by these concepts. We begin to take these concepts for granted, calcifying them from questionable abstractions into concrete and obvious concepts (Argyris, 1982), and according to Dearborn and Simon (1958), people will select information based partly on preconceptions (Dearborn, 1958). They search for information that confirms our mental models (Makridakis, 1990). This, combined with research on paradigms (Johnson, 1988; Sheldon, 1980), managerial recipes (Grinyer and

Spender, 1979b), and dominant logics (Prahalad and Bettis, 1986), may partly account for bounded rationality, which can lead to error in human judgment, in particular when it pertains to foresight.

3.4 Chapter Conclusion

Ayton (Ayton, 1998) poses the question "how bad is human judgment?" He recounts a story told by Arrow (1992) "that illustrates something of the strength of people's fondness for judgment even where its inadequacy is clearly established" (Ayton, 1998, p. 239). Arrow, who was working as a long-range weather forecaster for the American air force during the Second World War, found that long-range forecasting was no better than pulling random numbers from a hat. When the forecasters asked their superiors if they could be relieved of the task, the reply that they received was: "The Commanding General is well aware that the forecasts are no good. However, he needs them for planning purposes" (Ayton, 1998, p. 239).

Ayton thus defines over-confidence in forecasting as:

> "An unwarranted faith in the reliability of the forecast and has been attributed, at least in part, to a failure to recognize the fallibility of our own judgment" (Ayton, 1998, pp. 239-240).

Drawing on studies conducted by Tversky and Kahneman (1983; 1978; 1977; 1974; 1973) linking mental heuristics to human judgmental error, Ayton argues that human judgment is influenced by arbitrary anchors, is insufficiently regressive, induces illusory correlations, and is over-confident, as offering a "plethora" of examples of human judgmental error. Because of limited mental processing and computational ability, according to this view, humans are required to create strategies of simplification to limit the

complexity of judgmental tasks, thus making use of simplified, error-prone heuristics for strategic learning, which give way to biases.

More specifically, two biases, the hindsight bias (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975) and creeping determinism (Fischhoff, 1975), (Florovsky, 1969), may account for the calcifying of paradigms (Johnson, 1988; Sheldon, 1980), recipes (Grinyer and Spender, 1979a) and dominant logics (Prahalad and Bettis, 1986), as well as for much of the assumptions (Sheldon, 1980; Grinyer and Spender (1979b), beliefs (Sheldon, 1980; Grinyer and Spender, 1979b), experiences (Hurst *et al.*, 1989; Sheldon, 1980), understanding of history (Pettigrew, 1977), language, (Pettigrew, 1977), myths (Johnson, 1988; Pettigrew, 1977), politics (Pettigrew, 1992; Pettigrew, 1977), routines (Porter, 1991; Johnson, 1988; Cyert and March, 1963), and symbols (Johnson, 1988; Pettigrew, 1977) that they consist of, and resistance to altering them.

From the review and synthesis of research in strategic learning in this chapter, it can be concluded that there are sufficient areas of commonality within the strategic learning literature to build a conceptual framework for the purpose of illustrating how assumptions, beliefs, experiences, understanding of history, ideology, myths, routines and symbols coalesce to influence strategy formulation and decision-making. Despite an acknowledgment of the importance of perceptions and understanding of history and past experiences by many researchers (e.g. Hurst *et al.*, 1989; Sheldon, 1980; Grinyer and Spender, 1979b; Pettigrew, 1977) in strategy formulation, learning and decision-making processes, what is lacking in the literature is an

in-depth analysis of the various heuristics and biases used to analyse the past in hindsight, and the explicit role that hindsight plays in foresight. Furthermore, despite strategic management literature being descriptive and retrospective in their approach to strategic management research, a question that is rarely asked is: "What has already happened that will create the future" (Drucker, 1995 p. 62). In other words, the linkage between what we learn in hindsight and how that influences foresight is not broached. Yet, as De Wit and Meyer argue: "The essence of strategic thinking is the ability to break through orthodox beliefs" (1999, p. 70). This is because "we struggle with the baggage of history and the question thus becomes how do we escape from many of the old prejudices" (van der Heijden, 1996).

Undoing the past and learning for the future (Starkey and McKinlay, 1996; Hurst *et al.*, 1989) thus requires an understanding of how error-prone heuristics can give way to bias in hindsight, and how these biases can influence foresight. The purpose of the following chapter is to further refine the role of assumptions, beliefs, experiences, understanding of history, ideology, myths, routines and symbols play in strategic thinking, and the role of hindsight biases on strategic thinking processes.

Chapter Four: Foresightful Thinking Flaws: The Hindsight Bias and Creeping Determinism

"What we call the past was once the future; and the people of the past no more knew what their future would be then we know our own."
~ Ferguson, 1997

"If things change rapidly and are unpredictable, today's strategy may be tomorrow's disaster."
~ van der Heijden, 1996

"Very few things happen at the right time, and others do not happen at all."
~ Herodotus, ca. 450 BC

4.0 Chapter Introduction

The peculiarities of how strategies materialize through individual cognition, and how the various cognitive filters, distortions and biases influence the strategic process is an underdeveloped theme in strategy. Indeed, as Mintzberg *et al.* (1998) state: "The strategy-formation process is also fundamentally one of cognition"; yet, as a strategic "school" of thought, cognition remains a loose compilation of research and strategy has not gained sufficiently from the research, or insights, of psychology (Mintzberg *et al.*, 1998, p. 172).

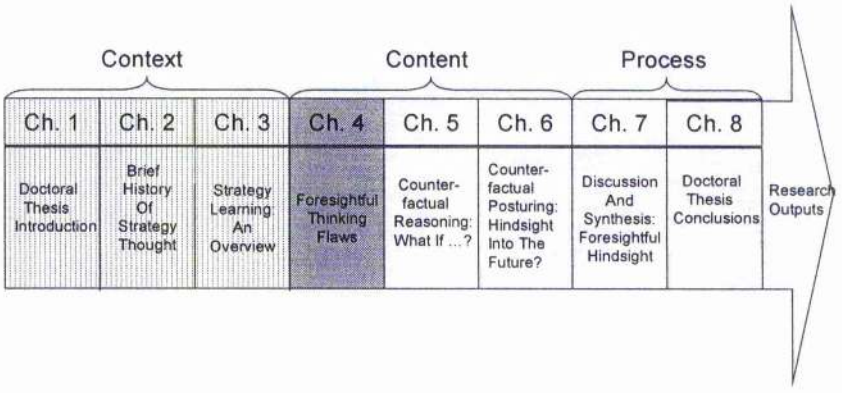
The previous chapter, after reviewing the literature on strategic learning, identifies areas of consensus. Vestiges of the past, such as understanding of history, assumptions, beliefs, experiences, language, myths, paradigms, recipes, routines, stereotypes and symbols, constrain foresight. Learning for the future thus begins with 'undoing the past' (Starkey and McKinlay, 1996) or with a process of 'unlearning' (Hurst *et al.*, 1989). Paraphrasing Whitehead

(Whitehead, 1931), foresight is rooted in deep understanding, and part of that deep understanding, by necessity, has to do with understanding how we process the past and how that past influences the future.

4.1 Chapter Purpose and Contribution

The purpose of this chapter is to look at the research synthesized in the last chapter in the context of two biases known as the hindsight bias (Carll, 1999), (Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975) and creeping determinism (Fischhoff, 1975; Florovsky, 1969). Both biases are well documented in cognitive and social psychology, but the contribution of this chapter to understanding the role that hindsight plays in foresight, is to build a conceptual framework of how these biases influence strategic thinking.

Exhibit 4.0 Doctoral Thesis Map



This chapter contributes to the thesis an integrative framework that draws on received research in psychology to theoretically underpin literature on learning in strategy and to illustrate the linkages between the two.

4.2 Chapter Structure

This chapter begins by reviewing part of the legacy of Freud (1905) and Jung (1994) on individual and collective learning in the context of strategic management. It suggests that there are various biases that will also influence perceptions about the world and prescience. Two biases, the hindsight bias (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975) and creeping determinism (Fischhoff, 1975; Florovsky, 1969) are reviewed in detail, and experimental attempts to control for these biases are also explored.

4.3 Freud, Jung and Strategic Thinking

The father of modern psychiatry to many is Sigmund Freud (1856-1939). Psychoanalysis resonates people's attitudes towards sexuality with findings derived from examining the unconscious, and by extension, the mind through free association and dream analysis. Freud's theories of the superego, ego, id, and unconscious established the psychoanalytic, or otherwise known, Viennese movement. The superego pertains to standards of behavior. The ego is reflected in the personality. The id corresponds to the primitive forces of the personality. The unconscious acts as a reservoir for sublimated and repressed memories and thoughts that we've been unable to address, but occasionally release themselves through unconscious actions or through dreams. While Freud's theories, especially on infantile sexuality, were

passionately, at times vehemently debated (Freud, 1905), the Viennese movement did produce several notable disciples, the most famous of which was Carl Jung.

Unlike Freud, Jung believes that the unconscious is a repository of archetypes, actions and heroes that were expressed in the world's great myths. The world's great myths reflect the "collective unconscious". According to Jung, archetypes are an inherited symbolic imagery or a pattern of thought found in the individual unconscious but generated from the past collective experience. Similar experiences are measured against these patterns and the personality, in all of its complexity, is a structure that balances the persona, the ego and archetypal images such as the animus, the archetype or "parental model" that women carry with them in their subconscious, and the anima, which is the archetype of a women that men carry with them (Jung, 1994).

To Jung, the human consciousness, especially in the West, exists virtually unrecognized: "For the most part our consciousness, in true Western style, looks outwards, and the inner world remains in darkness" (Jung, 1994). While many of his ideas are controversial, the importance of Jung's thinking for strategic management generally, and for this chapter in particular, is that they do much to establish the notion of schemas and patterns that are used as templates to process, compare and contrast new experiences, and have much in common with theories of paradigms (Johnson, 1988; Sheldon, 1980), dominant logics (Prahalad and Bettis, 1986), and recipes (Grinyer and Spender, 1979a) discussed in the last chapter. His theories also highlight the

complexity of human cognitive behavior and the role of archetypes, stereotypes, symbols and myth in our processing of the world.

Conventional wisdom, for instance, might influence our processing of information, but it might also be based on unfounded beliefs:

> "We have grown up in a culture where we accept certain statements as true, though they may not be. For instance, we believe that the more information we have, the more accurate our decisions will be. Empirical evidence does not support such a belief. Instead, more information merely seems to increase our confidence that we are right without necessarily improving the accuracy of our decisions ... In reality, the information found is usually redundant and provides little additional value" (Makridakis, 1990, p. 38).

Furthermore, as Hodgkinson and Sparrow (2002), Makridakis (1990) and Schwenk (1984) observe, individuals will search for information that confirms their initial beliefs when identifying problems. These beliefs, re-enforced by confirming information, will restrain or anchor their judgments when looking for alternatives to problems, and in particular, when dealing with future uncertainty.

The repercussions of these biases can be disruptive to organisational learning. As Jack Welch, who initiated a Schumpeterian (1975/1942) e-business, creative destruction program entitled 'destroyyourbusiness.com', to address the increasing gap between General Electric and other companies more advanced in harnessing the internet, acknowledged at a shareholder's annual meeting in 2000: "We thought the creation and operation of web sites was mysterious, Nobel Prize stuff, the province of the wild-eyed and purple-haired", and he blamed General Electric's slow response to the internet challenge on 'cognitive bias' (Whittington, 2001, p. 110). IBM, who at one time predicted that there would only be a total demand for 15 computers, missed signals, such as computer chips becoming cheaper, smaller and more

integrated, and breakthroughs in technology in, for example, communications. Consequently, they did not anticipate the advent of the PC and its repercussions on their business. As McMaster (1996, p. 151) says: "We all know in hindsight what IBM should have done", but it took huge losses, rather than foresight, for IBM to break out of its cognitive constructs of the world, which were rooted in a past history of developing the mainframe. As Johnson argues, "Taken for granted assumptions" feature prominently in organizations that have strong cultures, and they are "protected by a web of cultural artifacts ... which embed the present in organizational history" (Johnson, 1992; p. 30).

4.4 Biases: Reflecting on the Past, Prescience into the Future

Research in behavioural decision psychology (e.g. Kahneman *et al.*, 1982b; Fischhoff, 1977; Fischhoff, 1975a; Tversky and Kahneman, 1974) have identified a number of cognitive biases that influence decision-making and human judgment, which, as Hodgkinson and Sparrow 2002) point out, may have a bearing on strategic management processes.

Research in cognitive, decision and social psychology has found that humans use certain heuristic principles, or 'rules of thumb', for simplifying a complex world and facilitating information processing and decision-making (Kahneman and Tversky, 1973). These heuristics can be beneficial to facilitating decision-making, but they can also lead to significant errors and biases (Prahalad and Bettis, 1996). Simon (1957), for instance, has shown that 'saticificing', which refers to people choosing the first alternative to a problem that conforms to basic requirements for solving the problem, is one such heuristic, but also has the disadvantage of constraining the number of alternatives considered.

Research in psychology has shown that belief systems are remarkably resilient to change, even when evidence is presented to challenge them (Sherman *et al.*, 1981; Ross *et al.*, 1977). As Fischoff argues: "Confidence in present knowledge controls our pursuit of new information and interpretations" (Fischhoff, 1977b, p. 350). Research on interpersonal expectations and stereotypes, for example, has shown that after an interaction between an individual who has prior expectations about, or had stereotyped a target individual, there was no change, and in some cases the stereotype was strengthened after the encounter (Darley and Gross, 1983; Duncan, 1976; Langer, 1974; von Hippel, 1995; Munro, 1997). Social cognition research has also demonstrated that already held beliefs and attitudes influence information processing (Slovic and Lichtenteenstein, 1971; Tversky and Kahneman, 1974; Ross *et al.*, 1975; Ross *et al.*, 1977; Munro and Ditto, 1997). Some researchers (e.g. Word *et al.*, 1974; Rosenthal and Jacobson, 1968) postulate that expectancy biases information processing by changing behavior "in ways that elicit expectancy-confirming information from the target" (Munro and Ditto, 1997). This helps to explain the resilience of the paradigms (Johnson, 1988; Sheldon, 1980), dominant logics (Prahalad and Bettis, 1986), and recipes (Grinyer and Spender, 1979b) discussed in the last chapter, as well as the resilience of assumptions, experiences, mythologies, routines and symbols, which paradigms, dominant logics and recipes are reliant on, and which, as Johnson (1992) argues, are imbedded in history.

4.5 Scenario thinking

Scenario thinking is not immune to biases. Schoemaker (1995) points out that when thinking about the future there are three classes of knowledge that are useful to contemplate.

They include:

1. Things we know we know;
2. Things we know we don't know;
3. Things we don't know we don't know;

Each class of knowledge is constrained by various biases. These biases can include an inclination to look for confirming information (Munro and Ditto, 1997; Schwenk, 1995; Word *et al.*, 1974; Rosenthal and Jacobson, 1968), defensive pessimism (Showers, 1992; Cantor and Norem, 1989) and over-confidence (Schoemaker, 1995; Russo and Schoemaker, 1992; Fischhoff, 1982). Consequently, the things that we think 'we know we know' may be the result of inaccurate prediction. The things 'we know we don't know' may be amplified by looking for confirming information of the things 'we know we know', and the things that 'we don't know we don't know' may be exaggerated through over-confidence. However, bias in scenario thinking may not be solely negative (Schoemaker, 1995, p. 38). Tversky and Kahneman (1983) illuminated a bias termed the "conjunction fallacy". This is a fallacy where individuals violate the laws of probability by deeming the likelihood of a conjunction of two events coming to pass more likely than one of these events in isolation (Schoemaker, 1995).

Despite there being some 'positive externalities' to bias, for the most part they are disruptive to effective foresight. Biases such as searching for confirming information, over-confidence and defensive pessimism can be derivatives of two disruptive biases known as the "hindsight bias" and

"creeping determinism". These biases constitute two foresightful thinking flaws.

4.51 The Hindsight Bias

The hindsight bias is a phenomenon that takes place after the occurrence of an event. It leads people to overestimate the likelihood that they could have predicted its outcome before its occurrence as easily using foresight, as it was using hindsight after its occurrence (Arkes *et al.*, 1988). Thus, asking the question: "In the light of current knowledge, what was the probability in 1988 that the Berlin Wall would be opened within a year?" would elicit a response that exaggerates the probabilities of such an event occurring. There is a discrepancy between prospective probabilities (the subjective probabilities that would have been given if the question had been asked before the event, and retrospective probabilities given if the question was asked after the outcome of the event was already known (Kahneman and Varey, 1990, p. 1103).

The hindsight bias (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975a; Fischhoff, 1975a) has been found in areas as diverse as employee evaluations (Mitchell and Kalb, 1981), psychotherapy case histories (Fischhoff, 1975a), politics (Leary, 1982), medical diagnosis (Arkes *et al.*, 1981) and historical judgment (Dawson *et al.*, 1986). It results in overconfidence when analyzing the past, which reduces what one can learn from outcome knowledge because people claim that they 'knew it all along' (Arkes *et al.*, 1988). Consequently, the driving forces from the past that have been identified to shape change in the future may be over-estimated and mis-

clarified. This can dilute foresight ability. As Fischhoff (1975a) states, the formal demarcation between hindsight and foresight is that: "hindsight and foresight differ formally in the information available to the observer" (p. 288).

4.52 Creeping Determinism

Creeping Determinism, coined by Fischoff (1975a), is a phenomenon that can lead unknowingly to what Argyris (1982) has called miss-interpretation, self-fulfilling prophecies, self-sealing processes and escalating error through an inherent human tendency to gravitate towards determinist explanations of history that result from the process of retrospection itself. One of the first to identify this phenomenon is the historian Florovsky, who notes:

> "The tendency toward determinism is somehow implied in the method of retrospection itself. In retrospect, we seem to perceive the logic of the events which unfold themselves in a regular or linear fashion according to a recognizable pattern with an alleged inner necessity. So that we get the impression it really could not have happened otherwise" (Florovsky, 1969, p. 369).

In other words, the logic of past events leads us to believe that they could not have happened otherwise (Florovsky, 1969, p. 369). Fischhoff (1975a) terms the tendency to perceive received outcomes as having been inevitable as "creeping determinism". It is used by Fischhoff (1975a) to describe a condition where outcome knowledge is automatically, quickly and unconsciously integrated with a person's mental representation of events. As Hawkins and Hastie state:

> "The characteristic effect of creeping determinism was the tendency to perceive a reported outcome as virtually inevitable, reflected in retrospective probability estimates, because of the seemingly unalterable sequence of events leading up to it" (Hawkins and Hastie, 1990, p. 313).

An example of creeping determinism would be when the question: "In the light of current knowledge, what was the probability in 1988 that the Berlin Wall would be opened within a year?" is asked, the respondent gives a list of reasons, such as internal and external pressures in the former Soviet Union and GDR, to why the fall of the Berlin Wall was predictable and inevitable.

Creeping determinism is pervasive in scholarship, especially in historical analysis and can lead to faulty reasoning. To correct it, as Argyris (1982) argues with his concepts of 'theories-in-use' and 'espoused theories-of-action,' requires a change in reasoning processes. This is not something that a quick fix or gimmick can rectify. It requires an awareness of common, but often unconscious, cognitive biases such as the hindsight bias and creeping determinism in past events and experiences, which, if unchecked, can result in the generation of path-dependencies (Booth, 2003; Teece *et al.*, 1997) into the future, thus narrowing the range of possible alternative futures that can be perceived.

Fischhoff (1975a), in exploring the difference between judgmental differences in hindsight and in foresight, asks two questions: "How does receipt of outcome knowledge affect judgment?" and "How aware are people of the effects that outcome knowledge has on their perceptions?" (p. 288).

4.53 The Psychology of Creeping Determinism and the Hindsight Bias

Fischhoff (1975a; 1975b; 1977), in an attempt to understand the judgmental differences between hindsight and foresight, sought to explore Florevsky's (1969) thesis through a series of experiments. To this end, Fischoff (1975a) gave four 150-word descriptions of a clinical or historical

event to one 'Before' and four 'After' groups. In his first experiment, for example, he gave a passage from Woodward (1938). A typical passage read as follows:

> "[1] For some year after the arrival of Hastings as governor-general of India, the consolidation of British power involved serious war. [2] The first of these wars took place on the northern frontier of Bengal where the British were faced by plundering raids of the Gurkas of Nepal. [3] Attempts had been made to stop the raids by an exchange of lands, but the Gurkas would not give up their claims to country under British control, [4] and Hastings decided to deal with them once and for all. [5] The campaign began in November, 1814. It was not glorious. [6] The Gurkas were only some 12,000 strong; [7] but they were brave fighters, fighting in territory well-suited to their raiding tactics. [8] The older British commanders were used to war in the plains where the enemy ran away from a resolute attack. [9] In the mountains of Nepal it was not easy even to find the enemy. [10] The troops and transport animals suffered from the extremes of heat and cold, [11] and the officers learned caution only after sharp reverses. [12] Major-General Sir D. Octerlony was the one commander to escape from these minor defeats" (p. 383-384).

Four possible outcomes were also provided. They included:

"(a) British victory, (b) Gurka victory, (c) military stalemate with no peace settlement, (d) military stalemate with a peace settlement." For the After group participants, Fischhoff appended the correct outcome to the passage in the form of an additional sentence, such as, "The two sides reached a military stalemate, but were unable to come to a peace settlement."

Participants were then asked: "In the light of the information appearing in the passage, what was the probability of occurrences of each of the four outcomes listed below". On the following page, Fischhoff listed each datum, which appeared on a separate line and was followed by a seven-point scale. Participants were asked to indicate, "how relevant or important each datum in the event description was in determining the event's outcome" (Fischhoff, 1975a, p. 289).

Fischhoff found that:

> "Receipt of outcome knowledge increased the postdicted likelihood of reported events and changed the perceived relevance of event-descriptive data, regardless of the likelihood of the outcome and the truth of the report" (Fischhoff, 1975a, p. 288).

Judges were also found to be unaware of the effect that outcome knowledge was having on their perceptions. Even though the historical judge typically "knows how things turned out", outcome knowledge can affect judgment. So even without knowing what happened, judges come to believe that relative inevitability is largely apparent in foresight, "without the benefit of knowing what happened" (Fischhoff, 1975a, p. 297). As Fischhoff says:

> "Making sense out of what one is told about the past seems so natural and effortless a response so natural and effortless a response that one may be unaware that outcome knowledge has had any effect at all on him. Judges who are aware that outcome knowledge has affected their perceptions still face the unenviable task of reconstructing their foresightful state of mind. 'Undiagnosed creeping determinism' would characterize the responses of subjects who, in reconstruction, were unable to adequately unanchor themselves from the perspective of hindsight" (Fischhoff, 1975a, p. 298).

The implications of the hindsight bias and creeping determinism are that, if unperceived or left undetected, hindsightful foresight, in the long run, can "impair our ability to judge the past or learn from it" (p. 298).

One of the reasons for this is that we have rules or hypothesis that we use to both interpret the world (and, in particular the past) and anticipate the future, which we implicitly test. If "creeping determinism" and the hindsight bias occurs unperceived and undetected, our hypotheses about how the world was, is, and will be are subjected to "inordinately weak tests, and presumably, finding little reason to change them" (Fischhoff, 1975a, p. 298). We will systematically underestimate the surprises that the past held for us, and, as a consequence, that the future holds for us. Hindsight, therefore, does not equal foresight, and indeed, can impair it. As Fischhoff states:

> "Undiagnosed creeping determinism not only biases people's impressions of what they would have known without outcome knowledge, but also their impressions of what they themselves and others actually did know in foresight" (Fischhoff, 1975a, p. 297).

One mode of explanation for the hindsight bias is that the perceived "fit" between a situation preceding an event and the outcome is increased as outcome knowledge is assimilated. A second alternative explanation focuses on 'structural differences between the tasks of hindsight and foresight" (Fischhoff, 1975a, p. 298). The ways in which events may not have happened may be obscured through scenario retroduction. In other words, the possession of outcome knowledge may lead judges to generate scenarios from the present backwards into the past, thus reversing their temporal perspective (Fischhoff and Beyth, 1975b, p. 298).

Making sense of the past is a pervasive and, often times, unconscious endeavor. Consequently, the bias that outcome knowledge creates and its affects on one's perceptions frequently go unnoticed. For those that are aware that outcome knowledge has affected their perceptions, they, to re-iterate Fischhoff, "face the unenviable task of reconstructing their foresightful state of mind" (Fischhoff, 1975a, p. 298). Undiagnosed creeping determinism on the other hand, "would characterize the responses of subjects who, in reconstruction, were unable to adequately unanchore themselves from the perspective of hindsight" (Fischhoff, 1975a, p. 299).

In a further study, Fischhoff and Beyth (1975b) asked participants to estimate the probability of several possible outcomes of former President Nixon's trips to the USSR and China coming to pass. In the experiment, participants who had been asked to estimate the probability of various possible outcomes of President Nixon's visits to Moscow and Peking coming

to pass were unexpectedly asked to reconstruct their own predictions some time after Nixon's return. Consistent with the theory of creeping determinism, the researchers found that the postdictive probabilities (probabilities given after the event) were higher than the predictive probabilities (probabilities given before the event). This led the researchers to the conviction that:

> "In real-life such retrospective increases frequently constitute little more than facile reductions in the "surprisingness" of what has happened. Rather than reflecting some "wisdom of hindsight," they seem to reflect what might be called a "knew it all" attitude" (Fischhoff, 1975b, pp. 1-2).

The importance of understanding this phenomenon is based on the assumption that individuals that engage in predictive tasks are interested in improving their future performance through adaptive learning. The logical first step towards this end, as postulated by Fischhoff and Beyth, is "evaluating the accuracy of their own predictions in the light of what has subsequently happened" (Fischhoff and Beyth, 1975b, p. 1). As Hock and Loewenstein (1989) argue, feedback elicited from any judgmental task will elicit multiple cognitive responses that simultaneously produce adaptive learning and hindsight tendencies. However, if the surprisingness of past outcomes are reduced or distorted by memory, there is a danger that adaptive learning will be impaired and individuals will continue to be surprised by future events. To quote Fischhoff and Beyth:

> "Although a causal link has not been established, it seems reasonable to speculate that once distorted in memory, knowledge of unexpected outcomes may actually encourage ineffective predicting instead of compelling the judge who is insufficiently aware of the surprises the past held for him, and of the need to improve his performance, seems likely to continue being surprised by what happens in the future" (Fischhoff and Beyth, 1975, p.15).

Fischhoff (1982a; 1982b; 1980; 1977; 1975a) established the standard paradigm of hindsight research (Hawkins and Hastie, 1990). However, further support for his interpretation of creeping determinism and the hindsight bias is

provided by Wasserman *et al.* (1991). Wasserman *et al.* use material (e.g. the British-Gurka scenario) similar to that of Fischhoff (1975a) to conduct their experiments. The hindsight bias has been found to contribute to overconfidence (Hawkins and Hastie, 1990; Davies, 1987; Slovic and Fischhoff, 1977), and, moving out of the laboratory, has been found to influence legal judgments (Casper *et al.*, 1988; Carrette and Moreland, 1983), medical judgments (Arkes *et al.*, 1988; Arkes *et al.*, 1981; Pennington *et al.*, 1980), social judgments (Janoff-Bulman *et al.*, 1985; Snyder and Uranowitz, 1978), the evaluation of "good" and "bad" decisions (Baron and Hershey, 1988; Buchman, 1985; Mitchell and Kalb, 1981), political election outcomes (Leary, 1982; Powell, 1988; Synodinos, 1986; Leary, 1981), and even "expert" pollsters (Tufte and Sun, 1975).

Theoretical psychologists, such as Hawkins and Hastie (1990), have concluded that the research into the hindsight bias and creeping determinism has implications for adaptive learning. Medical diagnosticians, for example, may believe that they knew it all along when they receive postdiagnosis feedback, and as a result, learn less from the experience than they should, and slow the development of medical expertise (Hawkins and Hastie, 1990). Sherman *et al.* (1981) and Ross *et al.* (1977; 1975) have found that once impressions are formed, they exhibit remarkable "perseverance", even in the face of discredited information (Hawkins and Hastie, 1990).

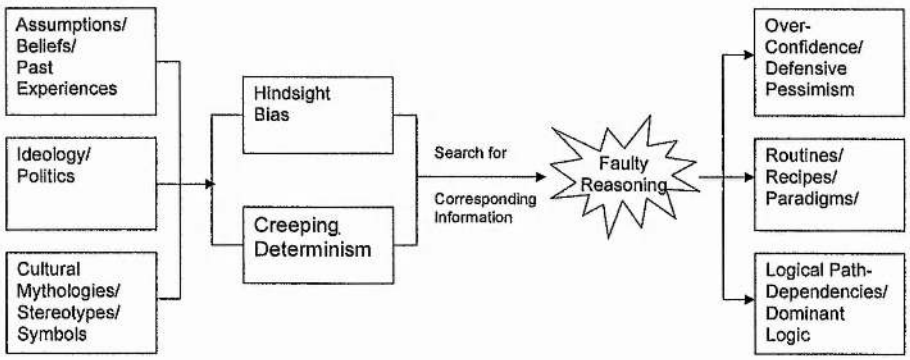
Secondly, adaptive learning and proficient judgment in complex environments, particularly when decision-makers are confronted with large amounts of information, ambiguity and wide-ranging implications, have to simplify and order data (Pennington and Hastie, 1987; Patel and Groen, 1986;

Hogarth *et al.*, 1980), which involves: "Constructing a mental model of the causal relations among evidence items deemed important by the decision maker. This causal model is the mediator between the raw evidence and the final decision" (Hawkins and Hastie, 1990, p. 324). Creeping determinism and the hindsight bias is an extension of this evaluative process (Nario and Branscombe, 1995; Hawkins and Hastie, 1990).

5.6 Foresightful Thinking Flaws

Foresightful thinking flaws, it is argued here, results from the hindsight bias, creeping determinism, and a shallow perception of history. It occurs when we take for granted perceptions and conceptions of what we think 'we know we know' about the past, and it increases what we 'don't know we don't know' about the future (see exhibit 5.1).

Exhibit 5.1 Foresightful Thinking Flaws: A Conceptual Framework



Source: Author

As Exhibit 5.1 conceptualises, perceptions and conceptions are generated through a combination of assumptions, beliefs, past experiences, cultural mythologies, ideology, politics, stereotypes, symbols and so on. They

contribute to our mental constructs, which are developed using hindsight, and determinism of what we think we know about the past creeps in. An inclination to either anchor our mental constructs in 'what we think we know' about the past, and to search for information that confirms our beliefs, prevent the necessary feedback to challenge our mental constructs from 'looping back'. The result is that foresightful hindsight and thinking is impaired and results in over-confidence or defensive pessimism, which creates misaligned routinised behavior, recipes/paradigms/dominant logics, and logical (and structural) path-dependencies.

Mintzberg *et al.* (1998) identify several key premises for the strategy formulation process. They inlcude:

1. Strategy formation is a cognitive process that takes place in the mind of the strategist.
2. Strategies thus emerge as perspectives – in the form of concepts, maps, schemas, and frames – that shape how people deal with inputs from the environment.
3. These inputs (according to the "objective" wing of this school) flow through all sorts of distorting filters before they are decoded by the cognitive maps, or else (according to the "subjective" wing) merely interpretations of a world that exists only in terms of how it is perceived. The seen world, in other words, can be modeled, it can be framed, and it can be constructed.
4. As concepts, strategies are difficult to attain in the first place, considerably less than optimal when actually attained, and subsequently difficult to change when no longer viable (Mintzberg *et al.*, 1998, pp. 171-172)

The foresightful thinking flaws conceptual framework helps to illustrate the process by which strategy formulation processes are a confluence of factors – assumptions, experiences, ideology, political processes, language, myths, stereotypes and symbols – which filter and distort 'inputs' from the environment. They emerge as perspectives, concepts, dominant logics, maps, paradigms, routines, and schemas, and can result in 'considerably less than optimal' forsightful strategies (Mintzberg *et al.*, 1998).

5.7 Chapter Conclusion

As Mintzberg (1991) writes:

> "You cannot see ahead unless you can see behind, because any good vision of the future has to be rooted in an understanding of the past" (Mintzberg, 1991).

However, to understand the past, we must first understand the various biases that distort our perception of that past, and are reinforced by the various assumptions, experiences, ideologies, language, myths, stereotypes and symbols.

Understanding of the psychological processes involved in the creation of biases is required to protect us from them (Fischhoff, 1982). However, simply warning people of their dangers is not, in itself, an effective antidote to these biases (Fischhoff, 1977). Attempting to convince oneself that the past may have turned out differently than it did (Koriat *et al.*, 1980; Slovic and Fischhoff, 1977), or more effectively yet, trying to "track down some of the uncertainty surrounding past events in their original form" by looking for alternatives to what we think we know about the future counterfactually (Fischhoff, 1982, p. 343), is an important first step. This is because, if the hindsight bias and creeping determinism go unchallenged, and our hypothesis about the past go untested when constructing our "foresightful state of mind," then, "we will remain anchored in our hindsight perspective" (Fischhoff, 1982, p. 343).

Psychologists have revealed certain cognitive heuristics that research has shown can be used to de-bias hindsight perspectives by challenging determinist assumptions of the past, and 'tracking down some of the uncertainty surrounding past events' through a process of generating alternative scenarios about how the past could have turned out differently than

it did. One such cognitive heuristic is counterfactual reasoning (Roese and Olson, 1996; Sherman and McConnell, 1995; Gleicher *et al.*, 1995; Markman *et al.*, 1993; Mahajan, 1992; Wasserman *et al.*, 1991; Miller *et al.*, 1990a; Wells *et al.*, 1987; Kahneman, 1982). Counterfactual reasoning is a cognitive process where individuals will ask "if then" and "if only" questions about the past. From these questions people will construct alternative scenarios into the past. Researchers have found that counterfactual reasoning is a heuristic that people will use for adaptive learning and preparation for the future (Roese and Olson, 1995c; Johnson and Sherman, 1990; Folger, 1984). Counterfactuals have also been shown to be an effective de-biasing process for the hindsight bias and creeping determinism (Mahajan, 1992; Wasserman *et al.*, 1991), although this is a controversial preposition, of which some researchers dispute (Carll, 1999; Roese and Olson, 1996). As such, the following chapter reviews received research in psychology on counterfactual reasoning.

Chapter Five: Counterfactual Reasoning: What if...?

"O, call back yesterday, bid time return."
- Shakespeare, 1669

"Whoso desireth to know what will be hereafter, let him think of what is past, for the world hath ever been in a circular revolution; whatsoever is now, was heretofore; and things past or present, are no other than such as shall be again: Redit orbis in orbem."
- Ralegh, 1829

"What if ...?
"With these words human beings achieve the capacity to catapult themselves beyond the muck and malignancy of the actual into the liberating realm of the possible."
- Roese, 1995

5.0 Chapter Introduction

As the words of Shakespeare and Ralegh illuminate, the past is not a forgotten, static state in time and space, but an ever present, dynamic period that ever shadows the present and the future. The human mind continually wanders back over the trodden trail, searching for forks and alternative paths that may have led one to a different place in the present. From these imaginative cognitive journeys into our past, we simulate what we could have done differently. It is these counterfactual (counter-to-factual) simulations that help us to learn for the future. Indeed, linguistically, as Steiner states:

> "It is unlikely that man, as we know him, would have survived without the fictive, counter-factual, anti-determinist means of language, without the semantic capacity...to articulate possibilities beyond the treadmill of organic decay and death" (Steiner, 1975, p. 227).

It is this ruminating of our past that helps us to create schemas for future action, or as Ingvar (1985) calls them, memories of the future. In this sense, our individual worlds are forever in a circular revolution, and as Lewis says:

"There are ever so many ways that a world might be; and one of these many ways is the way that this world is" (Lewis, 1986, p. 2).

Counterfactual reasoning is the equivalent of asking oneself 'what if,' 'if then,' and 'if only' questions after an event have occurred. They are quite literally contrary-to-fact conditionals. It is a cognitive process that is intimately familiar to every person from a very young age. To quote Dr. Seuss (1959):

> *"If we didn't have birthdays, you wouldn't be you.*
> *If you'd never been born, well then what would you do?*
> *If you'd never been born, well then what would you be?*
> *You* might *be a fish! Or a toad in a tree!*
> *You might be a doorknob! Or three baked potatoes!*
> *You might be a bag full of hard green tomatoes.*
> *Or worse than all that ... You might be a WASN'T!*
> *A Wasn't has no fun at all. No, he doesn't.*
> *A Wasn't just isn't. He just isn't present.*
> *But you ... You are YOU! And, now isn't that pleasant"*
> *(Roese, 1995, p. 1).*

While the genesis of interest in counterfactuals within the domain of social psychology dates back to the early 1980s, interest in "possible worlds" dates back at least to ancient Greek philosophers such as Plato and Aristotle. Aristotle's dictum that actuality is prior to possibility encapsulates the conception that a cognitive substrate extracted from tactual experience is responsible for the fabrication of any possible world (Roese, 1995, pp. 2-3): "Unrealized possibility ultimately roots in the mind-correlative capabilities of the real" (Rescher, 1975, p. 217). The seventeenth century German philosopher, Leibniz, contended that so long as no formal laws of logic are violated then an alternative world or reality is possible. Leibniz argued theologically that this world must be the best of all possible worlds because surely God contemplated all possible worlds before the creation of the one of which we currently inhabit (Roese, 1995, p. 3; Ferguson, 1997). Kant, while arguing that the focus of philosophical inquiry was to eliminate the role of

contingency, allowed for the possibility of human arbitrariness in a parallel universe that he called "noumena". However, for the most part, the belief was that universal laws determined the manifestations of human actions and all external events within the material world (Frost, 1989, p. 41).

Discourse on possible worlds and counterfactuals have been substantial in disciplines such as logic and linguistics throughout the 20th Century. Counterfactuals only found their way into social and cognitive psychology in the early 1980s, but the psychology studies that have been focused on the individual's use of counterfactuals as a reasoning technique have become voluminous. As Roese & Olson state:

> "Within a few short years, research on counterfactual thinking has mushroomed, establishing itself as one of the signature domains within social psychology. This sudden popularity is easily understood. Counterfactual thinking is something familiar to nearly everyone. Even if they have not previously heard the term counterfactual, people instantly recognize it, once it has been defined for them, as something with which they are intimately acquainted" (Roese and Olson, 1995, p. vii).

Social and cognitive psychologists have demonstrated that an essential and pervasive element of an individual's social-cognitive functioning is the inherent human tendency to imagine alternative versions of past events (Miller *et al.*, 1990). Further, studies have also shown that there is a common counterfactual fallacy to 'confuse what might have been with what ought to have been' (Miller *et al.*, 1990), thus reflecting the human propensity to search for information that corresponds with our perceptions of the world. Moreover, this burgeoning field of research proposes that counterfactual reasoning influence what we learn from our experiences (Morris and Moore, 1997[2];

[2] Unpublished manuscript, Stanford Graduate School of Business quoted in Sim, D. L. H., and Morris, W. (June 1998), "Representativeness and Counterfactual Thinking:
Principle that Antecedent and Outcome Correspond in Magnitude, Personality & Social Psychology

Roese, 1994; March *et al.*, 1991), and thus serves a preparative function for learning for the future.

5.1 Chapter Purpose and Contribution

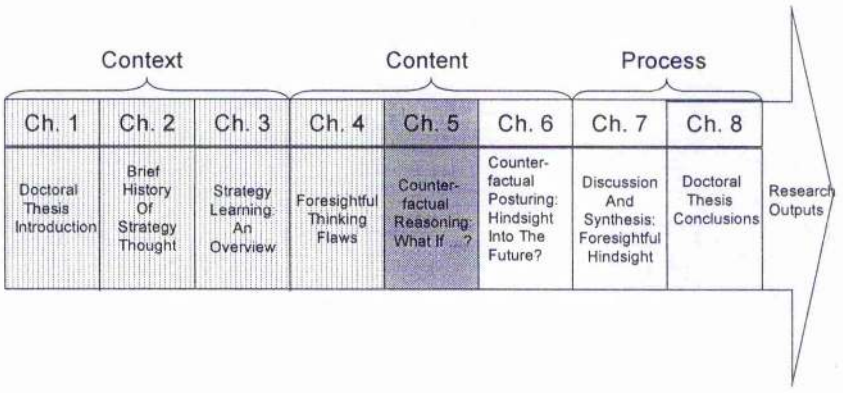
The previous chapter argues that *foresightful thinking flaws* results from the hindsight bias, creeping determinism, and a shallow perception of history. Perceptions and conceptions, the argument follows, are generated through a combination of assumptions, beliefs, past experiences, cultural mythologies, ideology, politics, stereotypes, symbols and so on. They contribute to our mental constructs, which are developed using hindsight, and determinism of what we think we know about the past creeps in. An inclination to either anchor our mental constructs in 'what we think we know' about the past, and to search for information that confirms our beliefs, prevent the necessary feedback to challenge our mental constructs from 'looping back'. The result is that foresightful hindsight and thinking is impaired and results in over-confidence or defensive pessimism, routinised behavior, recipes/paradigms/dominant logics, and logical (and structural) path-dependencies.

The previous chapter concludes that hindsight influences foresight by biasing how we analyze and learn from the past. As such, some of the uncertainty surrounding past events must be 'tracked down' (Fischhoff and Tversky, 1982). It is proposed that counterfactual reasoning is a cognitive heuristic that may potentially be used for preventing some of the biases that contribute to foresightful thinking flaws. The link in the doctoral thesis value chain (exhibit 6.0) that this chapter adds to the research question, *What role*

Bulletin, Vol. 24, Issue 6, p. 595.

does hindsight play in foresight?, is a review and synthesis of recent research into counterfactual reasoning, and its role in analysing the past and generating foresight into the future.

Exhibit 5.0 Doctoral Thesis Map



The purpose and contribution of this chapter is to build on the argument presented in the last chapter, that hindsight can play a distorting role in foresight. This chapter argues that counterfactual reasoning influences our affective reactions (i.e. our emotional reactions to events), a range of judgments, and under certain circumstances aids, and under other circumstances constrains adaptive learning and preparation for the future. The chapter concludes that counterfactuals are not a panacea for foresightful thinking flaws, and can themselves have dysfunctional attributes, which can augment, rather than prevent foresightful thinking flaws.

5.2 Chapter Structure

This chapter begins with a discussion of norm theory, which catalyzed socio-cognitive research into counterfactual reasoning research (Kahneman and Miller, 1986; Kahneman and Tversky, 1982), and affective reactions (emotional responses to events). Continuing on with the chronological evolution of counterfactual reasoning research, the following section presents research developments that propose that spontaneous counterfactual reasoning is a simulation heuristic that is frequently triggered by dramatic and "surprising" events (Wells and Gavanski, 1989; Gavanski and Wells, 1989; Taylor and Schneider, 1989; Wells *et al.*, 1987). The 'un-doing' of scenarios affects a range of judgments [Miller *et al.*, 1990; Gleicher *et al.*, 1990), but are also constrained by certain cognitive rules (Seelau *et al.*, 1995; Boninger *et al.*, 1994; Gleicher *et al.*, 1990; Landman, 1987). As research into counterfactual reasoning has evolved, researchers have found that counterfactuals serve a "preparative" function for the future (Roese, 1994; Markman *et al.*, 1993; Taylor and Schneider, 1989; Wells *et al.*, 1987), and that people's predisposition for considering alternative pasts may be correlated with their disposition to the future (Strathman *et al.*, 1994).

Counterfactuals, however, are not always an effective learning heuristic, and they can have some dysfunctional attributes (Sherman and McConnell, 1995; Dunning and Madey, 1995; Kruglanski and Freund, 1983), especially for foresight. The dysfunctional aspects of counterfactual reasoning are critiqued.

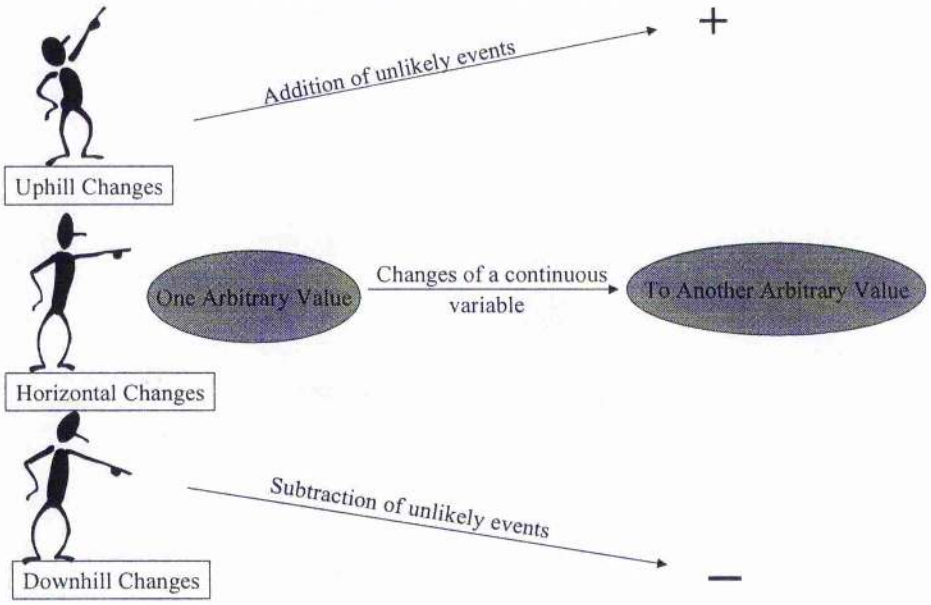
Finally, the relationship between counterfactual reasoning – generating alternative pasts – and prefactual reasoning – generating alternative futures – is investigated (Sanna and Turley, 1996; Gleicher *et al.*, 1995; Strathman, 1994) and a conceptual framework that incorporates the two is presented.

5.3 Counterfactual Reasoning: Affective Reactions and Judgment

Counter-factual reasoning affects a wide range of judgments including our assignment of blame (Miller *et al.*, 1990; Miller and McFarland, 1986), causal ascriptions (Gavanski and Wells, 1989; Wells *et al.*, 1987), accident and victim compensation (Macrae *et al.*, 1992; Miller and McFarland, 1986; Turley *et al.*, 1995), the perception of criminal behavior (Macrae *et al.*, 1993), social perception (Miller *et al.*, 1990) and our emotional responses to outcomes in our lives (Gleicher *et al.*, 1990; Landman, 1987; Kahneman and Miller, 1986; Johnson, 1986). Two studies that catalyzed research into counterfactual reasoning were entitled *The simulation heuristic* (Kahneman and Tversky, 1982) and *Norm Theory: Comparing Reality to Its Alternatives* (Kahneman and Miller, 1986). It is the former study that has traditionally been identified as the genesis of counterfactual research in social and cognitive psychology. It is in this study that the authors develop the metaphor of a "mental simulation" that involves establishing initial conditions and then un-rolling scenarios through to their possible outcomes (Roese and Olson, 1995c, p. viii). In the former study, the authors theorize that, rather than changing an event within a scenario from a normal state to an exceptional state, people have an inclination to manipulate an event from an exceptional state to a normal state when un-doing scenarios. Secondly, they argue that people are more inclined to manipulate a sequence of events within a given scenario by deleting an event from the sequence as opposed to adding an event to the sequence. In their study, Kahneman and Tversky proffer three categories for the mental manipulations that people use when deconstructing scenario outcomes (Exhibit 5.1). They are:

- *Horizontal changes:* changes of a continuous variable from one arbitrary value to some other arbitrary value.
- *Uphill changes:* the addition of unlikely events.
- *Downhill changes:* the deletion of unlikely events.

Exhibit 5.1 Three categories of mental manipulations that people use when deconstructing scenario outcomes



To test their theory of norms and normality, Kahneman and Tversky (1982) developed two versions of a story whose chief protagonist is Mr. Jones. In one of the stories, Mr. Jones leaves work at his regular time but takes a more scenic route home. At a traffic light, Mr. Jones is killed when a truck strikes his car. In the second story, Mr. Jones drives home on his usual route, but he leaves his work at an earlier time. Kahneman and Tversky (1982) presented their two narratives to two groups of participants and requested them to finish sentences that began with "If only ....". The researchers found that, rather than introducing an exception, people have proneness for downhill changes -- manipulating a variable towards normality (i.e. removing an event that is not normal and replacing it with an event that is normal such as 'if only he had taken his normal route or left at his normal time'). Kahneman and Tversky

(1982) concluded that horizontal changes are almost nonexistent and uphill changes are quite rare.

In a later study, Kahneman and Miller (1986) present a theory of normality and norms that could be applied to people's emotional responses, otherwise termed affective reactions, to an event. They conducted their study under the assumption that people recruit certain representations and then construct norms in an *ad hoc* manner. They postulated that people have pre-computed frames of reference and schemas that are consulted and used to interpret the flow of experiences that every individual encounters. The authors go further and present the idea that norms are registered and processed after an event occurs rather than before.

The researchers (Kahneman and Miller, 1986; Kahneman and Tversky, 1982; Kahneman and Tversky, 1973) expand their studies with their norm theory by arguing that people will create their own norms through comparisons with similar experiences that are stored in memory, or by comparing them to *ad hoc* counterfactual alternatives. In short, rather then pre-computing expectations, people will evoke norms after the fact. The authors applied norm theory to the enhanced emotional responses (affective reactions) driven by events resulting from abnormal causes, in their subjects, created by the generation of inferences and predictions from observed behavior and the role of norms in causal questions and answers. Abnormal events, as defined by the authors, are events that have easily available alternatives when thinking about, or processing the past. This means that an event that violates what people perceive to be normal, such as a freak

accident, will elicit alternatives to how the past could have turned out differently in people's minds.

If events violate expectations and elicit strong counterfactuals, the event is seen to be abnormal. If events confirm expectations (which include anticipations and probabilities) then it is seen as normal. The authors outlined two ways that subsequent events can be affected by certain occurrences. Firstly, if a subsequent event activates 'a trace' of a previous event (Schank and Abelson, 1982), and secondly, if an expectation or hypothesis is extracted, which further events either disconfirm or confirm (Kahneman and Miller, 1986).

One assumption made by Kahneman and Miller (1986) in their testing of norm theory is that the affective reaction (emotional reactions) elicited by an event will be stronger the greater the availability of imagined alternatives. For example, a fighter pilot that is shot down on the last day of a war or a victim of a train crash who decided to switch trains minutes before departure elicit stronger reactions than a pilot shot down three years before the war ends and a victim of a train crash who had a ticket booked months in advance (Kahneman and Miller, 1986). Kahneman and Tversky (1982) tested the hypothesis that abnormal consequences tend to flow from abnormal actions, by probing subjects about the degrees of regret that they felt over a victim of a car accident that took an abnormal route home, as opposed to a victim that took an a-typical route home. Subjects overwhelmingly thought that the victim that took the abnormal route home would feel greater regret (Miller and McFarland, 1986). Miller and McFarland (1986) corroborate this assumption using two experiments, which analyse 'compensation for victims of fates for

which a positive alternative was highly available'. As predicted, and consistent with norm theory, if positive alternatives were available for a given fate, participants recommended higher levels of compensation [Miller and McFarland, 1986).

5.31 Counterfactuals and The Un-doing of Scenarios

Furthering the theory that people engage in mental simulations of events to evaluate dramatic scenarios, proposed by Kahneman and Tversky (1982), Wells *et al.* (1987) argue that the concept of a simulation heuristic or a mental simulation "might be of considerable theoretical import for understanding how people evaluate scenarios" (Wells *et al.*, 1987 p. 421). The authors attempt to acquire a greater understanding of the tacit rules that people use when they undo scenarios through the selection of events, which they mentally mutate. As discussed, when people are asked to undo the outcome of a scenario, according to Kahneman and Tversky (1982), they follow two general rules.

Firstly, they proffer that people are less likely to change an event from a normal state to an exceptional state than from an exceptional state to a normal state. Consequently, Kahneman and Tversky (1982) argue that the psychological distance from the violated norm to the exception is longer than it is from the exception to the norm that it violates (Wells *et al.*, 1987). For example, if a person decides to change trains, opting for an earlier time, and that person is killed in an accident, it easily comes to mind that 'if only' the person had taken their scheduled train the tragedy would have been avoided.

Secondly, people are less likely to manipulate the outcome of a scenario by introducing a new antecedent event into the sequence than by deleting one

(Wells *et al.*, 1987). For example, two people are in line at the departure check-in at an airport; Samantha, who is carrying two heavy bags, asks Kelley who is in front, if it would be possible to check in first. Kelley agrees. However, the flight is over-booked, Samantha gets on and Kelley is given a free trip anywhere in the world as compensation for taking a later flight. The most readily available mental simulation is one where the event is deleted. If Samantha had waited her turn, then she would be the person receiving the free flight. It is cognitively more onerous to add an additional event to the mental simulation, such as one where Samantha has to search for her ticket in her bag, and thus allows Kelley to proceed to the departure's check-in counter.

Experiments conducted by Taylor *et al.* (1986) confirm Kahneman and Tversky's (1982) conclusions that people rarely use uphill changes. However, their results differ with their conclusions about horizontal changes. Indeed, the researchers found that horizontal changes are quite common. Using various vignettes about a motorcycle accident, the researchers found that both downhill and horizontal changes were used, depending on the context, or framing of the narratives. In the various narratives, the motorcyclist had either a 10 second or 25-minute conversation with a pedestrian, immediately prior to the accident. In the latter scenario, people tended to delete the conversation outright, while in the former, people changed the duration of the conversation (Wells *et al.*, 1987).

In the second of two experiments, Wells *et al.* (1987), extend the research confirming that normal events are less mutable than exceptional events, thus confirming the observations of Kahneman and Tversky (1982) and Kahneman

and Miller (1986). Using 116 student participants from the introductory psychology research pool at the University of Alberta, the researchers gave eight versions of a scenario that involved a man Tony, going to an aquatic center for his weekly swim, turning a corner, bumping into a man with a gun, knocking the man down, taking the gun and running away. In the scenario, it later turns out that the man was a police officer chasing a bank robber. Each vignette consisted of three events, which were framed as either an exception or a norm. For example, in one version, Tony either takes his typical route, Jefferson Avenue, to the aquatic center (norm), or he takes an unusual route, Campbell Boulevard (exception), to the aquatic center.

In their experiments, Wells *et al.* (1987) also observe that there is a relationship between the number of imaginable alternatives that people will generate, and their perception of past causes and prior sets of conditions driving the event. In other words, if people do not perceive there to be any inhibiting cause or prior condition (e.g. legal rules, habit, social rules – rules to the game as neo-institutional economists term it) for an event, they will imagine a wider range of possibilities. As Wells *et al.* suggest: "exceptions to the norm epitomize the essence of events that occur in spite of rather than because of these constraints" (Wells *et al.*, 1987). Consequently, and most importantly for the purposes of this dissertation, Wells *et al.* argue that the role of imagination on the explanations that people generate to hypothetical outcomes and on the prediction of future outcomes may be influenced by their description of the undoing process. People may choose to manipulate, or undo, the events that simultaneously make the outcome easy to explain. Even more importantly for the purposes of understanding the role of hindsight

in foresight, when predicting future events, if people perceive the prior events to an outcome to be immutable, then they will predict that future as being the most likely to occur (Wells *et al.*, 1987). As the authors state:

> "It might be that when asked to explain an outcome, people run a mental simulation to see which events, if changed, would alter the outcome, and then use the occurrence of those events to explain the outcome. As for the prediction of future outcomes, the undoing process might be one of the heuristics that a predictor uses in evaluating the likelihood that a given outcome will occur" (Wells *et al.*, 1987 p. 429).

These cognitive simulation processes and mental heuristics, depending on which antecedents are viewed as being mutable or immutable, may result in a kind of cognitive path-dependency, partially driven by the hindsight bias (Fischhoff, 1975a), and creeping determinism (Fischhoff, 1975a; Florovsky, 1969).

While Kahneman and Miller (1986) propose that a guiding rule of counterfactual reasoning and mental simulation is that people have a proneness to change exceptional events in the direction of normality when manipulating outcomes or undoing scenarios, Gavanski and Wells (1989) further develop this reasoning by arguing that people will indeed change exceptional events in the direction of normality when manipulating outcomes or undoing scenarios when the outcome is exceptional, but when one wishes to undo an outcome that is normal, one will manipulate the outcome in the direction of exceptionality. In short, the processing of mental simulations is governed by the correspondence between antecedents (prior events) and outcomes (Gavanski and Wells, 1989).

In a series of experiments, Gavanski and Wells (1989) had participants read stories about exam outcomes. Consistent with their hypothesis, normal outcomes were undone by manipulating them in the direction of exceptionality

and vice versa. This led the researchers to the suggestion that there is an internal cognitive heuristic that guides mental simulations in which normal events are presumed to cause normal outcomes and exceptional events are presumed to cause exceptional outcomes. They term this phenomenon the *normality-correspondence hypothesis*. To quote Gavanski and Wells:

> "To act purposefully on our physical and social environment, we must not only evaluate reality, but also imagine alternatives to reality. Our thoughts, emotions, and actions are guided not only by what is, but by what might be and what could have been" (Gavanski and Wells, 1989).

In their normality-correspondence hypothesis, Gavanski and Wells argue that the correlation between exceptional events and exceptional outcomes, as well as normal events and normal outcomes, is a perceived correlation and does not necessarily reflect the true reality. One reason for the previous hypothesis that people generally undo outcomes in the direction of normality may very well be do to the fact that exceptional outcomes were generally used in the research methodology. Gavanski and Wells (1989) note that while an exception can be mutated towards normality or greater degrees of exceptionality, normal outcomes are only be changed towards greater exceptionality. While it has become generally accepted that counterfactual thinking is generally, and quite naturally, elicited by exceptional events, Gavanski and Wells (1989) argue that normal-outcome scenarios can also elicit counterfactual simulations, especially after negative outcomes. People are motivated to learn from past experiences and avoid negative outcomes (or replicate positive outcomes) in the future. Counterfactual mental simulations are one of the chief heuristics for achieving these goals: "The alternative, unrealized outcomes for contrast and comparison hinge on strategies of mutation" (Gavanski and Wells, 1989). Consequently, the development of

strategies for future behavior is intricately bound with counterfactual reasoning.

5.32 Counterfactuals and Judgment

Gleicher *et al.* (1990) suggest that when someone experiences a negative outcome to an event, they will engage in a four-stage cognitive process:

1. They generate alternative counterfactual outcomes.
2. They generate alternative counterfactual routes to those outcomes.
3. They compare the judged probability of the actual event with that of the counterfactuals (based on the perceived probability of the possible routes).
4. They react affectively, based on these prior processes.
(Landman, 1995 p.235).

The counterfactuals that individuals generate are a key determinant in behavioral and affective responses to actual outcomes (Gleicher *et al.*, 1990). Affective responses are the emotional response to a given outcome – the affect that a comparison of reality to that of counterfactuals will have and the amplification of one's emotional response that may result from such a comparison, and may impact on judgment.

A human characteristic that counterfactuals help to highlight is that the evaluation of experiences is relative and often depends as much on what has not happened as on what has happened (Miller *et al.*, 1990). The findings of Kahneman and Miller (1986) show that reality is frequently compared to post-computed representations generated post-hoc by a given event. It is the post-computed alternatives to reality that provide the bases for the schemas and action plans for future situations. It is the pre-computed representations that exist prior to the occurrence of events that provide the templates for the comparison of future events and the processing of information. The interaction between pre-computed and post-computed representations will

determine what can be considered *normal* and what is considered *abnormal.* To quote Miller *et al* (1990):

> The pre-computed representations that exist prior to an event, combined with the post-computed counterfactual thoughts, images, and scenarios that are evoked by the event itself, comprise what Kahneman and Miller (1986) have termed the vent's *norm.* The discrepancy between an event and the norm that it evokes, defines the event's normality. The more discrepant an event is from the representations (pre-computed or post-computed) that it evokes, the less normal (more abnormal) the event is said to be (Miller *et al.*, 1990 p. 306).

Miller *et al.* (1990) also propose that reactions to tragedies and misfortunes depend on their normality as well as their perceived deservedness and expectedness. They argue that the closer an unfortunate event was to not happening, according to one's mental simulation, the more exaggerated will be the affective reaction to it and the more abnormal it will seem. Furthermore, counterfactuals can influence our social knowledge and sympathy reactions, and judgments relating to the two (Miller *et al.*, 1990).

A controversial incident that took place in France many years ago illustrates the point. During a bomb attack on a synagogue in France numerous people were injured, including a passerby outside the synagogue. The prime minister publicly expressed his sympathy for both the innocent passerby and the Jews inside the synagogue and denounced the attack. However, controversy was ignited when many suggested that by differentiating between the Jews inside and the "innocent" passerby outside, the prime minister was suggesting that the Jews were not as innocent as the person passing by. Miller *et al.* argue that, counterfactually, it may have simply been the case that it was cognitively easier to remove the passersby from the area around the synagogue than the Jews that were attending (Miller *et al.*, 1990 p. 317).

Research by Miller *et al.* (1990) also found that counterfactuals and concepts of normality also influence suspicions about the luck of the draw, the fairness of a contest, representativeness of an unexpected event and stereotype revisions. In one illustration, the researchers use the example of a child who loves chocolate chip cookies:

> "Imagine that you have a young child who loves chocolate chip cookies. Imagine further that you buy your cookies in packages that include oatmeal as well as chocolate chip cookies. Your child's practice is to go to the cookie jar and select the chocolate chip cookies, leaving the oatmeal cookies to go stale. One day you think of a strategy to cope with the problem. You tell your child to close his or her eyes before reaching into the jar and to take whichever cookie is grabbed first. The child agrees to this and heads for the kitchen and the cookie jar. Returning shortly thereafter, the child explains that just what you said to do was done and a chocolate chip cookie was selected" (Miller *et al.*, 1990 p. 319).

The selection of the chocolate chip cookie could elicit various judgments depending on knowledge held about the child's prior behavior and other factors known about the child. Judgment could also be influenced by one's knowledge of the contents in the cookie jar. If only 5% of the cookies in the cookie jar were chocolate chip, it is almost a certainty that your suspicion would be greater then if 50% of the cookies in the jar were chocolate chip (Miller *et al.*, 1990).

In legal proceedings, asking juries to make sure that they are sure "beyond a reasonable doubt" before convicting someone is an invitation to consider how a given incidence could have unfolded without the accused being guilty of the offense in which they are charged. However, the ease by which the events can be cognitively replicated may be a determining factor of the probability that the accused committed the alleged offense (Miller *et al.*, 1990; Johnson, 1986).

In Miller *et al's* (Miller, 1990) four studies, unexpected outcomes generated by chance or coincidental origins were treated with differential suspicion by the participants. The researchers argue that the reason for this is that people will decide whether or not an event came to pass by chance based on the ease of which they can imagine alternatives as well as *a priori* probability. One of the implications of their studies is that people's willingness to alter their beliefs depends on the normality of the event as well as how their beliefs relate to how probable the evidence appears to be. In short, their research shows that in the domains of social perception and social judgments, post-computed representations are an important factor through their influence over heuristic processing. People are frequently guided by the strength of their reaction to an outcome and feelings of surprise and normality provide 'ecologically valid clues to one's *a priori* subjective probability estimates' (p. 326). To quote Miller *et al.*:

> "Normality, in this sense, would be functioning similarly to the availability heuristic in the memory process. On this point, Tversky and Kahneman [Kahneman, 1973 #11] have shown that estimates of an event's probability are often dependent on the availability of similar events in memory. The more available similar events are in memory, the more probable they are assumed to be" (Miller *et al.*, 1990 p. 327).

As John Greenleaf Whittier's famous phrase quips: "For all sad words of tongue or pen, the saddest are these: 'It might have been!'" (Miller *et al.*, 1990 p. 326).

5.33 Counterfactuals and Constraints

Replicating positive outcomes and avoiding negative outcomes is intimately linked with understanding causal roles, or antecedents, of proceeding events. To understand, to predict and to control are some of the

reasons why humans indulge in counterfactual thoughts (Seelau *et al.*, 1995 p. 58). Despite the ability of humans to imagine almost anything when pressed, researchers have found that "if only" and "what if" thoughts are governed by "remarkably disciplined" and constrained sets of finite possibilities that include information available to memory, basic laws of the workings of the universe, and higher-order purposes and goals (Roese and Olson, 1995c, p. ix). More specifically, Seelau *et al.* (1995) argue that knowledge of the workings of the universe, or *natural-law* constraints, encompasses people's concepts such as the direction of time, gravity and the speed of light will normally be left unchanged. Secondly, operating through availability constraints (Tversky and Kahneman, 1973) are inactions versus actions (Landman, 1987), non-salient versus salient events (Gleicher *et al.*, 1990), omissions versus commissions (Baron, 1992) and normal events versus exceptional events (Gavanski and Wells, 1989; Kahneman *et al.*, 1982).

Another category of constraints proposed by Seelau *et al* (1995) is purpose constraints. Purpose constraints consist of intent. People may use counterfactuals to understand the causality behind an event, or on the other hand, they might use counterfactuals to assess causal ascriptions (Wells, 1987) blame (Boninger *et al.*, 1994; Miller and Gunasegaram, 1990b) and so on. Lucidity, they suggest, is also a factor in the generation of counterfactuals. In light of the context, non-lucid counterfactuals are those that appear irrational, implausible or inappropriate, whereas lucid counterfactuals are those that appear rational, plausible and appropriate. Thus, mutating an event that violates natural laws in order to change an

outcome is not lucid. Undoing a plane crash, for instance, by violating the laws of gravity is not a lucid counterfactual, and consequently, would not make sense to the simulator. Moreover, even though there may be "an infinite" number of mutable junctures in a causal chain, some will automatically be eliminated by the simulator by virtue of being un-cotenable mutations.

On the other hand, research has shown that some counterfactuals are more available than others. People will use their explicit, and frequently limited knowledge of the factual events in their mutations (Wells and Gavanski, 1987; Kahneman and Tversky, 1982). Near misses or hits, such as winning a bronze, silver, gold or no Olympic medal (Medvec *et al.*, 1995), or such as the winning goal scored by the opposing team in the dwindling seconds of a football match is fertile ground for generating counterfactuals based on an event that "almost happened" (Kahneman and Tversky, 1982). Research has also demonstrated that people are more inclined to mutate earlier events (primacy effect) as opposed to later events (recency effects) do to the perception that earlier events resulted in later events (Johnson *et al.*, 1989; Wells and Gavanski, 1987). People have a penchant for mutating exceptional rather than normal events (Kahneman and Tversky, 1982; Wells and Gavanski, 1987). Actions versus inactions, research also shows, influences judgments and are more mutable (Gleicher *et al.*, 1990; Landman, 1987). Finally, as Seelau *et al.* (1995) conclude, if a person is under a large cognitive load and is consequently unable to undertake conscious processing, they will mutate the most available, salient events (Seelau *et al.*, 1995, pp. 64-66).

5.34 Counterfactual Thinking: Future Preparation versus Present Coping

While the sequence of events plays a role in the mutability of a causal event, other researchers have found that people will generate counterfactuals for many varying reasons. Markman *et al.* (1993), for instance, explore the spontaneous generation of *downward counterfactuals*, which worsen reality and *upward counterfactuals*, which improve reality (Markman *et al.*, 1993). They investigated the spontaneous generation of counterfactuals through the use of a computer-simulated blackjack game. Each subject gained $5, but then the outcome was 'framed to be perceived' as a neutral outcome, a loss or a win. Some subjects were told that they could play again and others were told that they could not. Subjects that were told that they could not play again were more satisfied with their outcome than the subjects that were told that they could play again. Subjects that were told that they could not play again had a predilection towards generating more upward counterfactuals. Markman *et al* also found that both the "neutral" and the "win" frames produced less upward and more downward counterfactuals than did the "loss" frames. The goals of the researchers were to explore some of the emotional and cognitive counterfactuals for the generation of better and worse possible worlds and to investigate and determine the conditions under which people compare their reality to worse and better alternatives (Markman *et al.*, 1993, p. 88). They found that *upward counterfactuals* take the form of "if only" statements and these mental simulations to improved realities are used as learning heuristic for the future (Markman *et al.*, 1993; Taylor and Schneider, 1989; Wells and Gavanski, 1987). *Downward counterfactuals*, on the other

hand, have the short-term effect of enhancing satisfaction, but frequently at the expense of learning for the future. As they state:

> "In sum, both upward and downward counterfactuals hold trade-offs for the individual: the upward counterfactual prepares one for the future at the expense of immediate feelings of dissatisfaction, whereas the downward counterfactual enhances satisfaction, often at the expense of leaving one unprepared for the future" (Markman *et al.*, 1993, p. 90).

Further experiments by Roese (Roese, 1994) corroborate these findings. Using students from introductory psychology at the University of Western Ontario, in the first of three experiments, for example, the students were asked to think of, and to describe a single event over the past year that was especially disappointing or negative. They were then asked to generate counterfactuals, imagining how things could have turned out differently. The students were then asked to record their affective reaction to the counterfactuals (e.g. hostile-agreeable).

Roese (1994) finds that counterfactual thoughts, or as he terms them, "might-have-been" reconstructions of past outcomes (p. 805), serve as both a *preparative function* for future improvements, and an *affective function* for feeling better. This corroborates other research that has found that upward, often times additive counterfactuals serve a preparative function for the future (e.g. Roese and Olson, 1993b; Markman *et al.*, 1993), and that downward counterfactuals serve an affective function by making oneself, or others, feel better after a negative event (Markman *et al.*, 1993; Johnson and Sherman, 1990; Taylor and Schneider, 1989).

Roese (1994) argues that counterfactual thinking appears to be a pervasive if not essential function of human consciousness. Upward counterfactuals: "May be taken as schemata for future action, making salient

those scripts that are necessary to facilitate success" (Roese, 1994) and as such: "the realization of positive alternatives should make positive outcomes more likely in the future" (Johnson and Sherman, 1990, p. 512).

Roese and Olson (1994) and Johnson and Sherman (1990) postulate that upward counterfactuals in particular might enhance performance through the generation of scripts for the future. To quote Roese and Olson:

> "These counterfactual subtypes are perhaps easily converted into conditional propositions focusing on future possibilities, which have been shown in previous research to influence intentions to perform success-facilitating behavior, and in turn, overt behavior. The term mental simulation embraces not only counterfactual reconstructions of the past but also constructions of future possibilities (scripts)" (Roese, 1994, p. 807).

Boninger *et al.* (1994) point out that people compare their outcomes to imagined alternatives because there is no other objective standard for comparison. While Markman *et al.* (1993) have demonstrated the effects of counterfactual thought on coping, showing that there is a trade-off between "feeling better" and "preparation for the future", Boninger *et al.* (1994) argue that "preparation for the future" in itself may have a positive result on affective reactions. As Roese and Olson (1995c) state, and Johnson and Sherman (1990), and Folger (1984) corroborate:

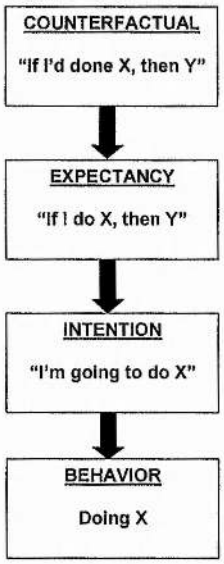
> "By manipulating alternatives to past actions, individuals can scrutinize them into prescriptions that may facilitate success in the future" (Roese, 1995, p. 170).

Researchers have demonstrated the counterfactual identification of 'a causally potent antecedent action' as the mechanism driving the preparative function (Roese and Olson, 1995b). Identifying a causally potent antecedent action acts as an expectancy trigger (Roese and Olson, 1995b; Olson *et al.*, 1995; Anderson and Godfrey, 1987; Sherman, 1981) for the future consequences of a similar action. The final stages on this pathway are heightened intentions

for performing the action in the future, which may reflexively 'influence the behavioral manifestation of that action', the link between behavior and intention being well documented (Ajzen, 1988). Future performance will be enhanced if the original causal inference is correct (Roese, 1995b, p. 171)

Roese & Olson (1995b) visually illustrate their hypothesized mechanism linking behavior to counterfactuals in exhibit 5.2.

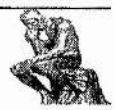
Exhibit 5.2 Counterfactuals and Behaviour



(Roese and Olson, 1995b, pp. 172, 173)

Whether counterfactuals worsen reality, as opposed to improving it,[α] or whether counterfactuals subtract versus add antecedent events,[β] plays a significant role in whether counterfactuals play an affective (feeling better) or a preparative (future) function. Upward counterfactuals, those that represent an improved state of affairs over reality, have been found to provide greater preparative functionality, they make scripts that are needed to facilitate success more salient and may be viewed as schemata for future action

[α] Often called counterfactual direction.
[β] Often called the counterfactual structure.



(Roese, 1995b, p. 173). However, as research by Johnson and Sherman (1990) has demonstrated, people also strategically use counterfactuals, often downward, to improve affective reactions, or in other words, to feel better.

Markman *et al.* (1993) have shown that there is often a trade-off in the strategic use of counterfactuals. Where counterfactuals used for preparative purposes may have long-term benefits, such as performing better in the future, it may be at the expense of feeling better. Counterfactuals used for affective purposes, on the other hand, may be at the cost of future performance enhancement. (p. 174). However, Roese (1994) notes that there may be more interplay between the two, and generating *more* upward and downward counterfactuals can negate the trade-off, thus maximising both the preparative and affective functions.

Additive counterfactuals, those that add an additional antecedent, versus subtractive counterfactuals, those that, in order to reconstruct reality, remove some factual antecedent, have also been found to influence preparative versus affective purposes driving counterfactual thinking. As Roese & Olson (1995c) state: "Additive counterfactuals are, by definition, those that go beyond the original option set, forging novel options perhaps never considered in the past" (Roese and Olson, 1995b, p. 176). The *Andrea Study* (Roese and Olson, 1993b), adapted from a previous study by Gavanski and Wells (1989) participants were given a scenario depicting exam preparation by a student named Andrea. In the scenario, Andrea experiences obstacles and she also does some additional work over and above her routine exam preparation, thus giving a range of antecedents to construct counterfactual alternatives, some inhibiting success and others facilitating success.

Participants were subsequently asked to record how the scenario could have turned out differently on paper. The researchers manipulated two variables: outcome frame and outcome valence (positive vs. negative outcomes). Andrea's exam outcome was described as either failing the exam, or passing the exam with a good mark. Secondly, Andrea's prior academic record was depicted as either poor or good. The researchers hypothesised that the prominence of additive counterfactuals would be greater following a failure than success and that this situation would become more accentuated when a history of past failure was used to frame the scenario.

As predicted, there was a significant two-way interaction and outcome valence predicted the structure of counterfactuals. Success, as opposed to failure, led more frequently to the generation of subtractive counterfactuals and additive counterfactuals were more frequently generated following failure (Roese, 1995b, p. 177). To quote Roese & Olson (1995b):

> "In the failure conditions, additive counterfactuals suggested creative and novel response options that moved beyond the confines of the events described in the scenario (p. 177).

When failure was framed by a history of past failure, the preponderance of additive counterfactuals was augmented with the consequence of engendering a 'reliable three-way interaction between outcome valence, outcome frame, and structure. As Roese and Olson (1995b) conclude:

> "In this condition, participants seemed sensitive to the fact that Andrea was in real trouble and went out of their way to provide strategically creative solutions that were not so much as hinted at in the scenario itself. This generative creativity of counterfactual thinking has not perhaps been sufficiently appreciated in previous discussions" (p. 177).

And they go on to suggest that the results of their study illuminate:

> "The often exuberant originality inherent in counterfactual thinking, a uniquely functional propensity that is captured in particular by additive structures" (Roese and Olson, 1995b, p. 178).

Counterfactual thinking, therefore, may indeed serve three, as opposed to two, major functions. The first is regulating affective reactions, generally generated through the application of *downward counterfactuals*. The second is preparation for the future, most frequently generated through the application of *upward counterfactuals*. One can argue that the latter two functions served by counterfactual thinking are both functional, with the caveat that there can be trade-offs between improving affective reactions and improving future performance if spontaneous counterfactual generation is not compensated for through the generation of either upward or downward, deliberate counterfactuals.

A third functional area served by counterfactuals, as has begun to emerge in research programs (e.g. Markman *et al.*, 1995; McMullen *et al.*, 1995) is controllability. Perceptions of causality, Wells and Gavanski (1989) argue, are intimately tied to the generation of counterfactuals. Once an individual has reconstructed a representation of causality, the sequence of events in an actual scenario is perceived as predictable, sensible and controllable (Sherman and McConnell, 1995, p.201). Langer (1975) has demonstrated that the most important motivation driving human behaviour and judgment is the perception that the world is as predictable and controllable (Langer, 1975). However, there are dysfunctional implications carried by these perceptions of predictability and controllability, and the generation of counterfactuals. To quote Sherman and McConnell:

> "In fact, the need to feel in control of one's circumstances and outcomes may lead to such illusions of control even when these

> perceptions carry with them terrible affective consequences" (Sherman and McConnell, 1995, p. 201).

5.4 Counterfactual Reasoning: The danger of dysfunctional counterfactuals

The importance of counterfactuals in human cognitive behaviour has been well established by psychologists. As Sherman and McConnell state:

> "Interestingly, a focus on the functions of counterfactual thinking seems to have left psychologists with the feeling that counterfactuals may be the greatest thing since ESPN. They are the panacea to brighten a person's day, to give people hope, to empower them, and to improve their circumstances" (Sherman and McConnell, 1995, p. 202).

For the most part, as the above quote highlights, research programs focussing on counterfactual reasoning have concentrated on the benefits of counterfactuals. But is there a dysfunctional side to counterfactual reasoning? The research program of Sherman and McConnell (1995) indicate that there might be. While the benefits of developing stereotypes, categories, schemas, heuristics and so on include enhancing the effectiveness and efficiency of thought and simplifying and making sense of a complex world, the dysfunctional side to these processes include over-simplifying a complex world and leaving people vulnerable to errors of judgment and biases: "That can manifest themselves in unfortunate and self-defeating behaviours and perceptions" (Sherman and McConnell, 1995, p. 203).

Past research on counterfactuals (e.g. Markman *et al.*, 1995; Markman *et al.*, 1993; Roese, 1994), much of it discussed in this chapter, have shown counterfactuals to be a learning heuristic that helps individuals to understand the "causal structure of a chain of events in an action sequence so that a changed outcome in the future is a possibility" (Sherman and McConnell, 1995, p. 203). However, much of the same research, as Sherman and

McConnell point out, has also shown people who display "systematic biases in their interpretations of events and explanations of causal relations," and they "may mutate event features that played no role in the actual outcome and may fail to mutate features that were critical for the outcome to occur." These counterfactuals, it is argued, can lead to erroneous understandings of situations in real time (Sherman and McConnell, 1995, p. 203), which, one may conclude, leads to incorrect causal analysis, self-fulfilling prophecies, escalating error, dysfunctional behaviour, and a perpetuation of poor performance in the future. To quote Sherman and McConnell:

> "Such [dysfunctional] counterfactuals will lead to an incorrect causal analysis and an improper understanding of the situation and may thus instigate continued poor performance in the future as well as negative affect inappropriately directed at others or even at oneself" (Simon, 1955, p. 203).

The well-documented "fallacy of composition" phenomena, for instance, may very well be perpetuated by erroneous counterfactuals. The following example cited by Sherman and McConnell illustrates the point:

> "In addition to groundless scolding of children, Miller *et al.* (1990) suggest that this bias can help build and maintain stereotypes. For instance, consider two groups (a majority group of 500 members and a minority group of 50 members) that each claim to have the same small proportion of hostile members (e.g., they claim that only 2% of the members of the group are hostile). On encountering the first member of each group, you find both of them to be hostile. It is easy to imagine running into 1 of the 10 presumed hostile members of the majority group, and there is no reason to question the claim that the vast majority of this group are friendly. It is not easy to imagine running into the one and only presumed hostile member of the minority group by chance. Just as with the cookie jar scenario, fewer alternatives to the outcome make an event with fewer ways to occur (though probabilistically equivalent) seem more suspicious. Thus, a person might question the claim that only one member of the minority group is hostile and conclude that minority-group members must be more generally hostile" (Sherman and McConnell, 1995, p. 205).

Mutating the last action in a causal sequential chain of events might be the result of undue blame being placed on that event. Mutating the assassination of Franz Ferdinand by a Serbian terrorist in Sarajevo, for instance, is an

example of a causal event often cited as a contributor to the First World War and eclipses many of the more powerful, but less salient, more subterranean and distant causes. These causes could include: the rise of social Darwinism, increased complacency towards peace, the development of a bi-polar alliance system, the rise of German strength, German policy, the rise of nationalism and consequential destruction of two declining empires, German politics, and even the personal idiosyncrasies of the leaders (Nye, 1993, p. 65).

Mutating an event to alter an event that was uncontrollable, such as changing the behaviour of the pilots in the September 11th 2001 attacks on the World Trade Centre in New York, for instance, might have implications for decisions made by passengers and pilots in future hijacking situations. As Kahneman and Miller (1986) demonstrate, people are more prone to mutating exceptional events as opposed to less salient events. In short, mutating events in causal chains can lead to dysfunctional perceptions of blame, controllability and erroneous inferences of the causality of events in a sequential chain.

Many of the dysfunction aspects of the mutational elements in the process of generating counterfactuals are similar to those associated with biased hypothesis testing. Researchers have shown that when hypothesis are being tested, people tend not to rely on alternative possibilities, but on a biased subset of information that they consider to be only the focal hypothesis (Sherman and McConnell, 1995, p. 208; Klayman and Ha, 1987; Skov and Sherman, 1986; Wason, 1968. As Higgins argues, people have constructs that are 'chronically accessible' (Higgins, 1982). These 'focal stimulus dimensions' will influence individual's mutations by virtue of devoting greater

cognitive resources to these dimensions and consequently, the likelihood that these features are encoded and will guide future construct retrieval is enhanced (Sherman and McConnell, 1995; Smith and Zarate, 1992; Nosofsky, 1987; Kahneman and Miller, 1986; Medin and Schaffer, 1978). These findings also help to explain how, in some cases, 'memories of the future' (Ingvar, 1985) are recalled, and subsequently, put into action. As Sherman and McConnell state:

> "Consequently, counterfactuals can serve as a mechanism for the maintenance and reinforcement of chronic constructs because it should be easy for a person with a chronic expectancy to form chronic mutations about these well-encoded features of situations ... Chronic mutations may lead a person down a biased counterfactual path, evoking many "what ifs" for features that would not have actually changed the outcome of the situation " (p. 209).

Sherman and McConnell conclude that it has been effectively demonstrated that individual's use simple heuristic principles for mutating event features and outcomes. This begs the question, how can misperceptions and systematic biases in the counterfactuals generation process be avoided?

Kruglanski and Freund's (1983) theory of lay epistemology suggests that an effective way of countering biased processing is by generating alternative possibilities. To quote Sherman and McConnell:

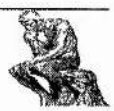
> "In many ways, lay epistemology and counterfactual generation share much in common in that freezing (the cessation of generating additional alternatives) leads to a person's accepting a state of affairs as irrevocable. Generating a counterfactual is dysfunctional when only highly accessible event features are mutated and a search for alternatives is thus prematurely terminated" (Sherman and McConnell, 1995 p. 210).

Lord *et al.* (1984) also found that asking participants in their studies to consider contrary alternatives to counterfactuals is a good strategy for avoiding biased processing. Sherman and McConnell (1995) take this one

step farther by arguing that it is important for individuals to, not only consider alternatives to their counterfactuals, but to consider how alternative antecedents might have resulted in the *same* outcome. Some historians and international relations theorists that use counterfactual analysis in their discipline refer to the latter counterfactuals as second order counterfactuals (e.g. Lebow, 2000b).

Dunning and Parpal (1995) found that when it comes to causal potency inference of a specific antecedent, the *framing* of the causal questions posed to the subject influences it. Based on their recent laboratory work, Dunning *et al.* (1995) found that there are two different framing effects when people compare their current reality (the present) with counterfactual alternatives. The first arises from the psychological tendency to give less weight to the *referent* (the alternative) than the subject of the comparison. Consequently, respondents to surveys distributed by the researches gave more weight to a world that they have a rich array of information, such as the present, as opposed to a world in which they have less information, such as the past or a counterfactual alternative. However, when the subject was made the referent and the referent the subject, more difference and impact was perceived of the new subject than the referent, illuminated a framing asymmetry in counterfactual comparison.

A second psychological phenomenon that led to a mental subtraction-addition effect was the tendency of respondents to give less weight to features that would reduce the chances of achieving an outcome in question than one that would increase those chances. In other words, when the framing of counterfactual questions was framed in subtractive terms ("How much less



satisfied would you be in your most likely alternative career than you are in your present one?") people perceived less difference between two worlds being compared as opposed to when questions were framed in additive terms ("How much more satisfied are you with your present career than the most likely alternative?") (Dunning *et al.*, 1995). The theoretical implications, as articulated by the researchers:

> "Suggest that the task of counterfactual reasoning is potentially more involved and complex than simply evoking or recruiting a counterfactual world ... The framing asymmetries observed here and elsewhere also portray the social perceiver as a "cognitive miser" with respect to counterfactual assessment. People do not perform a complete job when comparing their circumstances to a counterfactual world; that is, they do not conduct exhaustive simulations of both subject and referent when required to make a counterfactual assessment" (Dunning *et al.*, 1995, p. 125).

Attention, the authors found, and which is also consistent with past research conducted by Tversky (1977) and Tversky and Gati (1978), is routinely drawn to the subject in the comparison (Dunning *et al.*, 1995, p. 125).

Their results highlight a "short-circuiting" in the counterfactual assessment process and have significant application implications. Choosing a consumer product, for instance, "is often an act of comparing two counterfactual worlds" – constructing mental scenarios that compare having something with foregoing something (Dunning *et al.*, 1995, p. 125). These conclusions are also consistent with studies conducted by Dhar and Simonson (1991) who asked participants about whether they preferred Stanford Business School to Harvard Business School. When the question was framed in these terms, participants expressed a preference for Stanford and vice versa (Dhar and Simonson, 1991).

Another dysfunctional element in the counterfactual generation process is mutating antecedents that the individual has no control over. Frequently

individuals will ask themselves what they could have done better or differently. Leon Trotsky, while reflecting on his experiences in Russian during his exile in Mexico, may have warn different clothes on his duck-hunting trip. Dysfunctional mutations, or mutating antecedents that the individual has no control over, carries with it emotional costs that can have a negative impact on judgment and decision-making. Dysfunctional counterfactuals of this sort can result in costly changes in behaviour and impair one of the major functions of counterfactual reasoning – preparation for the future (Sherman and McConnell, 1995). As discussed, Miller *et al.* (1990) have referred to the confusion between what might have been and what ought to have been, and between what was with what ought to have been as the *counterfactual fallacy* (Miller *et al.*, 1990). As Shermon and McConnell point out:

> "Such thinking and such a tendency to adopt upward counterfactuals in a prescriptive rather than in a descriptive way are tied to the fact that people are outcome-driven beings. People often judge the quality of decision making solely on the basis of the outcome. Therefore, strategies that are followed by success should be maintained. Strategies that are followed by failure should be changed, and the change should be in the direction of the most accessible upward counterfactual" (p. 219).

In studies conducted by Baron and Hershey (1988), they found that outcome bias (i.e. the hindsight bias and creeping determinism) in decision-making was ubiquitous throughout their studies. Participants in their studies indicated that the quality of decision-making was superior when decisions presented to them led to successes as opposed to failures, despite the antecedents being the same. In a similar vein, Roese (1994) gave participants a scenario based on World War I, and asked them what choices should have been made. The participants judged that the choices that should have been made were those that led to successful outcomes, despite knowing

that the outcome should not affect their judgments. Counterfactual assessments thus have a bearing on whether governments will hold onto power, CEOs will keep their jobs, or programs will be cancelled to outcomes that, however isolated, are unsatisfactory. Again, to quote Shermon and McConnell:

> Thus, sports managers will lose their jobs, CEOs will be fired, and prison furlough systems will be discontinued because of short-term or isolated, unsatisfactory outcomes (Sherman and McConnell, 1995, p. 219).

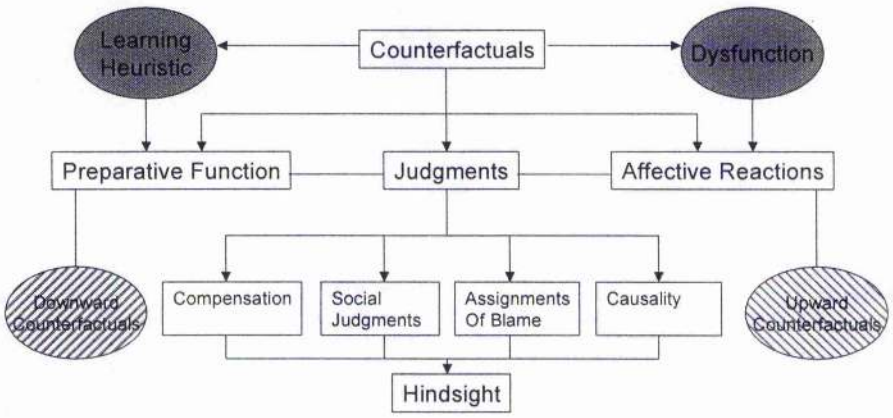
Finally, the spontaneous choice of antecedents to mutate can have serious implications for analysing past experiences, can exacerbate the hindsight bias and creeping determinism as shown in the Wells *et al.* (1987) study, and influence the development of schemas for future actions. As Roese (1995) writes:

> "Miller and Gunasegaram (Miller *et al.*, 1990) showed that later events are more mutable in chains consisting of independent events. Thus, early events that are not explicitly linked in causal fashion to later ones tend to be presupposed, or taken as immutable parts of the causal background. Again, this effect may derive from the greater salience of recent events than of earlier events" (Roese and Olson, 1995c, p. 34).

Indeed, the ubiquitous problem of outcome bias, or hindsight bias as it is often referred to, requires strategies to remedy the dysfunctional elements in the counterfactual process in order to improve judgment, decision-making and foresight for the future.

Exhibit 5.3 illustrates the role of counterfactual reasoning in cognition.

Exhibit 5.3 Counterfactual Reasoning: Conceptual Framework A



Source: Author

Counterfactuals influence a vast range of judgments (Gilovich and Medvec, 1994; Landman, 1987; Roese and Olson, 1993a; Johnson, 1986; Lipe, 1991; Wells and Gavanski, 1989; Niedenthal *et al.*, 1994; Miller, 1989; Macrae *et al.*, 1993; Miller and McFarland, 1986) and serves both an affective function (feeling better) (Gleicher et al., 1990; Landman, 1987) and a preparative function (preparing for improvement in the future) (Roese, 1994; Markman *et al.*, 1993). However, counterfactual reasoning also has a future component, which can have dysfunctional implications for foresight.

5.5 Counterfactual Reasoning: Smelling the future?

The relationship between the past, present and future is well summed up by a quote from the Danish poet and inventor Piet Hein:

> "You'll conquer the present
> Suspiciously fast,
> If you smell of the future
> – and stink of the past."
> (quoted in Gleicher *et al.*, 1995, p. 283)

Gleicher *et al.*'s (Gleicher *et al.*, 1995) research postulates that while counterfactuals "stink of the past" they also "smell of the future" in their influence over attitudes, affective responses to events, preparation for the future and behaviour. They ask the question: "What might make an individual focus on the future implications of counterfactual thoughts?" (Gleicher *et al.*, 1995, p. 285). They acknowledge that the Consideration of Future Consequences Scale (CFC) (Strathman, 1994) which measures people's disposition towards considering the future consequences of behaviour is one factor.

People who endorse such statements as: "I consider how things might be in the future and try to influence those things with my day-to-day behaviour" and "I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years" are people who generally score high on the CFC scale. People who do not score as high on the CFC scale, alternatively, tend to expect that the future will take care of itself and are more concerned with their immediate concerns and needs than on the distant future (Gleicher *et al.*, 1995, pp. 285-286). Statements that short-term thinkers might endorse are best summed up by the British economist John Maynard Keynes' quip that: "In the long-run, we are all dead."

Consideration of Future Consequences research (Gleicher *et al.*, 1995; Strathman *et al.*, 1994) demonstrates that the disposition that people have towards considering future implications of future events can moderate the influence of counterfactuals on affective responses to negative life events. People who have a propensity towards considering the consequences of future events, for instance, "spontaneously considered the future implications

of learning about the other course" (Gleicher *et al.*, 1995). Resultantly, when there was not a favourable course, they had a tendency to be more distressed than those that score lower on the CFC scale.

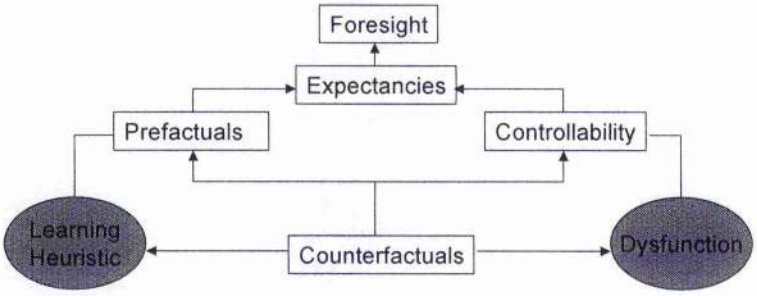
5.51 Prefactuals & Virtual Knowledge

Thus far we have explored research on counterfactuals that are generated in response to past events and subsequently influence attitudes, intentions, and behaviours. Another category of counterfactuals that has been identified by psychologists is that of *prefactuals*. Fazio and Zanna (1981) argue that one of the most powerful impacts counterfactuals have on behaviour is when they are generated in response to an experienced event. Gleicher *et al.* (1995) demonstrate that counterfactuals also have a significant impact on behaviour when they are generated in response to anticipated or imagined events. As they suggest:

> "The individual imagines an anticipated (negative) outcome, along with alternatives to this imagined outcome. These alternatives lead to affective responses, which subsequently influence attitudes, intentions, and behaviour" (Gleicher, 1995, p. 294).

Based on data gathered in three studies, one testing counterfactuals and behavioural intentions, the second on prefactuals and condom use, and the third looking at prefactuals and insurance, Gleicher *et al.* (1995) found that the evidence indicates that there are two positive functions that are served by generating counterfactuals 'with an eye to the future' (see exhibit 5.4)

Exhibit 5.4 Counterfactual Reasoning: Conceptual Framework B



Source: Author

First, they facilitate adaptive behavioural choices in the future. As Miller and Taylor (1995) state, decision strategies might be affected, "not [by] people's recollection of the past, but [by] their contemplation of the future" (p. 306).

Secondly, they ameliorate counterfactually induced negative emotions: "Thus, the 'stink of the past' may well become the sweet smell of the future" (Gleicher *et al.*, 1995, p. 302). Sanna and Turley (1996) agree, arguing that counterfactual thinking involves both a backwards processing from an outcome, and a foreword processing from a hypothesis or expectancies to revision or confirmation (Sanna, 1996).

A common characteristic of the 'surprise' element in every counterfactual, whether that counterfactual is generated in response to a negative life event, or whether it is generated by a historian to explore what might have happened had the English fireships been repulsed and the Spanish Armada triumphed

on August 8, 1588 (Parker, 1999) is that they 'both represent the causal texture of an environment' (Kahneman, 1995, p. 376). Further, as Dawes (1993) points out, and Kahneman corroborates:

> "In the social domain, a long history of disasters of planning and design demonstrates that the impossible sometimes happens and that the inevitable sometimes does not. Mental simulation is a form of scenario thinking ..." (Kahneman, 1995, p. 380).

After exploring whether or not the cold war would have come to an end as soon as it did had Gorbachev not come to power, Kahneman (Kahneman, 1995) goes on to expand on the latter line of thought when he writes:

> "The two modes of thinking invoked in this exercise correspond to approaches that were labeled the *inside view* and the *outside view* in an analysis of intuitive forecasting (Kahneman and Lovallo, 1993, Kahneman and Tversky, 1979). Forecasting by the inside view is an attempt to divine the history of the future by building relatively specific scenarios. Forecasting by the outside view is an attempt to estimate the statistics of a relatively large category to which the case at hand belongs. In the context of counterfactual reasoning, the inside view involves the mental construction of alternative histories, whereas the outside view consists of considerable appeal in evaluating both the past and the future, and it sometimes yields knowledge that is not accessible in other ways. However, the risk of the inside view is that our confidence in the conclusions it yields ultimately derives from the limits of our imagination" (Kahneman, 1995, p. 381).

Scenario thinking, then, can be re-conceptualized as a form of virtual knowledge, which influences the evaluation of various options in the decision-making process. The decision maker will evaluate their options as if they will be 'endowed' with virtual knowledge of alternative relevant outcomes or with experience of the outcome in their decision (Kahneman, 1995, p. 392). As suggested by Kahneman: "There is a compelling intuition that the anticipation of regret is a significant factor in decision making", which has led economists (Baron, 1994; Loomes and Sugden, 1982; Bell, 1982) to develop regret theories of choice between gambles. Further, it may be this virtual knowledge that causes, at least in part, harsh judgments based on hindsight (Kahneman,

1995, p. 392-293) and the tendency to judge consequences that may not have been foreseeable in foresight, by their consequences (Baron and Hershey, 1988). As Sherman and McConnell write:

> "The point is that foreseeability is a concept defined by logic and objective standards. Even conditions and events are in fact objectively unforeseeable, people seem to believe that they should have foreseen them" (Sherman and McConnell, 1995).

If hindsight is the "wisdom after an event" (Swannell, 1986), or "the perception of the significance and nature of events after they have occurred" [www.dictionary.com], then counterfactual reasoning is a heuristic device for discovering the past leading up to an event after they have occurred. However, Sherman and McConnell's research (1995) would suggest that *spontaneous* counterfactuals aren't simply a heuristic for preparing for the future, but that they can also augment *foresightful thinking flaws*, such as the hindsight bias and creeping determinism.

5.6 Counterfactual Reasoning: A Conceptual Framework

Counterfactual propositions, as Roese and Olson (1995) point out, are also causal propositions, and consequently imply "appropriate future actions":

> "For example, if Jake's father comes to believe that Jake would have passed an exam had Jake bought a study guide, Jake's father is highlighting the causal potency of owning a study guide. This belief suggests an expectancy for future actions. Jake's father may recommend to his son that he buy the study guide, with the expectancy that by his making use of it, Jake will improve his performance on an upcoming exam. Thus, there is an intriguing reciprocal relation between expectancies and counterfactuals. Expectancies can influence counterfactuals, and these same counterfactuals may, in turn, influence subsequent, but more specific, expectancies" (Roese, 1995, p. 43). Also see (Boninger *et al.*, 1994; Johnson and Sherman, 1990; Sherman, 1991).

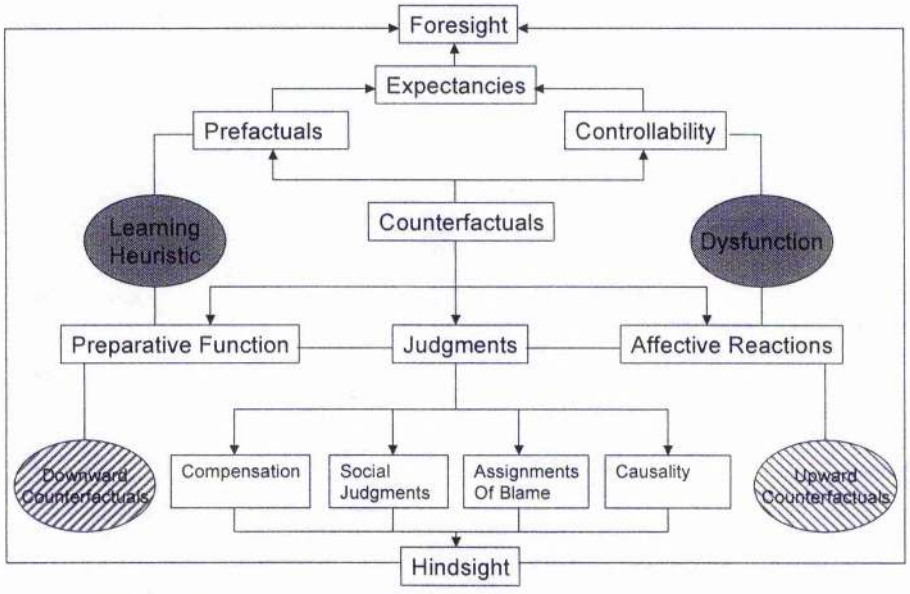
Prefactuals, simulating events before they occur, uses effectively the same process as counterfactuals. While some researchers have suggested that

personality dispositions influence people's predisposition towards using either prefactuals or counterfactuals, pessimists tend to use prefactuals more than optimists for instance, the point is that, as Sanna states:

> "Simulating alternative possible outcomes, both before and after an event, appears to be a pervasive if not ubiquitous human tendency" (Sanna, 1996, p. 1020).

As exhibit 5.5, which integrates exhibits 5.3 and 5.4 illustrates, the importance of counterfactual reasoning is that it has an effect on affective reactions (Gleicher *et al.*, 1990; Johnson, 1986; Landman, 1987), our assignment of blame (Miller *et al.*, 1990; Miller and McFarland, 1986), and our emotional responses to outcomes in our lives (Kahneman and Miller, 1986; Landman, 1987). Downward counterfactuals can be used as a 'secret mood booster', thus allowing people to cope with failures and maintain a cool head during stressful situations (Chatterjee, 1999). Counterfactuals, especially upward counterfactuals, also have an important influence on generating schemas for future action and salient plans for the facilitation of future success (Sarma, 1997; Sanna and Turley, 1996; Roese, 1994; Markman *et al.*, 1993; Johnson and Sherman, 1990). However, counterfactuals can also have dysfunctional implications (Sherman and McConnell, 1995; Dunning and Madey, 1995; Miller, 1990) when applied spontaneously.

Exhibit 5.5 Counterfactual Reasoning: A Conceptual Framework C



Source: Author

Nevertheless, counterfactuals are a pervasive cognitive device. As Roese (Roese, 1995c) suggests:

> "Counterfactual reasoning may also be directed toward problems in effortful attempts at troubleshooting. In general, the diversity of counterfactual effects reviewed here, embracing both heuristic and systematic modes of thought, underscores their pervasive psychological importance" (Roese, 1995c, p. 45).

As such, counterfactual reasoning processes can be an important device for troubleshooting if their dysfunctional attributes can be controlled.

5.7 Chapter Conclusion

Research has shown that counterfactuals influence a vast range of judgments including regret (Gilovich and Medvec, 1994; Landman, 1987), self-inferences (Roese and Olson, 1993a), happiness (Johnson, 1986), causal ascriptions (Lipe, 1991; Wells and Gavanski, 1989), shame and guilt (Niedenthal *et al.*, 1994) suspicion (Miller *et al.*, 1989) and victim compensation (Macrae *et al.*, 1993; Miller and McFarland, 1986).

Consequently, research on counterfactual thinking has become focused on the functional aspects of counterfactuals in reasoning processes (McMullen *et al.*, 1995; Roese, 1994; Roese and Olson, 1993b; Markman *et al.*, 1993; Johnson and Sherman, 1990). This functional theory of counterfactual reasoning theorizes that counterfactual thinking serves an affective function (feeling better) (Gleicher *et al.*, 1990; Landman, 1987) and a preparative function (preparing for improvement in the future) (Roese, 1994; Markman *et al.*, 1993).

While counterfactual studies have helped to improve understanding of how adaptive learning from experiences occur (Sim and Morris, 1998), they may also have dysfunctional implications for foresight, such as a "short-circuiting" (Dunning and Madey, 1995; Dhar and Simonson, 1991), systematic biases in interpretations of causal relations and events (Sherman and McConnell, 1995), the use of simplified heuristic principals (Sherman and McConnell, 1995), and even, in certain circumstances aiding and abetting the hindsight bias, creeping determinism and over-confidence (Roese and Olson, 1996. They can thus lead to maladaptive strategies for the future (Sherman and McConnell, 1995). Shifting resources, for instance, in the future to improve performance based on "if only" counterfactuals can lead to "winning the battle, but loosing the war." As Sim and Morris (1998) say:

> "This is true when the antecedents are a set of investments drawn from a fixed pool of resources, for example, athletic events in which one's energy is apportioned between different stages, political campaigns in which funds are apportioned across months and geographic regions, and business ventures in which one's capital must be budgeted into research, commercialization, marketing, and so forth" (p. 599).

Further, the generation of counterfactuals, especially upward counterfactuals (comparisons with outcomes that are better than reality), can lead one to believe that, not only were past events controllable, but that future events are controllable (Nasco and Marsh, 1999; Roese, 1994; Markman *et al.*, 1993). In many cases, this can lead to enhanced performance in the future, but it may also result in misperceiving one's environment as being more controllable than it may actually be in reality.

In social and cognitive psychology, the research to date has been criticized by some authors (Roese and Olson, 1995c; Davis *et al.*, 1995; Markman *et al.*, 1995; Markman *et al.*, 1993) "for its reliance on simple, un-involving scenario studies" and for its reliance on "simple paper-and-pencil ratings" (Roese and Olson, 1995c, p. 46). Indeed, these methodologies have been summarised by Sanna and Turley (1996) as:

> 1. Participants read vignettes that describe two (or more) people who attain similar outcomes after either considering, or not considering, particular antecedents to those outcomes; participants are then explicitly asked to choose which of the people in the vignette would respond in a more extreme manner (e.g., who would experience greater regret; Gleicher *et al.*, 1990; Kahneman and Tversky, 1982; Landman, 1987; Lundberg and Frost, 1992).
> 2. Participants are asked to read (or to think) about a situation or set of outcomes, and then they are explicitly asked to change that set of circumstances by providing counterfactuals (Dunning and Parpal, 1989; Gavanski and Wells, 1989; N'gbala and Branscombe, 1995; Niedenthal, Tangney, & Gavanski, 1994; Roese and Olson, 1993a, 1993b; Wells and Gavanski, 1989; Wells *et al.*, 1987).
> 3. in detail to participants, and then participants are explicitly asked to provide thoughts that give fit the given categories (Roese, 1994).

The latter criticisms have led researchers (Roese and Olson, 1995c; Roese, 1994; Davis *et al.*, 1995; Markman *et al.*, 1995; Markman *et al.*, 1993) to suggest that future research on counterfactuals will be more profitable and

enhance the counterfactual paradigm if it proceeds using more realistic situations.

Despite these methodological criticisms of counterfactual reasoning research so far, the research on counterfactual reasoning reviewed in this chapter demonstrates that counterfactual reasoning is an integral, if not pervasive cognitive function (Sanna, 1996; Roese and Olson, 1995c), and consists of both forward and backwards processing (Sanna and Turley, 1996). The evidence shows that it plays an important role in preparing for the future by generating 'what ifs', 'if only's' and 'if then' by comparing a past event with possible alternatives. As such, hindsight plays a role in foresight, and counterfactual reasoning is one heuristic device that is used for understanding, and learning from the past.

Psychology research into counterfactual reasoning highlights critical aspects of cognitive processes that lead to strategy formulation. It also contributes to better understanding the mechanisms that strategic managers use for processing information and the functional aspects of bounded rationality first introduced by Simon (1947; 1957) and March and Simon (1958). Mintzberg *et al.* (1998) argue that strategic management has not yet gained suffiently from cognitive psychology, perhaps because cognitive psychology "has yet to address adequately the questions of prime interest to stratetgic management, especially how concepts form in the mind of a strategist" (p. 172).

Counterfactual reasoning, in a few short years, has become a 'signature' domain in psychology (Roese and Olson, 1995c, p. vii). However, as an analytical tool in history and the social sciences, *elaborative counterfactuals*,

counterfactuals used consciously and deliberately, as opposed to *spontaneous* or *automatic counterfactuals*, counterfactuals used as a cognitive heuristic (Kahneman, 1995) are controversial.

Understanding the reasons that people behave as they do is a fundamental objective in the social sciences. As Katz (1960) has stated:

> "The functional approach is the attempt to understand the reasons people [behave] as they do. The reasons, however, are at the level of psychological motivations and not the accidents of external events and circumstances" (Katz, 1960, p. 170).

Counterfactual reasoning is a component of that understanding. The contribution of this chapter to strategic management literature generally, and to this thesis in particular, is that it writes in a canon of knowledge from psychology into strategic management, which may help to address the question of how concepts (and strategies) form in the mind of the strategist.

The following chapter reviews the debate over the validity of counterfactual thought in history and the social sciences.

Chapter Six: Counterfactual Posturing: Hindsight into the Future?

"The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic."

~ Peter Drucker, 1985

"Never, never, never believe any war will be smooth and easy, or that anyone who embarks on the strange voyage can measure the tides and hurricanes he will encounter. The statesman who yields to war fever must realize that once the signal is given, he is no longer the master of policy but the slave of unforeseeable and uncontrollable events."

~ Sir Winston Churchill (1874-1965)

"One can foresee a revolution or a war, but it is impossible to foresee the consequence of an autumn shooting trip for ducks."

~ Trotsky, 1924

6.0 Chapter Introduction

The previous chapter argues that counterfactual reasoning is a naturally occurring cognitive function in human beings (Sanna, 1996; Kahneman and Tversky, 1982). It argues that the counterfactuals that people generate influence their causal ascriptions (Roese and Olson, 1996; Gavanski and Wells, 1989; Wells *et al.*, 1987), affective reactions (Gleicher *et al.*, 1990; Landman, 1987), assignments of blame (Turley *et al.*, 1995; Macrae *et al.*, 1992; Miller, 1986), expectancies and predictions (Sherman, 1991; Taylor and Schneider, 1989; Hoch, 1985; Sherman *et al.*, 1981). As such, they serve a preparative function (Sherman and McConnell, 1995; Roese and Olson, 1995c; Roese, 1994; Markman *et al.*, 1993; Johnson and Sherman, 1990).

Counterfactual reasoning in the social sciences is concerned with non-actualized causal possibilities in past historical events [Hawthorn, 1991 #296]. Counterfactuals, or asking 'what if', 'if then' and 'if only' questions about what we think we know about history can illuminate the connections that an actual,

located in a space of possibilities, has to other non-actual things. As Hawthorn (1991) says:

> "The kind of understanding we gain, for instance, when we see how possible, even probable, other lines of species evolution were at some distant point in the past, and realize how improbable our own has been...we realize what we now think of as 'progress' was by no means assured...in reflecting on our own lives, we see how else we might have lived them" (pp. 17-18).

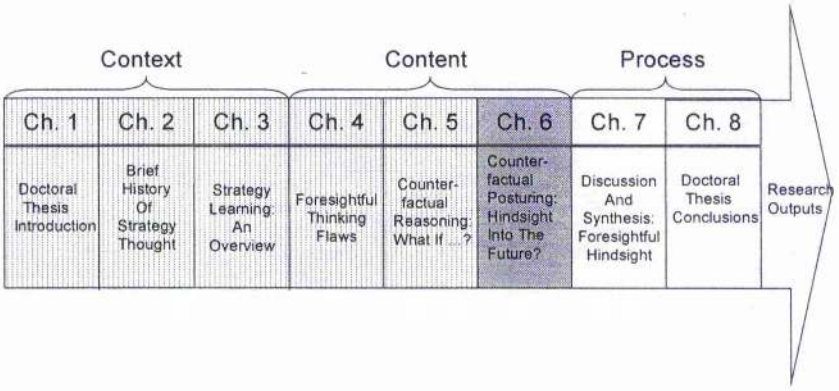
A counterfactual, or a counterfactual subjunctive conditional as it is sometimes called, is "one in which the antecedent (the term following the "if") is in fact false, that is, it runs counter to the facts" (Bulhof, 1999, p. 146).

Like the naturally occurring, spontaneous, cognitive use of counterfactuals reviewed in the last chapter, counterfactual use in historiography and the social sciences have a range of applications and repercussions, and, this chapter argues, despite being contentious, are frequently, informally and pervasively used to underpin logic, assumptions and lines of argument, to test theories, to judge the importance of an event or idea, and to ascribe causality within scholarship.

6.1 Chapter Purpose and Contribution

The purpose of this chapter is to critique the arguments for and against the use of counterfactuals in historiography and the social sciences, to emphasize the importance of in-determinacy in past events and to draw a link between contingency in the past, through to the present and into the future. The contribution of this chapter to the doctoral thesis map (exhibit 6.0) is to understanding the role that counterfactual analysis unconsciously plays in historical and social science scholarship, argumentation and logic.

Exhibit 6.0 Doctoral Thesis Map



This chapter also contributes to understanding the methodological issues that pertain to a disciplined application of counterfactuals to historical analysis and the linkages between modality in hindsight and contingency in foresight.

6.2 Chapter Structure

This chapter builds on the previous chapter on the sense-making use of counterfactuals by reviewing the use of counterfactuals in the social sciences. It begins by emphasizing the need to be sensitive to contingency in history (Ferguson, 1997; Weber, 1996) and uncertainty in the future (Weber, 1996) by illustrating that the past was no more fixed than the future (Lewis, 1991).

The following section addresses arguments by opponents of counterfactual use in historiography and the social sciences (Carr, 1961/1990; Thompson, 1978; Croce, 1966) by presenting the argument that counterfactuals already do, sometimes tacitly and at other times explicitly, influence argumentation

and scholarship within historiography and the social sciences (Lebow, 2000b; Tetlock and Belkin, 1996; Hawthorn, 1991).

Counterfactuals, the argument follows, already play an important role in our cognitive and learning experience (Kahneman and Tversky, 1982; Roese and Olson, 1995b), and the decisions, policies and structures that result from them (Lebow, 2000a; Breslauer, 1996; Herrmann and Fischerkeller, 1996), and they can be used to challenge path-dependencies and path-dependent logic (Booth, 2003; Teece *et al.*, 1997; Hawkins, 1990). It goes on to review the current literature on counterfactuals and the various methodologies that scholars use when producing counterfactual alternatives and arguments.

The chapter concludes by arguing that counterfactual analysis, if deliberately applied and rigorously tested, is an effective 'intervening tool' or 'de-biasing technique' (Hawkins and Hastie, 1990; Fischhoff and Beyth, 1975b) for undoing the past and learning for the future (Starkey and McKinlay, 1996; Hurst *et al.*, 1989).

6.3 Why Use Counterfactual Analysis of History in the Strategy-Making Process?

Why use counterfactual analysis of history in the strategy-making process? What value does counterfactual reasoning have to add to strategy-making generally, and scenario thinking more specifically? The present is a consequence of the past. A deceptively simple answer to the question, but as Strange (1994, pp. 18-19) states within the context of the study of political economy:

> "It follows that the study of political economy cannot avoid a close concern with causes. Consequences today – for states, corporations, for individuals – imply causes yesterday. There is no way that contemporary international

> political economy can be understood without making some effort to dig back to its roots, to peer behind the curtain of passing time into what went before."

Consequently, perceptions from the past have a powerful hold on perceptions of present issues and dilemmas and future solutions and choices. The key to releasing the historical shackles that bias present decisions and future solutions is not to allow history to fade into the shadows of passing time and space, but to strive for a better understanding of past events and of our perceptions of them. Indeed, as the metaphor used by Jared Diamond indicates, history is like an onion:

> "[The] peeling back of the onion's layers is fascinating, challenging – and of overwhelming importance to us today, as we seek to grasp our past's lessons for our future" (Diamond, 1997, p. 11).

To understand the past, it is argued here, it is important to also take into account contingency in the past and "traces" of events that did not come to pass. This brings us to the question: Was the past "fixed" and otherwise determined, and by logical extension, is the "open future" actually "open", or is it too fixed? This question drives straight at the heart of the controversy between historians on whether the application of counterfactuals is simply 'self-indulgent fiction' (Carr, 1991) or whether counterfactuals have some explanatory power.

Analytically structured narratives in the form of counterfactual worlds are a vehicle that has been used to accommodate notions of possibility, contingency and chance within historical analysis (Ferguson, 1997). The use of counterfactuals, or more colloquially, "what ifs" in analytically structured narrative is also a vehicle that has its proponents and its detractors. However, the value of applying "what if" counterfactuals to the study of causation in the

social sciences has "value that goes beyond the 'idle parlor game'" that historian E. H. Carr (1990) once dismissed them to be (Cowley, 1999).

6.4 Counterfactuals & the Social Sciences

Throughout the continuum of space and time, there is always a range of decisions that can be made for any given issue; there is a decision field. Within this decision field there are certain degrees of freedom to make decisions, to act, to choose another course in history. The degrees of freedom, as counterfactual analysis illuminates, will vary at any given confluence of causal factors that result in an event. At times there will be a higher degree of freedom because the future is still malleable and differing options exist for the choosing. At other times there will be less of a degree of freedom because decisions or events have already been taken, changing the context and narrowing the range of decisions that can be taken in the future. Some strategy scholars have termed this narrowing of choices as path-dependencies (e.g. Teece *et al.*, 1997) and others as "lock-in by historical events" (Arthur, 1989). Path-dependent technological examples might include Windows 95, the VHS video recorder and QWERTY keyboard as industry standards (Booth, 2003). To quote Teece *et al.*:

> "Choices about domains of competence are influenced by past choices. At any given point in time, firms must follow a certain trajectory or path of competence development. This path not only defines what choices are open to the firm today, but it also puts bounds around what its repertoire is likely to be in the future. This, firms, at various points in time, make long-term, quasi-irreversible commitments to certain domains of competence. Deciding, under significant uncertainty about future states of the world, which long term paths to commit to, and when to change paths, is the central strategic problem confronting the firm (Teece, 1997, p. 532).

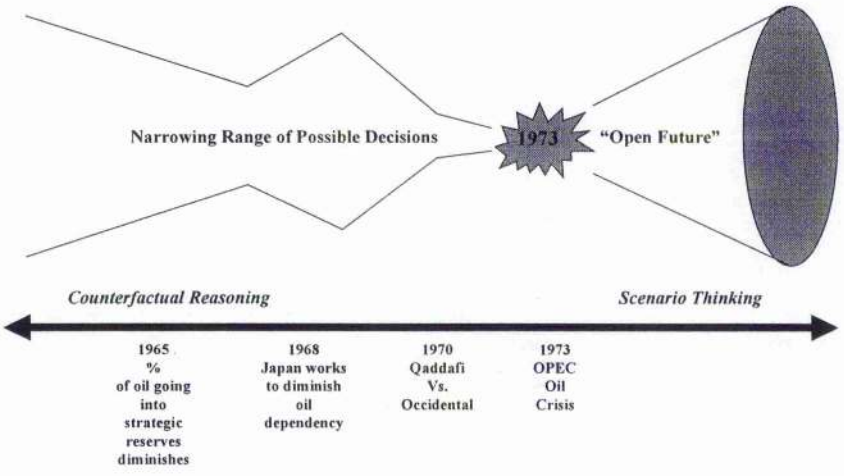
As an event looms closer, the range of decisions, or the degree of freedom to make certain decisions, will narrow. The case of Shell and the OPEC oil crisis illustrates the point.

By 1967, as Kleiner (1996) postulates, it was apparent that there was going to be a major shift in the oil industry:

> "Yet anyone with a halfway sophisticated background in the industry could, if they cared to look, see the strain on the invisible pipes and pumps." (p. 153).

Demand for oil was beginning to outstrip supply; the percentage of oil put into strategic oil reserves to be used in times of crisis in the US had dropped from 75% to 10%; for the Saudis who had more money than they could spend, the oil was more valuable left in the ground than the price that extracting it could bring them; the Shah's regime in Iran was in political trouble because of growing poverty and only 20 years estimated of oil reserves; and the Japanese had begun to "wean themselves from their oil dependencies, beginning an energy efficiency improvement effort" (p. 154) in 1968. Indeed the signs were there, but the range of decisions was narrowing and time was running out. The counterfactual past is represented by the following illustration if one were to reflect on the oil crisis in 1973/74 (see exhibit 6.1).

Exhibit 6.1 The Decision Field and 'Time's Arrow'



If we were to take it through until 2000, the continuum would show the range of potential decisions available to decision makers and society generally. It would open back up again after 1973, but would then begin to close again slightly, as the oil shocks of 1978 shook the industry, and then would open back up again.

When one embarks on a counterfactual mental exercise, you are asking what might have been. Counterfactual reasoning as an academic tool for analyzing history requires a distillation of historical incidents down into a theory of what we think has happened in the past. Counterfactuals sensitize one to the role of contingency and uncertainty when connecting the resulting theory with history in order to enhance the student of history's understanding and judgments in an uncertain world. It is a means for creating organization and coherence to our thoughts on a multitude of different factors and causes. It also helps to avoid random guessing when the data is incomplete.

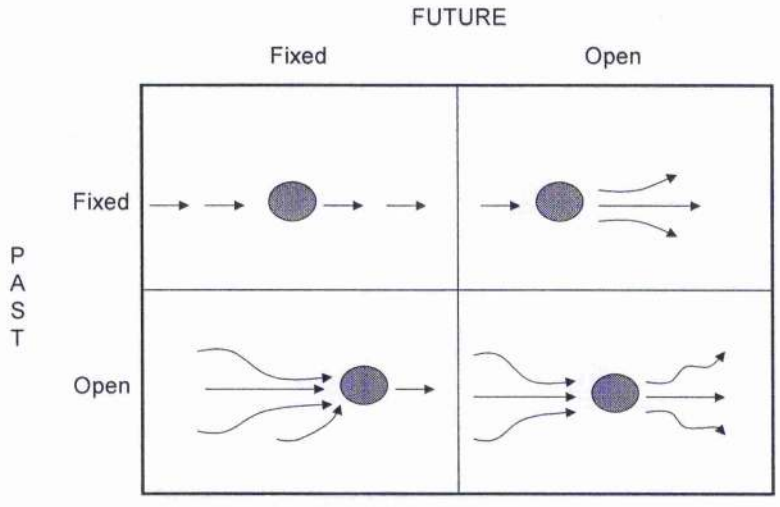
Using counterfactuals is similar to speaking prose. Our minds are constantly using counterfactuals. Words such as "determinants", "influences", "roots", "factors that shape or give rise to", "origins" and "correlates" are all words that are used frequently, refer to causality (Fearon, 1996, p. 40) and infer counterfactual reasoning. Every time an individual asks himself or herself "if only I had done such and such, my life would be so different", they are using counterfactual reasoning. One can imagine the managers of IBM sitting around in the late 1980s saying: "If only we had the foresight to move more quickly at developing the PC, which is the future of the computer industry, we would not be in this crisis". As Czechoslovakia's President Vaclav Havel, who had been a political prisoner a mere six months previously, stated in his speech to the U.S. Congress in 1990:

> "As a playwright, I'm used to the fantastic. I dream up all sorts of implausible things and put them in my plays. So this jolting experience of going from prison to standing before you today, I can adjust to this. But pity the poor political scientists who are trying to deal with what's probable" (Havel, 1990 February 21).

Counterfactual analysis is a useful tool in several ways. Firstly, counterfactual analysis helps to illuminate how individuals learn from the past and make plans for the future. As already mentioned, counterfactual analysis can be used as an antidote to the hindsight bias [Hawkins, 1990 #146] and creeping determinism (Fischhoff, 1975a), as well as logical path-dependencies (Booth, 2003, but more generally, counterfactual analysis is a useful tool for analyzing the range of historical possibilities and potential decisions, and how our decisions have reflexively created the world that we now live in. Counterfactuals are also a useful tool, frequently used in the social sciences, for testing causal hypothesis and theory (Fearon, 1996).

The application of counterfactuals to historical analysis is a controversial technique, which begs two questions. The first question is, was the "fixed past" determined and unalterable? Secondly, how can counterfactual historical analysis enhance the quality of foresight and strategic decisions at the levels of the individual, firm, industry and even nation? There is an implicit dilemma inherent in these two questions, because if the past is determined, and could not have evolved otherwise than it did, then it follows to reason that counterfactual analysis has nothing of value to offer the strategic literature or scenario thinking. If it is accepted that there was contingency in the past, and that our perceptions and beliefs about the future are constrained by foresightful thinking flaws rooted in historical biases, as has been argued in this dissertation, then counterfactual analysis is a useful intervening technique for controlling for bias and flawed logic, which constrains thinking about the future and understanding of the critical uncertainties facing organizations. The following exhibit (exhibit 6.2) illustrates the dilemma.

Exhibit 6.2 Past-Future Matrix



Source: Author.

In a deterministic world, where the past is fixed and determined, and by logical extension, the future is forecastable and predictable, counterfactual analysis has little value to add to foresight. In a world where the past is fixed and the future is open, counterfactuals may also have little value to add to understanding the future. If the future is fixed, predictable and forecastable, then considering the past as open is not only philosophically untenable (as the future would by logical necessity also have to be open), but would add little value to foresight. In a world that is in-deterministic, where the past was at one time open, as is the future, counterfactual analysis is a useful analytical tool.

6.41 Asymmetry of Openness and Indeterminism

The vague contrast that we draw between the "fixed past" and the "open future" is one of an asymmetry of openness (Lewis, 1991). The past is often regarded as a distinct, unchangeable actuality, fixed in time and space, while the future is frequently considered to be a forest of forking trails and alternative possibilities. This begs the question: Is our world governed by in-deterministic laws, as can be inferred from Heisenberg's uncertainty principle in physics, or alternatively, as Lewis (1991) has argued, is it more a function of asymmetry between open future and fixed past.

There is always an element of in-determinism, or uncertainty, in every circumstance. Disciplines such as economics have tried to isolate and neutralize uncertainties by listing assumptions for every given theory, and by assuming instrumental rationality in human behavior. To quote the 1993 co-Nobel Laureate in the economic sciences, Douglas North:

> "The rationally assumption that has served economists and all the social scientists well for a limited range of issues in macro economics theory is a devastating shortcoming in dealing with most of the major issues confronting social scientists and policy-makers, and it is a major stumbling block to the path of future economic progress" (North, 1998, October 12, p. 13).

Many models of political behavior also assume instrumental rationality in every day decision-making. However, evidence from the two world wars and the end of the cold war suggest that the series of decisions leading to system changes produced outcomes that were "diametrically opposed to those intended by key actors" (Lebow, 2000b). The emotional decision by Austrian leaders to remove foreign and domestic threats to their empires by crushing Serbia, the pathology of German decision making in both world wars and the policy decisions made by Gorbachev are all data-rich sources of deviance from instrumental rationality. Moreover, there is evidence to suggest that decision outcomes might deviate from desired outcomes at the time (Lebow, 2000b).

Rational expectations theory within the social sciences, and manifest within classical approaches to strategy formulation (e.g. Selznick, 1957; Chandler, 1962; Ansoff, 1965; Porter, 1980) for instance, suggests that humans make decisions based on an objective, rational analysis of the potential costs and benefits of a given decision. But the work of Simon (1957) has demonstrated that rational expectations theory is often misleading because people's ability to process information is bounded. Any number of influences can affect the processing of information, and consequently decisions, not the least of which being intuition (Rowan, 1987), but also inadequate or misleading information (Simon, 1957), myths and ideological beliefs (Johnson, 1988) bias (Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins

and Hastie, 1990; Tversky and Kahneman, 1974), groupthink (Janis, 1971), and ideas (North, 1998, October 12; Keynes, 1936).

The role of ideas in decision-making, for instance, is frequently overlooked in the social sciences. As North states:

> "For the most part economists, with a few very important exceptions like Hayek, have ignored the role of ideas in making choices" (North, 1998, October 12, p. 13).

And as another renowned economist, John Maynard Keynes, corroborates:

> "The ideas of economic and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else" (Keynes, 1936, Chapter 24).

Moreover, Hawthorn (1991) emphasizes that the whole process of rationalization is not objective, but subjective and intricately intertwined with "conditional, subjunctive hypothesis, counterfactual judgments and reflexive beliefs":

> "Many explanations in History and the social sciences, however, turn not on causal connections between states of affairs that are beyond human control, but on the relevant agents' own practical reasonings, practical reasonings are not pre-determined by nature, and certainly not by human nature, which always under-determines. Nor, except in the way in which these matters are seen in the most extreme of rationalisms, or sociologies, or sociological rationalisms, are practical reasonings entirely pre-ordained by rules or reasons. They are conditional, subjunctive hypotheticals, a matter of counterfactual judgment. They turn on what agents more or less reflectively believe in, in the light of their inclinations and the circumstances, to be possible" (Hawthorn, 1991, p. 15).

Hawthorn's observations are substantiated by the counterfactual research in social psychology reviewed in the last chapter. Despite the import of counterfactual reasoning within decision-making, it has not been well explored in the social science literature. Scholars have, however, debated it as a useful and appropriate analytical technique within academia.

6.42 Counterfactuals and Historiography: A "red herring" or legitimate tool?

Many professional historians dismiss the use of counterfactuals as fantasy, or, as Carr (1990) suggests, a "parlor game", a "red herring". Thompson (1978) has gone so far as to criticize counterfactuals as purely 'Geschichtswissenschlopff', unhistorical shit'. Others, such as Croce (1966), have been less colorful, but equally as hostile in their criticisms of counterfactual questions:

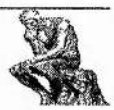
> "For if we went on to such a full exploration of reality, the game would soon be up. When the attempt is made to play this sort of game on the field of history, where it is thoroughly out of place, the effect is too wearisome to be long maintained" (p. 557).

Indeed, as Tetlock and Belkin state: "The ferocity of the [counterfactual] skeptics is a bit unnerving" (1996, p. 3).

One observer summarizes the reaction from the majority of historical scholars towards counterfactual history by suggesting that 'what if' questions are "strangely repugnant to many, if not all, professional historians" (Roberts, 1997, August 1, p. 6). As Carr (1990) explains:

> "In practice, historians do not assume that events are inevitable before they have taken place. They frequently discuss alternative courses available to the actors in the story, on the assumption that the option was open ... Nothing in history is inevitable, except in the formal sense that, for it have happened otherwise, the antecedent causes would have had to be different" (p. 96).

Determinist assumptions, from Polybius through to contemporary views about the past, have been shown by proponents of counterfactual history (Ferguson, 1997) to be embedded in historical scholarship (McMahon, 2001, Winter). Determinism, to Ferguson (1997), is based on antiquated assumptions about linear causality, which has resulted in distortions in historical analysis and impairs foresight. Ferguson argues that we should view history as stochastic, uncertain and contingent as suggested by



Heisenberg's uncertainty principle and other 20th Century scientific and mathematical developments such as chaos theory[Ψ]. Like the submicroscopic particles that jump from point to point in the quantum world, social phenomena is full of uncertainties and ambiguities that cannot be accounted for using traditional analytical techniques within history or the social sciences. As Ferguson (1997) has alluded, a revolt against determinism has been slowly building over two centuries with writers as diverse as Carlyle (1830/1988), Dostoevsky (1980), and Tolstoy (1978), and is forming the rationale for the legitimate consideration of chance and contingency in both historiography and social theory, and with such legitimate consideration of chance and contingency. Counterfactuals can be used for examining causation, testing theory, broadening perspective, and at times, filling in missing data.

Carlyle (1830/1988), for example, was one of the early critics of a determinist view of history. He launched a full broadside when he wrote:

> "It is not acted, as it is in written History: actual events are nowise so simply related to each other as parent and offspring are; every single event is the offspring not of one, but of all other events, prior or contemporaneous, and will in its turn combine with all others to give birth to new; it is an ever-living, ever-working Chaos of Being, wherein shape after shape bodies itself forth from innumerable elements ... Alas for our 'chains', or 'chainlets', of 'causes and effects', when the whole is a broad, deep immensity, and each atom is 'chain' and connected with all!" (Carlyle, 1830/1988, p. 95).

Dostoevsky [1980] also indulges in an anti-scientific lambasting of rational determinism in the social sciences, and the assumption by economists that humans act out of self-interest. Dostoevsky's objections to a deterministic view of history helps to elevate uncertainty to the status of an accepted, if not controversial principle in the social sciences:

> "One's own free, unrestrained choice, one's own whim, be it the wildest, one's own fancy, sometimes worked up to a frenzy – that is the most

[Ψ] See appendix #C for a historical overview of the debate about determinism in the physical sciences.

> advantageous advantage that cannot be fitted into any table ..." (Dostoevsky, 1980 p. 110).

Tolstoy (1978), in his attempt to reconcile theories of free will and determinism (Ferguson, 1997), maintains that the more the historian understands the relationship between subjects and the external world, the less likely s/he will be to dismiss 'that endless chain of causation'. Tolstoy (1978) argues that:

> "The third element influencing our judgment is the degree to which we can apprehend that endless chain of causation demanded by reason, in which every phenomenon capable of being understood (and therefore every human action) must have its definite place as a result of what has gone before and a cause of what will follow" (p. 1434).

As Ferguson (1997) points out, Tolstoy concedes that in historical writing: "there can never be absolute inevitability" because:

> "To imagine a human action subject only to the law of necessity, without any freedom, we must assume a knowledge of an infinite number of spatial conditions, an infinitely long period of time and an infinite chain of causation" (Tolstoy, 1978, p. 1438).

One of the more influential defenders of historical determinism is the English social historian E. H. Carr. Carr argues that:

> "Everything that happened has a cause or causes, and could not have happened differently unless something in the cause or causes had also been different" (Carr, 1990, p.96).

Carr, best known for his chronicling of the Bolshevik revolution goes on to say:

> "In practice, historians do not assume that events are inevitable before they have taken place. They frequently discuss alternative courses available to the actors in the story, on the assumption that the option was open ... Nothing in history is inevitable, except in the formal sense that, for it have happened otherwise, the antecedent causes would have had to be different" (Carr, 1990, p. 96).

Carr argues that the trouble with contemporary history is that, rather then adopting the historians' attitude of history as a fait accompli, people remember the time when there was still a range of open options. Although this criticism is meant to be in defense of historical determinism, by acknowledging that the options were at one time open, Carr tacitly, if perhaps unwittingly, concedes to

a need for counterfactual history. Carr argues that 'history is progress' (Carr, 1990). The concept of progress, albeit a subjective one, infers a movement forward. It also implies improvement, advancement and learning. If history is analysed as a process that discards the range of open options that once existed a priori for a closed system, thus making the assumption that history is indeed a fait accompli, then historical analysis is reduced to a narrative of what the writer thinks has happened in the past. However, as one delves into the scholarship of even the most ardent critics of counterfactual history, one finds that counterfactuals are frequently smuggled into their analysis. Thus, Carr's (1990) criticisms of counterfactuals, as Ferguson (1997) has countered, are so elastic that one can almost infer an acceptance of indeterminacy. The example of Trotsky's hunting trip, for instance, is an example of the importance of chance in historical events:

> "In the middle of his maneuverings with Kamenev, Zinoviev, Bukharin and Stalin, [Trotsky] might not (as he did) have caught a cold, gone to bed, and missed a crucial move in the fight to succeed Lenin" (Hawthorn, 1991, p. 8).

It is chance events such as this one that once led Carr to concede that it was "futile to attempt to spirit chances away, or to pretend that in some way or another they had no effect" (Carr, 1961/1990, pp. 98).

Moreover, in Carr's factual narrative on the Soviet Union (Carr, 1958), he propounds that Stalin hijacked the Bolshevik Revolution. He thus implies that had he not hijacked the Revolution, socialism would have developed differently [Lebow, 2000b #301] -- a tacit counterfactual!

Hawthorn suggests that:

> "Most historians and social scientists, if they have considered counterfactuals at all, have done so only nervously, in asides" (Hawthorn, 1991, p. 4).

This statement, however, is not entirely accurate. The majority of professional historians and social scientists frequently use counterfactual conditionals to underscore the importance of certain lines of argument, in particular, when assigning causality (Bulhof, 1999). As Giddens argues:

> "The concern is with a singular set of events, traced through and analysed counterfactually. The researcher asks, 'What would have happened to events B, C, D, E ... if A had not occurred?' – thereby seeking to identify the role of A in the chain or sequence" (Giddens, 1984, p. 13).

Loewen (1995), for instance, known to dismiss the arguments of other scholars by damning them as 'what if history', substantiates his own arguments using just that:

> "If there had been no plague, the Europeans would not have been able to 'settle' the Americas" (Loewen, 1995, p. 83).

In Overly's explanation of why the allies won the Second World War, and in his defense of Allied tactics, he states:

> "Without the defeat or neutralization of the German air force the Allies might well have hesitated to take the risk [of landing on the Continent]. Without the successful diversion of the heavy-bomber force to the job of pulverizing roads, railways and bridges, D-Day might have failed at the first attempt ... All of these factors ... belie the view that bombing was a strategy of squandered efforts. It is difficult to think of anything else the Allies might have done with their manpower and resources that could have achieved anything else at such comparatively low cost" (Overly, 1995, p. 130).

Indeed, as exhibit 6.2 illustrates, to underpin their rationale, historians use covert modality pervasively.

As a consequence, one can see where even the least friendly historians to counterfactual conditionals have a penchant for developing the logic of their own narratives, and often times assign the causality of certain events, using counterfactuals. As Bulhof points out: "Counterfactuals, causes, and explanations are three sides of the same strange three-sided coin; you cannot have one without the other two" (Bulhof, 1999, p. 147). This has led Lebow (2000) to comment: "Every good counterfactual thus rests on multiple factuals,

just as every factual rests on counterfactual assumptions – and these assumptions too often go unexamined" (Lebow, 2000b, p. 556).

Exhibit 6.3 Covert Counterfactuals & Modality in Historical Scholarship

Statement One

"Rebels [in the English Peasants Revolt of 1381] threw prisoners open, sacked the homes of the king's ministers, ransacked the Tower, and tried to frighten Richard II into making far-reaching concessions which, if implemented, would have broken the remaining bonds of serfdom and revolutionized landholding in Church and State"[Overly, 1995 #287] (p. 190).

Counterfactual

If reforms had been implemented, *then* the remaining bonds of serfdom would have been broken and the landholding in Church and State would have been revolutionized.

Statement Two

"[The perpetrators] were overwhelmingly and most importantly Germans. While members of other national groups aided the Germans in their slaughter of Jews, the commission of other national groups aided the Germans in their slaughter of Jews, the commission of the Holocaust was primarily a German undertaking. Non-Germans were not essential to the perpetration of the Holocaust, and they did not supply the drive and initiative that pushed it forward. To be sure, had the Germans not found European (especially eastern European) helpers, then the Holocaust would have unfolded somewhat differently, and the Germans would likely not have succeeded in killing as many Jews" [Goldhagen, 1997 #289] (p. 6).

Counterfactual

If the Germans had not found European helpers, *then* the Holocaust would have unfolded somewhat differently.

Statement Three

"But the advance was painfully slow, for the men were laden like beasts of burden. Each staggered under a weight of 66 lbs., more than was borne under full marching orders. They carried 220 rounds of ammunition, two bombs, and two sand bags; a proportion were further encumbered with picks and shovels, boxes containing carrier pigeons and telephone apparatus. In some places where no-man's land was wide, four of these lines were out together in the open, stumbling over the shell-pocked ground. Thus it has been argued with some justification that "the battle was lost by three minutes," for such a saving in speed would have allowed the machine gunners no time to man their weapons before the enemy was among them [Cruttwell, 1986 #290] (p. 266).

Counterfactual

If there had been a three-minute saving in time, *then* the machine gunners would have had no time to man their weapons.

Statement Four

"If Montgomery had mounted a confused and costly battle of pursuit, Rommel and the Afrikakorps might have profited by their cunning in mobile operations to muddy the outcome of Alamein, and Montgomery would have incurred criticism far more severe than he has suffered retrospectively at the pens of literary strategists" [Keegan, 1989 #291] (p. 337).

Counterfactual

If Montgomery had mounted a confused and costly battle of pursuit, then Rommel might have profited by their cunning in mobile operations.

Statement Five

If the Sarajevo crisis had not precipitated a particular great war, some other crisis would have precipitated a great war at no distant date [Hinsley, 1995 #292] (p. 4).

Counterfactual

If the Sarajevo crisis had not ignited the Great War, *then* another crisis would have.

* Adapted from Bulhof (1999), and Lebow (2000)

There is no shortage of examples of modality or use of counterfactuals in historical scholarship. This is because the study of history is the study of what happened and why something happened. Counterfactuals help to explain events in history by identifying causes. They are also used to highlight certain events and defend or criticize judgments about people. Claims about what might have been are thus important in our logic, reasoning and understanding (Bulhof, 1999, p. 146)

6.5 The "Methodological Rathole"

Critics of counterfactuals, such as Fisher (1970, p. 18), suggest that pursuing metaphysical, age-old riddles that revolve around fate, free will and determinism through the use of counterfactual thought experiments leads scholars "down the methodological rathole" (Tetlock and Belkin, 1996, p. 3). Determinism and modality are not necessarily mutually exclusive, however. As Bulhoff says: "We can make perfect sense of what might have been, and of what cannot be, in a deterministic world" (Bulhof, 1999, p. 147). Nor is counterfactual thought necessarily a "methodological rathole".

Counterfactual thinking has been a characteristic of human reasoning for thousands of years. As Tetlock and Belkin point out:

> "Fueled the grief of Tacitus when he pondered what would have happened if Germanicus had lived to become emperor: "Had he been the sole arbiter of events, had he held the powers and title of king, he would have outstripped Alexander in military fame as far as he surpassed him in gentleness, in self-command and in other noble qualities. Social scientists – from Max Weber (1949) to Robert Fogel (1964) – have also long been aware of the pivotal role that counterfactuals play in scholarship on such diverse topics as the causes of economic growth and the diffusion of religious and philosophical ideas" (Tetlock, 1996, p. 3).

As a scholarly tool, however, there are various ways that counterfactuals can be used and, by extension, different styles of counterfactuals. Each counterfactual style requires a set of criteria to judge them by.

Tetlock and Belkin have proposed that there are five distinct styles of counterfactual argumentation. They are:

1. Idiographic case-study counterfactuals that highlight points of indeterminacy at particular junctures in history (reminding us of how things could easily have worked out differently and of how difficult it is to apply abstract hypothetico-deductive laws to concrete cases);
2. Nomothetic counterfactuals that apply well-defined antecedent conditions (reminding us that deterministic laws may have been at work that were invisible to the original historical actors as well as to contemporary scholars who insist on a radically idiographic focus on the particular);
3. Joint idiographic-nomothetic counterfactuals that combine the historian's interest in what was possible in particular cases, thereby producing theory-informed history;
4. Computer-simulation counterfactuals that reveal hitherto latent logical contradictions and gaps in formal theoretical arguments by rerunning "history" in artificial worlds that "capture" key functional properties of the actual world;
5. Mental-simulation counterfactuals that reveal hitherto latent psychological contradictions and gaps in belief systems by encouraging people to imagine possible worlds in which causes they supposed irrelevant seem to make a difference, or possible worlds in which causes they supposed consequential seem to be irrelevant (Tetlock and Belkin, 1996, pp. 6-7).

Ideographic case-study counterfactuals focus on how the path-dependant logic of events (Hawthorn, 1991) could have been re-directed through the alteration of "conceivable" causes (Tetlock and Belkin, 1996, p. 7). Some scholars, such as Breslauer (1996) argue that counterfactual reasoning is not just a "parlor game" or "idle speculation". The historical profession is not monolithic in this sense. Indeed, there are many that feel that counterfactual reasoning is a worthwhile step in accumulating knowledge. Those that subscribe to counterfactual reasoning as a worthwhile venture, however, are more nomothetic, or theory oriented in their approach to knowledge building (Breslauer, 1996, pp.71-72).

The criticism of those that study history but are more ideographic is that the study of history requires the study of causes; the study of causes requires

counterfactual assertions. The question becomes: What are reasonable standards for counterfactual reasoning? Breslauer (1996) argues that some minimal combination of:

1. a data-rich evidentiary base sufficient for tracing causal connections within and among social, economic, and political processes; and
2. a theoretical apparatus based on assumptions or analogies that are sufficiently relevant to the empirical context under discussion to permit one plausibility to bridge the inevitable gaps in the evidence. This apparatus may be based upon deductive models or statistical generalizations, but the critical issue will be its contextual relevance: Are the assumptions built into the models relevant to the context at hand (e.g. revolutionary Russia or the Soviet Union in the 1920s or 1980s)? Are the statistical generalizations based on contexts sufficiently analogous to the Russia/Soviet context in question? In short, is the theoretical apparatus based on a tight analogical fit, a loose fit, or a nonfit? (Breslauer, 1996, pp 72-73).

Breslauer asks: "which methodological standards are reasonable to invoke under these conditions?" (p. 74). He concludes that the criteria outlined by Tetlock and Belkin – clear specification of independent and dependent variables; co-tenability of antecedents and connecting principles; consistency with well-established historical facts; and invocation of theories or statistical generalizations that are in principle falsifiable – are reasonable even in the circumstances of theoretical uncertainty and data scarcity.

Borrowing from Nash's (1991) survey, some scholars go even further. According to Breslauer (1996) and Nash (1991), methodological standards for which counterfactuals can be invoked also include:

1. the focus should be on identification of the decisive factor in a historical sequence, by considering which factor, if removed, would have made the sequence inconceivable;
2. the consequent must stand in relatively close temporal proximity to the antecedent; and,
3. the counterfactual antecedent must have been an available option (Breslauer, 1996, p. 74).

The first two criteria of the additions proposed by Breslauer (1996) and Nash (1991) are reasonable and subscribe to the "minimal-rewrite-of-history" rule that many of the ideographic scholars (Breslauer, 1996; Khong, 1996; Herrmann and Fischerkeller, 1996; Lebow and Stein, 1996) agree upon, and

which Weber (1949) also advocates. In other words, there seems to be a consensus amongst the latter scholars that counterfactuals should not undue many events. For example, a counterfactual that imagines a democratic Soviet Union at the end of World War II or Soviet possession of strategic nuclear superiority at the time of the Cuban missile crisis would require too many events to have been "undone" (Breslauer, 1996, pp.7-8). "Minimal re-write" counterfactuals do not change what was culturally, technologically, temporally or otherwise plausible and they entail small, plausible changes in history (Lebow, 2000a).

The third criterion borrowed from Nash (1991) has also been reiterated by Fearon (1996) and Ferguson (1997), but is more controversial. Ferguson argues that:

> "We should consider as plausible or probable only those alternatives which we can show on the basis of contemporary evidence that contemporaries actually considered" (Ferguson, 1997, p. 86).

His argument follows thus:

> "What we call the past was once the future; and the people of the past no more knew what their future would be than we can know our own. All they could do was consider the likely future, the plausible outcome. It is possible that some people in the past had no interest in the future whatever. It is also true that many people in the past have felt quite sure that they did know what the future would be; and that sometimes they have even got it right. But most people in the past have tended to consider more than one possible future. And although no more than one of these actually has come about, at the moment before it came about it was no more real (although it may now seem more probable) than the others. Now, if all history is the history of (recorded) thought, surely we must attach equal significance to all the outcomes thought about. The historian who allows his knowledge as to which of these outcomes subsequently happened to obliterate the other outcomes people regarded as plausible cannot hope to recapture the past 'as it actually was'. For, in considering only the possibility which was actually realized, he commits the most elementary teleological error. To understand how it actually was, we therefore need to understand how it actually wasn't – but how, to contemporaries, it might have been. This is even more true when the actual outcome is one which no one expected – which was not actually thought about until it happened" (Ferguson, 1997, pp. 86-87).

For the most part, the logic of Ferguson's argument is sound. People in the past could not predict their future any more than we can today. People in

the past must have considered more than one possible future in any given circumstance. Indeed, it seems only reasonable that we attach equal significance to all the recorded outcomes thought about. Perhaps the most important point is that to understand how the past actually was, we need to understand how it actually wasn't. Further, Fearon (1996) concludes that counterfactual scenarios:

> "May provide the controlled comparisons necessary to support causal inferences when researchers restrict themselves to a small number of actual-world cases" (Fearon, 1996, p. 65).

This leads Fearon to be pessimistic about using counterfactual methodologies. However, there are two faults that can be found in the logic of arguments propounded by Ferguson (1997) and Fearon (1996). The same faults can be applied to the third set of criteria proposed by Breslauer (Breslauer, 1996) and Nash (1991). Firstly, the argument is too limiting, and secondly, one takes for granted that all the possible futures thought about were indeed recorded and recorded accurately. As Lebow asserts:

> "Even when evidence is meager or absent, the difference between counterfactual and "factual" history may still be marginal. Documents are rarely smoking guns that allow researchers to establish motives or causes beyond a reasonable doubt. Actors only occasionally leave evidence about their motives, and historians rarely accept such testimony at face value. More often historians infer motives from what they know about actors' personalities and goals, their past behavior, and the constraints under which they operated" (Lebow, 2000b, p. 553).

Some scholars, such as Ferguson (1997), Breslauer (1996), and Nash (1991) insist that only those counterfactual scenarios that have been accepted by historians as a valid source and committed to some form of record be considered. But as Lebow (2000b) criticizes, this criterion would put counterfactuals in a straightjacket. According to Lebow, restricting the counterfactuals to this criterion would:

> "Exclude entire categories of plausible-world counterfactuals. It would limit counterfactuals to elites who made written records, to self-conscious

> decisions in which alternatives are likely to be carefully considered, and to political systems in which leaders and other important actors feel secure enough to write down their thoughts or share them with colleagues, journalists, family members, or friends. It would rule out all counterfactuals that were the result of impulsive behavior (or lack of it), of human accident, oversight, obtuseness, or unanticipated error, of acts of nature, or of the confluence (or lack of it), or of independent chains of causation" (Lebow, 2000b, p. 569).

The second fault in the argument that the counterfactual antecedent must have been an available option proposed by Ferguson (1997), Breslauer (1996) and Nash (1991), is that there are rarely "smoking guns" in recorded history. To quote Lebow:

> "Even when evidence is meager or absent, the difference between counterfactual and "factual" history may still be marginal. Documents are rarely smoking guns that allow researchers to establish motives or causes beyond a reasonable doubt. Actors only occasionally leave evidence about their motives, and historians rarely accept such testimony at face value. More often historians infer motives from what they know about actors' personalities and goals, their past behavior, and the constraints under which they operated" (Lebow, 2000b, p. 553).

Compounding this problem is the problem of representing the past and the relationship between history and memory outlined by Ricoeur (2002).

6.51 The Problem of Representing the Past

The work of Neustadt and May (1986) suggests that decision-makers develop the logic for their decisions using analogies that are frequently based on counterfactuals. For example, Lebow (2000) has argued, and Neustadt and May (1986) seem to concur, that the 'mother of all counterfactuals' are the policy lessons derived by the allies from the 1930s. They are that appeasement not only does not work, but indeed, can encourage dictators. The result of these lessons is deterrence theory and containment. For half a century it was thought that the Soviets had to be contained through resolve and military capability. A large portion of the post-war international structure

was created from the counterfactual 'if we had stood up to Hitler in the 1930s, then Nazi Germany could have been restrained.' As Neustadt and May state:

> "The "lessons of the thirties" have provided, among other things, the underlying theme for every argument supporting stern approaches toward Communist regimes abroad from Truman's time forward. As a form of advocacy, nothing is more familiar to Americans of any age" (Neustadt, 1986, p. 23).

Former American President Truman's memoirs underpin this assertion:

> "I recalled some earlier instances: Manchuria, Ethiopia, Austria. I re-remembered how each time that the democracies failed to act it had encouraged the aggressors to keep going ahead. Communism was acting in Korea just as Hitler, Mussolini, and the Japanese had acted ten, fifteen, and twenty years earlier" (Truman, 1955/56, pp. 332-333).

Scholars that dismiss counterfactual analysis as an uncritical rearguard action protecting some rationalized notion of what history is, or protecting some cherished belief or assumption, risk retarding their own learning, and foresight into the future. Learning can be enhanced from an understanding of other plausible pasts, and consequently presents and futures. Furthermore, the linear historical analysis can be distorted through the lens that each historian looks through. As Ricoeur points out:

> "The reader of history takes for granted that the historian is offering 'a true account' and not a fiction. The question arising from this is that of knowing whether the fact which is implicitly present in any form of reading is respected when we read historical narratives" (Ricoeur, 2002, p. 51).

Ricoeur describes historical narratives, or history, as a story-telling discipline. The problem of representing the past in historical writing does not begin with history itself, but with memory. Memory and history carry on a kind of running dialogue in which the memory, in this 'simple form of childhood recollection' maintains a certainty that an event transpired as it is represented.[♣] Herein lies the paradox: the present image of something

[♣] The idea that history and recollection are entwined resonates with Plato's idea that knowledge is really a form of recollection presented in his dialogue *Meno*

absent, or transpired, is the recollection; however, the transpired or absent thing is related to something that once existed. Consequently, the paradox evolves through many stages including memory that is directed, blocked or manipulated, through the effort of recollection, spontaneous memory and so on. The paradox is resolved 'by the precious experience of recognizing authentic images of the past.' Any interpretation of history is bound inextricably with the memory of the interpreter.

Difficulties connected with historical knowledge can compound the problem. As Ricoeur (2002) argues, the prime modality of truth in historiography commences with the search for documentary and archival proof. Moreover, the writing process creates a certain distancing from the subject. As Carr states:

> "From the multiplicity of sequences of cause and effect, [the historian] extracts those, and only those, which are historically significant; and the standard of historical significance is his ability to fit them into his pattern of rational explanation and interpretation. Other sequences of cause and effect have to be rejected as accidental, not because the relation between cause and effect have to be rejected as accidental, not because the relation between cause and effect is different, but because the sequence itself is irrelevant. The historian can do nothing with it; it is not amenable to rational interpretation, and has no meaning either for the past or the present" (Carr, 1990, p. 4).

The extraction, and indeed the choice of what is historically significant and what constitutes the pattern of rational explanation and interpretation is part of the difficulties that encompass the process of historiography. Moreover, within the historical archive, Ricoeur (2002) argues that there is a crisis of attestation. Each document is based on a deposition, which has been confided from one to another, and although a witness may be able to attest to the event, that witness could either have decided to believe or disbelieve the

declaration. Furthermore, throughout the historiographical process there have been several intermediary agencies and processes that have been 'involved in the quest for causes and motives.' Moreover, throughout the literary phase of historiography, a process of dramatic staging, narrative elaboration and rhetorical construction meant to 'heighten visibility with readability' occurs and influences representation. Consequently, historical writing (even for the determinists) can involve an 'endless approximation which involves an unending labour of re-writing, which deforms and represents screens, and ultimately involves a series of narrative scenarios!' Representing, and learning from the past is a competition between history and memory, which is left as an open question. To quote Ricoeur:

> "The advantage of memory is its recognition of the past as having been, but as no longer present; history, on the other hand, is able to enlarge the scope of our gaze in space and time, the strength of its critique in the order of eye-witness accounts, of explaining and comprehending the past, and above all, the exercise of equitable discernment in respect of the competing claims of wounded remembrances" (Ricoeur, 2002, p. 65).

Furthermore, as Degler (1975) suggests and Fischhoff paraphrases: "We have our own points to prove when interpreting a past that is never sufficiently unambiguous to avoid the imposition of our ideological perspective" (Fischhoff, 1982, p. 349). Perhaps it is this notion that leads Castells to write: "There is no sense of history other than the history we sense" (Castells, 1997, p. 3). As such, Becker admonishes that historians do "play tricks on the dead in every generation" (Becker, 1935).

Carr's (1990) critique of counterfactuals and uncertainty in historical analysis, as Ferguson (1997) has criticized, is one that is so elastic that one can almost infer an acceptance of indeterminacy. Indeed, as one delves into the scholarship of even the most ardent critics of counterfactual history, one

finds that counterfactuals are frequently used in their historical analysis. As can be inferred from Ricoeur (2002), the demarcation between "factual" history and "counterfactual" history is a fine line. Historical actors rarely leave behind clues about their motives. Consequently, without documents that are "smoking guns" historians are forced to use what evidence they can find on personalities, objectives and past behavior to infer what their motives may have been (Lebow, 2000b). The demarcation becomes shadier still when we recognize, and the social psychology research previously discussed substantiates this claim, that to understand historical actor's past behavior it is imperative that we account for both their factual and counterfactual beliefs (Lebow, 2000b). The process of historiography, one can thus conclude, is inextricably linked with cognitive and learning processes.

6.52 Putting the "What If" into historiographical and social science methodology

Counterfactual interventions are intuitively compelling because they are part of "the psychology of the human learning experience" (Booth, 2003, p. 100; McMahon, 2001; Kahneman, 1982). When they are not explicit in historiographical and social science arguments, and in particular, in the identification of causality leading up to events, they are frequently smuggled in implicitly (Lebow, 2000a; Bulhof, 1999). They are also "standard fare" in Western logic, legal theory and science (McMahon, 2001). However, there is little consensus on what constitutes a good counterfactual, and some controversy, as stated, on the criteria that should be used to test them.

Lebow, whose criticisms of the criteria proposed by Nash (1991) Tetlock and Belkin (1996), Breslauer (1996), and Ferguson (1997), has proposed

eight criteria for plausible-world counterfactuals. Numbers 1, 2, 4, and 5 are variants of the Tetlock-Belkin criteria, while numbers 3, 7, and 8 are additions by Lebow (2000b, pp. 581-584):

1. Clarity. All causal arguments should define as unambiguously as possible what is to be explained (the consequent in counterfactual arguments), what accounts for this outcome (the antecedent), and the principle (s) linking the two. Good counterfactuals should also specify the conditions that would have to be present for the counterfactual to occur (Tetlock and Belkin, 1996).
2. Logical consistency or cotenability. Every counterfactual is a shorthand statement of a more complex argument that generally requires a set of connecting conditions or principals. The hypothetical antecedent should not undercut any of the principals linking it to the consequent (Tetlock and Belkin, 1996).
3. Enabling counterfactuals should not undercut the antecedent. Counterfactuals may require other counterfactuals to make them possible. Researchers need to specify all important enabling counterfactuals and consider their implications (Lebow, 2000b).
4. Historical consistency. Max Weber insisted that plausible counterfactuals should make as few historical changes as possible on the grounds that the more we disturb the values, goals and contexts in which actors operate, the less predictable their behavior becomes. The nature of the changes made by the experiment are nevertheless more important than the number of changes (Tetlock and Belkin, 1996).
5. Theoretical consistency. There are few, if any, generally accepted theories in the social sciences, and none in international relations, comparative politics, or history. For purposes of counterfactual analysis, it is nevertheless useful to reference any theories, empirical findings, historical interpretations, or assumptions on which the causal principles or connecting arguments are based. This will provide readers with a more explicit perspective from which to evaluate the counterfactual's plausibility (Tetlock and Belkin, 1996).
6. Avoid the conjunction fallacy. The laws of statistics indicate that the probability of any compound counterfactual is exceedingly low. This does not mean that the current state of affairs was overdetermined, only that it is very unlikely that hypothesized antecedents will produce specific consequences at any temporal distance. Social and political developments are highly contingent, and the future is undetermined – as was the past before it became the present.
7. Recognize the interconnectedness of causes and outcomes. Surgical counterfactuals are unrealistic because causes are interdependent and have important interaction effects. History is like a spring mattress: if one of the springs is cut or simply subjected to extra pressure, the others will also to varying degrees shift their location and tension (Lebow, 2000b).
8. Consider second-order counterfactuals. Even when there is good to reason to believe that the antecedent will produce the desired consequent, the possibility remains that subsequent developments will return history to the course from which it was initially diverted by the antecedent. No counterfactual argument is complete without some argument about "alternative" alternative futures and some assessment of their likelihood and implications for both the consequent and its value as a consequent (Lebow, 2000b).

Lebow's criteria provides a framework in which disciplined counterfactual analysis can be undertaken without having to rely solely on recorded alternatives considered by historical actors. The appeal of this criterion is that, when considering options, especially in crisis situations such as the

Cuban Missile Crisis, decision-makers use counterfactual argument "to structure their problem and evaluate the likely consequences of the options they are considering" (Lebow, 1996). One criticism that can be made is that the eight points that he highlights can be reduced into six. Numbers 7 and 8 both refer to second-order counterfactuals, whereas, with numbers 2 and 5, it is hard to imagine circumstances in which a counterfactual argument is logically consistent but theoretically inconsistent or vice versa.

Fearon (1996), somewhat pessimistic about counterfactual methodologies, acknowledges that:

> "Exploring counterfactuals opens up a range of difficult and often philosophical questions concerning what we are doing when we try to explain particular or recurrent international political outcomes. A final benefit of thinking about counterfactuals is that doing so brings some of these foundational issues out into the open. Failing to carefully specify the requisite counterfactuals is a way of sweeping such questions and problems under the rug. The more we keep these problems hidden from view, the more our "explanations" will have the character of persuasive rhetoric rather than empirical discovery" (Fearon, 1996, p. 67).

Fearon suggests that a proximity criterion should be added to counterfactual methodological guidelines. He argues that the hypothetical antecedent and outcome should be close together, separated by only a limited number of causal steps. The problem with this criterion is that not only would it render many important counterfactuals as un-assessable, but it may also undermine many of the benefits of counterfactual arguments, including bringing foundational issues into the open and failing to specify requisite counterfactuals. Furthermore, as Exhibit 7.1, the Decision Field, illustrates, the further back in time from an event one goes, the more malleable the future, the more opportunity for alternative decisions. The closer the antecedent is to the outcome, the more narrow the range of possibility for alternative futures to come into existence.

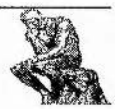
Weber (1996) is critical of attempts by Tetlock and Belkin (1996) Lebow (1996), Ferguson (1997) and Nash (1991) to apply criterion or plausibility tests to counterfactuals. He argues that one of the reasons that social scientists are so often surprised by events is that they do not take into consideration the variety of possible pasts that could have occurred, or the possible futures that still might occur. There is a lack of divergent thinking, a 'deterministic tunnel vision' (Tetlock and Belkin, 1996). Citing Schoemaker (1991), Weber (1996) argues that prudent policy makers should entertain a host of plausible scenarios, both into the future and the past. Tetlock and Belkin (1996) do not dispute this point, but argue that there has to be some means of distinguishing 'scenario snake oil from serious scholarship' (Tetlock and Belkin, 1996, p. 16). However, there is no reason why counterfactuals can't be given freer reign, and still be subjected to rigorous plausibility tests, as scenarios are.

6.6 The Uncertainty Principle in history and the social sciences: Rolling the dice?

Notions of agency, chance and contingency have challenged the traditional conceptions of the scientific method. As Lebow (2000b) has pointed out:

> "Counterfactuals are also taken seriously in the physical and biological sciences, where researchers routinely use them to develop and evaluate sophisticated, nonlinear models" (Lebow, 2000b, p. 550).

Examples include counterfactual computation (Mitchison and Josza, 1999), determining the presence of an object by using interaction-free measurements with a test particle (Kwiat *et al.*, 1995), testing nuclear weapons using information from non-events (Penrose, 1994), and quantum-mechanical interaction-free measurement (Elitzur and Vaidman, 1993). In quantum mechanics, for instance, an observation can only lead to a certain number of



predictions due to the 'uncertainty principle', and consequently, the best that quantum scientists can do is suggest which outcome is more likely (Ferguson, 1997). Hawking suggests that the uncertainty principle 'introduces an unavoidable element of unpredictability or randomness in science' (Hawking, 1999). Many of the greatest minds of the 20th century, including Einstein, have remained steadfastly committed to a completely explainable world:

> "You believe in the God who plays dice, and I in complete law and order in a world which objectively exists, and which I, in a wildly speculative way, am trying to capture" (Born, 1971).

However, uncertainty has continued to outlive Einstein, and while this chapter does not suggest that historians or social scientists should play dice with their universe, or that analysis of the past is a mere toss of the dice, it does suggest that counterfactual analysis is a tool that allows us to question our assumptions and protect against the debilitating effects of foresightful thinking flaws rooted in history. History may be a closed chapter, but the past was no more "fixed" than the future. Including an "uncertainty principle" in our ruminations of the past can only make historical analysis more robust.

6.61 Counterfactuals and The Butterfly Effect

Chaos theory, developed in the early 1960s by Edward Lorenz, in an attempt to mathematically model meteorology, describes "stochastic behavior in deterministic systems that are sensitive to minor changes in initial conditions" (Tucker, A., 1999, p. 269) in the physical sciences, and has been adopted in the social sciences, and in particular in the limited literature on counterfactuals e.g. (Tucker, A., 1999; Ferguson, 1997; Turner, 1995), as a metaphor. Chaos theory is a good illustration of the quagmire that the sciences generally find themselves in.

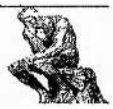
When meteorologists and mathematicians use chaos theory, they are not adopting the assumption that there are no laws in the natural world. Chaos simply means that accurate predictions are difficult, if not impossible to make, because the laws are so complex that what is happening around us is perceived as being chaotic and random. Consequently, chaos theory reflects stochastic behavior (seemingly random behavior) within deterministic systems (Bulhof, 1999), and is often used by economists to explain why their predictions, based on linear equations and econometric models, are so often wrong (Ferguson, 1997; Kay, 1995). As Bulhof (1999) explains:

> "Chaos theory comes from a mathematical concept, which physicists have applied to a variety of systems. Under certain conditions, systems display great sensitivity to initial conditions, making the system unpredicatable for humans" [Bulhof, 1999 #285] (p. 160).

Thus, in one classic example, under the right conditions, a butterfly flapping its wings can cause a storm somewhere else in the world (Bulhof, 1999). Stewart (1990) therefore concludes:

> "God can play dice and create a universe of complete law and order in the same breath," because, "even simple equations [can] generate motion so complex, so sensitive to measurement, that it appears to be random" (Stewart, 1990, p. 293).

Breslauer (1996), p. 73) and Gould (1981, p. 262) have argued that certain social and natural sciences suffer from "physics envy". While there are some useful metaphors in physics that can be applied to the social sciences, such as chaos theory, scholars in both history and the social sciences must guard against losing site of the importance of human stochastic behavior in favour of generalizations and theoretical covering laws. As Henry Kissinger stated five years after entering government, in January 1974:



> "As a professor, I tended to think of history as run by impersonal forces. But when you see it in practice, you see the difference personalities make" (quoted in Isaacson, 1992, p. 13).

So while history may be a closed chapter, phenomena such as the confluence of elements that comprise foresightful thinking flaws mean that a world that was once random, complex and sensitive to measurement now appears fixed in hindsight. However, there is a problem with historical analysis and the social sciences. As Lebow states:

> "In history and political science [the] outcomes are always uncertain because we can neither predict the future nor rerun the tape of history" (Lebow, 2000b, p. 551).

We can, however, be sensitive to contingency in the past, "traces" of past events, and alternative futures (Weber, 1996). As Tucker (1999) argues, counterfactual analysis is one tool for accomplishing this end.

6.62 Counterfactuals and Path Dependent Processes

Structural arguments, according to Lebow (2000), assume that human behavior is a product of the opportunities and constraints generated by a set of conditions. As a result, most structural arguments use human behavioral "principals" as anchor points and construct the argument on a chain of inference rooted in these principals. When the orthodoxy runs contrary to these principles, the argument may be dismissed regardless of the evidence. To account for behavior, we need to understand both counterfactual and factual beliefs (Lebow, 2000b, pp. 554-555). Lebow argues that:

> "Counterfactuals can combat the deeply rooted human propensity to see the future as more contingent than the past, reveal contradictions in our belief systems, and highlight double standards in our moral judgments" (Lebow, 2000b, p. 558-559).

Counterfactual interventions can also guard against path-dependencies that both structure and perception fall prey to (Booth, 2003). As Teece *et al.* propound:

> "Path dependencies are simply not recognized. This is a major limitation of microeconomic theory. The notion of path dependencies recognizes that "history matters" ...Thus a firm's previous investments and its repertories of routines (its "history") constrain its future behavior" (Teece *et al.*, 1997, p. 522-3).

Path-dependencies thus affect organizational learning (Cohen and Levinthal, 1990), because their ability to recognize, elicit and utilize information from their environments, their "absorptive capacities", rests on having had previous experience and learning in a particular area in the past. Path dependencies thus "ensure that firms tend to do what they have done in the past" and "enable firms to operate under familiar conditions but introduce significant rigidities in novel circumstances" (Booth, 2003, p. 98).

As the foresightful thinking flaws model, outlined in chapter four illustrates, organizational routines (Nelson, 1982) managerial recipes (Grinyer and Spender, 1979a), and biases towards over-confidence (Mahajan, 1992; Kahnman Tversky, 1982; Fischhoff, 1982) and defensive pessimism (Norem and Illingworth, 1993; Showers, 1992; Cantor and Norem, 1989; Norem and Cantor, 1986a) feed off of cultural (and organizational) mythologies (Johnson, 1988) stereotypes (Neustadt and May, 1986), ideas and philosophy (North, 1998; Keynes, 1936), and past experiences (Ingvar, 1985), which are reflected on in hindsight, and are often viewed as over-determined (Kahneman and Tversky, 1982; Fischhoff, 1975).

A disciplined application of counterfactual analysis to the past accomplishes many of the same ends that scenario thinking does, but in

reverse (Weber, 1996). They sensitize us to contingency, possibility, and allow us to understand historical processes in strategy and, by identifying key decisions, whether they concern firms' product/market choices, technological investments or structures and systems, and can be used to analyze path dependent processes (Booth, 2003). Indeed, as Dening (1996) suggests, and Booth (2003) affirms, counterfactuals "return to the past the uncertainty removed by our privileged position of hindsight." Furthermore, analysis of path-dependent processes may suffer from "creeping determinism" and the hindsight bias, which research in social and cognitive psychology has shown, albeit controversially, can be controlled through the disciplined application of counterfactuals (Kahneman and Tversky, 1982).

Events that were at one time deemed improbable by experts, such as the end of the cold war, are often deemed overdetermined after the fact, diminishing scholarly sensitivity to alternative outcomes and possible paths. As Lebow states:

> "Many psychologists regard the certainty-of-hindsight effect as deeply rooted and difficult to overcome. But the experimental literature suggests that counterfactual intervention can assist people in retrieving and making explicit their massive but largely latent uncertainty about historical junctures, that is, to recognize that they once thought, perhaps correctly, that events could easily have taken a different turn. The proposed correctives use one cognitive bias to reduce the effect of another" (Lebow, 2000b, p. 559).

Counterfactuals thus "tease out the assumptions – often unarticulated—which theories and historical interpretations rest" (Lebow, 2000b, p. 563). Weber's (1996, p. 270) argument that counterfactuals are best used as "learning devices" and "mind-set changers" which have mind-opening implications also highlights the importance of counterfactual experimentation in processes deemed path dependent in hindsight.

6.63 Counterfactual Analysis in Policy Formulation and Social Science Research: A few examples

Herrman and Fischerkeller (1996) have used the Iran-Contra affair, The Tower Commission and investigations into the National Security Council (NSC) operation during the Iran-Contra affair as a case for illustrating the use of counterfactuals by policy makers. The Iran-Contra affair, initiated when Oliver North and Robert MacFarlane arrived in Tehran with HAWK missiles in May of 1986, erupted into a scandal when MacFarlane and North's attempts to establish a new chapter in Iranian-US relations and thwart attempts by the Soviet Union to take advantage of the post-Khomeini succession struggle in Iran and establish influence in the northern Gulf was revealed by Mehdi Hashemi, a principal operator in one of the factions allied with Hizbollah in Tehran and who was opposed to Iran allying itself with the "Great Satan" (the United States of America) (Herrmann and Fischerkeller, 1996, p. 149). The Tower Commission reveals that counterfactuals were prominently used in the subsequent public relations battle that ensued. Three examples include:

1. Oliver North argued that if the Iranian initiative had not gone forward, then Lawrence Jenco, one of the American hostages held in Lebanon, would not have been released.
2. Other supporters of the initiative argued that had the mission's cover not been blown, then Washington would have had more leverage inside Iran when Ayatollah Khomeini died in 1989.
3. Both Secretary Shultz and Secretary of Defense Weinberger, on the other hand, opposed the mission from the outset and argue that its tactics were amateurish and the hope for moderation in Iran naïve. They noted that after Jenco's release, three new Americans were seized in Lebanon – perhaps as a consequence of the perception that Washington would trade arms for hostages (Herrmann and Fischerkeller, 1996, p. 150).

Herrmann and Fischerkeller (1996) also note the role that counterfactuals played in generating alternative visions of the future. At the root of

"counterfactual scenarios regarding what might be possible in Tehran" was the belief in Washington that, despite Gorbachev's "new thinking", it was more likely that "moderates" in Iran could be found than nonagressive communists in Moscow. According to Hermann and Fischerkeller:

> "In the 1990s, Americans typically see the search for moderates in Iran as ridiculous. The "rogue state" stereotype is now firmly in place. In 1985, however, images of Iran were less rigid than perceptions of the Soviet Union" (Herrmann and Fischerkeller, 1996, p. 150).

Hence, an entire initiative was begun by US national intelligence to distinguish between messianic leaders and nationalistic leaders in Tehran, and to generate scenarios. Throughout the Reagan administration in the US, the stereotype of an expansionist Moscow wishing to establish its influence in the Persian Gulf was firmly entrenched. However, since the Vietnam era, many scholars and policy makers had begun to change their beliefs, raising the possibility that Moscow was at worst opportunistic, and possibly defensive or even committed to the status quo. This, within the policy community, raised questions about the strategy that Washington should be pursuing with Moscow. Reassurance and détente strategies would be appropriate if Moscow was indeed defensive and or committed to the status quo. Deterrence, on the other hand, would be the optimal strategy if Moscow were in fact expansionist (Herrmann and Fischerkeller, 1996, p. 151). The one certainty was that there was considerable uncertainty over Moscow's disposition. As Herrmann and Fischerkeller state:

> "Although policy makers may at times close the question about another state's motivation, quite often they recognize a high degree of uncertainty. When this is the case, contingency planning and scenario construction are common exercises. Forward-looking conditional reasoning becomes counterfactual reasoning as officials reflect on the paths not taken. For example, Reagan administration officials argued that if Moscow had truly been motivated by a desire for détente, then it would not have deployed new medium-range missiles in Europe and new MIRVed ICBMs, and it would not have intervened in Angola, Ethiopia, and Afghanistan. These tests of Soviet

> motives may have been biased and simply reinforced existing views, but they nevertheless supported arguments that many Americans thought provided insight into Soviet motives" (Herrmann and Fischerkeller, 1996, p. 151).

Counterfactuals, as the Iran-Contra affair illustrates, are used in allocating blame and causality (which the psychological research previously discussed also substantiates (Turley *et al.*, 1995; Macrae *et al.*, 1992; Gavanski and Wells, 1989; Wells and Gavanski, 1989; Wells and Gavanski, 1987), in justifying arguments, shaping expectations and influencing actions, but they are also inherent in many of the theories that are used in history and the social sciences.

Bueno De Mesquita (1996) argues that when counterfactuals are "carefully grounded in a coherent structure" (p.211) they have a role to play in evaluating international affairs. He points out that the focus of social science research, both historical and empirical analysis, is not on what might have happened, but on what really did happen. However, he also acknowledges that what really happened is often, if not always, "the product of expectations about what would have happened had another course of action been chosen" (Bueno De Mesquita, 1996, p.212).

Game theory approaches to the social sciences highlight the importance of counterfactual reasoning in choosing a strategy. As Bueno De Mesquita states: "Game theory is a body of thinking that encourages the systematic examination of counterfactuals" (1996, p. 229). The "Nash equilibrium", which is the central mechanism for resolving noncooperative games, is based on a player choosing a plan of action or strategy which would not allow for a player to become better off through a "unilateral defection" from the strategy. Each player must think through the repercussions of the unchosen alternative, or counter-to-factual, "off the equilibrium path" strategies. This means that:

> "Each such expectation involves an analysis of counterfactual realities that were rejected because some decision maker viewed the alternative state of the world as less beneficial than the chosen reality" (Bueno De Mesquita, 1996, p. 216).

One of the features that distinguishes game theory from most historical analysis is that game theory suggests that: "we cannot understand what happened in reality without understanding what did not happen but might have happened under other circumstances." The argument thus follows that:

> "What might have happened' is a driving force behind the analysis of games in extensive form and is at the heart of the fundamental solution concept in game theory, the Nash equilibrium" (Bueno De Mesquita, 1996, p. 229).

Bueno De Mesquita (1996) proposes game theory as a plausible foundation for assessing the empirical relevance and logic of counterfactual analysis. Game theory not only has strong guidelines, but it provides a hypothesis that: "can be tested against the historical record and projected to predict future actions" (p. 217). However, it is also constrained by its assumptions – expected utility maximisation, rationality and Nash equilibrium criteria (i.e. that every player believes that they are making optimal choices, given that everyone else is also choosing the best strategies that they can) – and while, once again, it demonstrates the importance of counterfactual analysis in individual cognition, it falls into the trap of predicting the future rather than understanding the complex forces and critical uncertainties that will ultimately shape the future (See Exhibit #7.4 for description of Prisoner's Dilemma).

It has long been recognized by game theorists modelling strategic interaction that there is a need for actors to, at the very least, to agree on what kind of game they are playing, or better still, to share a common framework. They assume that a common framework is established through a Bayesian

process of learning by updating estimates of one another's preferences. In practice, actors can communicate for long durations without realizing that they are actually playing different games. This is possible because actors commonly assimilate new information into their existing frameworks. The results are that signals are missed and/or actors grasp their import after it is too late to counter effectively or respond appropriately. Over the course of strategic interactions between actors, frameworks also change, and these changes can affect behaviour with profound consequences (Lebow, 2000b).

Exhibit 6.4 The Prisoners' Dilemma

Cooperation is usually analysed in game theory by means of a non-zero-sum game called the "Prisoner's Dilemma". The two players in the game can choose between two moves, either "cooperate or defect". The idea is that each player gains when both cooperate, but if only one of them cooperates, the other one, who defects, will gain more. If both defect, both lose (or gain very little) but not as much as the "cheated" co-operator whose cooperation is not returned. The whole game situation and its different outcomes can be summarized by the following table, where hypothetical "points" are given as an example of how the differences in result might be quantified.

Action of A/Action of B	Cooperate	Defect
Cooperate	Fairly good [+5]	Bad [-10]
Defect	Good [+10]	Mediocre [0]

Outcomes for actor A (in words, and in hypothetical "points") depending on the combination of A's action and B's action, in the "prisoner's dilemma" game situation. A similar scheme applies to the outcomes for B.

The game got its name from the following hypothetical situation: imagine two criminals arrested under the suspicion of having committed a crime together. However, the police does not have sufficient proof in order to have them convicted. The two prisoners are isolated from each other, and the police visit each other one will be freed. If none of them accepts the offer, they are in fact cooperating against the police, and both of them will get only a small punishment because of lack of proof. They both gain. However, if one of them betrays the other one, by confessing to the police, the defector will gain more, since he is freed; the one who remained silent, on the other hand, will receive the full punishment, since he did not help the police, and there is sufficient proof. If both betray, both will be punished, but less severely than if they had refused to talk. The dilemma resides in the fact that each prisoner has a choice between only two options, but cannot make a good decision without knowing what the other one will do.

Such a distribution of losses and gains seems natural for many situations, since the cooperator whose action is not returned will lose resources to the defector, without either of them being able to collect the additional gain coming from the "synergy" of their cooperation. For simplicity we might consider the Prisoner's dilemma as zero-sum insofar as there is no mutual cooperation: either each gets 0 when both defect, or when one of them cooperates, the defector gets + 10, and the co-operator – 10, in total 0. On the other hand, if both cooperate the resulting synergy creates an additional gain the makes the sum positive: each of them gets 5, in total 10.
Source: pespmc1.vub.ac.be/PRISDIL.html

Furthermore, for game theory to be effective, one must assume that the objectives of the players are the same and that expectations about the future are the same. In the context of a counterfactual, making assumptions about the assumptions of a historical actor is risky and may not yield accurate results.

Counterfactual posturing, or "objective reality" as Weber calls it, are indispensable in analysing social science history. To quote Weber's argument for using counterfactuals in historical work:

> "The judgement that, if a single historical fact is conceived of as absent from or modified in a complex of historical conditions, it would condition a course of historic events in a way which would be different in certain historically important respects, seems to be of considerable value for the determination of the "historical significance" of those facts. It is clear that this situation had to call forth a consideration of the logical nature of such judgments" ([Weber, 1905/1949, p. 166).

Kiser and Levi (1996) concur, arguing that counterfactuals are an essential tool in the analytical tool bag for analysing events, such as revolutions, that have developed over a long period of time and are characterized by a multiplicity of factors resulting from multiple interactions. Social scientists, they contend, rely on counterfactuals to deal with the multiplicity of interactions, often implicitly, and consequently fail to explicitly recognize their reliance on counterfactuals. Kiser and Levi state that: "It is important to use counterfactuals explicitly in historical research", especially when empirical data is limited (Kiser and Levi, 1996, p. 188). They go on to argue that:

> "The lack of explicit recognition of the role of counterfactuals increases the probability that scholars will use them inappropriately or fail to use them to advantage" (Kiser and Levi, 1996, p. 188).

Used appropriately, counterfactuals can reveal additional implications of theories and "aid in the logical evaluation of theory" (Kiser and Levi, 1996, p. 188).

Social psychologists are primarily concerned with spontaneous counterfactual thinking and its influence on affective reactions, assignments of blame, victim compensation, effects on self-efficacy and a whole range of judgments. Counterfactual thinking, according to the cognitive and social psychology literature, is constrained and guided by cognitive and motivational

processes (Olson *et al.*, 1996, p. 296). These biasing factors, according to the literature reviewed in Chapter Five, can, in the words of Olson, Roese and Deibert "introduce systematic distortions into counterfactual reconstructions" (Olson *et al.*, 1996, p. 296).

The major difference between spontaneous counterfactual thinking by the lay person or in everyday experience and counterfactual reconstruction in history and social science research and scholarship is the spontaneity of counterfactual reconstruction in day-to-day naturally occurring cognitive processes, and the deliberateness by which historians and social scientists construct counterfactuals. Kahnman (Kahneman, 1995) has called the latter "automatic" counterfactuals, and the former "elaborative" counterfactual thinking. Despite these differences, Olson, Roese and Deibert (1996) argue that many of the biasing factors uncovered by cognitive and social psychological research into naturally occurring counterfactual thinking also applies to counterfactual reconstruction in the social sciences. For instance, it has been shown in Chapter Five that negative outcomes tend to generate counterfactuals (Roese, 1995) and that the lions share of spontaneously produced counterfactual thoughts are a response to negative outcomes. Likewise, in social science research, negative events, such as the failure of Enron and World.com are more likely to capture the attention of scholars in the social sciences than positive outcomes (Olson *et al.*, 1996, pp. 299-300). However, it is difficult to classify many events in the social sciences as positive or negative (i.e. was the Cuban missile crisis negative, because it brought the world to the brink of war, or positive, because it was resolved peacefully (Olson *et al.*, 1996, p. 300). In social science research it might be

more accurate to say that salient events tend to capture the attention of scholars more than non-salient events (i.e. events such as the First World War has garnered far more scholarly attention than studying the reasons for the undefended border between the United States and Canada (Olson *et al.*, 1996; Christensen and Snyder, 1990).

Psychological approaches to counterfactual thinking, as Olson *et al.* (1996) argue, thus have relevance for counterfactual thought experiments in history and the social sciences.

6.7 Counterfactuals: Back to the future

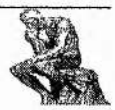
According to Popper, many of the historical determinists, or historicists as Popper calls them, do not have the ability to "imagine a change in the conditions of change." Indeed, Popper did not deny that events are caused by 'initial conditions', but he did object to deductive certainty. In Popper's (Popper, 1957, p. 122-128) words:

> "There are countless possible conditions; and in order to be able to examine these possibilities in our search for the true conditions of a trend, we have all the time to try to imagine conditions under which the trend in question would disappear."

Berlin agrees. Berlin argues that:

> "The notion that one can discover large patterns or regularities in the procession of historical events is naturally attractive to those who are impressed by the success of the natural sciences in classifying, correlating, and, above all, predicting. They consequently seek to extend historical knowledge to fill in the gaps in the past (and, at times, to build into the limitless gap of the future) by applying 'scientific' method: by setting forth, armed with a metaphysical or empirical system, from such islands of certain, or virtually certain, knowledge of the facts as they claim to possess" (Berlin, 1954, p. 5).

This serves as a warning to avoid simple theories and patterns, because, again, to reiterate Stewart: "Simple systems do not necessarily possess simple dynamic properties" (Stewart, 1990, p. 21). This is as true for



historiography as it is for economic and political predictions or weather forecasts. Penrose (1994), in a similar vein, suggests that, rather than rely on prediction, the best that the long-range (political and economic) forecaster can do is to simulate typical outcomes and to admit that the choice between these plausible scenarios can only be a guess and not a prophecy (Ferguson, 1997). Again, returning to the analogy of the "Butterfly Effect" (a butterfly flapping its wings in one part of the world, causes a hurricane in another part of the world) used by Lornenz, illustrates the climate's sensitive dependence on initial conditions and also on chaos theory in action (Ferguson, 1997). However, as Penrose states:

> "The predicted weather may well not be the weather that actually occurs, but it is perfectly plausible as a weather" (Penrose, 1994, p. 23).

In the social sciences, like the physical sciences, the statement that "simple systems do not necessarily possess simple dynamic properties" (Stewart, 1990, p. 21) is equally true. Chaos theory and stochastic behavior helps us to understand the perils of over-simplified analysis of politics (Stewart, 1990), elections, consumer behavior and so on.

Lebow, using similar logic, also highlights the potential pit-falls of inevitability in the past and predicting the future. He suggests that 'conditional forecasting' may be a more appropriate strategy for coping with the complex uncertainties:

> "Conditional forecasting may be a more appropriate strategy for attempting to cope with the manifold uncertainties associated with the complex events responsible for system transformations. Conditional forecasts use existing theories and behavioral regularities as a starting point to develop alternate-scenarios of likely future developments or of a system transformation. They consider multiple chains of causation and look at some of the possible interactions that might take place among them, as well as the paths that might lead from one scenario to another. They also stipulate the kind of information or events that will be used to determine the extent to which events track according to expectations of any of the scenarios. As events unfold, researchers repeatedly revise their scenarios and expectations in light of the new information. Such a process is messy and time consuming, but it

> is the only reasonable way of taking into account coincidence and random events. At the very least, it can provide early warning of major changes in a system or of faulty expectations of those who are tracking its performance" (Lebow, 2000b, p. 613).

Lebow's rationale for "conditional forecasting" closely mirrors scenario-thinking methodologies (van der Heijden, 1996; Schwartz, 1991) already in use. The thesis, however, is no less salient: Scenario thinking is a necessary antidote to the perils of single point forecasting in the same way that counterfactual analysis is a necessary antidote to historical inevitability and determinism.

Humans are conscious beings that seek, "prior to acting in the present, to make sense of the past and on that basis to anticipate the future" (Ferguson, 1997). Moreover, as some historians such as Ferguson (1997) and Cowley (1999) points out, frequently throughout history the counterfactual scenario has seemed more likely to occur to contemporaries than the official past. Decision-makers base their decisions on theories and predictions underpinned by assumptions, analogies and stereotypes, which are often driven by spontaneous counterfactual reasoning, and as often as not, those predictions and theories are flawed.

Despite the perils of trying to deal with uncertainty and complexities through over-determined and simplified views of the past, or through forecasting the future, these methodologies remain the dominant models. But as Kuhn (1970) argues,[x] the nature of scientific revolutions is such that even after obsolescence, outdated paradigms have a tendency to endure for some time. In a world where stochastic behavior dominates, and one in which the future is increasingly influenced by complexities that are too vast to be

[x] Keeping in mind the Kuhn-Popper debates at the London School of Economics.

understood in their entirety, Kuhn may be right. Thus, to paraphrase Cowley (1999), for historians the maxim is that the dominos fall backward. In order to improve foresight, they have to be made to fall forward!

6.8 Chapter Conclusion

"History," Cowley writes, "is properly the literature of what did happen" (Cowley, 1999, p. xi). Or is it? Benson (1972) argues that the reasons for studying the past fall into four categories. They are: to construct a group, or national identity, to entertain, to reveal the extent of human possibility, and to develop systematic knowledge about the world, "knowledge that may eventually improve our ability to predict and control" (Fischhoff and Tversky, 1982, p. 335).

Counterfactuals, historians such as Carr (1961/1990), Thompson (Thompson, 1978), and Fisher (1970) might argue, fall into the second category, that of entertainment. After all, they are 'unhistorical' (Thompson, 1978), a 'parlor game', a 'red herring' (Carr, 1961/1990), a 'methodological rathole' (Fisher, 1970). Or are they?

Psychologists, who generally restrict themselves to the last category (Fischhoff and Tversky, 1982), have demonstrated that the analysis of history is often distorted through various biases, two of which are the hindsight bias (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975), and creeping determinism (Fischhoff, 1975; Florovsky, 1969). Counterfactuals, in psychology experiments, have been found to reduce the hindsight bias and creeping determinism (Mahajan, 1992; Wasserman *et al.*, 1991), although research by Roese and Olson (1996) has been less clear on this point, and

may suggest that 'spontaneous', or 'automatic', unregulated counterfactuals, as opposed to deliberately reconstructed 'elaborative' counterfactuals (Kahneman, 1995), may indeed increase these biases. Even if this is the case, it does not change the main force of the argument presented in this thesis, that hindsight does play a role in foresight, and counterfactual reasoning in particular, can either be a trip-wire for scenario thinking, by amplifying certain biases if left unchecked, and reducing the possibility of picking up weak signals in organizational environments, or a trigger, which expands possibility and understanding of both history and of the future. If rigorously applied, elaborative counterfactuals eliminate the hindsight bias (Cowley, 1999).

Counterfactuals not only play an important, cognitive role in our everyday learning experience, but scholars also use them regularly, often implicitly, when they assign causes (Tucker, A., 1999). The contribution of this chapter is in bringing to the fore research that concludes that counterfactuals and counterfactual hypothesis testing, as Fearon (1996) concludes, play an important, often-unacknowledged role in confronting key assumptions in hypothesis. Path-dependencies and path-dependent logic, which in form and outcome closely resemble the psychological phenomena of the hindsight bias and creeping determinism first introduced by Fischhoff (1975) and Florevsky (1969), can also be challenged by looking for critical decisions and junctures in the past through counterfactual analysis (Booth, 2003).

Carr, in his offensive against counterfactuals, defends what Popper termed 'historisicm' by arguing that historiography is a matter of selecting historically

significant facts which fit into a pattern of rational explanation and interpretation:

> "Just as from the infinite ocean of facts, [the historian] selects those which are significant for his purpose, so from the multiplicity of sequences of cause and effect he extracts those which are historically significant; and the standard of historical significance is his ability to fit them into his pattern of rational explanation and interpretation" (Carr, 1961/1990, p. 105).

Leaving aside the problems of selecting 'historically significant facts' identified by Ricoeur (2002, advocates of counterfactuals (Lebow, 2000b; Cowley, 1999; Tucker, 1999; Ferguson, 1997; Tetlock and Belkin, 1996; Weber, 1996; Fearon, 1996) counter arguments set forth by historians such as Carr, Thompson and Fisher, by arguing that judgments concerning what facts are chosen, and the explanations supporting a 'pattern of rational explanation and interpretation', are often a matter of 'counterfactual judgment' (Hawthorn, 1991, p. 15).

Whether we choose to acknowledge it or not, counterfactuals already play an important role in our cognitive and learning experience (Kahneman and Tversky, 1982; Roese, 1995; and the decisions, policies and structures that result from them (Lebow, 2000a; Herrmann and Fischerkeller, 1996). Research on the cognitive use of counterfactuals reviewed in the last chapter has shown that counterfactual mental simulations serve a future preparative function, and examples from history and the social sciences, such as the policy lessons derived by the allies from the 1930s, reviewed in this chapter, provide strong evidence that there is a formidable link between hindsight and foresight.

Counterfactuals, in the foreign policy literature, have been used to justify preferred policies (Breslauer, 1996). Breslauer (1996) argues that this

is because the "extreme data poverty" and a "heavy emphasis on explicit policy prescription," as is the case with classical approaches to strategy formulation and implementation, has lead scholars of foreign policy to embrace theoretical perspectives in their attempts to influence the policy community, and bolster their arguments using counterfactuals. Indeed, counterfactual arguments, whether implicit or explicit, have been influential in policy formation, from the policy lessons derived from the Second World War (Lebow, 2000a; Neustadt and May, 1986), to the Cuban Missile Crisis (Lebow, 1996), to the Tower Commission and investigations into the National Security Council [Herrmann, 1996 #305], to name three examples.

As an intervening tool for 'undoing the past and learning for the future,' the application of elaborative counterfactuals, if deliberately thought out and rigorously tested using the criterion discussed in this chapter, can challenge path-dependent logic (Booth, 2003; Hawkins, 1990), reduce disruptive biases such as the hindsight bias (Kahneman, 1995), and can be used as a 'debiasing' tool (Hawkins and Hastie, 1990; Fischhoff and Beyth, 1975b) for phenomena such as "creeping determinism", while still meeting rigorous academic standards of scholarship. They can be, and frequently are used to assign causality (Tucker, A., 1999), challenge long-held assumptions (Cowley, 1999), mindsets, and 'prime the pump of learning' (Weber, 1996). As Cowley (1999, p. xii) states, "The road not taken belongs on the map."

Chapter Seven: Discussion and Synthesis: Foresightful Hindsight

"Foresight is a unique and highly-valued human capacity that is widely recognized as a major source of competitive advantage and cultural renewal within nations and corporations."

~ Chia, 2002

"Timely disbursements to prepare for danger frequently prevent much greater disbursements to repel it."

~ George Washington, 1732 - 1799

"It was ordained at the beginning of time that certain signs should prefigure certain events."

~ Cicero, 106 – 43 BCE

7.0 Chapter Introduction

Research in cognitive psychology has found that humans use certain heuristic principles for simplifying a complex world and facilitating decision-making (Kahneman and Tversky, 1973). These heuristics can be beneficial to facilitating decision-making, but they can also lead to significant errors (Prahalad and Bettis, 1996).

Psychology research has shown that belief systems are remarkably resilient to change, even when evidence is presented to challenge them. Research on interpersonal expectations and stereotypes, for example, has shown that after an interaction between an individual who has prior expectations about, or had stereotyped a target individual, there was no change, and in some cases the stereotype was strengthened after the encounter (Darley and Gross, 1983; Duncan, 1976; Langer and Abelson, 1974; von Hippel *et al.*, 1995; Munro and

Ditto). Moreover, social cognition research has also demonstrated that already held beliefs and attitudes influence information processing (Slovic and Lichtentenstein, 1971; Tversky and Kahneman, 1974; Ross *et al.*, 1975; Ross *et al.*, 1977; Munro and Ditto, 1997). Some researchers (Rosenthal and Jacobson, 1968; Word *et al.*, 1974) postulate that expectancy biases information processing by changing behavior "in ways that elicit expectancy-confirming information from the target" (Munro and Ditto, 1997).

Biases are not isolated, but interwoven, and they are often derivatives of, or closely linked with the "hindsight bias" (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991 Hawkins and Hastie, 1990; Fischhoff, 1975a) and "creeping determinism" (Fischhoff, 1975a; Florovsky, 1969), which have long been recognized in theories of historical inevitability (Carr, 1961/1990; Berlin, 1954). These biases influence our analysis of assumptions, beliefs, experiences, understanding of history, ideology, mythologies, stereotypes, and symbols, all of which are vestiges of the past. They result in over-confidence and defensive pessimism, which can lead to maladaptive routines, recipes, paradigms, logical (and structural) path-dependencies, and dominant logics. They thus result in foresightful thinking flaws, which can lead to "big-miss" errors (Weber, 1996). These biases have been found to be prevalent in areas as diverse as psychotherapy case histories (Fischhoff, 1975a), employee evaluations (Mitchell and Kalb, 1981), medical diagnosis (Arkes *et al.*, 1981; Dawson *et al.*, 1986), historical judgment (Fischhoff, 1980; Berlin, 1954) and politics (Leary, 1982). Hindsight influences

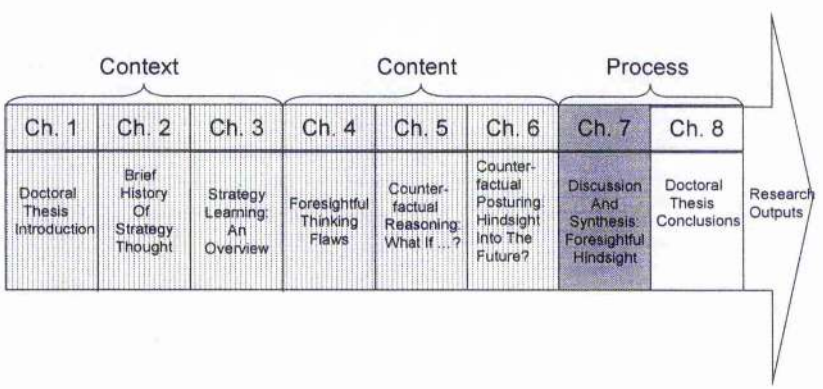
foresight, but does not equal foresight (Fischhoff, 1975a). To improve foresight, hindsight must first be accounted for.

7.1 Chapter Purpose and Contribution

Counterfactual reasoning, while a controversial proposition within history and the social sciences (Thompson, 1978; Carr, 1961/1990; Croce, 1966) has been found by psychologists to be an effective de-biasing technique (Mahajan, 1992; Wasserman *et al.*, 1991; Hawkins and Hastie, 1990) although there is some controversy about whether it is a trigger for reducing bias, or a trip-wire for augmenting it (Roese, 1996; Sherman and McConnell, 1995).

The purpose of this chapter is to synthesize the research reviewed so far.

Exhibit 7.0 Doctoral Thesis Map



The chapter's contribution to the doctoral thesis (exhibit 7.0) is a critical appraisal of the application of counterfactual reasoning techniques for de-biasing hindsight and improving foresight.

7.2 Chapter Structure

The chapter begins with an explanation of 'causal fields' (Einhorn and Hogarth, 1986; Mackie, 1965), which is a diagnostic concept for assessing alternative explanations for events, the causal relevance of causes and conditions leading to outcomes, and the use of counterfactual reasoning for assessing context. The concept of causal fields is then illustrated using data collected by Seaton (2003, February 19) from interviews with 12 historians, discussing the use of historical analogy by those advocating and opposing War with Iraq.

The following section links counterfactual reasoning into the past, scenario thinking into the future, and context by drawing on research by Ingvar [Ingvar, 1985 #334] into cognitive schemas and the relationship between past, present and future. Ingvar's (1985) concepts are used to conceptually integrate the relationship between the past, foresightful thinking flaws such as the hindsight bias and creeping determinism, and the dysfunctional implications that hindsight can have for foresight, such as the generation of over-confidence, defensive pessimism, erroneous routines, recipes, paradigms, logical path-dependencies, and dominant logics.

The succeeding sections analyse the role of counterfactual reasoning in de-biasing foresightful thinking flaws (Mahajan, 1992; Wasserman *et al.*, 1991;

Koriat *et al.*, 1980). Counterfactual generation, while often viewed as a heuristic, has also been found to have some dysfunctional implications. Specifically, some researchers have found counterfactual mental simulations to have a positive correlation, rather than a negative correlation with biases such as the hindsight bias and creeping determinism (Roese and Olson, 1996; Sherman and McConnell, 1995). This research is considered, and some methodological problems with their studies are emphasized.

The chapter concludes that while it is important to be mindful of the dysfunctional implications of counterfactual mental simulations, they are useful, in conjunction with "mini-methods" proposed by historians Neustadt and May (1986), as effective hindsight de-biasing techniques.

7.3 The Causal Field and Context: A diagnostic concept

The concept of a 'causal field' has been proposed as a diagnostic concept for assessing the salience of alternative explanations for events, assessing causal relevance and differentiating causes from conditions. The term 'causal field' is interchangeable with the context that people make judgments about probable cause (Einhorn, 1986; Mackie, 1965). Context is a concept that, until recently, has been accepted as "self-evident, as a given attribute in the world, something that is stable, clear and sufficient, and not requiring any qualification of its own" (Dilley, 1999). Dilly argues that the word context suggests a derivation of the Latin verb texere, 'to weave'. Further, the Latin verb contexere has the meaning of 'to interweave', 'to weave together', or 'to join together' (Dilley, 1999, p. 4).

Individually then, social actors weave their own contexts for various purposes. However, there is also a body of common knowledge, or inter-subjective knowledge, that allows individuals to negotiate a common understanding. This 'foreknowledge' is the navigational instrument, or the receptive rod that allows people to pick out what is salient and achieve a common context. As Dilley says: "Such foreknowledge could be conceived as a body of inter-subjective knowledge, what ethnomethodologists recognize as the means by which social actors negotiate and achieve a common context" (Dilley, 1999, p. 16).

Prince and Riches (1999), for instance, have argued that context is a socially constructed political process that is used to legitimize and justify the 'contextualised' (Prince and Riches, 1999, p. 169). In a study of the New Age movement, they found that there is a construction of a domain that is external to the phenomenon at issue, and that external domain is somehow responsible for the issue taking the shape that it has. They offer the idea of 'context determination' to describe the process. They argue that:

> "In the process of construction, it is the phenomenon at issue – where political contentiousness lies – that is primary, its contextualisation a political gambit in its support" (Prince and Riches, 1999, p. 184).

As Goodwin and Duranti (1992) contend: "As strategic actors, individual participants can actively attempt to shape context in ways that further their own interests" (Goodwin and Duranti, 1992, p. 6.). Thus, Prince and Riches argue that with the New Agers, holistic ideas are produced and reproduced through the process of constructing context, and their individualistic practices attain legitimization through the process of constructing a context that differentiates them, however subtly, from 'mainstream society' (Prince and Riches, 1999, p.

184). According to this view, speech and context "stand in a mutually reflexive relationship to each other" (Dilley, 1999, p. 19).

In a similar vein, Rapport (1999) has found, for the people that populate Wanet village in England that mutual adjustments in both 'individual' and 'public' contexts occur through communication and discourse. They argue that conversations reveal a mental mind-map (s) that serve as existential contexts in people's lives. They delineate and detail the landmarks in these maps, and take actions by them. People codify and explain the world in terms of tautologies. Through conversing, people "express jointly their common experience and realize jointly their shared experiencing" (p. 124). As Rapport says:

> "With a common outlook on the environment and a common location within it, by treating other objects and events and being treated alike by them in return, they have a shared reality, a type of context for their knowing and acting, over and above their logical, bodily separation" (Rapport, 1999, p. 124).

Furthermore, Rapport argues that:

> "Conversation is not simply a realization of a mapping of the world and their contexts of action within it, but also an ostentatious guarding and maintaining of that world" (Rapport, 1999, p. 125).

This is because there is a certain comfort in finding that the world is the same old world, and a satisfaction in finding that mental mind-maps continue to be accurate, even if the context has changed markedly, and it is empowering to know that similar situations have been experienced in the past and there are action plans for what to do. As a result, people will desire to find what they know they will find: "Their information coincide with their evaluation" (Rapport, 1999, p. 205).

Dilley thus argues that context is both a generative and an emergent property of knowledge. He also warns that:

> "Context is expandable, indefinitely so; and we must never lose sight of the fact that a claim about context is precisely that – an articulation concerning a set of connections and disconnections thought to be relevant to a specific agent that is socially and historically situated, and to a particular purpose" (Dilley, 1999, p. 39).

Contexts are thus sets of relations that "are not self-evident things in themselves" (p. 38):

> "It reminds us in short that the agents who frame or contextualise perform a social practice. It recognizes context as a process, and its definition as a species of social action entails relations of power. The very act of interpretation, evoking a specific frame in preference to another, is an act of power" (Dilley, 1999, p. 35).

The terminology "causal field" is one that was coined by the philosopher Mackie who postulates that there is a link between variables, or "difference in background" and judgments of causal relevance (Mackie, 1965). As Einhorn and Hogarth (1986) points out, differences-in-a-background consist of events that are surprising, unusual or abnormal, and these events should theoretically arouse causal interest. Whether or not an uncertain event comes to pass determines whether or not causal interest is aroused, which provides a suitable test for Mackie's concept of causal fields. Weiner, for instance, states:

> "There is reasonable consensus in the reviewed research (6 of the 8 pertinent publications) that search is elicited by an unexpected event – a win by an underdog, a loss by a favored team, more or less profits than anticipated, unexpected academic success or failure, unusual willingness or unwillingness to help, and inconsistent behavior" (Weiner, 1985, p. 81].

In the social and cognitive psychology studies reviewed in Chapter Five, evidence is provided that people make sense of the world through a process of causal reasoning (Einhorn and Hogarth, 1986; Hastie, 1984; Abelson, 1981; Schank and Abelson, 1977) that involves counterfactual mental simulations. A

pervasive element in people's socio-cognitive functioning, research in psychology has shown, is imagining alternative versions of past events (Kahneman and Miller, 1986; Miller and McFarland, 1990; Roese and Olson, 1996), or simply put, asking 'what ifs' about the past. Evidence has shown that when events violate one's expectations (i.e. abnormal events), a cognitive search for explanations is triggered. Effectively, a change in context challenges people's assumptions about the past, and by extension, the present and future. This is because, as Wasserman (Wasserman *et al.*, 1991) states: "Events in the past usually appear simple, comprehensible, and predictable in comparison with events in the future" (Wasserman *et al.*, 1991, p. 30). This helps to explain why individuals at the micro level, and organizations, regions and countries collectively, fail to anticipate changes within their environments. In times of relative stability there is not an incentive to search for causal factors that could lead to an abnormal outcome. In effect, there is a counterfactual bias. Even our "memories of the future", cognitive schemas for future action generated from past experiences and then stored in memory for recall in the future when similar circumstances arise (Ingvar, 1985), are based on our experiences of abnormal events.

Cues-to-causality, as Einhorn and Hogarth (1986) maintain, will determine a person's perception of the strength of cause X to effect Y once a context, or causal field, has been invoked. The strength of the cause is determined by contiguity in time and space, co-variation and temporal order. In other words, every individual cue illuminates a sign of causal relation that is fallible. Consequently, people will mitigate against the fallibility of single cues through the

use of co-variation between multiple cues when making causal inferences. Contiguity and temporal order are variables, as highlighted by philosophers such as Hume (1964/1739) and Mill (1872) that indicated causal relations (Einhorn and Hogarth, 1986). The importance of understanding cues-to-causality and a causal-field (or context) has implications for understanding the process of foresight and is a useful diagnostic tool. Changes in the causal field (or context), for instance, will change the cues-to-causality, alternatives and counterfactuals that people will look at. A shift in the causal field, for example, has the ability to highlight or de-emphasize entire classes of alternatives (or plausible worlds). In other words, the causal field, or context, is what contains the class of alternatives that any given causal possibility is compared to and evaluated by (Einhorn and Hogarth, 1986).

Consider the following scenario*: War with Iraq. Before the recent war with Iraq (2003), both advocates and opponents of the conflict used their knowledge of history to justify their position. Those advocating war with Iraq, for example, warned against appeasement, invoking the lessons of the 1930s and the counterfactual that, 'if only France and Britain had stood up to Germany in the 1930s, rather than appeasing it, World War II could have been averted'. They constructed contexts by eliciting and projecting lessons taken from past experiences onto current circumstances:

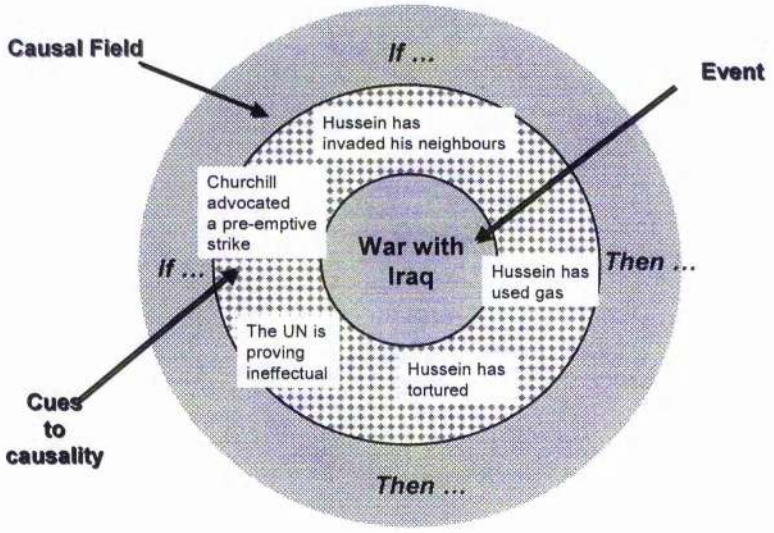
- Hussein has invaded his neighbors.
- Hussein has gassed his political and racial enemies.
- Hussein has tortured and brutalized his own people.

* Data collected by Seaton (2003, February 19) from interviews with 12 leading historians on the use of historical analogy by advocates and opponents of war with Iraq. See appendix E for a list of those interviewed.

- The United Nations is proving as ineffectual as the League of Nations was after Poland was invaded.
- Rumsfeld seems to think that Churchill advocated a 'pre-emptive' war against Hitler.

Advocates for war with Iraq construct a context, or a causal field that elicits certain counterfactuals. Based on these cues to causality, one might infer that because Hussein has invaded his neighbors in the past, gassed political and racial enemies and tortured his own people, he is therefore an imminent threat, likely to try and acquire weapons of mass destruction, and if he does so, use them. A powerful causal field has been developed that sets a context complete with cues-to-causality that buttresses their argument (see exhibit 7.1).

Exhibit 7.1 The Causal Field: Context A



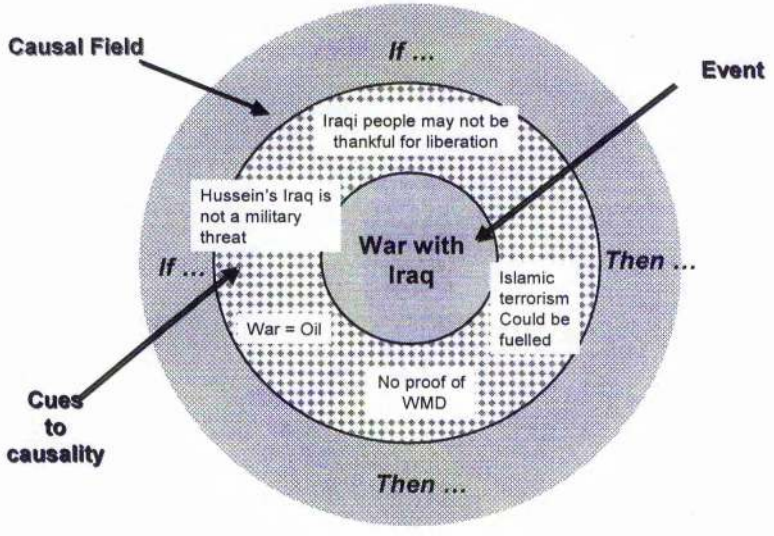
Opponents of war with Iraq counter advocates by invoking a second causal field containing a different set of cues-to-causality. They argue:

- The Iraqi people may not be thankful for liberation.
- Defeating Hussein could fuel Islamic terrorism.

- There is no proof that Iraq is building weapons of mass destruction (Hitler was known to be building weapons of mass destruction).
- The war is about securing oil supplies.
- Hitler's third Reich was the most militarily capable state in the world, whereas you could hardly say that about Hussein's Iraq.

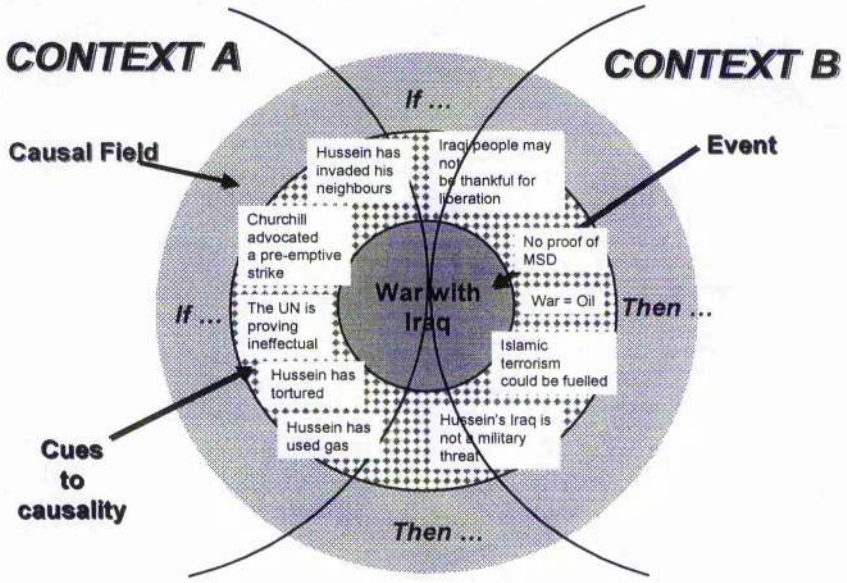
In short, they construct a context, or a 'causal field' that elicits a whole new class of alternatives (see Exhibit 7.2).

Exhibit 7.2 The Causal Field: Context B



However, in both cases, advocates and opponents alike selectively emphasize cues-to-causality that correspond to their respective bias, while de-emphasizing or ignoring others (see exhibit 7.3).

Exhibit 7.3 The Causal Field and War with Iraq



History, and in particular, counterfactual history has been used as a template for processing information. In each case, certain signals have been surveyed, selected as corresponding with a view of history, and used to construct a future context. Forward processing is thus rooted in a perception of the past.

7.4 Linking Scenario Thinking, Counterfactual Reasoning, and Context

Assessing probable cause for a wide range of events is a cognitive function that is closely linked with both forward and backwards processing of experiences. To quote Kahneman and Miller:

> "Reasoning flows not only forward, from anticipation and hypothesis to confirmation or revision, but also backward, from the experience to what it reminds us of or makes us think about" (1986, p. 137)

Research into counterfactual reasoning does much to highlight the fact that not all observations and events can be explained by a forward 'Bayesian' processing of hypothesis and anticipation, confirmation, disconfirmation and

revision, but also by a backward processing of counterfactual alternatives. Sanna and Turley (1996) summarize the link between counterfactual reasoning and scenario thinking when they state:

> "Counterfactual thinking, therefore, can be affected both by a forward processing from expectancies or hypotheses to confirmation or revision, and by a backward processing from the outcome itself to what it reminds one of or makes one think about" (Sanna and Turley, 1996, pp. 906-919).

Counterfactual alternatives are generally evoked when an event deviates from a cognitive weighting of knowledge that has been extracted from past experiences and expectancies (Kahneman and Miller, 1986). In other words, when the target outcome deviates from our norms, we create counterfactual alternatives. Scenarios use the same methodological process to enhance understanding of the future. As van der Heijden (1996) points out:

> "Stories about the future are in a way historical accounts but seen from a future perspective. They explain how the world has ended up in a future end-state, by a causal train of events, linking back to the well-known present. Scenarios make sense of future events in the same way as historical accounts make sense of the past" (p. 116).

Breaking time down into segments of past, present and future, however, is in itself problematic. As the research of Ingvar (1985) shows, the cognitive processes that people engage in when generating explanations for the past and strategies for the future are interwoven. Ingvar's research also helps to demonstrate the intimate relationship between hindsight and foresight.

7.41 Memories of the Future

Ingvar (1985) argues that people instinctively and constantly develop alternative plans for the future. The mind (or more specifically the frontal cortex of the brain) has an innate capacity to preserve concepts of the future. Further, humans can be conscious of these concepts and constantly rehearse them, but generally we integrate only those factors that are relevant to our perception of the future. As Ingvar (1985) says:

> "It is only by access to serial plans for future behavior and cognition, i.e. access to our "memory of the future", that we can select and perceive meaningful messages in the massive sensory barrage to which our brains are constantly exposed" (pp. 127-136).

In other words, Ingvar postulates that concepts and serial programs of the future act as templates. When we receive information we compare the messages with these templates. If the messages correspond, the meaning of the message is "perceived" and selected. This process is reflected, at the organisational level, in Argyris' (1982) concept of double looped learning. Here, organisations adjust their behavior based on the messages that they have perceived and selected, rather than attempting to maintain their preferred conditions. Their actions are driven by the feedback they have received from experience.

This theoretical stream suggests that human minds relate concepts to 'elements of temporally organized schemas' (van der Heijden, 1996), thus retaining them as what Ingvar calls 'memories of the future'. The individual provides contextual frameworks to organize their observations of past and present, and the future implications that they conjecture. The concept of

"schemata" closely resembles that of Bartlett (1932) who postulates that they are "active organizations of past reactions and experiences" (Jeeves, 1983, p. 3). Stotland and Canon also agree:

> "Persons operate relatively abstract and generalizable rules, called schemata, regarding regularities in relationships among events ... [which] guide behavior ... and influence the manner in which new information is assimilate" (Stotland and Canon, 1972, p. 67).

This process of operating relatively abstract schemata, which regard regularities in relationships among events, is closely associated with the concept of context embodied in the Latin verb contextere, to weave together. Our "inner future" (Melges, 1982), which consists of our concepts of future events and the future consequences of behavior in the past and the present (Ingvar, 1985), is the result of our cognitive capacity to 'program anticipatory goal-directed behavior and cognition' and to construct action plans, based on a 'weaving together' of assumptions, beliefs, experiences, mythologies, routines, stereotypes, symbols and so on. Individuals can reconstruct memories of the past. The plans that we make about the future can be remembered in great detail and recalled. The present thus consists of both concepts (memories) of the past and of the future. As Giddens says:

> "Because schemata are anticipations, they are, as one author put it, 'the medium whereby the past affects the future', which is 'identical with the underlying mechanisms of memory'" (Giddens, 1984, p 46).

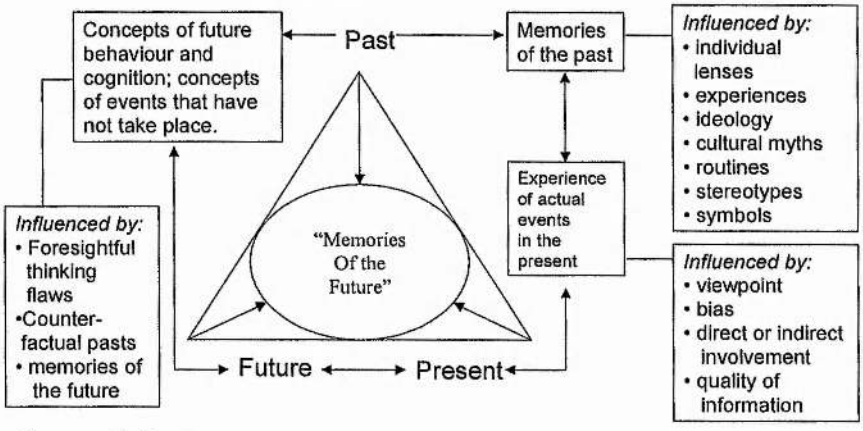
Because the present is both 'inherently related to cognitive concepts of the past and the future', it is contextual in nature (Lundh, 1983, pp. 127-136). To summarize Ingvar's research in his own words:

> "Human memory operates not only with past experiences, but also with alternative, semantically meaningful sequences of events which are located in an

anticipated future. These sequences are remembered and can be recalled often in detail, in spite of the fact that the events have not taken place" (Invar, 1985).

As exhibit 7.4 shows, the individual lenses that people peer through, their assumptions, beliefs, ideology, experiences, cultural myths, routinised behavior, and stereotypes, and symbols influence memories of the past. These in turn influence peoples viewpoints, presumptions and the selection and quality of information that people process in the present. The future flows from the present and the past and is therefore influenced by foresightful thinking flaws, the counterfactuals that people generate and their memories of the future.

Exhibit 7.4 Foresightful Thinking in Time



Source: Author

Foresight is thus a product of the constant oscillation between analysis in the present of the past and conjecture into the future. If left unchecked and untested, the assumptions and perceptions underpinning foresight can lead to logical path-dependencies that flow from the past, through the present and into the future. As Neustadt and May say:

> "In thinking of time as a stream, the preeminent challenge is to judge whether change has happened or is happening or will. The imperative need is to get that reasonably right. This mode of thought contributes to the chances of doing so by continuously posing comparisons of present with past and future" (1986, p. 257).

Being conscious of the use of "if then" reasoning, reasoning by analogy, stereotypes, assumptions and presumptions, for instance, can be an effective way of improving the quality of hindsight, and by extension foresight. Again to quote Neustadt and May:

> "So "if/then" is a warning sign, and all presumptions phrased in the contingent form become prime targets for testing" (1986, p. 140).

Testing our counterfactuals, presumptions, assumptions and perceptions is one key to unlocking our understanding of the future.

7.5 Guarding Against Foresightful Thinking Flaws: De-biasing Techniques

Despite the existence of a few 'positive externalities' to bias, for the most part they are disruptive to information processing, and ultimately, to effective foresight. Several researchers have attempted to eliminate the hindsight bias in their studies. In an experiment by Arkes *et al.* (1988), a de-biasing procedure similar to one used by Koriat *et al.* (1980) *et al.* was applied, in an attempt to reduce the overconfidence that people portrayed in their answers when asked general knowledge questions. Arkes *et al.* (1988) felt that the same procedure might be used to the end of countering the hindsight bias (p.305). In the study conducted by Koriat *et al.* (1980), for instance, participants were given two alternative questions such as "The Sabines were part of (a) Ancient India or (b) Ancient Rome." Participants in the study were asked to indicate which answer

they thought was correct and also their confidence in their answer. Before indicating their confidence in their chosen answer, participants in the experimental groups were required to indicate why each of the answers might be incorrect and why they might be correct. Koriat *et al.* (1980), found that control groups were found to have far greater confidence than their levels of accuracy, whereas participants in the experimental groups were found to have "manifested significantly less overconfidence than did control group subjects" (Arkes, 1988, p. 305). Using a similar methodology, Arkes *et al.* (1988) applied the procedure to the diagnoses of 194 professional neuropsychologists. Three hindsight groups were given a case history and told that one of three diagnoses was correct. They were then asked to assign the probabilities to the differing diagnoses as if they were making the original diagnoses. Foresight participants, on the other hand, were given a case history and were subsequently asked to estimate the probability of three different diagnoses. Hindsight and foresight "reasons" groups were asked to indicate their confidence in what they felt were "correct" diagnoses and also to list their reasons for why each of the other diagnoses may have been correct. Consistent with the results of Koriat *et al.* (1980), listing reasons for other possible diagnoses diminished the frequency of participants in the hindsight reasons groups succumbing to the hindsight bias (p. 305). This has led Arkes *et al.* (1988) to conclude:

> "The practical consequences of this de-biasing procedure should prove beneficial and may extend beyond the hindsight bias alone. Physicians, psychologists, and other diagnosticians often inaccurately claim they "knew it all along" when told the true diagnosis. The hindsight bias thereby reduces what the diagnostician can learn from the outcome information, because he or she thinks the outcome is already so obvious" (p. 307).

They go on to suggest:

> "Having the diagnostician list or generate reasons why other outcomes might have been expected should heighten appreciation of the difficulty of the case, the plausibility of other diagnoses, and the information value of the correct answer. Under these circumstances the correct answer will more likely be seen as truly informative, and alternative possibilities may be given their just due" (Arkes, 1988, p. 307).

The hindsight bias can formally be differentiated from "creeping determinism" by its consequences. While the hindsight bias is a psychological phenomena that leads people to believe that "I knew-it-all-along", creeping determinism is a phenomena that leads one to believe that "it couldn't have happened in any other way". In other words, creeping determinism focuses on the causal chain of events, whereas the hindsight bias suggests that one knew that the causal chain, or outcome that the causal chain leads to, was as predictable in foresight before the event as in hindsight after the event. As Wasserman *et al.* state:

> "[The hindsight bias is] a projection of new knowledge into the past accompanied by a denial that the outcome information has influenced judgments" (Wasserman, 1991, p. 30).

The hindsight bias, in some senses, might be better phrased the over-confidence bias, as the research clearly shows over-confidence in hindsight is a major catalyst for the hindsight bias and prevents meaningful learning from taking place (Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990 Fischhoff, 1975a). Antecedents are linked to an outcome or an event through causal inferences engendered from the selective recall of information that is consistent with an event's outcome (Schkade and Kilbourne, 1991; Wasserman *et al.*, 1991). The information selectively recalled is integrated into a schemata representation of the past (Fischhoff, 1975a).

A pervasive element in people's socio-cognitive functioning, research in social and cognitive psychology has shown, is imagining alternative versions of past events (Miller and McFarland, 1990), or simply put, asking 'what ifs' about the past. Past research into counterfactual reasoning has demonstrated that counterfactual reasoning can reduce the hindsight bias, creeping determinism and over-confidence. In one study, Fischhoff exhibits evidence that when participants consider alternatives to an outcome, their confidence in the certainty of the outcome diminishes (Fischhoff, 1976). In another study, Slovic and Fischhoff (1977) note that when participants were asked to consider alternatives to an outcome in a published experiment, the participants felt less confident that the experiment could be replicated. Consequently, Kahneman and Varey (Kahneman and Varey, 1990) suggest that: "X is neither necessary nor inevitable if it can properly be said that Y almost happened instead of X" (p.1103), thus observing that there is an "intriguing tension" between the hindsight bias and counterfactual reasoning. This "intriguing tension" reflects findings by Sherman (Sherman, 1991), who argues that:

> "To the extent that counterfactuals are easily and spontaneously generated, the past seems less inevitable: Other outcomes were clearly possible" (Sherman, 1991, p. 182).

It is interesting to note that in the recent study of *Brill's Content*, a journal that critiques the media, they found that since August 1998, many of televisions political pundits have generally been "gloriously and publicly" wrong as much, in some cases more, than they've been right. The time and effort of the experts fabricating reasons why they were "basically right" has led Tetlock to the

conclusion that the more wrong they are the more learning takes place (Rothstein, 1999, pp. 10-11) and alludes to a "knew-it-all-along" hindsight bias phenomenon.

There is ample evidence validating the hindsight hypothesis. As Wasserman *et al.* (1991) state:

> "Events in the past usually appear simple, comprehensible, and predictable in comparison with events in the future. Everyone has had the experience of believing that he or she "knew all along" the outcome of a legal trial, business investment, political election, or football game. And everyone has reacted with skepticism to similar claims from someone else" (Wasserman *et al.*, 1991, p. 30).

This begs the question: Do some events trigger the hindsight bias more than others? If so, do some events cause the hindsight bias or moderate its effects? Wasserman *et al.* (1991) found that this is indeed the case. When people attribute an outcome to "chance" factors that were unforeseeable, such as an earthquake, the hindsight effect was all but eliminated. However, participants in the Wasserman *et al.* studies cited "deterministic" causes, such as a lack of human skill, there was considerable hindsight bias. These findings lead the researchers to the conclusions that the evidence supports Fischhoff's (1975a) "creeping determinism" theory, and that the hindsight bias is a by-product of adaptive learning from feedback (Wasserman *et al.*, 1991). Furthermore, they point out that the "creeping determinism" explanation is the most consistent explanation in the hindsight literature and it is also consistent with cognitive process accounts from legal judgments (Casper *et al.*, 1988; Hans and Doob, 1975) to the role of explanation in predictions of social events (Sherman, 1981) to subjects inability to discount information once it has been integrated into an

impression of another person (Wyer and Budesheim, 1987; Schul and Burnstein, 1985).

In two studies conducted by Carll (1999), evidence was found that suggests that reconstructive memory contributes to the hindsight bias. Forming causal links between the events leading up to an outcome and the outcome itself has been well documented (Hawkins and Hastie, 1990). Carll's findings have gone even further by showing that people may apply stereotypical causal links that were not part of the scenario given to them. This corroborates research that has suggested that people will embellish or alter their memories based on personal schemas:

> "That is, when a schema is invoked, people systematically misremember information that is consistent with that schema" (Carll, 1999, p. 967).

Indeed, in a theoretical investigation on the effects of expertise, counterfactual reasoning and evaluative feedback on marketing management decisions, Mahajan (1992) came to the conclusions that (1) "humbling" feedback increases accuracy and lowers overconfidence, (2) overconfidence from being "blind sided" can be reduced by counterfactual reasoning and (3) "richness" of experts' mental representations results in higher overconfidence (Mahajan, 1992, p. 329).

The literature on the hindsight bias consistently shows that generating alternative outcomes for the past, and thus scenarios for an event is an effective way of eliminating the hindsight bias. Furthermore, the research of Nario and Branscombe (1995) has concluded that alternative scenarios is an effective way of eliminating the perseverance effect, which can be described as "the inappropriate persistence of a belief even when the evidential basis for that belief

has been completely discredited." As Nario and Branscombe (1995) suggest: "Similar to the hindsight phenomenon, perseverance may be mediated by a selective search for causal antecedents capable of explaining events observed" (Nario and Branscombe, 1995, p. 1245).

Nario and Branscombe (1995) designed their investigation to examine whether biased causal attributions and hindsight effects "prevail as a consequence of the selective comparisons that perceivers generate when explaining the occurrence of a particular outcome" (Nario and Branscombe, 1995, p. 1252). Using 183 female and 195 male undergraduate students, the researchers found that when an event is explained in terms of events that preceded it, participants become convinced that an outcome "was inevitable". They conclude that:

> "The deliminating conditions necessary for replication and elimination of the hindsight bias include a scenario that is sufficiently rich, in terms of the predictive antecedents available, to be assimilated as part of subjects' causal interpretations of the outcomes they consider" (Nario and Bransbombe, 1995, p. 1252).

They also conclude that judgments of outcome likelihood and attributions of causality are constrained by the context of which the event takes place (Nario and Branscombe, 1995, p. 1254).

Early research (Hawkins and Hastie, 1990) has shown that people forming causal links between outcomes and the events leading to those outcomes cause the hindsight bias. As Agans and Shaffer (1994) states:

> "In hindsight, conditions leading to the outcome become relatively available to memory and therefore more difficult to ignore than with foresight" (Agans, 1994 quote in Carll, 1999).

Carll (1999) has furthered this research to show that reconstructive memory also contributes to the hindsight bias. As Carll argues, people alter and embellish their memories, adding antecedents that were not necessarily present, to be consistent with their schemas. In two studies, one where participants read a scenario that ended in a rape or a marriage proposal, and one where participants read identical scenarios that either ended in a rape or had no ending, add evidence for this hypothesis. As Carll states: "Participants' memories of the events in the story were reconstructed to be stereotypically consistent with whichever ending they received" (Carll, 1999, p. 966). Those participants that received a scenario that ended in a rape, for instance, re-wrote the story to be consistent with that outcome.

7.51 Counterfactual Generation Bias: Dysfunctional Attributes Revisited

Counterfactual reasoning, however, may not be the panacea that conventional wisdom (e.g. Sherman, 1991; Hawkins and Hastie, 1990; Slovic and Fischhoff, 1977; Fischhoff, 1975a) suggest that they are. As Roese and Olson (1996) and Sherman and McConnell (1995) illustrate, counterfactual generation, and the hindsight bias may in fact be mutually reinforcing, under a preexisting set of conditions, if those conditions are left untested:

> "In other words, the more a person is certain that outcome A was predictable under condition X, the more sure the person is that a change in condition X would have led to a change in outcome. Just as the person "knows" after the fact that bringing in the relief pitcher was bound to bring up the pinch hitter who would then hit the home run, the person "knows" equally well that leaving in the starting pitcher would have led to a strikeout and a different outcome" (Sherman and McConnell, 1995, p. 221).

Consequently, under a preexisting set of conditions where one sees an outcome as inevitable, Sherman and McConnell argue, counterfactuals might actually enhance the hindsight bias and over-confidence. In future situations, the theory follows, counterfactual generation might be a dysfunctional bias, and these two biases might go hand in hand, thus resulting in a change to strategy. The result can be impaired decision-making. As Sherman and McConnell state:

> "The fact is that the hindsight assessment and the inference about the counterfactual world are both likely to be incorrect. The outcome was not as predictable from antecedent conditions as people think (hindsight bias). Nor was an alternative outcome based on the mutation of some antecedent condition as likely as people think (counterfactual generation bias). Yet these two biases in judgment can combine, and they have the potential for turning good decisions into bad ones" (1995, pp. 221-222).

Research by Roese and Olson (1996) finds that spontaneous counterfactual thinking heightens the intensity of the hindsight bias. They attribute this phenomenon to the causal inferences that are made. Their research has also been interpreted to show that spontaneous causal inferences mediate the facilitative effect of counterfactual thinking on the hindsight bias (Roese, 1996, p. 197). In short, the two primary assertions that Roese and Olson make are that "if-then" counterfactual conditionals, labeled "rejudgement" by Hawkins and Hastie (1990) increase the magnitude of the hindsight bias and the causal inferences attributed to counterfactual reasoning and yield information increasing the explanatory value and clarity value and thus leading to increased hindsight bias (p. 198).

In three experiments, Roese and Olson sought to de-bunk past theory and research, which has suggested that counterfactual thoughts weaken the hindsight bias. In the first experiment, the researchers used 100 students

enrolled in introductory psychology classes at the University of California in Santa Barbara. The students were given the following scenario:

> "Sarah is a freshman student in university. She is a typical student in most respects, getting grades that average around 70% in her first quarter. Sarah has an important midterm exam coming up in her psychology class. She begins to prepare about a week before the exam date, intent on getting at least her customary grade (70%). As she always did before an important exam, Sarah went to the library to look over some extra reference material. Three nights before the exam, Sarah was invited out by old friends from high school. Because she hadn't seen them for several months, she decided to go, even though she had planned to study that night. Two days before the exam, Sarah happened to run into an old friend, Lynn, who had taken the same psychology course the year before and had copies of last year's exams. Sarah studied some of these exams closely to get an idea of the kinds of questions that might be on her exam. Just before sitting down to take exams, Sarah usually swallows a pill prescribed by her doctor for the panic attacks she often suffers. Sarah almost always takes a pill before exams, and it often seems to make her feel better [even though it raraely seems to make her feel better]. On the day of her psychology exam, however, she forgets to take her pill. Sarah does her best on the exam. A week later, she learns that her grade on the exam is 70% [55%, 40%]."

On 9 point scales, the students were then asked to rank the predictability of Sarah's grade on the exam, how inevitable Sarah's grade on the exam is and the causal potency of the antecedents e.g. how big an effect did forgetting to take her pill have on Sarah's grade. The students were then asked to rate how much control Sarah had over her grade, and how large an effect her actions had on the grade that she received. This experiment demonstrated that counterfactuals heighten the hindsight bias due to the effects of counterfactuals on causal inferences.

Again, the second experiment used 85 students enrolled in introductory psychology at the University of Western Ontario. The students were asked to read the following scenario:

> "During the first month of the First World War (1914 – 1918), hundreds of lives were lost during the Battle of the Frontiers. At this time, the Germans fought the French and the British along side the border between Germany and France. In these early weeks, the Germans quickly acquired a reputation for being ruthless

and harsh, particularly as they burned and terrorized villages in Belgium and France.

During the battle, a small British force accidentally encountered a much larger German force. The British were forced to retreat into a small village, putting all the peaceful villagers into extreme danger of attack. The villagers were mainly farmers, and among them were many children. Unfortunately, the British commander (Lt. Dorian Moore) was slow, inexperienced, and indecisive. Moore ordered his troops to stay in the village, and to simply wait for a German attack. This spelled certain doom for the village.

One British soldier was Thomas Jensen. He was only 20 years old and, although somewhat shy and uncertain of himself, he was bright and had already involved himself in several minor military decisions for the British. He saw a way of luring the Germans away from the village, thereby saving the village from destruction. The more he worked on his plan, the more he became convinced that he could save the village, as well as his fellow soldiers. The problem was: since he was so young, it was very unlikely that Moore would listen to him.

Jensen faced a difficult decision. As he saw it, he had three alternatives: 1) He could simply forget his plan and follow the orders Moore had already given. 2) Since he was well-liked, he could organize his fellow soldiers to disobey Moore's orders, and to follow his plan instead. 3) He could carefully explain his plan to another officer, and have that officer tell Moore. With luck, Moore might order the troops to follow the plan.

Of these three choices, choice 1 was the least attractive (since it meant certain doom for the village). Choice 2 was the riskiest to Jensen himself (he could be tried and shot for mutiny if his plan failed) but was the most likely to save the village (assuming that the troops were willing to follow Jensen's plan). Choice 3 was safer for Jensen (his conduct could not be questioned). After a sleepless nigh, Jensen decided on choice 2 [3]. The result was that the British troops were not convinced to follow Jensen's plan and the village was destroyed [The result was that the British troops followed his plan and the village was saved].

First, participants were then divided into three groups, each reading a version of the scenario where only the last two sentences changed to one of the choices, or another, or none at all. On a nine-point scale, participants rated their agreement with two statements: 1) "It was predictable in advance that the village would be saved" and 2) "... that the village would be destroyed."

Second, participants were asked to allocate percentages to indicate the probability that the village was destroyed with some survivors, destroyed with no survivors, that the village was saved.

Finally, using a nine-point agree/disagree scale, participants were asked to rate their agreement with three prescriptive statements. They included: A) The

likelihood that the village would have been saved had Jensen chosen option 1, 2, or 3. B) "should have" judgments for avoiding the negative outcome, following the form, "Jensen's best decision would have been option [1, 2, 3].

Roese and Olson (1996) found that in experiment 2, "post-outcome elaboration of the causal linkage between an antecedent and outcome is essential for the hindsight bias," and they also found that, "this bias may be redefined to include post-outcome certainty regarding "what should have been" as well as what it was." They thus reason that once sensemaking cognitions are triggered from an unexpected or negative event (e.g. counterfactual reasoning), the hindsight bias will be heightened only to the extent that the antecedents can be explained. They suggest that the positive correlation between the hindsight bias and counterfactual reasoning, which runs against the prevailing wisdom e.g. (Sherman, 1991; Kahneman and Varey, 1990; Slovic and Fischhoff, 1977; Fischhoff, 1975a) that counterfactuals reduce the hindsight bias and over-confidence, may well be the default. However, they do concede that counterfactuals may well reduce the hindsight bias and over-confidence in situations where there antecedent inferences "weaken causal potency" [Roese, 1996 #145]. In other words, if the causes, or antecedents to an outcome can be explained as to why something should have happened differently, that in itself leads to the hindsight bias.

Thus, to quote Roese and Olson:

> "Thus, by extension, the hindsight bias may also represent an enhanced post hoc certainty that another outcome could have, or perhaps should have occurred. This extension of hindsight "certainty" to counterfactual alternatives may form the basis for the "armchair quarterback." When sports fans watch their favorite team lose, they may demonstrate the classic hindsight bias in noting that the loss was

> predictable and inevitable, given, for example certain foolish decisions made by the coach. But note that this same post hoc certainty may also apply to decisions the coach should have made and that would have resulted in victory. That is, fans may believe that the team certainly would have won if only the coach had made different decisions. Both types of certainty, one directed to what was and the other to what should have been reflect the output of active attempts to "make sense" of the past, and both are rooted in post hoc attributions" (1996, p. 202).

These findings are consistent with previous research (Branscombe and Weir, 1992; Kahneman and Miller, 1986; Macrae, 1993), which suggests that:

> "An outcome preceded by an exceptional rather than a routine act heightened counterfactual thinking and, accordingly, perceptions of the causal potency of that act. Exceptional preceding circumstances also heightened the hindsight bias relative to routine circumstances" (Macrae, 1993, p. 221).

A criticism of these experiments is the methodology that Roese and Olson (1996) use. Each one of their experiments involves groups of students reading carefully crafted scenarios and then asking them to answer systematically designed questions to test whether there is a positive correlation with the hindsight bias and over-confidence, rather than testing ways to reduce it. It may be possible that if a methodology is used that asks students to consider a range of both upward and downward counterfactuals, or to list reasons for their views, or to consider negative outcomes for each one of the outcomes provided, that the hindsight bias and over-confidence might be reduced. However, even if Roese and Olson (1996) are correct, and people default to spontaneous counterfactuals that positively correlate with foresightful thinking flaws, then these findings are important because it highlights the importance of finding ways to over-ride the short-circuiting effects of spontaneous defaults in order to improve foresight. As stated, one way of doing this is by considering a range of elaborative

counterfactuals that reduce the causal potency of antecedents leading to an outcome.

7.52 Elaborative versus Automatic Counterfactuals: Creative Destruction?

Kahneman (Kahneman, 1995) emphasises the difference between elaborative counterfactuals and automatic counterfactuals. Automatic counterfactuals occur spontaneously and are a cognitive heuristic (Sherman and McConnell, 1995; Miller, 1990; Kahneman and Tversky, 1982). However, they may have some dysfunctional implications for foresight and decision-making, such as a "short-circuiting" in the counterfactual assessment process depending on how questions are framed (Dunning and Madey, 1995; Dhar and Simonson, 1991), systematic biases in interpretations of causal relations and events (Sherman and McConnell, 1995), the use of simplified heuristic principals for mutating event features and outcomes (Sherman and McConnell, 1995), and in certain circumstances, depending on the counterfactuals generated, enhancing the hindsight bias, creeping determinism and over-confidence (Roese and Olson, 1996).

Much research to date suggests that counterfactuals play a preparatory function for adaptive learning, and behavioral intentions for the future (Kahneman, 1995; Gleicher *et al.*, 1995; McMullen *et al.*, 1995; Seelau *et al.*, 1995; Sherman and McConnell, 1995; Sherman, 1991; Wells *et al.*, 1987). Counterfactuals involve mental simulations (Kahneman and Miller, 1982), which is a form of elaborative thinking. Elaborative thinking involves: "[imagining] the unfolding of a sequence of events, from an initial counterfactual starting point to

some outcome" (Kahneman, 1995, p. 378). Simulations are governed by causal knowledge that is, "implicit in the rules that govern the simulation," but, "there is no magic in mental simulation and no guarantee that it correctly represents the causal relationships of the real world" (Kahneman, 1995, p. 380). The difference between automatic, or spontaneous counterfactual generation, and elaborative thinking used in historiography and the social sciences is the application of the rules that govern the simulations of counterfactuals. That is because we conceptually blend together assumptions, beliefs, experiences, historical knowledge, mythologies, stereotypes, symbols and so on, by selectively recruiting, "from our most favored patterns of knowing and thinking" (Turner, 1995, p. 293), or information that corresponds with our cognitive schemas (Ingvar, 1985), and we develop the blend, "through [the elaboration of] imaginative mental simulation according to the logic in the blend" (Turner, 1995, p. 293). The hindsight gained from these imaginative simulations is, consequently, biased (Turner, 1995), and has dysfunctional implications for foresight.

The sort of hindsight that can be gained from elaborative counterfactual thinking in historiography and the social sciences, however, can control for these biases and from the systematic distortions introduced into counterfactual reconstructions (Olson *et al.*, 1996) that have been identified in psychological research (Roese and Olson, 1996; Sherman and McConnell, 1995; Miller *et al.*, 1990; Kahneman and Miller, 1986). This may be because of different principals guiding the two types of counterfactual thinking (Olson *et al.*, 1996).

Counterfactual thought experiments within history and the social science are deliberate, self-conscious (Olson *et al.*, 1996), and, if methodological criterion are articulated (Lebow, 2000b; Ferguson, 1997; Tetlock and Belkin, 1996; Breslauer, 1996; Nash, 1991), rigorous. Research reviewed in psychology can also help to improve the standards of rigor that epistemological communities hold counterfactuals accountable to. For instance, research shows that upward counterfactuals (comparing an outcome to a better alternative) serve a preparative function, are useful for learning (Roese, 1994; Markman *et al.*, 1993), sensemaking (Roese and Olson, 1996) (especially when in response to a negative event), and can be taken as schemas for future action (Sanna, 1996). Downward counterfactuals (comparing an outcome to a worse alternative) tend to be more useful for consoling, feeling better and relief (Roese, 1994; Johnson and Sherman, 1990) but may also provide more useful information for "potential survival and successful coping" (Taylor and Schneider, 1989, p. 573). Ensuring that a range of counterfactuals are reconstructed, and that default counterfactuals (Roese and Olson, 1996) that can enhance foresightful thinking flaws such as the hindsight bias, creeping determinism and over-confidence, are avoided, may be effective ways of improving the quality of foresightful hindsight.

7.6 Scenario Thinking

Neustadt and May (1986), in their study of the uses of history for U.S. decision makers, have shown that decisions are frequently based on analogies rooted in past experiences, events and perceptions of the past. Analogies, either for argumentation and persuasion, or for decision-making support, represent a

potent force for influencing thinking and perceptions. They can be captivating and irresistible in argumentation and this can result in decision-makers failing to hedge 'by light of the uncertainty', or by acting on the basis of one, often 'worst case' scenario, rather than preparing for a range of scenarios. Projecting analogies from past contexts onto present or future situations can be a risky business as contexts change over time. Consequently, they argue that thinking must be done in time-streams. They state:

> "To link conventional wisdoms to the present with past counterparts and future possibilities; to link interpretations of the past – all these mean to think relatively and in terms of time, opening one's mind to possibilities as far back as the story's start and to potentialities as far ahead as relevant ... That entails seeing time as a stream. It calls for thinking of the future as emergent from the past and of the present as a channel that perhaps conveys, perhaps deflects, but cannot stop the flow" (Neustadt and May, 1986, p. 246).

Neustadt and May argue for a more rigorous use of history in decision-making and for the placement of thinking in the context of time-streams. They argue that:

> "History can stimulate imagination: Seeing the past can help one envision alternative futures" (Neustadt, 1986, p. xv).

Their argument is based on the analysis of both the successful and unsuccessful use of history and past experience in events as diverse as the decision to defend South Korea in 1950, the handling of the Cuban missile crisis of 1962, the 1976 swine flu scare and the 1983 social security reform in the United States. They argue that analogies, based on personal experience or the experience of others, play an influential role in decision-making, but often go unchecked. What they don't say, but their analysis clearly suggests, is that the analogies that decision-takers often use in their decision-making are generated from counterfactual

reasoning. As research in social and cognitive psychology shows, lessons and analogies generated from spontaneous counterfactual thinking, if left untested, can lead to mis-interpretation and maladaptive strategies. Analogies are always context-dependant, and if the context changes, analogies may not be appropriate for underpinning logic.

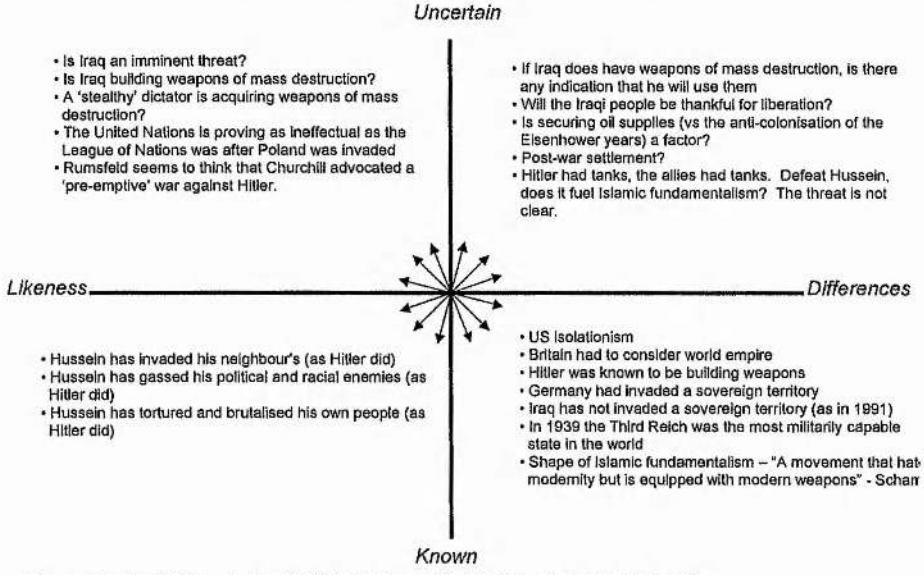
Neustadt and May (1986) propose several 'mini-methods' for controlling for perceptual distortions generated from the various elements comprising foresightful thinking flaws. Based on their experiments with the use of history by American decision-makers, Neustadt and May argue that decisions are often made using analogies drawn from history. Rarely are analogies dissected, critiqued and tested. Why, for instance, were the 'lessons from the thirties' so powerful? They propose a simple, but powerful 'mini-method' for testing analogies. Closely reflecting the successful 'de-biasing' techniques utilized in the research of psychologists, they argue that analogies and assumptions must be broken down into what is 'known', what is 'unclear' and what is 'presumed', and testing for stereotypes. This need not be a complicated, or even a time-consuming process.

7.61 Operationalising Counterfactual Reasoning within Scenario Thinking

Returning to the Iraq case, leading up to hostilities between the United States, the United Kingdom, Australia and Spain on one side, and Iraq on the other, which commenced on 20th of March 2003, a divided world debated the legality and justice of a second Gulf War. On both sides of the debate, history was

frequently invoked to underscore the logic of either pro-war or anti-war arguments. Twelve leading historians were asked by Seaton (2003) to analyse the analogies. Some historians found the analogies compelling; others did not. Applying this data to a de-biasing matrix, based on the 'mini-tests' developed by Neustadt and May, can add value to the scenario thinking process (exhibit 7.5).

Exhibit 7.5 The Analogy Matrix – Appeasement in the 1930s and the Iraq conflict



Source: Based on data from Seaton, Matt (2003, February 19). "Blast from the past". The Guardian.

What is 'presumed' resembles what many scenario thinking practitioners call 'the official future' (van der Heijden, 1996; Schwartz, 1991), and also requires testing. Presumptions project into the future. But presumptions are often "shot through with perceptions of the past – often muddled, sometimes mistaken" (Neustadt and May, 1986, p. 136). Presumptions can also be generated from belief systems and cultural nuances. The question is, how can busy decision-makers, whose reaction to a 'situation' is often to come up with policy options without testing their cognitions for biases, check their presumptions, and in particular, how can facilitators, when interviewing or conducting workshops for

scenario studies, control for foresightful thinking flaws. As Neustadt and May contend:

> "First, sort out the facts: Identify the Known, Unclear and Presumed. Second, dust away analogies that may cloud vision of exactly what the current situation is and what concerns it gives rise to. Do so by quickly noting Likenesses and Differences with "now". Third, look back into the issue's history; seeing where concerns came from helps define where to go and also possibly sheds light on options" (Neustadt and May, 1986, p. 156).

Neustadt and May acknowledge that they do not have a model to accomplish this end; they merely offer several 'mini-methods' developed from their experiments with the use of history in decision-making. However, using their "mini-methods" in methodologies for scenario thinking and cognitive approaches to facilitating group strategic decision taking will allow for more robust strategic thinking.

The "mini-methods" used by Neustadt and May [Neustadt, 1986 #398] are very similar to "debiasing" techniques used in social and cognitive psychology research. Koriat, Lichtenstein, and Fischhoff (1980), to reduce the overconfidence that people have to general knowledge questions, developed a "de-biasing" procedure. They presented participants with two alternative general knowledge questions, had them list their answers and their degree of confidence with their answer. Control group subjects were found to be far less accurate than their level of confidence indicated. Participants in the experimental groups were asked to list the reasons why their answers may be correct and may be incorrect in advance of indicating their confidence in their answers. Participants in the experimental groups were found to have far lower levels of confidence (Koriat *et al.*, 1980; Arkes *et al.*, 1988 #134].

Similar methodologies were applied to a study conducted by Lord, Lepper, and Preston (1984) to participants who either did or did not favor capital punishment. Two pieces of research were fabricated and participants were asked to consider each. After considering the information, those that were opposed to capital punishment were found to be more so, and proponents of capital punishment were also found to be more in favor of capital punishment after consideration of the research. However, when asked to consider the opposite stance and evaluate information accordingly, attitude polarization diminished (Lord et al., 1984).

Again, using an adaptation of the Koriat *et al.* (1980) study, Arkes *et al.* (1988) applied a similar methodology to 194 neuropsychologists who were asked to read a case study and estimate the probability of three varying diagnosis. As hypothesized, the research showed that, after listing pieces of evidence to support the diagnosis, hindsight biases were reduced. The authors conclude that:

> "Having the diagnostician list or generate reasons why other outcomes might have been expected should heighten appreciation of the difficulty of the case, the plausibility of other diagnoses, and the information value of the correct answer. Under these circumstances the correct answer will more likely be seen as truly informative, and alternative possibilities may be given their just due" (Arkes *et al.*, 1988).

Although it is important to be conscious of research provided by Roese and Olson (1996), and Sherman and McConnell (1995), which suggests that "default" counterfactuals may enhance foresightful thinking flaws by creating the perception that if certain antecedents leading to a cause had been added or subtracted, then the outcome would have surely been different, one can

conclude that their methodological design was so narrowly focused that had they simply asked participants to consider more counterfactuals using different guidelines e.g. upward and downward, additive and subtractive, the hindsight bias could have been reduced.

7.7 Chapter Conclusion

As research in psychology demonstrates, the way individuals perceive the past and generate action strategies for the future are also influenced by the "if only[s]", "if then [s]" and "what if [s] that we ask ourselves. Carefully testing, and at times constructing counterfactual pasts cannot only help to control for foresightful thinking flaws, but sensitize us to alternative possibilities in the future and the weak cues-to-causality that are often missed when they do not correspond to a causal field. As Kahneman says:

> "Scenario thinking has considerable appeal in evaluating both the past and the future, and it sometimes yields knowledge that is not accessible in other ways" (Kahneman, 1995, p. 381).

Context, when defined as a noun, can be defined as a setting, or the circumstances in which an event takes places. As a noun, context is a static concept that is independent of cognitive processes. It is a state, surrounding, or set of circumstances. But when context is considered as a verb, contextere, it becomes a dynamic concept, generated through cognitive processes, to contextualise an event, action or argument. It is a process that relies on interpretation and action. This perspective resonates with Smircich and Stubbort [1985] who argue that the words 'organization' and 'environment' "create a

dichotomy that profoundly shapes thinking about strategic management" (p. 724), but that this dichotomy may be a false one. Consequently, the relationship between organization and the environment should be reconceptualized as a reflexive relationship in an enacted world. In an enacted world, separate and independent contexts (i.e. environments) do not exist and are partially created by the patterns of activity of the organization and the concomitant "intellectual efforts" to interpret these actions through sensemaking.

If contexts remained static and were independent of human perception, short-term, single-point forecasts and elaborate econometric models would be effective tools for understanding environmental contexts. Furthermore, tools such as Porter's Five Force framework and SWOT analysis would be sufficient environmental scanning techniques. In an enacted world, however, our assumptions need to be tested through the consideration of multiple contexts. This also necessitates the rethinking of constraints, threats and opportunities [Smircish and Stubbart, 1985]. In an enacted world, one can conclude, strategic thinking with a counterfactual component will add value to strategic management. However, even scenario methodologies can fail to pick up the weak signals and small patterns in changing environments. Controlling for the past thus results in a more robust understanding of environmental contexts and adds value to scenario thinking.

Chapter Eight: Doctoral Thesis Conclusion

"At the beginning of my journey, I was naïve. I didn't yet know that the answers vanish as one continues to travel, that there is only further complexity, that there are still more interrelationships and more questions."

~ Kaplan, 1986

"Luck favors the prepared mind."

~ Louis Pasteur, 1822 - 95

"There is no need to know the future, but to be prepared for the future."

~ Pericles, 495 BC – 429 BC

8.0 Chapter Introduction

Hindsight is not always 20/20. It does, however, play an important role in foresight. Counterfactual history within historiography and the social sciences is controversial. It has its detractors (e.g. Loewen, 1995; Carr, 1990; Thompson, 1978; Fisher, 1970; Croce, 1966) and its proponents (e.g. Lebow, 2000b; Cowley, 1999; Keegan, 1999; Ferguson, 1997; Tetlock and Belkin, 1996. However, psychological research demonstrates that counterfactual reconstruction is a principal function of hindsight (Roese and Olson, 1996; Sherman, 1991; Miller *et al.*, 1990; Wells *et al.*, 1987; Kahneman and Tversky, 1982), and influences foresight (Kahneman, 1995; Gleicher *et al.*, 1995; Seelau *et al.*, 1995; McMullen, 1995 *et al.*; Roese and Olson, 1995a; Roese, 1994; Markman *et al.*, 1993; Sherman, 1991). While counterfactuals are an important heuristic for learning and foresight, they also have dysfunctional implications

(Roese and Olson, 1996; Sherman and McConnell, 1995; Dunning and Madey, 1995; Dhar and Simonson, 1991; Wells *et al.*, 1987; Kahneman *et al.*, 1982b).

Some scholars (Loewen, 1995; Carr, 1990/1961; Thompson, 1978; Croce, 1966) might believe that they are "relatively immune to the factors that bias the counterfactual thoughts of everyday perceivers" (Olson *et al.*, 1996; p. 296). Arguments that counterfactuals are a "red-herring" [Carr, 1961/1990 #140] or "unhistorical shit" (Thompson, 1978), or a 'methodological rathole' (Fisher, 1970) may fit a conception within mainstream history and social science, which is likely the product of scholars training:

> "Scholars are trained in scientific methods and are socialized into epistemic communities in which they are held accountable for certain standards of evidence and proof" (Olson *et al.*, 1996, p. 296).

Despite epistemic communal socialising forces that dispute the legitimacy of counterfactual analysis, the arguments do not hold sway because, as has been demonstrated (Lebow, 2000b; Breslauer, 1996; Tetlock and Belkin, 1996), rationalisation within historiographical and social science scholarship, and with decision-makers (Neustadt and May, 1986), for why something happened is often based on flawed perceptions of history and traces of the reasons why something didn't happen. It is, therefore, not just an alternative between implicit and explicit counterfactuals, but also between dysfunctional and functional counterfactuals. As Webber states:

> "The 'big-miss' errors that make social scientists feel helpless, and that sometimes underlie massive decision-making errors by governments, firms, and individuals, are usually driven more by misaligned perceptions and obsolete world views than by poor tactics or marginal errors of measurement in variables. To change tactics is relatively easy; to change perceptions is much harder. Counterfactuals used in scenarios can help with this task" (Weber, 1996, p. 287).

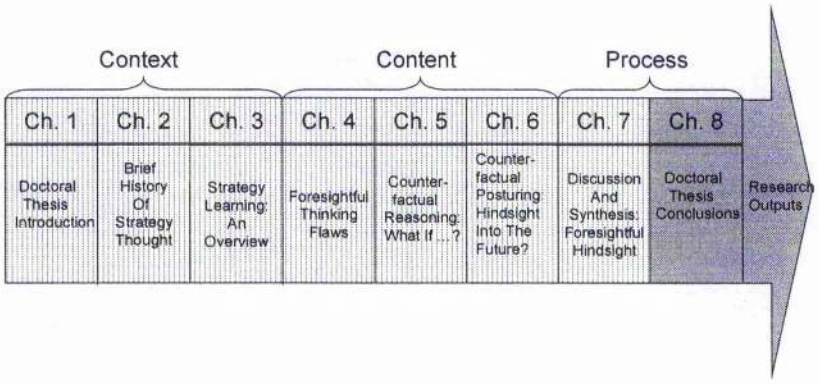
Hindsight plays an important role in foresight. To improve foresightful hindsight, it is thus necessary to use insights gained from psychology to supplement criterion developed for making counterfactual analysis an explicit, rigorous process within scenario thinking.

8.1 Chapter Purpose and Contribution

The first purpose of this chapter is to summarize the research in this doctoral thesis and to extract conclusions in light of the research question: What role does hindsight play in foresight? and secondary questions stemming from the primary research question, which include: How does the hindsight bias and creeping determinism influence foresight? Can counterfactual reasoning be used as an antidote to biases generated in hindsight? Can research in psychology and debates in history add explanatory value to strategy literature? How can the role of hindsight be made explicit in scenario thinking and building methodologies?

The learning underpinning this corpus of research, and the resultant conclusions summarized in this chapter, make several epistemological contributions to academia and practice.

Exhibit 8.0 Doctoral Thesis Map



However, there were some limitations to the research, and the second purpose of this chapter is to elaborate on them. The third purpose of this chapter is to outline several areas for further research.

8.2 Chapter Structure

This chapter begins by summarizing the research, findings and conclusions of this doctoral thesis. It then analyses the limitations to the doctoral research in a counterfactual reasoning framework. The chapter goes on to construct scenarios for future research and, finally, epistemological contributions to academia and practice.

8.3 Research Conclusions

Reactions to events and what we learn from those events in hindsight, as Dunning and Madey (1995) point out, requires both knowledge of what happened and also knowledge of what did not happen. Research into the "what might have beens" and "what failed to happens", when people spontaneously use hypothetical alternative worlds for comparison and which alternative world people will choose to compare (Dunning and Madey, 1995), has been shown by researchers (Miller *et al.*, 1990; Kahneman and Miller, 1986; Wells *et al.*, 1987) to give meaning to experiences.

Dunning and Madey (1995) argue that in order to render a counterfactual assessment, there are other cognitive tasks that people must employ, which goes beyond simply choosing a counterfactual alternative. Their research shows that people must first simulate chosen counterfactual alternatives, rolling them out in detail and generating the potential outcomes that their alternatives might produce. The second phase consists of comparing what is known about present circumstances with the simulation – the counterfactual road foregone (Dunning and Madey, 1995, pp. 103-104).

Counterfactual history within historiography and the social sciences is controversial. It has its detractors (e.g. Loewen, 1995; Carr, 1961/1990; Thompson, 1978; Fisher, 1970; Croce, 1966) and its proponents (e.g. Lebow, 2000b; Cowley, 1999; Keegan, 1999; Ferguson, 1997; Tetlock and Belkin, 1996). However, psychological research adds explanatory value to the strategy literature by highlighting the flaws in arguments proposed by opponents of counterfactual use in history and the social sciences. Research in psychology

demonstrates that counterfactual reconstruction is a principal function of hindsight (Roese and Olson, 1996; Sherman, 1991; Miller and McFarland, 1990; Wells *et al.*, 1987; Kahneman and Tversky, 1982), and influences foresight (Kahneman, 1995; Gleicher *et al.*, 1995; Seelau *et al.*, 1995; McMullen *et al.*, 1995; Roese and Olson, 1995a; Roese, 1994; Markman *et al.*, 1993; Sherman, 1991). While counterfactuals are an important heuristic for learning and foresight, they also have dysfunctional implications (Roese and Olson, 1996; Sherman and McConnell, 1995; Dunning and Madey, 1995; Dhar and Simonson, 1991; Wells *et al.*, 1987; Kahneman *et al.*, 1982b). However, counterfactual thinking can be controlled, and for this reason it is: "A flexible and exceedingly practical cognitive tool" (Seelau *et al.*, 1995, p. 75).

Counterfactual reasoning is an important component of scenario thinking because it is through this form of cognitive processing that people sense-make from their environments. As Roase and Olson state:

> "Whether automatic or explicit, such cognitive processing embraces general attempts to make sense out of the environment, to form causal theories explaining specific outcomes, and to generate expectancies for future outcomes based on these theories" (1995c, p. 17).

This is not because people simply seek knowledge for knowledge's sake, but because there is a latent goal of attaining knowledge for the effective management of oneself and one's environment (Kelley, 1972, p. 22).

Some scholars (Loewen, 1995; Carr, 1990; Thompson, 1978; Fisher, 1970; Croce, 1966) might believe that they are "relatively immune to the factors that bias the counterfactual thoughts of everyday perceivers" (Olson *et al.*, 1996, p. 296). Arguments that counterfactuals are a "red-herring" (Carr, 1961/1990) or

"unhistorical shit" (Thompson, 1978) may fit a conception within traditional mainstream history and social science of what history is, and may also be applied to strategy researchers. As Powell (2001) states:

> "What Carr (1990, pp. 98-99) has said about historians applies equally to strategy researchers: we do not render a photographic copy of the real world, but instead select, out of the infinite ocean of facts, the minute fraction that best supports our purpose" (p. 686).

Criticisms of counterfactual reasoning can be countered on the grounds that it has been demonstrated (Lebow, 2000b; Breslauer, 1996; Tetlock and Belkin, 1996) that the process of constructing rational arguments within historiographical and social science scholarship, and in policy decisions (Neustadt and May, 1986) are often based on a misaligned perception of history and the reasons why something didn't happen, or should have happened. It is not just about how to use counterfactuals, but also how not to use counterfactuals in our reasoning. As Grinyer (2000) states:

> "Managerial perceptions are notoriously prone to distortion by sometimes perverse psychological and social processes" (2000, p. 31).

As research in psychology demonstrates, hindsight can be a trip-wire for foresight, distorting the assumptions (Sheldon, 1980; Grinyer and Spender, 1979b) beliefs (Sheldon, 1980; Grinyer and Spender, 1979b), experiences (Hurst *et al.*, 1989; Sheldon, 1980), understanding of history (Pettigrew, 1977), language, (Pettigrew, 1977), myths (Johnson, 1988; Pettigrew, 1977), politics (Pettigrew, 1992; Pettigrew, 1977), routines (Porter, 1991; Johnson, 1988; Cyert and March, 1963), and symbols (Johnson, 1988; Pettigrew, 1977) through perverse foresightful thinking flaws such as the hindsight bias (Carll, 1999;

Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975) and creeping determinism (Fischhoff, 1975; Florovsky, 1969). These biases may result in a calcifying of the paradigms (Johnson, 1988; Sheldon, 1980), recipes (Grinyer and Spender, 1979a) and dominant logics (Prahalad and Bettis, 1986) that strategy scholars have identified as influencing perception, decision-making and foresight in the literature. Hence the importance of 'undoing the past to learn for the future' (Starkey and McKinlay, 1996; Nystrom and Starbuck, 1984).

One heuristic for undoing the past to learn for the future and for developing a foresightful state of mind is de-coupling our perceptions from their anchorage in a hindsight perspective (Fischhoff and Tversky, 1982) through counterfactual reasoning (Roese and Olson, 1996; Sherman and McConnell, 1995; Gleicher *et al.*, 1995; Markman *et al.*, 1993; Mahajan, 1992; Wasserman *et al.*, 1991; Miller *et al.*, 1990; Wells *et al.*, 1987; Kahneman and Tversky, 1982).

Whether counterfactual reasoning can be used as an antidote to biases generated in hindsight is controversial. Some researchers have found counterfactuals to be an effective technique for de-biasing hindsight perspectives (Mahajan, 1992; Wasserman *et al.*, 1991). Other researchers have found that spontaneous counterfactual reasoning may also have dysfunctional implications for foresight, such as a "short-circuiting" (Dunning and Madey, 1995; Dhar Simonson, 1991), systematic biases in interpretations of causal relations and events (Sherman and McConnell, 1995), the use of simplified heuristic principals [Sherman, 1995 #71], and even, in certain circumstances enhancing the

hindsight bias, creeping determinism and over-confidence (Roese and Olson, 1996).

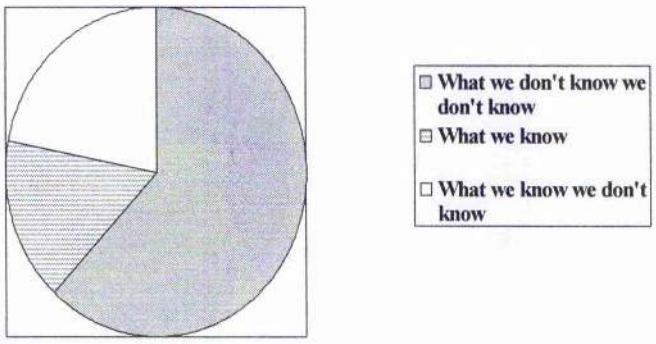
The dysfunctional implications of spontaneous counterfactual generation is in itself an important finding because it adds empirical evidence to the argument that spontaneous counterfactual generation can lead to maladaptive strategies for the future (Sherman and McConnell, 1995) and flawed logic in scholarship. However, this dissertation takes the position that there is an important distinction to be made between spontaneous counterfactuals and elaborative counterfactuals. Spontaneous counterfactuals, if left un-monitored, as Sim and Morris (1998) points out, may result in a counterfactual bias and benighted strategies Kahneman, 1995; Sherman and McConnell, 1995). Elaborative counterfactuals (Kahneman, 1995), which are used by counterfactual writers of history, if applied judiciously and rigorously through the application of tests and using variations in the assessment criteria outlined by Lebow (2000b), Ferguson (1997), Tetlock and Belkin (1996), Breslauer (1996) Hawthorn (1991) and Nash (1991), can be a trigger for reducing foresightful thinking flaws such as path-dependent logic (Booth, 2003; Hawkins and Hastie, 1990), and hindsight biases (Lebow, 2000b; Tetlock and Belkin, 1996; Breslauer, 1996; Roese and Olson, 1996), and challenging assumptions (Cowley, 1999). This dissertation thus concludes that counterfactual reasoning, if made explicit through elaboration, can be used as an antidote to biases generated in hindsight and affecting foresight.

Scenario thinking thus consists of both a backwards processing of events and a forward processing of future possibilities (Sanna, 1996). As both a cognitive

learning heuristic, and a methodology for evaluating past events and future possibilities (Weber, 1996; Kahneman, 1995), counterfactual reasoning has considerable appeal. Using variations of the criteria outlined by Lebow (2000b) Ferguson (1997), Tetlock and Belkin (1996), Breslauer (1996), Hawthorn (1991) and Nash (1991) for constructing elaborative counterfactuals, as well as mini-methods developed by Neustadt and May (1986), and integrating them with scenario thinking methodologies for understanding future uncertainty, a counterfactual reasoning element in scenario thinking theoretically has considerable potential for enhancing understanding of future uncertainty and reducing the "big miss errors" (Weber, 1996) that have resulted in scenario thinking failures.

The challenge of disciplined imagination, Schoemaker (1997) argues, is to reduce the things we do not know we do not know about the future by improving foresight through scenario thinking (see Exhibit 8.1). This doctoral research concludes that challenging the hindsight perspective is an important step in improving reception of the weak signals in the environment.

Exhibit 8.1 What do we know about the Future?



Reducing what we don't know we don't know thus requires both counterfactual scenario thinking and prefactual scenario thinking.

Hindsight plays an important role in foresight. To improve foresightful hindsight, it is thus necessary to use insights gained from psychology to supplement criterion developed for making counterfactual analysis an explicit, rigorous process within scenario thinking.

8.4 Epistemological Contributions of Doctoral Research

Pierre Wack (1985b) argues that a manager's perception of the world is a construct; rarely does it mirror reality. Managers find it extremely difficult to break out of their worldview while they are operating within their 'microcosm'. Their microcosm is: "shaped by the past and sustained by the usual types of forecasts [which are] inherently suspect and inadequate" (Wack, 1985b). As

such: "Forecasting is a dangerous tool particularly when you are right" (Pierre Wack, quoted in Collyns, 1991). The reason is that the more that forecasts are right the more their artificial worldview will be reinforced and the more a false sense of security is fostered. It is precisely this false sense of security and parochial view that elaborative counterfactual and prefactual reasoning should help to dispel.

This dissertation argues that hindsight plays a role in foresight, and hindsight may account for the 'big miss' errors (Weber, 1996) that studies such as the Hart-Rudman Commission (2000) have found to be prevalent in scenario thinking studies.

Hindsight influences foresight through a naturally occurring counterfactual heuristic, which can lead to a biased perception of history, and a concomitant misaligned view of the future if left unchecked. Equally, if counterfactual reasoning is rigorously and elaboratively applied as an analytical technique, they can challenge assumptions that underpin people's microcosms (Lebow, 2000b; Cowley, 1999).

8.31 Contribution to Academia

This doctoral research makes several epistemological contributions to academia generally, and strategic management as a canon of knolwedge more specifically.

First, counterfactual reasoning debates in both history and psychology have not been written into strategic management. The counterfactual gap in the

literature is important to fill because research in psychology demonstrates that counterfactual reasoning is a heuristic that influences strategic thought. To re-iterate Sanna:

> "Simulating alternative outcomes, both before and after an event, appears to be a pervasive if not ubiquitous human tendency" (Sanna, 1996, p. 1020).

Research in psychology thus has much to teach strategy (Mintzberg, 1998) and, to use Chia's (2002) words, offers another lens for understanding 'the workings of the strategic mind.'

Second, there seems to be sufficient consensus in the strategy literature on learning that assumptions (Sheldon, 1980; Grinyer and Spender, 1979b) beliefs (Sheldon, 1980; Grinyer and Spender, 1979b), experiences (Hurst *et al.*, 1989; Sheldon, 1980), understanding of history (Pettigrew, 1977), language, (Pettigrew, 1977), myths (Johnson, 1988; Pettigrew, 1977), politics (Pettigrew, 1992; Pettigrew, 1977), routines (Porter, 1991; Johnson, 1988; Cyert and March, 1963) symbols (Johnson, 1988; Pettigrew, 1977) paradigms (Johnson, 1988; Sheldon, 1980), recipes (Grinyer, 1979a) and dominant logics (Prahalad, 1986), influence strategy and decision-making, albeit in differing ways. It seems that there is enough similarity between these insights to suggest that they form, to use Johnson's (1988) metaphor, a web that constrains perception of the surrounding strategic environment. By binding them into a conceptual foresightful thinking flaws framework and turning to research in psychology and debates in history on the hindsight bias, creeping determinism, and counterfactual reasoning as sources of explanation for how they may interact, ways of de-biasing

perceptions, challenging assumptions, and broadening perspective can be developed.

Third, in the scenario literature there are passive references to foresightful thinking flaws such as the hindsight bias and creeping determinism (e.g. Van der Heijden, 2002), but there has not been an in depth analysis of how these biases may arise, nor on how they might affect adaptive behaviour, foresight, or strategic learning. The literature on both scenarios and strategy appears to be a-historical in this way. This dissertation sets the theoretical foundations for the role that hindsight, and by logical extension, history plays in foresight and strategic thinking, and emphasises the importance of making history and counterfactual reasoning explicit within debates.

Fourth, injecting research findings on counterfactual reasoning in psychology into debates on the legitimacy, role and usefulness of counterfactual analysis in history and the social sciences adds a new dimension to the debate. Counterfactual reasoning is a pervasive cognitive function that influences reasoning, and as such, is often used implicitly in scholarship when constructing arguments on the rationale of one line of reasoning or another, particularly when referring to causality. The argument proffered by opponents of counterfactuals, such as Carr (1990), Thompson (1978), and Fisher (1970), can be countered with empirical evidence that counterfactuals already do play a role in reasoning.

Fifth, the research findings in this doctoral thesis have drawn on the epistemological foundations of cognitive approaches, and the corresponding positivistic view of reality, with a more constructionist position immanent to

counterfactual history. While Tsoukas (1993) has likened Hassard's (1991) argument that there are analytical openings between different paradigms to changing a shirt, this research would suggest that there is value in combining approaches to shed new light on a research question and to make a contribution to knowledge.

Specifically, drawing on the epistemological foundations of cognitive approaches to understanding counterfactual reasoning, and the corresponding positivistic view of reality, and combining that with constructionist approaches underpinning counterfactual history, allows for an enrichment of strategy processes, whether cognitive or methodological. Tsoukas' (1993) argument that analytical openings between different paradigms are like changing a shirt does not hold up. The burden of hindsight is not something that can be shifted purely through a positivist psychological approach or a constructionist historical approach, but through a combination of the two.

Finally, environmental context forms the backdrop for strategic management. However, its links with process and content have not been researched systematically. Indeed, even the activity-based view of micro-strategy and strategizing recently proposed by Johnson, Melin and Whittington (2003) appear to neglect these links. However, in complex and quickly changing contemporary environments, how sense-making occurs, whether objective, perceived or enacted (Smircich and Stubbart, 1985), and the linkages between context, content and process is an important research challenge.

This research contributes to understanding the linkage between process and context. How environments are enacted, and equally, how contexts are created is fundamentally a question of reflexive cognitive sensemaking and action. Smircich and Stubbart (1985) encourage strategic management to consider multiple realities, testing and experimenting as a means of expanding managerial capacity in an enacted world. The research in this doctoral thesis argues that this already happens naturally and it outlines the processes for how this occurs, and both its facilitative and dysfunctional implications. It thus contributes to understanding the strategizing processes that are used, and can be used, for managing in an enacted world.

8.32 Contribution to Practice

The contributions to practice made by this doctoral research are on several levels. At the individual level, being conscious of the influence that counterfactual reasoning and biases have on foresight is an optimal way of preventing the otherwise disruptive effects that these cognitive processes can have. Simple procedures, such as breaking analogies down on paper or on a matrices, listing the rationale for assumptions on paper, testing counterfactual thoughts using the checklist provided in this dissertation, are all ways of improving perceptions, foresight, and ultimately, decisions in a time efficient way.

At the methodological level, scenario thinking exercises based on the Shell tradition generally begin with a process of scoping the project and diagnosing a

focal issue or decision. The process then enters into a data-collection phase. When the collection of data has been completed, it is tested for type one errors (data that is included but should not be) and type two errors (data that is not included but should be). Subsequently, a series of scenario building workshops are held. The workshops begin by identifying the key driving forces in the organisation's environment. These forces can be political, economic, social, demographic, technological, environmental or legal. Once the forces have been identified they are ranked according to their importance and their uncertainty. Once the ranking process has been completed, the scenario logics are chosen and 'rolled-out' over time. Each one of the scenario logics will form the basis for a scenario. Finally, the scenarios are 'wind-tunnelled' to test for consistency, plausibility, surprise and gestalt. They are also tested for type one and type two errors.

The scenario building process begins with diagnoses, which consists of determining the context, objectives and scope of the study. This is usually done through a preliminary meeting with the client or steering group. It then progresses on to the collection of data. This begins with a choice of methodologies and can be done using a variety of methods including documentary analysis, single person interviews, group interviews with 'experts', and web-based research. The next step is the analysis of the data and the building of the scenarios. The final step is the testing of the scenarios.

The impact of bias on the scenario thinking value chain, while a theoretical conceptual framework, is consistent with the criticisms levied against scenario

analysis in general (e.g. Hodgkinson, 2002; Economist, 2001, October 13; Hart and Rudman, 2000), and methodological approaches that are derivatives of the "Shell" method in particular. One of the objectives of scenario studies is to elicit divergent beliefs and perceptions of the future and to discover "seeds" that may eventually influence societal change. It seems likely that the spontaneous, untested role of biases in peoples' cognitions at both the individual and groups levels distort foresight.

Adding a counterfactual element to the scenario process can control the spontaneous cognitive use of counterfactuals, and the various biases that are associated with them. This involves two things. The first is that when counterfactuals are used to underpin rationale, exploring the logical consistency of the stream of thought can either validate or invalidate their use.

The second is through a disciplined probing of 'if then' and 'what if' questions during single interviews and in facilitated group workshops, the data suggests that elements comprising foresightful thinking flaws can be reduced and individuals will formally review experiences and perceptions of the past, thus sensitizing them to a wider breadth of possible futures and deepening trend analysis.

Analogies from the past and used in the present should be compared and contrasted against the current situation by listing what the 'likenesses' are between the two situations and what the 'differences' are. Similar matrices can be used to test what is 'known' from what is 'unclear' and 'likenesses' from 'differences'.

Scenario thinking and group facilitation can be improved by rigorously probing assumptions and counterfactual statements using the methods described while also providing an antidote for hindsight biases that can impair foresight. An awareness of counterfactual statements and statements based on assumptions will allow facilitators to probe them. As facilitation is as much craft as science, probing assumptions and counterfactual statements is not something that can be prescribed, but some of the methods discussed in this dissertation can provide some guidance.

Counterfactuals are scenarios into the past. As scenarios are often described as post-cards written by an analyst describing future environments and sent back through time so that they can be read in the present, there is some scope for applying the criteria for testing counterfactuals to scenarios, as if they were a counterfactual exercise, and thus wind-tunneling the scenarios.

Weber (1996) and Tetlock and Belkin (1996) allude that some of the value in considering counterfactual pasts is that counterfactuals sensitize individuals to contingency, whether that contingency is a technological surprise, the emergence of a new idea, or a sudden change in public opinion, thus changing perceptions and sensitizing and focusing minds on what is possible in the future and raising awareness about self-imposed constraints. Counterfactuals can initiate creative destruction on, or an 'undoing' of official pasts and if integrated in scenario thinking frameworks, can support scenarios in challenging official futures and the resultant "big-miss" (Weber, 1996, p. 287) errors that leave social scientists, policy-makers, executives and strategists feeling helpless.

Third, counterfactual exercises in themselves, the research suggests, are a worthwhile exercise for enhancing the quality of strategic thinking. The assumptions (Sheldon, 1980; Grinyer and Spender, 1979b), beliefs (Sheldon, 1980) Grinyer and Spender, 1979b), experiences (Hurst *et al.*, 1989; Sheldon, 1980), understanding of history (Pettigrew, 1977), language, (Pettigrew, 1977), myths (Johnson, 1988; Pettigrew, 1977), politics (Pettigrew, 1992; Pettigrew, 1977), routines (Porter, 1991; Johnson, 1988; Cyert and March, 1963), symbols (Johnson, 1988; Pettigrew, 1977), paradigms (Johnson, 1988; Sheldon, 1980), recipes (Grinyer and Spender, 1979a) and dominant logics (Prahalad, 1986) that received research suggests influences strategy and decision-making, can be challenged through counterfactual exercises. This is particularly the case where they are calcified by the hindsight bias and creeping determinism.

8.4 Research Limitations: A Counterfactual Analysis

This doctoral thesis is a multi-disciplinary dissertation that draws on several subject areas. The cross-polonisation that results from such an approach is valuable in putting ideas together in new and novel ways. However, such an approach does have limitations.

First, bringing in different cannons of knowledge into a discipline means that one can't explore the complexities of the paradigmatic debates as fully as one might desire. The analytic openings into paradigmatic debates that Hassard [Hassard, 1991 #648] argues exist allow for new understandings and may even

catalyze paradigm shifts. However, there are limitations to the depth, as contrasted with breadth of inquiry possible when working with different paradigms.

A related limitation that is immanent to trans-disciplinary research, in this case conflating debates in history and psychology with strategy, is that many of the related debates are glossed over due to time restrictions. As a consequence, there are quite likely things that have been missed.

A third limitation of trans-disciplinary research generally, and this doctoral thesis specifically, is that one's cultural capital in the canons of knowledge being written into strategy is modest. In other words, someone who is a connoisseur of wine will be able to detect differences in the wines that they taste that someone who is not a connoisseur would not be able to. The connoisseur, for example, will be able to detect subtle differences in the smell, texture and taste of the wine, while to the non-connoisseur wine simply tastes like wine. Likewise, there may be aspects of debates or flaws in methodologies used in psychology and history that a psychologist or a historian will pick up on, and of which a non-psychologist and a non-historian will miss.

Fourth, because research pertaining to strategic thinking, such research into scenario thinking for instance, has generally been case-based, much of the literature, by its applied nature, is virtually a-theoretical. Where traditional Ph.D.s in strategy generally (although not always) draw on a body of theory and then proceed with an empirical study, the applied nature of scenario thinking as a sub-discipline of strategy makes it an unusual place to do a theoretical Ph.D., and do

to the theoretical limitations of the discipline itself, must import theories from other disciplines.

While it is tempting to argue that these limitations should have been foreseen before beginning the doctoral thesis (indeed, some of them were), and that the thesis could not have been written in any other way because of the limitations, both points of view are vulnerable to the hindsight bias (Carll, 1999; Sherman and McConnell, 1995; Christensen-Szalanski and Willham, 1991; Hawkins and Hastie, 1990; Fischhoff, 1975a) and creeping determinism (Fischhoff, 1975a; Florovsky, 1969).

To focus in on the use of counterfactual reasoning in strategic thinking, for instance, there would have required a world where a theoretical body of knowledge exists in the discipline. As there is not, this counterfactual world would have been theoretically inconsistent with the discipline and uncotenable due to the necessity of a massive re-write of the historical evolution of research directions in the discipline. A counterfactual world drawing on counterfactual debates in history to epistemologically underpin phenomena in scenario thinking would meet the criterion of being clear, plausible, historically consistent (as not many changes to the doctoral thesis methodology would have been necessary), but not theoretically consistent with strategy literature. A second order counterfactual that could 'bounce' the history of this counterfactual world back on track would be having to fill the gap in the counterfactual debate in the literature and the theoretical gap in the scenario thinking literature anyway, which could have manifested in a thesis very similar to the one presented here.

A counterfactual world where counterfactual debates in psychology were explored in greater depth may meet the criterion of clarity, plausibility, historical consistency and theoretical consistency with the history of the dissertation. However, the lack of cultural capital in psychology would, as a second order counterfactual, have likely bounced the history of the dissertation back on track by forcing the author to draw on other disciplines, such as history, anyway.

Does this therefore lead one to the conclusion that this dissertation could not have been done any differently than it was? There are counterfactual alternatives that are clear, plausible, and theoretically consistent and meet the minimum re-write rules. For instance, it is counterfactually possible to have placed different emphasis on the areas of research. The use of counterfactual analysis as an evaluative tool for assessing previous scenario projects is a clear, plausible, theoretically consistent counterfactual that would have required minimum historical re-writes, such as placing less emphasis on counterfactual reasoning as a de-biasing technique for foresightful thinking flaws, and more emphasis on the applied possibilities of counterfactuals within scenario thinking.

A second counterfactual possibility for this dissertation is an empirical study that analysed the influence of counterfactuals within the data-collection stages of real-world scenario studies. This would have required a compressed and focused literature review of counterfactual reasoning research in psychology and a scenario study to have been beginning at the time that the research review was ending, but both minimal re-writes are clear, plausible, and theoretically consistent (although possibly not historically consistent with what was known,

unknown, and uncertain about the research at the beginning stages of this research).

From the beginning of the dissertation, for instance, it was known that there lacks a substantive theoretical framework for scenario thinking, that there has been little exploration of the role of hindsight in foresight and that counterfactual debates (either in history or psychology) had not been written into strategy. What were unknown were the linkages between counterfactual thinking and scenario thinking. The assumption that this thesis began with is that hindsight does play a role in foresight, but what role hindsight plays is uncertain. To explore these uncertainties, using concepts elaborated on by Mintzberg and Waters [Mintzberg, 1985 #168], a deliberate strategy was initially employed to explore different fields in order to develop a theory on the role of hindsight in foresight. However, the reality is that the exploratory nature of the research project resulted in an emergent process. An emergent process is slightly messier and more time consuming than if a very deliberate and traditional approach had been adopted where a bound theoretical framework was drawn on, an empirical study was conducted and conclusions reached. Such a limitation confines the counterfactual alternatives that are plausible.

Nevertheless, even with these caveats, both counterfactual worlds are plausible, clear, and theoretically consistent. Had one or the other come to pass, it is likely that both worlds would have changed the outputs and possibly the conclusions of this dissertation. For instance, one can imagine coming to the conclusion that counterfactuals do influence the way people think about the world

in scenario studies, as the psychology literature suggests, but that, given what is plausibly achievable within the duration of a doctoral dissertation, this finding would have been at the expense of conclusions on the linkages between literature in strategy, counterfactual debates in psychology, and in history. It is also less likely that substantive conclusions on the role of hindsight in foresight would have been achievable given time limitations. These counterfactuals do, nevertheless, trigger several scenarios for future research.

8.5 Scenarios for Future Research

This doctoral research highlights several scenarios for further research. Psychology research that relies on "simple, un-involving scenario studies," and "simple paper-and-pencil ratings" (Roese and Olson, 1995c), do not necessarily reflect realistic situations. As researchers in psychology have suggested (Roese and Olson, 1995b; Roese, 1994; Davis *et al.*, 1995; Markman *et al.*, 1995; Markman, 1993), to progress the counterfactual paradigm further, research needs to be carried out using more realistic scenarios.

One scenario for further research is using a scenario study to account for people's counterfactual beliefs when being probed about their views of the future in scenario studies. This could take the form of designing a study that analyses interview transcripts for evidence of counterfactual reasoning when assigning causality to an event, underpinning the logic of an argument, or in persuading others of a point of view. A corollary to this could be to look at the relationship between power and counterfactual reasoning in a scenario study. Such a study

could also control for variables such as differences in educational background, gender and profession, to see whether people of a certain educational background, gender or profession are more inclined to use counterfactuals than others.

A second scenario for further research is to conduct an ethnographical study focused on how hindsight is used in foresight generally, and counterfactual reasoning specifically in an organisational context. Studying the use of hindsight and counterfactuals in organisational decision-making has the potential to yield results about their impact on managerial decisions in everyday life. The advantage of an ethnographic study is that it has the capacity to break away from the simple 'vignette studies' (Sanna, 1996) of counterfactual reasoning in controlled situations, and to provide scientific description of the role of hindsight in foresight in managerial decision-making in real-time.

A third scenario for future research is on operationalising counterfactual thinking within scenario methodologies. Weber (1996) and Tetlock and Belkin (1996) suggest that some of the value in considering counterfactual pasts is that counterfactuals sensitize individuals to contingency, whether that contingency is a technological surprise, the emergence of a new idea, or a sudden change in public opinion, thus changing perceptions. It sensitizes and focuses minds on what is possible in the future and raises awareness about self-imposed constraints that can lead to "the big miss errors" (Weber, 1996, p. 287). As Tversky and Kahneman (1974) state:

> "Many decisions are based on beliefs concerning the likelihood of uncertain events such as the outcome of an election, the guilt of a defendant, or the future

> value of the dollar. These beliefs are usually expressed in statements such as "I think that ...," "chances are...," "it is unlikely that...," and so forth" (p. 3).

The heuristics that people use to simplify a complex world, particularly when relying on intuitive processes, can lead to biases. More empirical research and studies that are designed to generate knowledge on exactly how counterfactual reasoning can aid scenario thinking is needed so that more precise tools can be developed to aid strategic thinking, decision-making and judgments in situations of uncertainty.

Finally, there may be other effective de-biasing tools that can reduce foresightful thinking flaws. In experiments by Hodgkinson *et al.* (1999), for example, cognitive mapping was used as a means of overcoming cognitive biases arising from the framing of strategic management decisions. Cognitive mapping is normally used as an aid for making sense out of complex problems and developing problem structures (Eden and Ackerman, 1998; Eden and Spender, 1998). However, the researchers found that cognitive mapping also "provides an effective means of limiting the damage accruing from [the framing] bias" (Hodkinson *et al.*, 1999, p. 977). Despite other findings that simpler 'think-harder' manipulations can remove this bias, and criticisms that in terms of experimental design and ecological validity cognitive mapping may not 'provide an effective means for limiting the damage accruing from this bias' [Wright and Goodwin, 2002], the salient point remains that experimenting with tools such as cognitive mapping provide fertile ground for future research in the area of bias and correction in foresight.

8.6 Chapter Conclusion

Processes are often shaped by cognitive information processing limitations and strategies of simplification that allow people to make sense of the world around them (Tversky and Kahneman, 1974; Simon, 1957). People will use a limited number of heuristic principles to simplify a complex world and environmental uncertainty (Tversky and Kahneman, 1974, p. 3). As Roese and Olson state:

> "Whether automatic or explicit, such cognitive processing embraces general attempts to make sense out of the environment, to form causal theories explaining specific outcomes, and to generate expectancies for future outcomes based on these theories" (1995, p. 17).

And Kelley concurs:

> "The attributor is not simply ...a seeker after knowledge; his latent goal in attaining knowledge is that of effective management of himself and his environment" (1972, p. 22).

This doctoral research concludes that hindsight is not always 20/20. The cognitive heuristics that we use to make sense of the past and plan for the future, however useful, can lead to severe and systematic errors. Perceptions of history, whether cognitive, scholastic or strategic, must be rigorously tested, as should perceptions of the future. Hindsight plays an important, and often unrecognized role in foresight, often setting the parameters for how people perceive the future. The elements comprising foresightful thinking flaws are rooted in hindsight and tacitly constrain perceptions, strategies and decisions for the future. In order to correct for these biases and for the dysfunctional repercussions of hindsight and counterfactual reasoning if left unregulated, hindsight has to be made explicit in foresightful strategic formulation and

decision-making at both the individual and group levels. Hindsight, as Dunning and Madey (1995) point out, requires both knowledge of what happened and also knowledge of what did not happen. Counterfactual thinking as a heuristic for generating knowledge of what did not happen is: "A flexible and exceedingly practical cognitive tool" (Seelau *et al.*, 1995, p. 75). It is this controllable component that has the capacity to allow counterfactual thinking to be a useful de-biasing technique for avoiding foresightful thinking flaws, and as such, to be a flexible and exceedingly practical strategic tool in a scenario thinking framework. This is not to argue that one can ever have 'full information,' or that they can step out of their biographical or ontological histories. It is to argue that bounded rationality, while a constraint on decision-making, can be improved.

This dissertation has invoked positivistic research to support construtionism. Some might argue that using positivistic research in support of constructionism is incommensurable. I disagree. The two are not mutually exclusive. Thre are instances where positivism and constructionsim are commensurate, such as with psychological processes that closely reflect reconstructions of history.

Fischhoff (1977b) and Benson (1972) argue that the past cannot be treated in isolation. If the past is going to be made to serve the future, the same rules that are used to explain the past must also be used to understand the future.

In conclusion, as was stated in the New Line Cinema film Magnolia:

"We may be through with the past, but the past ain't through with us."

Appendix A

The Problem of Predicting the Future: The Crack in the Crystal Ball

The implications of chaos theory for the social sciences are profound. From politics to economics, chaos theory helps to explain why forecasts are frequently wrong. As Kay (1995, September 29) has pointed out, 'simple systems do not necessarily possess simple dynamic properties', and consequently, economic models that use linear equations to forecast into the future are frequently wrong. Prediction in any discipline is rather a dicey proposition; but everyone dreams of having access to a crystal ball that foretells the future. For many years forecasts, based on extrapolating 'hard data' from the past and projecting it into the future, have been used, rightly or wrongly, as a type of 'crystal ball'. The economists, political pundits, experts, gurus and statisticians that we so frequently turn to are our soothsayers. But there can be cracks in the crystal ball, and as Rothstein states, the whole concept of expertise itself is coming under question:

> "When it comes to predicting the future, pundits and pundettes alike have been so wrong lately that reader-TV views must be questioning the concept of expertise itself."

Perhaps there is a fair amount of truth in the Romanian playwright Eugene Ionesco's line: "You can only predict things after they happen." Our culture has rarely heeded his counsel. In a recent study by *Brill's Content*, a journal that critiques the media, they found that many of televisions political pundits have

generally been 'gloriously and publicly wrong' as much, in some cases more, then they've been right since August 1998 (Rothstein, 1999).

Many management pundits have made a good living from offering advise on how executive and leaders can cope with uncertainty and innovate. Gary Hamel, the business pundit touted by *The Economist* as "the worlds reigning strategy guru" in *Leading the Revolution* (Hamel, 2000) describes Enron as being driven by "grey-haired revolutionaries" and he writes: "As much as any company in the world, Enron has institutionalized a capacity for perpetual innovation". Michaels *et al.*'s *War for Talent* (2001), and Foster and Kaplan's *Creative Destruction* (2001), both showcased Enron. As Donkin of the *Financial Times* ponders, it will be interesting to see how Hamel amends his conference performances. Management gurus cannot lose, he cynically adds:

> "If a company they have praised to the hilt goes under, academics need only analyze its' mistakes which then become "learning experiences" (Donkin, 2001, December 06).

Of course, learning experiences have a real human cost – and it normally does not take its toll on either the management gurus or the top management!

Corporate hubris doesn't stop with management gurus. Indeed, the media and CEOs themselves have much to account for. CEOs are often victims of their own corporate success, being placed on the front of magazines and journals, portrayed as heroes.

Consider the following:

- Jean Monty, chief of BCE Inc. described his firm's convergence strategy in an issue of *Maclean's*: "I believe we have the right recipe. What is not known is whether, with these pieces together, will the sum be greater than the parts?" Heavy losses have been suffered by BCE on their investments in Bell Canada International Inc., Excel Communications Inc. and Teleglobe Inc (Olive, 2001, p. E3).

- *Fortune* (May 15, 2000) asks: "Two questions about Cisco: Is John Chambers the best CEO on Earth? Is it too late to by his stocks?" Shares in Cisco quickly lost about 75 percent of their value.
- John Roth, the CEO of Nortel Networks Corp. and *Report On Business Magazine's* Most Respected Company (April 2000) and the Canadian paper *National Post Business* magazine's CEO of the Year (August 2000), was quoted in the spring of 2000, when Nortel's shares were trading at $110, as saying: "Shows you how the stock market creates heroes. But I do love it, the respect this company is earning. The skeptics know who we are now. We're getting dangerous." Soon after, Nortel stocks deteriorated to trading at $11.42. John Roth has retired.
- *Forbes* December 11, 2000 issue declared that: "Yahoo: Tim Koogle is building a killer ad machine – and unleashing it on a $200 billion industry." Koogle was fired three months later after Yahoo's shares plummeted. Donald Trump in his book *The Art of the Deal* (1988) writes: "While my friends (in college) were reading the comics and sports pages of newspapers, I was reading the listings of FHA foreclosures." Trump has since had several high-profile closures of his own (Olive, 2001, p. E3).
- Roger Enrico, author of his memoir *The Other Guy Blinked: How Pepsi Won The Cola Wars* (1987) and who was at the time was CEO of Pepsi Co. wrote: "After 87 years of going eyeball to eyeball, the other guy just blinked. Coca-Cola is withdrawing their product from the marketplace and is reformulating Coke to be more like Pepsi." Coke is now out-selling Pepsi by a significant margin (Olive, 2001, p. E3).

Tetlock, an Ohio State political scientist who, for twelve years has collected more than 5,000 separate predictions from 200 experts in various fields, has determined that most experts spend far less time analyzing why they are right when their predictions turn out to be accurate, and far more time fabricating reasons why they 'shouldn't be considered wrong' when their predictions turn out to be inaccurate. Consequently, as Tetlock points out, some of the best work that the experts do is in the counterfactual explanations that they create to explain why they were 'basically right'. So, this, as Tetlock postulates, "suggests a curious conclusion: the more often experts are wrong, the wiser they become" because the more that they are wrong, the more counterfactuals they must develop, the more learning takes place. Again, to quote Rothstein: "the real threat to the development of what we call expert judgment appears to come from being right" (Rothstein, 1999).

Appendix B

Those that thought they knew ...

"They couldn't hit an elephant at this dist ... " General John B. Sedgwick, last words, Battle of Spotsylvania, 1864.

"The phonograph ... is not of any commercial value." Thomas Edison, inventor of the phonograph, c. 1880

"Heavier-than-air flying machines are impossible." Lord Kelvin, British mathematician, physicist, and president of the British Royal Society, c. 1895.

"X-rays are a hoax." Lord Kelvin, 1900

"The worldwide Demand for automobiles will not exceed 1 million because of the limited number of available chauffers." Mercedes-Benz market forecast, 1900.

"Not within a thousand years will man ever fly." Wilburt Wright, 1901.

"That idea is so damned nonsensical and impossible that I'm willing to stand on the bridge of a battleship while that nitwit tries to hit it from the air." U.S. Secretary of War Newton Baker, responding to the suggestion by Brigadier General Billy Mitchell that airplanes might sink battleships by bombing them.

"A severe depression like that of 1920-1921 is outside the range of probability." The Harvard Economic Society, 16 November 1929

"Atomic energy might be as good as our present-day explosives, but it is unlikely to produce anything more dangerous." Winston Churchill, 1939

"No matter what happens, the U.S. Navy is not going to be caught napping." Frank Knox, Secretary of the Navy, 4 December 1941.

"I think there is a world market for about five computers." Thomas J. Watson, President of IBM, 1948.

British Foreign Office Researcher between 1903 and 1950: "Year after year the worriers and fretters would come to me with awful predictions of the outbreak of war. I denied it each time. I was only wrong twice."

"We don't like their sound. Groups of guitars are on the way out." Decca Recording Co. executive, turning down the Beatles in 1962

"But what ... is it good for?" Engineer at the Advanced Computing Systems Division of IBM, 1968, commenting on the microchip

"With over fifty foreign cars already on sale here, the Japanese auto industry isn't likely to carve out a big slice of the U.S. market for itself." Business Week, 2 August 1968

"There is no reason anyone would want a computer in their home." Ken Olson, president, chairman and founder of Digital Equipment Corporation, 1977.

Appendix C

War with Iraq: The Use of Historical Analogies in Decision-making and Rhetoric

Twelve historians were asked by Seaton (2003, February 19) to assess the plausibility of historical analogies used by politicians to legitimize and de-legitimize War with Iraq. The data has been used in this dissertation to illustrate de-biasing techniques for hindsight. The twelve historians include:

1. Michael Burleigh, Kratter visiting professor in history at Stanford University, California.
2. Linda Colley, Leverhulme research professor at LSE.
3. Norman Davies, fellow of the British Academy at Wolfson College, Oxford.
4. Richard Evans, professor of modern history at Cambridge.
5. Eric Hobsbawm, emeritus professor of history at Birkbeck College.
6. Paul Kennedy, professor of history and director of international security studies at Yale University.
7. Ian Kershaw, professor of modern history at Sheffield University.
8. Mark Mazower, professor of history at Birkbeck College, London.
9. Richard Overly, professor of history at King's College, London.
10. Andrew Roberts, author of Hitler and Churchill: Secrets of Leadership.
11. Simon Schama, professor of art history and archaeology, Columbia University.
12. Avi Shlaim, fellow of St Antony's College and professor of international relations at the University of Oxford.

Appendix D

World War I: Failing to Think the Unthinkable

Thinking the unthinkable, Herman Kahn reasoned, could help society reduce the possibility of sliding into a nuclear Armageddon. Generating scenarios, Kahn concluded, is a technique for exploring the potential ramifications of such events (Kahn, 1978). Did Kahn have a point? One of the most telling descriptions of the origins of the First World War was recorded in the memoirs of Prince Bernhard von Bulow, the German Chancellor between 1900 and 1909. Von Bulow, shortly after the war broke out, went to see Bethmann Hollweg, his successor and Germany's wartime Chancellor, at the Chancellor's palace in Berlin. His recollection is as follows:

> "Bethmann stood in the center of the room; shall I ever forget his face, the look in his eyes? There is a picture by some celebrated English painter, which shows the wretched scapegoat with a look of ineffable anguish in its eyes, such pain as I now saw in Bethmann's. For an instant we neither of us spoke. At last I said to him, "Well, tell me, at least, how it all happened." He raised his long, thin arms to heaven and answered in a dull, exhausted voice: "Oh, if I only knew!" In many later polemics on war guilt I have often wished it had been possible to produce a snapshot of Bethmann Hollweg standing there at the moment he said those words. Such a photograph would have been the best proof that this wretched man had never wanted war" (Bernhard, 1932).

The causes of World War I are numerous and complicated. They include a confluence of social Darwinist thinking, complacency towards peace, the rise of German power and domestic problems within Germany, an arms race, inflammatory speeches in the Reichstag, the decline of two empires due to a rise in nationalism, increasing rigidity in the bi-polar alliance system, the personalities

of the leaders, the reckless support of Austria by Germany in their dealings with Serbia, and, of course, the precipitating cause, the assassination of archduke Franz Ferdinand by a Serbian terrorist in August 1914. Many in the German high staff, including Foreign Secretary Jagow and General von Moltke, believed that war with Russia was inevitable and that, if Germany were to win, would have to be sooner than later. Germany's battle plan, the Schlieffen Plan, called on Germany to sweep through Belgium, violating Belgium's neutrality, and defeat France before swinging east to fight the Russians. The Schlieffen Plan could only work if the assumption that Russia would take longer to mobilize than France, held. However, Russia was building railroads with French money, cutting the time required to mobilize, and endangering the viability of the mechanized Schlieffen Plan (Nye, 1993, pp. 62-63).

When Bismarck defeated Austria in 1866 there were 36,000 casualties. By the end of World War I some 15,000,000 were dead, Europe was no longer the center of global power, Russia was under Communist rule, which set the stage for the ideological battles that would characterize most of the 20th Century, the Austro-Hungarian and Ottoman empires had disintegrated, and Japan and the United States had emerged as major global players (Nye, 1993, p. 58).

The War that caused these upheavals was, arguably, catalyzed by unchecked conceptions of the past, concomitant assumptions and beliefs about the present and misaligned perceptions of the future, which led to ignorance of the possible repercussions of war, misaligned strategies, reckless behavior, and ultimately poor decision taking.

The causes and consequences of World War I illustrate a case where failure to check the past context and consider the future impaired hindsight and crippled foresight. Some might argue that the First World War was *over-determined.* However, there is ample evidence, including the peaceful resolution of several crises before the outbreak of war, to suggest that the war need not have happened had there been sober, rational and accurate thinking about the past, present and the future at the time.

The World War I example serves to illustrate acutely the important role that hindsight plays in foresight. Strategic planning disasters in the public sphere rarely result in numerous deaths, but the quality of strategic decision-making can be the difference between the survival and the extinction of a firm. Understanding the role of hindsight in foresight thus becomes an important element in enhancing the quality of strategic thinking and improving reception of the weak signals that can be prescient of the unthinkable coming to pass.

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