

CAMBRIDGE UNIVERSITY ENGINEERING DEPARTMENT



**PROCEDURAL ACTION
RESEARCH**

R. Maslen, M.A. Lewis

1994 No: 1

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ABSTRACT¹

An increasing amount of literature reports the benefits of using procedures (often in the form of workbooks) to support a firm's strategy process. These procedures often tackle specific strategic issues such as formulating a manufacturing task or making vertical integration decisions. This paper first describes the characteristics of these procedures and explains how they can be used as interventions in a firm's strategy process. It then proposes a framework, based upon action research, which can be used to design research projects. The framework identifies three elements to validate the research process: demonstrating causality; evaluating the effects of the procedure; and describing the generalisability of the procedure. These elements are addressed during two types of case study; procedure development and procedure testing. Finally the paper examines some practical considerations with procedural action research.

¹ This paper was presented at the British Academy of Management Conference, Lancaster University, UK in September 1994.

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1. INTRODUCTION

An increasing amount of literature reports the benefits of using procedures¹ to support a firm's strategy process. These procedures tackle specific strategic issues such as; formulating a manufacturing task (Platts and Gregory 1991), vertical integration (Probert et al. 1993). However, academic research methods for the development and testing of these procedural interventions in the strategy process are still embryonic. The aims of this paper are:

- i) Define "procedural interventions" in a firms strategy process and to develop the concept of procedural action research.
- ii) Propose a framework, based upon case studies, which can be used to design research projects employing procedural action research.

2. PROCEDURAL INTERVENTIONS IN THE STRATEGY PROCESS

Descriptive studies of the strategy process have shown it to exhibit a number of characteristics. These include the following attributes:

- i) Dynamic
- ii) Continuous over time
- iii) Socially constructed
- iv) Emergent
- v) Contextually dependent
- vi) Historically dependent

These attributes reflect a complex process which contains both deliberate and emergent elements (Mintzberg 1990). By implication such a process cannot be completely controlled or planned. However, procedural interventions are discrete events which aim to address specific strategic issues and to improve the effectiveness of the firm's overall strategy process. The intervention does not intend to encompass the whole strategy process but to act as practical support to it. The attributes of these procedures can be summarised as follows:

- i) **Relevant** - The procedure addresses issues relating to real strategic problems such as: How do I evaluate our manufacturing strategy? How do we make our make

¹ We use the term "procedures" here but alternative terms exist in the literature such as "audit" (Platts 1991), "methodology" (Probert et al. 1993) and "process" (Mills et al. 1994). However, all of these terms refer to a procedural intervention in the strategy process.

versus buy decision? The procedure helps an organisation to learn about strategic issues which can then lead to action. This does not limit the approach to the planning school of thought (Mintzberg 1985) because the procedural intervention is only one of the many elements that constitutes the strategy process.

- ii) **Analytical** - The procedure is analytical and breaks the problem down into stages. This structure provides a practical approach to tackling a problem which will have its own strengths and weakness. A major benefit of having predefined stages is that the procedure can be more effectively project managed.
- iii) **Prescriptive** - The procedure prescribes the tools and techniques that should be employed at each stage. Techniques commonly used in these procedures include; maps, matrices, worksheets, charts, models and tables (Huff 1990).
- iv) **Contextual Content** - The procedure provides a generalisable method (not generalisable answers) for addressing similar strategic problems. The answers that the procedure produces are specific to the context of the firm and its environment.
- v) **Discrete Event(s)** - The procedure is often project based, but can include several projects or interventions. Although the procedure can be repeated it is unlikely to be continuous over time.

3. INTEGRATING METHOD AND THEORY

We have introduced the concept of procedural interventions into the strategy process and have suggested it as a fruitful area of research. The researcher has to make an appropriate choice of research method to study procedural interventions. Several options exist for the researcher: surveys, quasi-experiments, action research, ethnography. Action research is one method that offers many opportunities to the researcher and is one that has been under utilised. We take a view similar to Chakravarthy and Doz (1992) that:

“It is true that the strategy process cannot be researched well without possibly affecting its very nature. Rather than ignore the issue or only harp upon the occasional consulting dimension to process research, we believe action research should gain more legitimacy in the strategy process subfield. Action research, especially as it relates to corporate transformation and change needs more refinement and rigour.”

Action research involves a planned intervention by a researcher or consultant. The effects of the intervention are then monitored and evaluated (Gill and Johnson 1991). From this intervention action researchers aim to achieve mutual goals:

- i) Addressing and possibly resolving some of the practical concerns of the organisation.
- ii) Contributing to existing knowledge.

Only when both of these goals are satisfied is the researcher working effectively in the action frame of reference (see Exhibit 1). If only the first goal is achieved the researcher is acting as a consultant and if only the second goal is achieved then the contribution to knowledge is liable to lack relevance to the real world.

---- INSERT EXHIBIT 1 HERE ----

We identify three key reasons for choosing action research:

- i) **Access to Businesses** - The rise in popularity of procedures to address strategic issues shows that businesses are keen to use them within their organisation. Indeed our experience and discussions amongst management researchers have lead us to believe that procedural action researchers find it easier to gain access to firms than action researchers in general. This access helps to ...
- ii) **... Study Businesses in their Natural Environment** - The procedure provides academics with an excellent opportunity to study businesses in their real life contexts. This 'applied research' (Gummesson 1991) can make valuable contributions to theory and is ...
- iii) **... Relevant Knowledge for Businesses** -The application of a procedure can help an organisation to tackle strategic issues. A procedure is easily transferable, for example in the form of a workbook, and therefore can be repeated in either the same or other organisations. Once disseminated the procedure can be an effective tool for managers. This is one of the most direct ways researchers can support practitioners.

In summary, it is the combination of procedural interventions into a firm's strategy process and the method of action research that defines procedural action research. The rest of this paper proposes a possible research framework.

4. A RESEARCH FRAMEWORK FOR PROCEDURAL ACTION RESEARCH

4.1. Why a Research Framework?

Action research is the most subjective of the objective schools of thought (Burrell and Morgan 1979). Action research is often criticised by schools of thought that are either more subjective or more objective in their attitude to social science. Silverman (1970) refers to writers on organisations who often equate the action frame of reference with schools of thought such as ethnomethodology and phenomenology. Silverman explains that this represents a gross misstatement of position and that action research is quite different and should not be measured by the same criteria. Likewise, more objective social scientists criticise action research because of the qualitative techniques it utilises. These scientists prefer to rely on techniques such as quasi-experiments and surveys which they claim are more reliable.

These two criticisms show the misunderstanding often associated with evaluating the quality of action research. Action research should be judged against its own criteria rather than those appropriate for other research methods. Therefore a distinct research framework is required to evaluate the quality of procedural action research.

4.2 Epistemology

Action researchers make planned interventions into organisations to observe and evaluate the effect they cause. This search for cause and effect relationships makes action research fundamentally positivistic in orientation (Burrell and Morgan 1979). Action research aims to develop theory and to provide generalisations. However, these generalisations are essentially different from those based on experimentation. We propose the model shown in Exhibit 2 as a way of representing the cause and effect relationships in procedural action research.

---- INSERT EXHIBIT 2 HERE ----

In the second model the procedural intervention is the independent variable, and the dependent variable is the effect it has upon the organisation. Control groups do not exist with procedural action research therefore the traditional model based on experimentation has to be modified. This is achieved by using a contingent framework to describe the conditions in which the cause and effect relationship will exist. This model raises three key issues;

causality, evaluating the effects of a procedure, and generalising the usefulness of the procedure.

4.3. Causality

The key question of causality is:

Did the procedural intervention (as opposed to just any type of intervention) cause the effect that was observed?

There are two basic arguments that question whether the procedural intervention caused the observed effects:

- i) The effects were caused by the personal characteristics of the researcher/facilitator and not by the procedure.
- ii) The effects were caused by the organisation just spending some time thinking about a problem and not by using the procedure.

If the research design was based on quasi-experiments then control groups would be used to separate the effect of the procedure from extraneous variables. However, no useful control groups exists when a researcher uses a procedure as an intervention in a firm's strategy process. Therefore to answer these two arguments different forms of evidence must be used.

The first argument that the effects were due to the personal characteristics of the researcher is relatively easy to address. The procedural intervention can be repeated in several different cases using different facilitators for the procedure. This can be achieved in several ways; the researcher training a person from the firm to be facilitator, documenting the procedure in a workbook so a firm can use the it without the researchers involvement, or by using other academics or students to facilitate the procedure. The repetition of the procedure can be used to build a case that the effects are not due to any particular traits of the facilitator. However, effective facilitation will be one of the factors upon which the procedures success is contingent.

The second argument is more difficult to address. Case data can be used to provide anecdotal evidence that the effects were due to the procedure e.g.

In a manufacturing strategy case the organisation had unsuccessfully attempted to tackle a strategy problem. Two months later the researcher facilitated a procedural intervention that

was a success. The reason cited by the managers for this success was the use of the strategy procedure.

Anecdotal evidence is useful but data over several cases needs to be used to explore causality. Reflecting on this data the research needs to show that the observed effects were due to the procedure. This evidence will be qualitative, but is a valid way of explaining causality.

4.4. Evaluating the Effect of a Procedure

We propose that there should be a method to measure the effect the procedure has upon the organisation. This raises two key issues:

- i) What dimensions should be used?
- ii) What data should be used and how, when and where should it be obtained?

A number of different criteria have been suggested in the literature (Platts 1990, Neely 1993) for evaluating a procedure. We have simplified these into two dimensions; the outputs of the procedure, and the characteristics of the procedure. Each of these dimensions is then divided into two to create a generic template (see exhibit 3).

---- INSERT EXHIBIT 3 HERE ----

These two headings can be used as a basic structure to define a set of criteria for different procedures. The specific criteria² will be dependent upon the procedure under study and can come from a number of sources: literature, exploratory fieldwork, and findings from development case studies. Exhibit 4 shows the criteria used in a research project that examines a manufacturing strategy procedure.

---- INSERT EXHIBIT 4 HERE ----

Once the criteria have been defined the procedure can be reviewed against them. This review can take several forms such as; interview, survey, or group discussion and the data can be either qualitative (based upon comment and discussion) or quantitative (using numbered scales to evaluate the procedure). A variety of techniques is probably the most effective. However, the aim of the evaluation is not just to score the procedure against criteria but to understand how and why scores were achieved. This reflection distinguishes the case

² These criteria should be defined before procedure testing begins.

studies from experimentation when only the scores are important. This learning is an essential part of the research as it provides insights into how the procedure can be improved and upon what factors the success of the procedure is contingent.

4.5. Generalisations and Contingency

A key aim of procedural action research is to generalise about the effectiveness of a procedure. A procedure will not be useful in all conditions for example, a manufacturing strategy procedure for a small start up business of 100 employees would be considerably different to one used by a multi-national business. To describe the conditions when a procedure will be successful a contingent framework is used. Such a framework consists of a number of different dimensions that impact upon the success of a procedure. Hofer and Schendel (1978) describe a framework that shows whether a firm should use either a formal or informal strategy system dependent upon the size and nature of the firm. Certain contingent factors such as firm size are widely applicable but others are more specific. For example Probert et al. (1993) suggest a procedure for strategic make versus buy decisions that is more effective in manufacturing organisations that have several distinct technologies. Once the contingent factors have been identified then a contingent framework can be created. Exhibit 5 shows a graphical representation of a contingent framework with three dimensions. The aim is to explore the three dimensional space to determine when the procedure is likely to be more or less successful.

---- INSERT EXHIBIT 5 HERE ----

In practice there will be more than three contingent factors, in which case a table is the best way of representing the contingent framework. However, due to practical limitations on the number of case studies that can be completed within a research project there will be regions on the contingent framework which are not empirically tested. Case studies need to be carefully selected to explore the most appropriate areas of the contingent framework.

The generalisability described by the contingent framework should not be confused with repeatability. A procedure is generalisable because it can be used in different organisations and be shown to be successful in tackling similar strategic problems. However, a procedure is not repeatable because if it were repeated in two similar companies it would not produce the same outputs. It may be successful in both companies (therefore generalisable) but the results would not be the same in both cases (so not repeatable). This distinction is important because it again shows that the method described in this paper is not experimental.

5. CASE STUDIES FOR PROCEDURE DEVELOPMENT AND TESTING

This paper has discussed the theoretical concerns of researching procedures. Now it will propose an idealised framework for the development and testing of procedures. The research process is not as deliberate as the framework implies but it is useful to show the aims for each stage.

---- INSERT EXHIBIT 6 HERE ----

The framework makes a distinction between development case studies and testing case studies each of which have different aims as shown in exhibit 7.

---- INSERT EXHIBIT 7 HERE ----

5.1. Procedure Development

During this stage the researcher aims to create a procedure and to then iteratively improve it through successive applications. This requires the researcher to be reflective and both during and between the case studies (Exhibit 8).

---- INSERT EXHIBIT 8 HERE ----

This exhibit shows a clear difference between the role of academic and consultant. The reflection and linking of projects is an essential part of the research process whereas the consultant role is primarily interested in dialogue and action. The reflection should be supported by ongoing reference to existing theory from the literature and integrated with the local theory from the case studies. The development case studies continue until either:

- i) Successive case studies provide only small improvements in the procedure.
- ii) The procedure is of value to businesses but practical resource constraints limit further development.

In any case it is an important part of the research process to explore the contingent factors and this requires the procedure to be kept constant which is then procedure testing.

5.2. Procedure Testing

During testing the procedure remains constant between case studies. The aim is to explore the contingent factors by applying the procedure in different contexts. The contingent framework can be created in a draft form from the development cases studies and from existing literature. The research should then be designed to explore the contingent factors or more realistically a limited subset of them. This deductive approach to procedure testing is used to support propositions such as:

If procedure A is used as an intervention in the strategy process of a business then if contingent factors B are true the procedure will be successful as measured by criteria C.

If the testing case studies show a failure when a success was expected then the contingent framework will be revised. At the end of a research project the procedure and its contingent framework are not 'objective truths' rather well supported propositions based on the cases that have been completed. Further research is required to transcend (Gummesson 1991) these and to develop ever better and more complete propositions.

6. PRACTICAL CONSIDERATIONS WITH PROCEDURAL ACTION RESEARCH

Many practical issues have arisen during the application of the approach to research proposed in this paper. Two of these will be discussed:

6.1. Contract of Entry

At the entry stage of a case study the research value of the study can be influenced by the type of access obtained. At the beginning of a case study a contract, whether implicit or explicit, is made between the firm and the researcher. This contract is an important part of the research process. Our experience has shown that the contract should make clear that the project is for the mutual benefit of the company and the researcher. In the contract the company gains by receiving the researchers procedural knowledge. The researcher benefits from the high quality access to the company during the study. The research will also benefit considerably from a review of the procedure with people from within the organisation. This review can be costly to the client organisation in terms of the time it takes of its people, some of which are usually key managers. The time this review takes can be traded against the fee a

consultant might charge for such a procedure, particularly if the researcher takes the role of facilitator for a nominal or zero fee.

6.2. Role of Researcher

Schein (1970) describes two basic types of consultancy; expert and process. The expert consultant is analogous with a doctor whose experience and knowledge is used to prescribe solutions to the client. A process consultant prescribes a set of activities to help the client solve the problem. In reality these two roles are not completely separable because process and content are inherently linked. However, the aim of strategic procedure research is primarily to examine the procedure under study and not the expertise of the researcher/consultant. Our experience has shown that the researcher should attempt as far as possible to fill the role of process consultant as opposed to expert consultant. If the researcher attempts to be both a process consultant and an expert consultant then they are liable to influence the success or failure of the procedure. This then invalidates the causality argument which is at the heart of procedural action research.

7. CONCLUSIONS

The benefits of using procedures to support the strategy process are being increasingly reported in the literature. However, there is a lack of methods for studying these procedures. This paper makes a methodological contribution by presenting a new research framework which is hoped will :

- i) Identify three elements of procedural action research that are required to validate the research process; demonstrate causality, evaluate the effects of the procedure and describe the generalisability of the procedure.
- ii) Provide a framework to help in the design of research projects that study procedural interventions in the strategy process.
- iii) Encourage and facilitate the effective development and testing of procedures which are of practical help to managers.
- iv) Lead to findings that make important contributions to strategy process research.

The framework will be further developed during its application in two ongoing research projects, one in manufacturing strategy and the other in firm competences.

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EXHIBITS

Exhibit 1

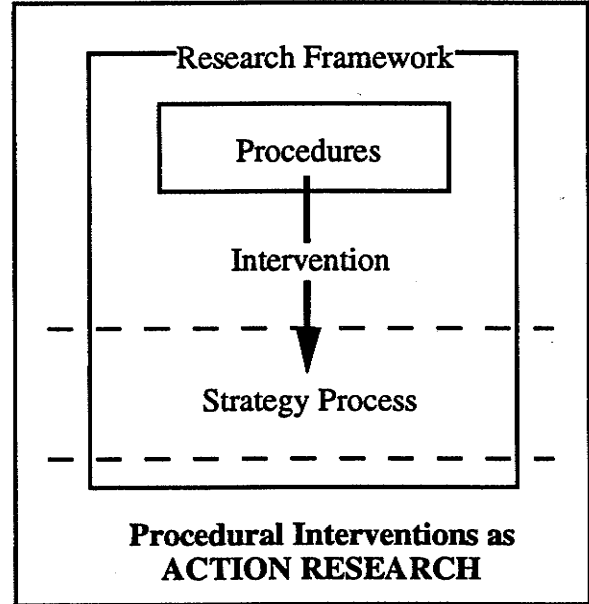
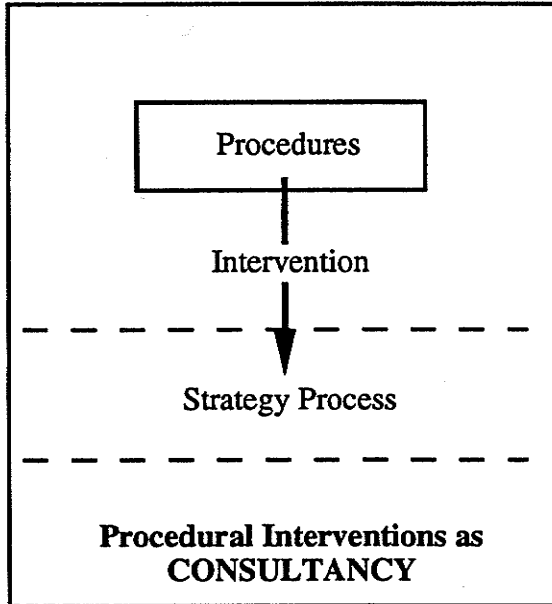


Exhibit 2

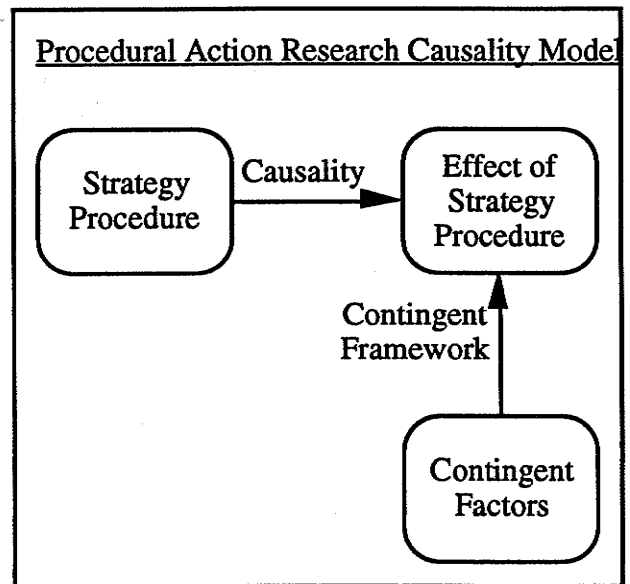
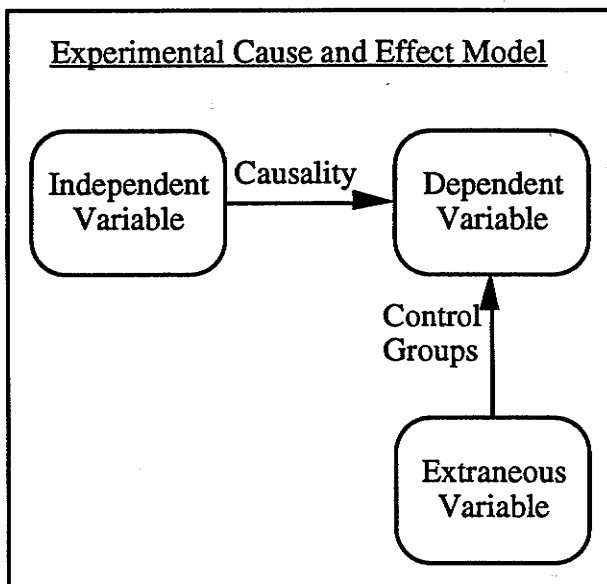


Exhibit 3

A Generic Template for Strategy Procedure Evaluation Criteria	
<u>Outputs of Procedure</u>	<u>Characteristics of Procedure</u>
<p><u>Explicit Outputs</u></p> <p>What value are the explicit outputs?</p> <p>These are visible outputs such as; documents and reports, or implementation effects such as a change in the organisation.</p> <p><u>Implicit Outputs</u></p> <p>What value are the implicit outputs?</p> <p>These are socially constructed and often cannot be seen in a physical form, for example individual and group learning.</p>	<p><u>Analytical Structure</u></p> <p>How effectively is the problem broken down and what tools and techniques are used to address the problem or issue?</p> <p><u>Operationalisation</u></p> <p>How effectively can the procedure be implemented within an organisation?</p>

Exhibit 4

Sample Evaluation Criteria for an SME Manufacturing Strategy Procedure	
<u>Outputs of Procedure</u>	<u>Characteristics of Procedure⁴</u>
<p><u>Explicit</u></p> <ul style="list-style-type: none"> • Quality of strategy ³ • Quality of action plans • Value of implementation (3-6 mths after) <p><u>Implicit</u></p> <ul style="list-style-type: none"> • Learning about strategy concept and process • Communication and learning across functional boundaries • Improvement in strategy process (3-6 mths after) 	<p><u>Analysis</u></p> <ul style="list-style-type: none"> • Structure of procedure • Quality of data collection and analysis • Use of models, tools, techniques <p><u>Operationalisation</u></p> <ul style="list-style-type: none"> • Point of Entry • Project management • Participation • Effective use of resources.

³ See Hayes and Wheelwright (1984)

⁴ See Platts (1993)

Exhibit 5

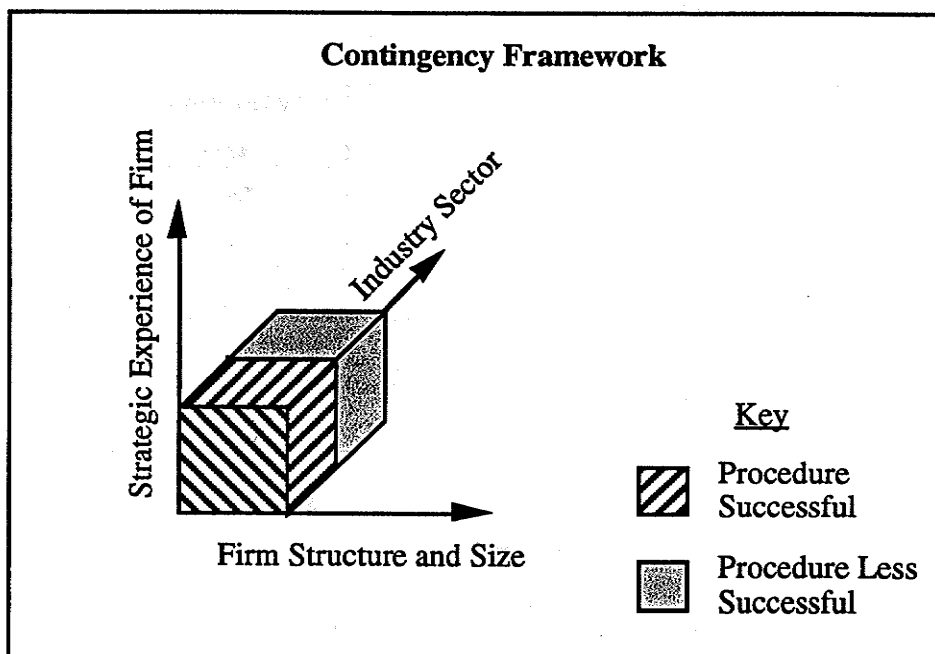


Exhibit 6

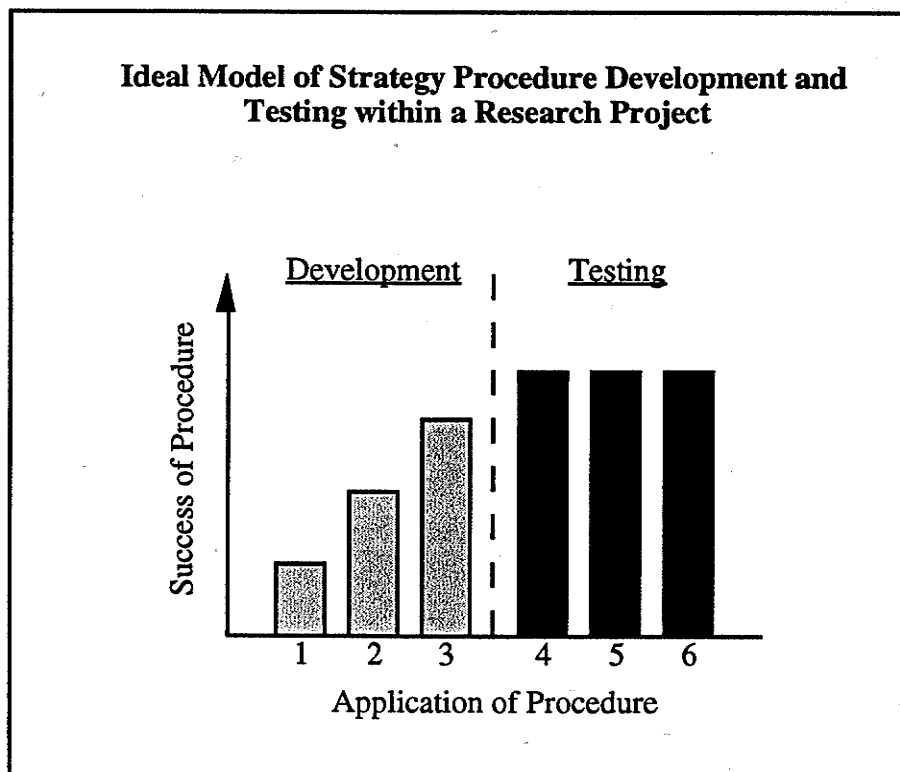


Exhibit 7

Aims of Development and Testing Case Studies		
Aims	Development Cases	Testing Cases
Change procedure between cases	Yes	No
Demonstrate causality	Yes	Yes
Improve procedure	Primary	Secondary
Develop contingent framework	Secondary	Primary
Reflect on case data and existing theory	Yes	Yes

Exhibit 8

Roles of Academic and Consultant during a Research Program (Gummesson 1991)

