

**Miles G. Nicholls, Steve Clarke
and Brian Lehaney (Eds.)**

**MIXED-MODE MODELLING:
MIXING METHODOLOGIES
FOR ORGANISATIONAL
INTERVENTION**

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Mixed-Mode Modelling: Mixing Methodologies For Organisational Intervention

Edited by

Miles G. Nicholls

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PREFACE

The 1980s and 1990s have seen a growing interest in research and practice in the use of methodologies within problem contexts characterised by a primary focus on technology, human issues, or power. During the last five to ten years, this has given rise to challenges regarding the ability of a single methodology to address all such contexts, and the consequent development of approaches which aim to mix methodologies within a single problem situation. This has been particularly so where the situation has called for a mix of technological (the so-called 'hard') and human-centred (so-called 'soft') methods. The approach developed has been termed *mixed-mode modelling*.

The area of mixed-mode modelling is relatively new, with the phrase being coined approximately four years ago by Brian Lehaney in a keynote paper published at the 1996 Annual Conference of the UK Operational Research Society. Mixed-mode modelling, as suggested above, is a new way of considering problem situations faced by organisations. Traditional technological approaches used in management science have suffered criticisms relating to their adequacy in the past few decades, and these hard approaches have been replaced by soft methods, which consider process more relevant than outcome. However, the sole use of human-centred approaches to organisational problems has also proved to be inadequate. Mixed-mode modelling accepts the importance of both process and outcome, and provides enabling mechanisms for hard and soft investigation to be undertaken.

This book addresses the conceptual, methodological, and empirical aspects of *mixing methodologies for organisational intervention* in a business and management environment. The emphasis on organisational intervention has been deliberately selected since this is an area increasingly recognised as critical to the success of businesses and public sector bodies. It is also an area very suited to the application of mixed-mode modelling and aptly illustrates its value. Additionally, organisational intervention has been the most difficult to deal with using 'traditional' approaches.

The book has been loosely segregated into three main sections. The first section is concerned with an overview of mixed mode-modelling and intervention frameworks (Chapters 1, 2 and 3). The second section addresses general applications of mixed-mode modelling (Chapters 3, 4, 5 and 6) while the third section deals with mixed-mode modelling and human

resources (Chapters 8, 9 and 10), an area specifically related to a unique aspect of organisational intervention.

In the first grouping of chapters (overview and framework oriented), Steve Clarke provides an overview that traces the historical development of mixed-mode modelling from both theoretical and practical perspectives and argues a logical future direction for mixed-mode modelling (grounded on theories of communicative action) (*Chapter 1: Mixing Methods for Organisational Intervention: Background and Current Status*). Gary Bell, Jon Warwick, Mike Kennedy and Maggie Cooper introduce the concept of the Holon Framework that aims to improve and control human activity systems by combining aspects of Soft Systems Thinking and Hard Systems Thinking (*Chapter 2: Towards a General Holistic Framework for Improving and Controlling Human Activity Systems*). John Davies and Vicky Mabin investigate framing as a meta-framework for the use of mixed-mode modelling (*Chapter 3: Framing: A Meta-Framework for the Use of Mixed-Mode Modelling*).

In the second grouping of chapters (applications oriented), John Boylan and Mark Williams show how mixing methodologies from systems thinking and soft systems methodology helps focus on how forecasts should be used and who should be responsible for forecasting and monitoring (*Chapter 4: Introducing Forecasting and Monitoring Methods to an SME: the Role of Soft Systems Methodology*). Krishna Dhir applies a mixed-mode approach to the assessment of the value of knowledge developed and transferred within an organisation (*Chapter 5: Assessment of the Value of Knowledge Transferred: a Mixed-Mode Approach*). Michael Enright argues for the use of human-centred methodologies as the basis for marketing decision-making in small firms especially in the area of new product development (*Chapter 6: Hard Decisions, Soft Data: Localised Context-Rich Solutions to Problems of New Product Development*). Ian Yeoman and Anthony Ingold discuss the fundamentals of yield management and illustrate its holistic nature and the need for yield management systems incorporating soft and hard aspects (*Chapter 7: The Fundamentals of Yield Management*).

In the third grouping of chapters (mixed-mode modelling and human resources oriented applications) Gillian Jack and Brian Lehaney consider the increasing complexity of internal and external influences on organisational management and behaviour and show that different management approaches impact in different ways on the wellbeing of the workforce. By the use of a mixture of methodologies, an approach is developed that improves wellbeing, and through this, performance in the

work place (*Chapter 8; Management and Wellbeing in the UK*). Miles Nicholls and Barbara Cargill develop an approach that allows the soft area of human resources management to be inter-related with the hard production planning function of a business. The resultant mixed-mode model and its solution heuristic is shown to provide a holistic approach to determining business best practice (*Chapter 9; The Use of Mixed-Mode Modelling in Determining Best Practice for a Business*). Finally, M. Gordon Hunter mixes a number of methodologies to form an approach (model) that develops a skill assessment process for information systems professionals (*Chapter 10; A Skill Assessment Process for Information Systems Professionals*).

This book aims to summarise and consolidate the work in the mixed-mode modelling field to date and provide a springboard for future development. It is also hoped that this collection of chapters written by experts in their fields will assist operational research practitioners, managers, as well as practitioners in all the fields covered in this book, to better understand what can be gained from the mixing of methodologies in the pursuit of a holistic 'best practice' solution. Additionally, it is hoped that the reader will see that the mere *application* of a mixed-mode modelling approach will engender an appreciation of a problem and its interrelatedness with other facets of the business. Mixed-mode modelling still has some exciting developments to undergo, but this text, at the very least, serves to illustrate its enormous potential.

We would like to take this opportunity to thank the authors, the anonymous referees, the School of Business at Swinburne University of Technology and most of all Ms Sharman Feinberg for her tireless effort in the preparation of this book.

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1

MIXING METHODS FOR ORGANISATIONAL INTERVENTION: BACKGROUND AND CURRENT STATUS

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ABSTRACT

Tracing the historical development of mixed-mode modelling from a theoretical and practical perspective leads to an understanding of the domain as substantially underpinned by critical social theory. A 'natural' progression is discerned, from which it is argued that the logical future direction for mixed-mode modelling is one grounded on theories of communicative action.

The beginnings of a framework for such a project are outlined, together with the plans for the next stage of this project. This future is seen to lie, not in the development of a methodology, but rather in guidelines for communicative action which can be followed irrespective of methodological choice.

Keywords: mixed-mode modelling, complementarism, social theory, critical theory, methodology.

INTRODUCTION

The aim of this chapter is to present a brief outline of the thinking underpinning mixed-mode modelling, and to point to possible future directions for the domain.

The term ‘mixed-mode modelling’ was introduced in a paper presented at the annual conference of the U.K. Operational Research Society at Warwick, England in 1996. See Lehaney [1]. Subsequently, the concept of mixing methods within a single organisational intervention has gathered pace, being now represented by the two domains of mixed-mode modelling and multi-methodology, which for the purposes of this chapter will be assumed synonymous.

The impetus for these developments can be characterised by the view that, whilst the idea, and arguably the practice, of mixing methods has been around for as long as organisational intervention itself, the theoretical and pragmatic difficulties of such an approach have been substantially underplayed. In this chapter an attempt is made to summarise these difficulties, using the summaries to point to improved practice in the future.

To set mixed-mode modelling in context, first the perceived problem issues which have given rise to the domain are outlined, followed by a review of the background and history to its development. Finally, a discussion and critique of current thinking is undertaken, from which potential future directions are proposed.

MIXED-MODE MODELLING: THE PROBLEM

Whilst at a pragmatic, common-sense level, mixing methods in organisational intervention is mostly seen to be unproblematic, this chapter, by reviewing the development of mixed-mode modelling, seeks to demonstrate that there are difficulties to be overcome which require more than a pragmatic approach. This development is presented first below in the form of a historical sketch, which embraces both empirical and theoretical issues, and outlines the key approaches used.